SIEMENS



Motors

SIMOTICS GP, SD, XP, DP Low-Voltage Motors

Type series 1FP1, 1LE1, 1LE5, 1MB1 and 1PC1
Frame sizes 63 to 355 · Power range 0.09 to 500 kW

Catalog D 81.1

Edition 05/2018

siemens.com/drives

Related catalogs

LOHER Low-Voltage Motors

D 83.1

Type series 1MD5, 1PS0, 1PS1, 1PS4 and 1PS5 Frame sizes 71 to 500

Power range 0.12 to 1400 kW

Industry Mall

Information and Ordering Platform on the Internet:



E86060-K5583-A111-A3-7600

SIMOTICS FD **Low-Voltage Motors** Frame sizes 315 to 450 D 81.8

D 11

All catalogs and other information material, such as brochures, manuals and operating instructions for standard drive systems are available up-to-date on the Internet at the following address:

www.siemens.com/industrymall

www.siemens.com/drives/catalogs

The listed documentation can be ordered here or it is available in commonly used file formats (PDF, ZIP) for downloading.

SinaSave energy saving/energy efficiency tool

Further information on the subject of energy saving and the SinaSave energy efficiency tool is available at the following address:

www.automation.siemens.com/sinasave

SIMOTICS EE-COMPARATOR

www.siemens.com/simotics-ee-comparator

Interactive catalog CA 01 - Drive Technology Configurator

The **Drive Technology Configurator** (DT Configurator) is available in conjunction with the electronic catalog CA 01 on DVD.



Power range 200 to 1800 kW PDF (E86060-K5581-A181-A5-7600)

Selection and Pricing Guide

SIMOTICS NEMA Motors

D 81.2 Low Voltage AC Motors

Further details available on the Internet at: www.usa.siemens.com/motors

SINAMICS G130

Drive Converter Chassis Units **SINAMICS G150**

Drive Converter Cabinet Units

E86060-K5511-A101-A6-7600

Motion Control Drives D 21.4

SINAMICS S120 and SIMOTICS



D 21.3

E86060-K5521-A141-A1-7600

SINAMICS S120

Chassis Format Converter Units

Cabinet Modules

SINAMICS S150 Converter Cabinet Units

E86060-K5521-A131-A6-7600

Motion Control Drives SINAMICS Inverters for Single-Axis Drives

Built-In Units

E86060-K5531-A111-A1-7600

IC 10 **Industrial Controls SIRIUS**

PDF (E86060-K1010-A101-A8-7600)

Products for Automation and Drives CA 01 Interactive Catalog Download

www.siemens.com/ca01download







In addition, the DT Configurator can be used on the Internet without requiring any installation.

The DT Configurator can be found in the Industry Mall at the following address:

www.siemens.com/dt-configurator

The Drive Technology Configurator for gear units, motors, mechanical components, converters, connection systems, control and licenses and system configuration can be found in the CA 01 main menu, under drive systems, selection and engineering tools.

- Data sheets in up to 7 languages in PDF or RTF format
- 2D/3D dimensional drawings in various formats
- Terminal box drawing and terminal connection diagram
- Operating instructions
- Certificates
- Start-up calculation for SIMOTICS motors
- EPLAN macros

System requirements for CA 01 installation with **Drive Technology Configurator**

- PC with 2 GHz CPU or faster
- 2 GB RAM
- Windows 7 / Windows 8.1 / Windows 10
- Screen resolution 1024 x 768 pixels or higher (1280 x 1024 recommended)
- 8.5 GB of free hard disk space (full installation)
- 2.0 GB of free hard disk space for each additional data package

The CA 01 catalog can be directly installed on the hard disk or in the network from the DVD as a partial or full version.

Copper surcharges

The metal factors that are applicable for the copper surcharges are specified in the headers of the current Price List D 81.1 P. Further information about "Metal surcharges" can be found in the appendix to this catalog.

SIMOTICS GP, SD, XP, DP Low-Voltage Motors

Type series 1FP1, 1LE1, 1LE5, 1MB1 and 1PC1

Motors



Catalog D 81.1 · 05/2018

Supersedes:

Catalog D 81.1 · 2016

Refer to the Industry Mall for current updates of this catalog:

www.siemens.com/industrymall

The products contained in this catalog can also be found in the Interactive Catalog CA 01.

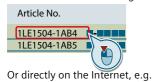
Article No.: E86060-D4001-A510-D8-7600

Please contact your local Siemens branch.

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NEW

By clicking on an Article No. in Chapters 2, 3, 4 and 6, you can access the Industry Mall with product information and the Configurator.



www.siemens.com/product?1LE1504-1AB4



The products and systems described in this catalog are manufactured/distributed under application of a certified quality management system in accordance with EN ISO 9001 (04-31-1267 Certified Registration No. DE-000357 QM). The certificate is recognized by all IQNet countries.

Introduction

SIMOTICS motors, Information regarding efficiency in accordance with International Efficiency, Guide to selecting and ordering the motors, General information, Electrical design, Mechanical version, Mounting technology

SIMOTICS GP/SD 1LE1 standard motors

SIMOTICS SD standard motors next generation

SIMOTICS VSD motors for converter operation

SIMOTICS XP 1MB1 explosion-proof motors

SIMOTICS DP application-specific motors

- Smoke extraction motors
- Marine motors

Appendix

NEMA motors, Industry Services, Partner at Siemens Industry Mall and Interactive Catalog CA 01, Information and Download Center, Tools and engineering, Indexes, Conversion tables, Metal surcharges, Conditions of sale and delivery

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Digital Enterprise

The building blocks that ensure everything works together perfectly in the digital enterprise

Digitalization is already changing all areas of life and existing business models. It is placing greater pressure on industry while at the same time creating new business opportunities. Today, thanks to scalable solutions from Siemens, companies can already become a digital enterprise and ensure their competitiveness.



Industry faces tremendous challenges



Reduce time-to-market

Today manufacturers have to bring products to market at an ever-increasing pace despite the growing complexity of these products. In the past, a major manufacturer would push aside a small one, but now it is a fast manufacturer that overtakes a slow one.



Boost flexibility

Consumers want customized products, but at a price they would pay for a mass-produced item. That only works if production is more flexible than ever before.



Improve quality

To ensure a high level of quality while meeting legal requirements, companies have to establish closed quality loops and enable the traceability of products.



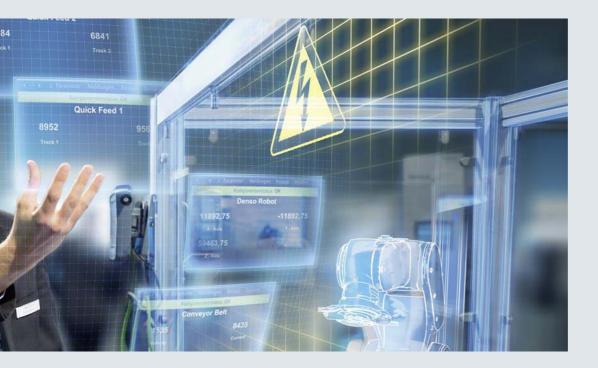
Boost efficiency

Today the product itself needs to be sustainable and environmentally friendly, while energy efficiency in production has become a competitive advantage.



Increase security

Increasing networking escalates the threat to production facilities of cyberattacks. Today more than ever, companies need suitable security measures.



The digital enterprise has already become a reality

To fully benefit from all the advantages of digitalization, companies first have to achieve complete consistency of their data. Fully digitally integrated business processes, including those of suppliers, can help to create a digital representation of the entire value chain. This requires

- the integration of industrial software and automation,
- expansion of the communication networks,
- · security in automation,
- and the use of business-specific industrial services.

MindSphere The cloud-based open IoT operating system from Siemens

With MindSphere, Siemens offers a costeffective and scalable cloud platform as a service (PaaS) for the development of applications. The platform, designed as an open operating system for the Internet of Things, makes it possible to improve the efficiency of plants by collecting and analyzing large volumes of production data.

Totally Integrated Automation (TIA) Where digitalization becomes reality

Totally Integrated Automation (TIA) ensures the seamless transition from the virtual to the real world. It already encompasses all the necessary conditions for transforming the benefits of digitalization into true added value. The data that will form the digital twin for actual production is generated from a common base.

Digital Plant
Learn more about the
digital enterprise for the
process industry
www.siemens.com/
digitalplant

Digital Enterprise Suite Learn more about the digital enterprise for the discrete industry www.siemens.com/ digital-enterprise-suite

Integrated Drive Systems

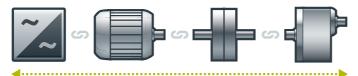
Faster on the market and in the black with Integrated Drive Systems

Integrated Drive Systems are Siemens' trendsetting answer to the high degree of complexity that characterizes drive and automation technology today. The world's only true one-stop solution for entire drive systems is characterized in particular by its threefold integration: Horizontal, vertical, and lifecycle integration ensure that every drive system component fits seamlessly into the whole system, into any automation environment, and even into the entire lifecycle of a plant.

The outcome is an optimal workflow – from engineering all the way to service that entails more productivity, increased efficiency, and better availability. That's how Integrated Drive Systems reduce time to market and time to profit.

Horizontal integration

Integrated drive portfolio: The core elements of a fully integrated drive portfolio are frequency converters, motors, couplings, and gear units. At Siemens, they're all available from a single source. Perfectly integrated, perfectly interacting. For all power and performance classes. As standard solutions or fully customized. No other player in the market can offer a comparable portfolio. Moreover, all Siemens drive components are perfectly matched, so they are optimally interacting.



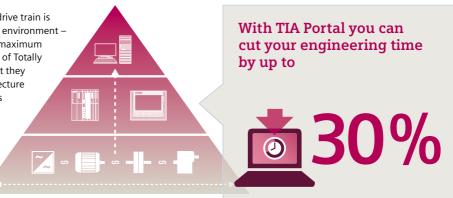
You can boost the availability of your application or plant to up to

990/0*

*e.g., conveyor application

Vertical integration

Thanks to vertical integration, the complete drive train is seamlessly integrated in the entire automation environment – an important prerequisite for production with maximum value added. Integrated Drive Systems are part of Totally Integrated Automation (TIA), which means that they are perfectly embedded into the system architecture of the entire industrial production process. This enables optimal processes through maximum communication and control.

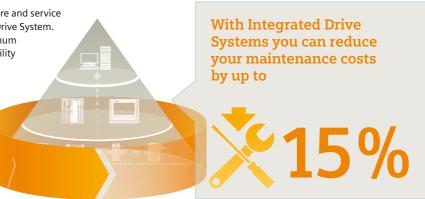


Lifecycle integration

Lifecycle integration adds the factor of time: Software and service are available for the entire lifecycle of an Integrated Drive System. That way, important optimization potential for maximum productivity, increased efficiency, and highest availability can be leveraged throughout the system's lifecycle – from planning, design, and engineering to operation, maintenance, and all the way even to modernization.

With Integrated Drive Systems, assets become important success factors. They ensure shorter time to market, maximum productivity and efficiency in operation,

and shorter time to profit.



www.siemens.com/ids



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Mechanical version Types of construction Flange dimensions Shaft and rotor Measures for gear mounting Balance and vibration severity Noise levels for line operation Bearings and lubrication T-drain – adjustable drainage of condensed water Lifting eyes and transport 1/79 Mounting technology Preparation for mountings Modular technology • Separately driven fan Brakes • 2LM8 spring-operated disk brake • KFB spring-operated brake • SFB-SH solenoid double-disk spring-operated brake • Configuration of motors with brakes • FDX spring-operated brake • 1XP8 012 rotary pulse encoder Special technology • LL 861 900 220 rotary pulse encoder • HOG 9 DN 1024 I rotary pulse encoder • POG 9 rotary pulse encoder • POG 10 rotary pulse encoder • HOG 10 D 1024 I rotary pulse encoder

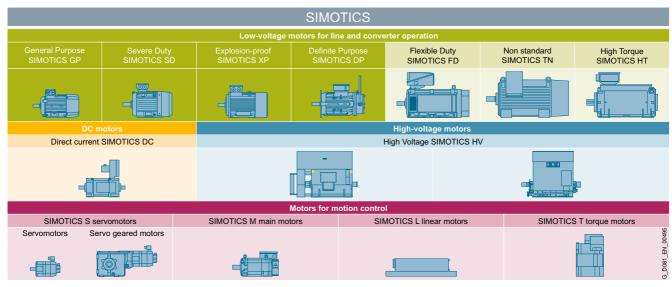
Sendix 5020 rotary pulse encoderBackstop, protective cover

Dimensions and weights of the mountings

SIMOTICS motors

Innovative drive technology for all industries, applications and power classes

Overview



SIMOTICS motors

With SIMOTICS, Siemens has the most comprehensive portfolio of electric motors worldwide. From energy-efficient, low-voltage motors through servomotors with high dynamic performance up to well-proven DC motors and powerful high-voltage motors. Innovative drive technology for all industries, applications and power classes.

Outstanding performance, quality, efficiency, and compactness.

The SIMOTICS motor portfolio:

- SIMOTICS low-voltage motors for line and converter operation:
 For standard applications with low to high motor power ratings
- SIMOTICS Motion Control motors:
 For highly dynamic and extremely precise applications in mechanical engineering
- SIMOTICS DC motors: For DC applications
- SIMOTICS high-voltage motors:
 For line and converter operation in standard applications with high to very high motor power ratings

SIMOTICS low-voltage motors for line and converter operation

SIMOTICS low-voltage motors are the right choice for solving drive tasks efficiently and reliably. In contrast to Motion Control motors, which are additionally characterized by very high dynamic response and precision, the more favorably priced low-voltage motors are predestined for continuous or periodic, as well as powerful motions with fixed or variable speed, such as in pumps, fans, compressors, conveyor belts, lifts, hoisting and traversing gear, winders, mixers, kneaders and centrifuges.

SIMOTICS low-voltage motors are characterized by very high reliability, ruggedness, and efficiency in operation.

They are available in diverse series and versions, which means that the appropriate motor can always be found for any application in an industrial or commercial environment, as well as in building management systems, shipbuilding and infrastructure.

SIMOTICS low-voltage motors comply with the most important relevant standards and guidelines and are available in IEC, NEMA, and APAC versions. They can be used all over the world, and have a global long-term spare parts service. For these reasons, they provide a sustainable basis for export-oriented, globally operating companies to enable them to conduct their international business efficiently.

SIMOTICS motors

Innovative drive technology for all industries, applications and power classes

Overview (continued)

SIMOTICS GP – General Purpose motors are the most economical solution for use under standard environmental conditions. Typically, these motors have an aluminum housing and are characterized by their low weight. SIMOTICS GP motors are available in the power range from 0.09 to 45 kW.

Available motor variants:

- Induction motors, optimized for line operation
- in efficiency classes IE4, IE3, IE2, IE1
- as a standards-compliant version or compact version with increased power (IE3, IE2, IE1)
- as a 2, 4, 6, 8-pole version
- as pole-changing motors
- as an APAC version for use in the ASEAN Pacific region (IE3, IE2)
- as a NEMA version for use in the NAFTA area
- electrically (mechanically acc. to IEC): Eagle Line
- electrically and mechanically
- can optionally be run on a converter
- Motors optimized for operation on frequency converters
 - as a SIMOTICS GP VSD10 line induction motor
 - as a SIMOTICS GP VSD4000 line synchronous reluctance motor for particularly efficient operation in conjunction with SINAMICS converters.
- Different types of construction, voltage versions, and a wide variety of options/add-ons for precise adaptation of the motors to application and customer-specific requirements.

SIMOTICS SD – Severe Duty motors have a rugged cast-iron housing, which means they are also suitable for use in harsh to very harsh environments. With a wide power range from 0.09 to 500 kW, SIMOTICS SD motors are the basis for machine and plant builders and owners who require a universal motor for flexible requirements and conditions of use.

Available motor variants:

- Induction motors, optimized for line operation
 - in efficiency classes IE4, IE3, IE2, IE1
 - standards-compliant version or compact version with increased power (IE3, IE2, IE1)
 - as a 2, 4, 6, 8-pole version
 - as an APAC version for use in the ASEAN Pacific region (IE3, IE2)
 - as a NEMA version for use in the NAFTA area
 - electrically (mechanically acc. to IEC): Eagle Line
 - electrically and mechanically
 - can optionally be run on a converter
- Motors optimized for operation on frequency converters
 - as a SIMOTICS SD VSD10 line induction motor
 - as a SIMOTICS SD VSD4000 line synchronous reluctance motor for particularly efficient operation in conjunction with SINAMICS converters.
- Basic Line and particularly rugged Performance Line
- Different types of construction, voltage versions, and a very wide variety of options/add-ons for precise adaptation of the motors to application and customer-specific requirements.

SIMOTICS – next generation is the next innovation step in low-voltage motors.

In particular, these motors offer the following advantages for customers:

- More efficiency in the engineering process due to the Digital Twin Concept.
- Further increase in availability due to the Smart Motor Concept.

SIMOTICS XP – Explosion Proof motors are designed for use in hazardous environments. For all conditions of use and hazard zones, e.g. in explosive gas atmospheres of the chemical/petrochemical sector or in explosive dust atmospheres in the mining or food and beverage sectors, there are suitable motor versions in aluminum and cast iron that ensure maximum safety and satisfy the relevant standards and regulations.

SIMOTICS XP motors are available in the power range from 0.09 to 200 kW.

Available motor variants:

- Motors for use in Zones 2, 21, and 22.
- Induction motors optimized for line operation
 - in efficiency classes IE3, IE2, IE1
 - as a 2, 4, 6, 8-pole version
 - as a NEMA version for use in the NAFTA area
- Motors suitable for line and converter operation
- Basic Line and particularly rugged Performance Line in a cast-iron housing
- Different types of construction, voltage versions, and a wide variety of options/add-ons for precise adaptation of the motors to application and customer-specific requirements.

SIMOTICS DP – Definite Purpose motors are low-voltage motors for application-specific, customized and industry-specific use.

They have the required respective industry-specific properties and certificates.

SIMOTICS DP motors:

- Crane motors for use in cranes (primarily for hoisting gear)
- Marine motors for use on ships
- · Steel plant motors for use in the steel industry
- Roller table motors for roller table applications in the steel industry
- Smoke extraction motors for use in smoke extraction applications

SIMOTICS FD – Flexible Duty motors have been optimized for converter operation to flexibly address applications in power ranges extending from 200 to over 1600 kW. These are available with various cooling methods (air cooling, water cooling).

SIMOTICS TN – Transnorm motors are low-voltage motors for line and converter operation in a cast-iron housing with higher power ratings up to 5000 kW from shaft height 315. In non-standard (Transnorm) motors, the assignment of the power rating and shaft extensions to frame size is not standardized.

SIMOTICS HT – High Torque motors are permanent magnet synchronous motors and are used in applications that require extremely powerful drives without gear units, even at low speeds.

SIMOTICS motors

SIMOTICS Digital Data App

Overview

The SIMOTICS Digital Data App provides access to technical data, spare part information, and operating instructions for SIMOTICS GP/SD motors any time any place. This gives our customers quick access to important contents of the digital twin, which simplifies and optimizes the customer's processes. By scanning the data matrix code on the additional rating plate of the motor, the relevant electrical and mechanical data can be displayed for this motor.

- Electronic and mechanical rating plate data
- · Additional motor data
- Service information, e.g. display of the spare part list
- · Display of the ordering options installed
- Documentation and manuals

The SIMOTICS Digital Data App is available for Apple and Android devices and can be installed from the respective stores. To do this, please scan the appropriate QR code.









Benefits

- Shorter commissioning and service times
- Fast access to relevant service information
- Online availability of the motor data for integration into ERP systems

Information regarding efficiency in accordance with International Efficiency

Efficiency classes and efficiencies according to IEC 60034-30-1

Overview

Harmonization of the efficiency classes

Various energy efficiency standards exist worldwide for induction motors. To promote global standardization, the international standard IEC 60034-30-1:2014 (Rotating electrical machines Part 30-1: Efficiency classes of single-speed, three-phase, cage-induction motors (IE code) were defined and are used as the basis for local standards in most countries. Only the NAFTA countries USA, Canada, and Mexico use the differing standards of NEMA MG1. Standard IEC 60034-30-1:2014 divides lowvoltage induction motors into new efficiency classes IE1 to IE4, which supersede the efficiency classes EFF2 and EFF1 previously valid in the EU.

Applicability (excerpt)

- Low-voltage motors up to 1000 V (50/60 Hz in line operation)
- Power rating: 0.12 to 1000 kW; with 2, 4, 6, or 8-poles
- Operating mode: S1

The efficiencies in IEC 60034-30-1 are based on the method for determining losses according to IEC 60034-2-1:2014.

IE efficiency classes

The efficiency classes are grouped according to the following nomenclature (IE = International Efficiency):

- IE1 (Standard Efficiency)
- IE2 (High Efficiency)
- IE3 (Premium Efficiency)
- IE4 (Super Premium Efficiency)

IEC 60034-30-1 EU and other countries	NEMA MG1 NAFTA (USA, Canada, Mexico)	GB 18613-2012 China
IE4 ¹⁾		Grade 1 (IE4)
IE3	Premium Efficient (60 Hz)	Grade 2 (IE3)
IE2	Energy Efficient (60 Hz)	Grade 3 (IE2)

Comparison of IE efficiency classes

All efficiency classes are stated with reference to 50 Hz data (unless specified otherwise).

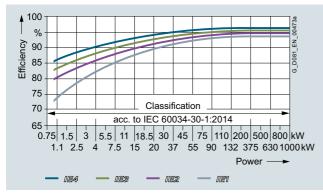
Measuring method according to IEC 60034-2-1:2014 for determining the efficiency

With this measuring method, motor losses are no longer applied as a percentage, but are determined by standard methods. The nominal efficiencies are therefore reduced from EFF1 to IE2 and from EFF2 to IE1, even though there have been no technical or physical changes to the motors

Previously: $P_{LL} = 0.5 \%$ of P_1 (power drawn; IEC 60034-2)

 $P_{\rm LL}$ = individual measurement (IEC 60034-1) Now:

 P_{LL} = additional load losses



IE1-IE4 efficiencies, 4-pole 50 Hz, depending on the power

Minimum efficiencies according to IEC 60034-30-1:2014

Rated power	Efficie	ncy η in	%					
	IEC IE	class						
P _{rated, 50 Hz}	IE1 – 9	Standard	d Efficie	ncy	IE2 – F	ligh Effi	ciency	
14104, 55 112	2-pole	4-pole	6-pole	8-pole		-	-	8-pole
kW								
0.18	52.8	57.0	45.5	38.0	60.4	64.7	56.6	45.9
0.20	54.6	58.5	47.6	39.7	61.9	65.9	58.2	47.4
0.25	58.2	61.5	52.1	43.4	64.8	68.5	61.6	50.6
0.37	63.9	66.0	59.7	49.7	69.5	72.7	67.6	56.1
0.40	64.9	66.8	61.1	50.9	70.4	73.5	68.8	57.2
0.55	69.0	70.0	65.8	56.1	74.1	77.1	73.1	61.7
0.75	72.1	72.1	70.0	61.2	77.4	79.6	75.9	66.2
1.1	75.0	75.0	72.9	66.5	79.6	81.4	78.1	70.8
1.5	77.2	77.2	75.2	70.2	81.3	82.8	79.8	74.1
2.2	79.7	79.7	77.7	74.2	83.2	84.3	81.8	77.6
3	81.5	81.5	79.7	77.0	84.6	85.5	83.3	80.0
4	83.1	83.1	81.4	79.2	85.8	86.6	84.6	81.9
5.5	84.7	84.7	83.1	81.4	87.0	87.7	86.0	83.8
7.5	86.0	86.0	84.7	83.1	88.1	88.7	87.2	85.3
11	87.6	87.6	86.4	85.0	89.4	89.8	88.7	86.9
15	88.7	88.7	87.7	86.2	90.3	90.6	89.7	88.0
18.5	89.3	89.3	88.6	86.9	90.9	91.2	90.4	88.6
22	89.9	89.9	89.2	87.4	91.3	91.6	90.9	89.1
30	90.7	90.7	90.2	88.3	92.0	92.3	91.7	89.8
37	91.2	91.2	90.8	88.8	92.5	92.7	92.2	90.3
45	91.7	91.7	91.4	89.2	92.9	93.1	92.7	90.7
55	92.1	92.1	91.9	89.7	93.2	93.5	93.1	91.0
75	92.7	92.7	92.6	90.3	93.8	94.0	93.7	91.6
90	93.0	93.0	92.9	90.7	94.1	94.2	94.0	91.9
110	93.3	93.3	93.3	91.1	94.3	94.5	94.3	92.3
132	93.5	93.5	93.5	91.5	94.6	94.7	94.6	92.6
160	93.8	93.8	93.8	91.9	94.8	94.9	94.8	93.0
200 1000	94.0	94.0	94.0	92.5	95.0	95.1	95.0	93.5

Rated power	Efficier	ncy η in	%					
	IEC IE	class						
P _{rated, 50 Hz}	IE3 – P	remium	Efficier	псу	IE4 – S	uper Pre	mium E	fficiency
	2-pole	4-pole	6-pole	8-pole	2-pole	4-pole	6-pole	8-pole
kW								
0.18	65.9	69.9	63.9	58.7	70.8	74.7	70.1	67.2
0.20	67.2	71.1	65.4	60.6	71.9	75.8	71.4	68.4
0.25	69.7	73.5	68.6	64.1	74.3	77.9	74.1	70.8
0.37	73.8	77.3	73.5	69.3	78.1	81.1	78.0	74.3
0.40	74.6	78.0	74.4	70.1	78.9	81.7	78.7	74.9
0.55	77.8	80.8	77.2	73.0	81.5	83.9	80.9	77.0
0.75	80.7	82.5	78.9	75.0	83.5	85.7	82.7	78.4
1.1	82.7	84.1	81.0	77.7	85.2	87.2	84.5	80.8
1.5	84.2	85.3	82.5	79.7	86.5	88.2	85.9	82.6
2.2	85.9	86.7	84.3	81.9	88.0	89.5	87.4	84.5
3	87.1	87.7	85.6	83.5	89.1	90.4	88.6	85.9
4	88.1	88.6	86.8	84.8	90.0	91.1	89.5	87.1
5.5	89.2	89.6	88.0	86.2	90.9	91.9	90.5	88.3
7.5	90.1	90.4	89.1	87.3	91.7	92.6	91.3	89.3
11	91.2	91.4	90.3	88.6	92.6	93.3	92.3	90.4
15	91.9	92.1	91.2	89.6	93.3	93.9	92.9	91.2
18.5	92.4	92.6	91.7	90.1	93.7	94.2	93.4	91.7
22	92.7	93.0	92.2	90.6	94.0	94.5	93.7	92.1
30	93.3	93.6	92.9	91.3	94.5	94.9	94.2	92.7
37	93.7	93.9	93.3	91.8	94.8	95.2	94.5	93.1
45	94.0	94.2	93.7	92.2	95.0	95.4	94.8	93.4
55	94.3	94.6	94.1	92.5	95.3	95.7	95.1	93.7
75	94.7	95.0	94.6	93.1	95.6	96.0	95.4	94.2
90	95.0	95.2	94.9	93.4	95.8	96.1	95.6	94.4
110	95.2	95.4	95.1	93.7	96.0	96.3	95.8	94.7
132	95.4	95.6	95.4	94.0	96.2	96.4	96.0	94.9
160	95.6	95.8	95.6	94.3	96.3	96.6	96.2	95.1
200	95.8	96.0	95.8	94.6	96.5	96.7	96.3	95.4
250	95.8	96.0	95.8	94.6	96.5	96.7	96.5	95.4
315 1000	95.8	96.0	95.8	94.6	96.5	96.7	96.6	95.4

¹⁾ Defined in IEC/TS 60034-31

Information regarding efficiency in accordance with International Efficiency

Efficiency classes and efficiencies according to IEC 60034-30-1

Overview (continued)

Background information

Comprehensive laws have been introduced in the European Union with the objective of reducing energy consumption and therefore CO₂ emissions. EU Directive 640/2009 concerns the energy consumption or efficiency of induction motors in the industrial environment. This Directive is now in force in every country of the European Economic Area.

For further details on internationally applicable standards and legal requirements, visit:

www.siemens.com/international-efficiency

Exceptions to the EU Directive

- Motors that are designed to be operated totally submerged in a liquid;
- Motors fully integrated into a product (e.g. a gear unit, pump, fan or compressor) whose energy efficiency cannot be measured independently of the product;
- Motors that are specially designed for operation under the following conditions:
 - At altitudes greater than 4000 meters above sea level;
 - At ambient temperatures above 60 °C;
 - At maximum operating temperatures above 400 °C;
 - At ambient temperatures below -30 °C
 - With cooling liquid temperatures at the product intake of below 0 °C or above 32 °C;
 - In hazardous areas in the context of Directive 94/9/EU of the European Parliament and Council;
- Brake motors

The following motors are not involved:

- · Pole-changing motors
- Synchronous motors
- Motors for intermittent duty S2 to S9
- Single-phase motors
- Motors specially developed for converter operation in accordance with IEC 60034-25

The following changes came into effect on the dates below:

From January 1, 2015:

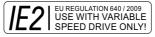
Compliance with the legally required minimum efficiency class IE3 for power ratings from 7.5 to 375 kW or, as an alternative, IE2 motor plus frequency converter.

From January 1, 2017:

Compliance with the legally required minimum efficiency class IE3 for power ratings from 0.75 to 375 kW or, as an alternative, IE2 motor plus frequency converter.

Changes according to EU motor regulation 640/2009

Low-voltage motors with a power rating of 0.75 kW to < 7.5 kW, from January 1, 2017, and low-voltage motors with a power ranging from 7.5 kW to 375 kW with efficiency class IE2, have been labeled as follows since January 1, 2015:



This obligation applies only within the European Economic Area. Correct application is the sole responsibility of the customer.

Other potential restrictions as described in the technical documentation may apply to converter operation and must be taken into account!

The following are generally recommended for converter operation:

- Motor temperature detection by embedded temperature sensor
- Bearing insulation with frame size 225 and larger

Motor series SIMOTICS VSD10 (1LE1092/1LE1592), VSD4000 (1FP10/1FP15) and SIMOTICS FD (1LH1) are the preferred motor types for converter operation.

Note

Different minimum efficiency class requirements apply in China, Korea, and Australia. Other countries will be available soon.

Motors for the North American market

The Energy Policy Act (EPAct) was superseded in December 2010 by the Energy Independence Security Act (EISA).

The following motors must fulfill the NEMA Premium Efficient Level:

- 1 hp (0.75 kW) ... 500 hp (373 kW): 2, 4-pole
 1 hp (0.75 kW) ... 350 hp (261 kW): 6-pole
 1 hp (0.75 kW) ... 250 hp (186 kW): 8-pole
- 2, 4, 6 and 8-pole
- ≤ 600 V
- NEMA Design A, B, or C. IEC Design N or H

For details, see NEMA MG1, Table 12-11 and Table 12-12.

Abbreviations

NEMA: National Electrical Manufacturers Association **IEC:** International Electrotechnical Commission

EEA: European Economic Area

Guide to selecting and ordering the motors

Catalog orientation and drive selection

Overview

Steps for drive selection

Step 1	Orientation and general technical in	nformation	
Technical requirements for the motor	Rated frequency and rated voltage	3 AC 50/60 Hz, 400, 500 or 690 V	
·	Operating mode	Standard duty (continuo	us duty S1 according to EN 60034-1)
	Degree of protection or type of explosion protection required	IP	
	Rated speed (No. of poles)	<i>n</i> = rpm	
·	Rated power	P = kW	
	Rated torque	$T = P \cdot 9550/n = \dots$	Nm
· ·	Type of construction	IM	
Step 2	Preselection in accordance with the	application	
Determination of the installation	Ambient temperature	≤ 40 °C	> 40 °C
conditions and definition of the application, if necessary	Installation altitude	≤ 1000 m	> 1000 m
application, it necessary	Factors for derating	None	Determine the factor for derating (for reduction factor, see "Coolant temperature and installation altitude" on Page 1/35)
Cross-reference to other motors	These can be LOHER motors for spec or motors to the NEMA standard	cial requirements in the ar	ea of explosion protection and applications
Step 3	Preliminary selection of the motor		
Determination of the range of possible motors	Select the frame size and therefore the degree of protection, rated power, rate Note: The standard temperature range	ed speed and rated torqu	9

Lavout of the selection and ordering tables and description of the columns of the table headers

Power,	frame rature c	size,					ted power			2 20.				,	<u></u>			Article ladd. da	No., ata	
Table	header	– Meai	ning																	
P _{rated,} 50 Hz	P _{rated,} 60 Hz	P _{rated,} 60 Hz	Frame size	n _{rated,} 50 Hz	T _{rated} , 50 Hz	Differ- ent IE class	CC No. CC032A	η _{rated,} 50 Hz, 4/4	η _{rated} , 50 Hz, 3/4	η _{rated,} 50 Hz, 2/4	COS- \$\Phi_{\text{rated}}\$, 50 Hz, 4/4	I _{rated} , 50 Hz, 400 V	T _{LR} / T _{rated}	I _{LR} / I _{rated}	T _B / T _{rated}	L _{pfA} , 50 Hz	L _{WA} , 50 Hz	Article No.	m IM B3	J
kW	kW	hp	FS	rpm	Nm			%	%	%	,,,	A				dB (A)	dB (A)		kg	kgm ²
Rated power at 50 Hz	Rated power at 60 Hz	Rated power at 60 Hz	Frame size	Rated speed at 50 Hz	Rated torque at 50 Hz	Efficiency class according to IEC 60034-30-1	CC No. CC032A	Efficiency at 50 Hz, 4/4-load	Efficiency at 50 Hz, 3/4-load	Efficiency at 50 Hz, 2/4-load	Power factor at 50 Hz, 4/4-load	Rated current at 400 V, 50 Hz	Locked-rotor torque on direct switch-on as a multiple of the rated torque	Locked-rotor current on direct switch-on as a multiple of the rated current	Breakdown torque on direct switch-on as a multiple of the rated torque	Measuring-surface sound pressure level at 50 Hz	Sound power level at 50 Hz	Article number	Weight for type of construction IM B3, approx.	Moment of inertia

Legend:

Primary key

Standard values for all motors

Specially for NEMA Energy Efficient MG1 motors, Table 12-11 or NEMA Premium Efficient MG1 motors, Table 12-12

Note on pole-changing motors: The operating values are specified here for the rated power for the two different pole numbers.

The operating values are ope	office for the faces power for the two different pole frambole.
Step 4	Detailed selection of the motor in the selection and ordering data tables
Determination of the basic Article No. of the motor	Determine the motor Article No. according to the following parameters: rated power, rated speed, rated torque and rated current from the "Selection and ordering data" for the motors that have already been identified as possibilities.
Step 5	Selection of the special versions or options
Completing the motor Article No.	Determine special versions and the associated order codes (e.g. special voltages and types of construction, motor protection and degrees of protection, windings and insulation, colors and paint finish, mountings and mounting technology, etc.).
Step 6	Additional information for motor selection
Checking the required dimensions	The dimensions are specified in each catalog section under the heading of "Dimensions".
Selection of the frequency converter, if required	Article No. of the converter as well as its selection, see Catalogs D 11, D 18.1, D 21.3, D 31, and DA 51.2.

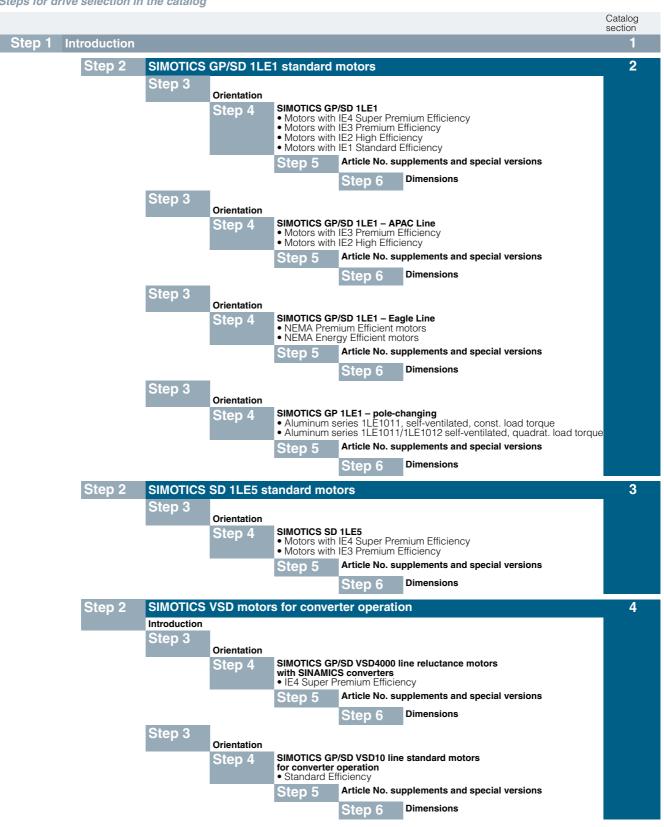
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Guide to selecting and ordering the motors

Catalog orientation and drive selection

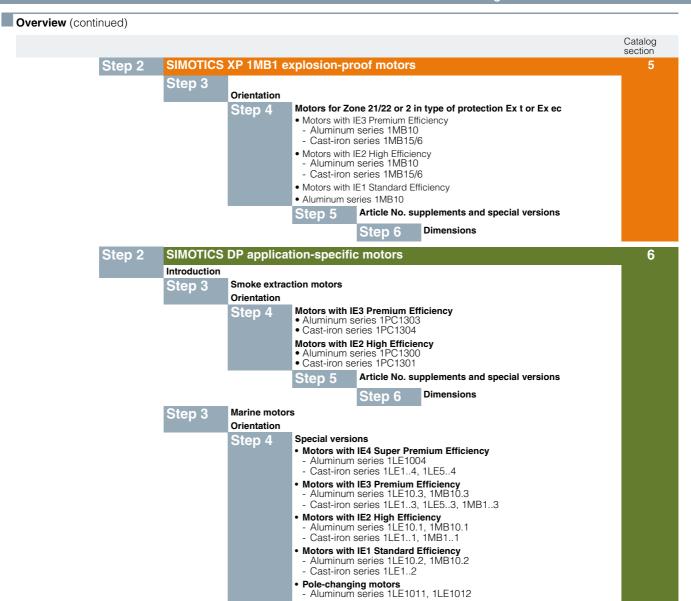
Overview (continued)

Steps for drive selection in the catalog



Guide to selecting and ordering the motors

Catalog orientation and drive selection



Guide to selecting and ordering the motors

Catalog orientation and drive selection

Overview (continued)

1LE1 standard motors

Motor	Efficiency class		Rated power at	Fram	ne size	e – n	notor	type									Page
version	ŕ		50 Hz (values in kW) or 60 Hz (values in hp)	63	71	80	90	100	112	132	160	180	200 22	5 250	280	315	J
	GP aluminum housing																
IEC	IE4 Super Premium Efficiency		2.2 37 kW					1LE1	1004								2/8
	IE3 Premium Efficiency		0.37 45 kW			1LE	1003										2/13
	IE2 High Efficiency		0.12 45 kW	1LE	1001												2/26
	IE1 Standard Efficiency		0.09 37 kW	1LE	1002												2/44
APAC Line	IE3 Premium Efficiency		0.75 45 kW			1LE	1043										2/54
	IE2 High Efficiency		0.75 22 kW				1041										2/65
Eagle Line	NEMA Premium Efficient		0.37 37 kW 0.5 50 hp			1LE	1023										2/71
	NEMA Energy Efficient		0.37 0.55 kW 0.5 0.75 hp				1LE	1021									2/80
Pole- changing	-	 For a constant load torque 	0.55 16 kW					1LE 1		8/4-p	ole						2/82
	-	 For square-law load torque 	0.5 28 kW					1LE 1	1011 oole,	8/4-p	ole						2/83
			0.6 26 kW					1LE 1									2/83
SIMOTICS	SD cast-iron housing																
IEC	IE4 Super Premium Efficiency	- Basic Line	2.2 200 kW					1LE1	1504								2/9
		- Performance Line	2.2 200 kW					1LE1	1604								2/9
	IE3 Premium Efficiency	- Basic Line	0.18 200 kW		1LE1	503											2/17
		- Performance Line	1.5 200 kW					1LE1	1603								2/17
	IE2 High Efficiency	- Basic Line	0.09 200 kW		1LE1	501											2/32
		- Performance Line	0.75 200 kW					1LE1	1601								2/32
	IE1 Standard Efficiency	- Basic Line	0.75 200 kW					1LE1	1502								2/48
APAC Line	IE3 Premium Efficiency	- Basic Line	0.75 200 kW			1LE	1543										2/57
		- Performance Line	0.75 200 kW			1LE	1643										2/57
	IE2 High Efficiency	- Basic Line	15 200 kW									1LE1	541				2/68
Eagle Line	NEMA Premium Efficient	- Basic Line	0.18 185 kW 0.25 250 hp		1LE1	523											2/73
		- Performance Line	2.2 185 kW 3 250 hp					1LE1	1623								2/73
	NEMA Energy Efficient	- Basic Line	0.09 0.55 kW 0.12 0.75 hp		1LE1	521											2/81

1LE5 standard motors – next generation

	manu gara															
Motor ver-	Efficiency class		Rated power at	Fran	ne si	ze –	moto	r typ	е							Page
sion				63	71	80	90	100	112	132	160 180	200	225	250 280	315 3	55
SIMOTICS	SD cast-iron housing															
IEC	IE4 Super Premium Efficiency	- Basic Line	250 315 kW											1LE5504		3/8
		- Performance Line	250 500 kW												1LE56	04 3/9
	IE3 Premium Efficiency	- Basic Line	250 315 kW											1LE5503		3/12
		- Performance Line	250 500 kW												1LE56	03 3/13
SIMOTICS	SD Add cast-iron housing															
IEC	IE4 Super Premium Efficiency	- Basic Line	250 315 kW											1LE5534		3/10
		- Performance Line	250 500 kW												1LE56	34 3/11
	IE3 Premium Efficiency	- Basic Line	250 315 kW											1LE5533		3/14
		- Performance Line	250 500 kW												1LE56	33 3/15

SIMOTICS VSD motors for converter operation
SIMOTICS GP/SD VSD4000 line reluctance motors for SINAMICS converters,
SIMOTICS GP/SD VSD10 line standard motors for converter operation

		,		
Motor version	Efficiency class	Rated power	Frame size – motor type	Page
			63 71 80 90 100 112 132 160 180 200 225 250 280 31	5
SIMOTICS GP alumin	um housing			
VSD4000 line	Super Premium Efficiency	0.55 30 kW	1FP10.4	4/26
VSD10 line	Standard Efficiency	2.2 18.5 kW	1LE1092	4/70
SIMOTICS SD cast-ire	on housing			
VSD4000 line	Super Premium Efficiency	0.55 30 kW	1FP15.4	4/28
VSD10 line	Standard Efficiency	2.2 200 kW	1LE1592	4/76

Guide to selecting and ordering the motors

Catalog orientation and drive selection

Overview (continued)

Explosion-proof motors with type of protection Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)

Motor version	Efficiency class		Rated power	Fran	ne siz	e – moto	or ty	pe										Page
				63	71	80 90	0	100	112	132	160	180	200	225	250	280	315	
SIMOTICS	XP aluminum housing																	
IEC	IE3 Premium Efficiency		0.37 18.5 kW			1MB10	0.3											5/16
	IE2 High Efficiency		0.37 18.5 kW			1MB10).1											5/20
	IE1 Standard Efficiency		0.75 18.5 kW					1MB1	0.2									5/26
SIMOTICS	XP cast-iron housing																	
IEC	IE3 Premium Efficiency	 Basic Line 	0.18 200 kW		1ME	315.3												5/17
		- Performance Line	1.5 200 kW					1MB1	6.3									5/17
	IE2 High Efficiency	 Basic Line 	0.09 200 kW		1ME	15.1												5/22
		- Performance Line	0.75 200 kW					1MB1	6.1									5/22
	0.00																	

Solida Carlotte		izz i ngir zincicnoy	- Performance Line	0.75	200 kW				1M	B16. 1						5/22
SO Hz (values in MV) or 60 Hz (values in MV) or 60 Hz (values in hg) So 60 Hz (values in hg)	SIMOTIC	S DP application-spe	ecific motors													
Implementation motors	Motor version	Efficiency class		50 Hz	(values in				,,							Page
E2 High Efficiency						63	71	80 90	100	112	132 1	60 180	200 22	25 250 2	80 315 3	55
IE2 High Efficiency	Smoke ext	raction motors – aluminı	ım housing													
Simple extraction motors - cast-iron housing 18.5 200 kW 1PC1304 6/10	IEC	IE3 Premium Efficiency		0.55	18.5 kW			1PC130	3							6/9
EC		IE2 High Efficiency		0.37	18.5 kW			1PC130	0							6/11
IE2 High Efficiency			n housing													
Second S	IEC	IE3 Premium Efficiency		18.5	200 kW							1PC	1304			6/10
EA Super Premium Efficiency Continue				15	200 kW							1PC	1301			6/13
Efficiency	Marine mo		1													
IE2 High Efficiency	IEC			2.2	37 kW				1LE1	1004						6/46
E1 Standard Efficiency		IE3 Premium Efficiency		0.37	45 kW			1LE100	3							6/46
EC _ with IE3 Premium Efficiency 0.37 18.5 kW 1MB10.3 6/48 IE2 High Efficiency 0.37 18.5 kW 1MB10.1 6/48 IE3 Index of Efficiency 0.37 18.5 kW 1MB10.1 6/48 IE3 Index of Efficiency 0.37 18.5 kW 1MB10.1 6/48 IE3 Index of Efficiency 0.37 18.5 kW 1MB10.2 6/48 IE4 Index of Efficiency 0.37 0.75 kW 1LE1023 6/48 IE4 Index of Efficiency 0.37 0.75 kW 1LE1023 6/48 IE4 Index of Efficiency 0.37 0.75 kW 1LE1011 6/48 IE4 Super Premium -		IE2 High Efficiency		0.18	45 kW		1LE	1001								6/46
E2 High Efficiency 0.37 18.5 kW 1MB10.1 6/45		IE1 Standard Efficiency		0.09	37 kW		1LE	1002								6/46
	IEC – with	IE3 Premium Efficiency		0.37	18.5 kW			1MB10.	3							6/49
IE1 Standard Efficiency		IE2 High Efficiency		0.37	18.5 kW			1MB10.	1							6/49
NEMA Energy Efficient 0.5 50 hp NEMA Energy Efficient 0.5 0.75 hp 0.6 28 kW 1LE1011 6/46 6/46 6/46 6/46 6/46 6/46 6/46 6/46 6/46 6/46 6/46 6/46 6/47 6/46 6/47 6/46 6/47 6/46 6/47 6/46 6/47 6/46 6/47 6/47 6/46 6/47 6/46 6/47 6/46 6/47 6/46 6/47 6/47 6/46 6/47 6/46 6/47 6	p. 0.000.00.1	IE1 Standard Efficiency		0.75	18.5 kW				1MB	10.2						6/49
0.5 0.75 hp 0.5 275 hp 0.5 28 kW 1LE1011 0.6446 0.6446 0.6 26 kW 1LE1012 0.6446 0.64	Eagle Line	NEMA Premium Efficient						1LE102	3							6/46
Changing		NEMA Energy Efficient						1LI	E1021							6/46
Second S	Pole-	-		0.5	28 kW				1LE1	1011						6/46
EC	changing	-		0.6	26 kW				1LE1	1012						6/46
Efficiency	Marine mo	tors – cast-iron housing														
Performance Line 2.2 200 kW 1LE1503 6/45	IEC		 Basic Line 	2.2	200 kW				1LE1	1504						6/47
160 500 kW 1LE56.4 6/48 1E3 Premium Efficiency		Επιciency		160	. 500 kW									1LE5	5.4	6/48
IE3 Premium Efficiency			- Performance Line	2.2	200 kW				1LE1	1604						6/47
160 500 kW				160	. 500 kW										1LE56	6.4 6/48
- Performance Line 1.5 200 kW 1LE1603 6/47 160 500 kW 1LE56.3 6/48 IE2 High Efficiency - Basic Line 0.09 200 kW 1LE1501 6/47 - Performance Line 0.75 200 kW 1LE1601 6/47 EC - with explosion protection received by the protection of the protection received by the protection		IE3 Premium Efficiency	 Basic Line 	0.18	200 kW		1LE	1503								6/47
160 500 kW 1LE56.3 6/48 1E2 High Efficiency - Basic Line 0.09 200 kW 1LE1501 6/47 6/47 1E2 High Efficiency - Basic Line 0.75 200 kW 1MB15.3 6/48 1E2 High Efficiency - Basic Line 0.18 200 kW 1MB15.3 6/48 6/49 1E2 High Efficiency - Basic Line 0.09 200 kW 1MB15.1 6/49 1MB16.1				160	. 500 kW									1LE5	5.3	6/48
IE2 High Efficiency			- Performance Line	1.5	200 kW				1LE1	1603						6/47
- Performance Line				160	. 500 kW										1LE56	6/48
EC - with explosion protection E3 Premium Efficiency		IE2 High Efficiency	 Basic Line 	0.09	200 kW		1LE	1501								6/47
Performance Line 1.5 200 kW 1MB16.3 6/45			- Performance Line	0.75	200 kW				1LE1	1601						6/47
Fertormance Line 1.5 200 kW 1MB16.3 6/48	IEC – with	IE3 Premium Efficiency	 Basic Line 	0.18	200 kW		1MB	15.3								6/49
IE2 High Efficiency			- Performance Line	1.5	200 kW				1MB	16.3						6/49
Eagle Line NEMA Premium Efficient - Basic Line 0.18 185 kW 0.25 250 hp 1LE1523 6/47 - Performance Line 2.2 185 kW 3 250 hp 1LE1623 6/47 NEMA Energy Efficient - Basic Line 0.09 0.55 kW 1LE1521 6/47		IE2 High Efficiency	- Basic Line	0.09	200 kW		1MB	15.1								6/49
0.25 250 hp - Performance Line 2.2 185 kW 3 250 hp NEMA Energy Efficient - Basic Line 0.09 0.55 kW 1LE1521 6/47			- Performance Line	0.75	200 kW				1MB	16.1						6/49
3 250 hp NEMA Energy Efficient — Basic Line 0.09 0.55 kW 1LE1521 6/47	Eagle Line	NEMA Premium Efficient	- Basic Line				1LE	1523								6/47
			- Performance Line						1LE1	1623						6/47
		NEMA Energy Efficient	- Basic Line				1LE	1521								6/47

Guide to selecting and ordering the motors

Special versions

Overview

The following table contains a list of all available special versions according to category and availability in the catalog sections where you will find them. The order codes are listed here according to the function. An alphanumerical listing of all special versions can be found in the Appendix in the Index of order codes.

Note: Options cannot always be freely combined. It is not possible to describe every single impermissible option combination in the catalog. Incompatibility between options may result in rejection of an order when multiple options are ordered, see also in the DT Configurator:

www.siemens.com/dt-configurator

		_				13.00111/0	t-cornigu	irator			
Special versions	Additional identification	For		section – p	U						
	code -Z with order code and plain text if required	informa- tion, see	2 Standard	d motors	3	4 VSD mot for conve operation	erter	5 Explosion proof me		6 Smoke e motors	xtraction
	·		Alumi- num series 1LE10	Cast-iron series 1LE15 1LE16	Cast-iron series 1LE5	Alumi- num series 1FP10.4 1LE1092	Cast-iron series 1FP15.4 1LE1592	Alumi- num series 1MB10	Cast-iron series 1MB15 1MB16	Alumi- num series 1PC1300 1PC1303	Cast-iron series 1PC1301 1PC1304
Version for converter operation											
Version for converter operation in basic version with operating data SINAMICS G120 with PM240-2.	B40	5/7						5/38	5/42		
Version for converter operation in basic version with operating data SINAMICS \$150.	B41	5/7						5/38	5/42		
Operating data such as order code 840 with alternative SINAMICS converters on the rating plate G120 with PM230 G120C G120C G120P with PM230 G120P with PM240-2 G120P with PM240-2 G120P with PM240P-2 G120P with PM330 G130, G150, G180 S120 (BLM/SLM) V20 Operating data such as the B41 order code with alternative SINAMICS converter on the rating plate S120 (ALM)	Y68 and converter type	5/7						5/38	5/42		
Version in accordance with standards	and specificat	ions									
VIK version	C02	1/28	2/105	2/113							
CCC China Compulsory Certification	D01	1/27	2/105	2/113						6/21	
Motor without CE marking for export outside EEA (see EU Directive 640/2009)	D22		2/105	2/113	3/25						
Motor exclusively for use in transportation equipment for passengers and freight transport corresponding to EVPG §1 dated February 27, 2008	D23				3/25						
Electrical according to NEMA MG1-12	D30	1/26	2/105	2/113	3/25						
Design according to UL with "Recognition Mark"	D31	1/26	2/105	2/113	3/25						
Ex certification for China	D32 New!								5/44		
KEMCO Korea Energy Efficiency Label	D33	1/27	2/105	2/113					F/44		
China Energy Efficiency Label Ex certificate EAC for the Eurasian	D34 D35	1/27 5/14	2/105	2/113	_			5/39	5/44		
customs union IEC Ex certification	D37							5/39	5/44		
Version according to UL and CSA (Canadian regulation)	D39					4/43 4/99	4/47 4/103	3/03	0/44		
Canadian regulations (CSA)	D40		2/105	2/113	3/25						
TR CU product safety certificate EAC for Eurasian customs union	D47	1/28	2/105	2/113	3/25	4/99	4/103				
Version suitable for railways IC 411, EN IEC 60349, without EN 45545, with external fan and fan cover in plastic	L90	1/28	2/105								
Version suitable for railways IC 411, EN IEC 60349, with EN 45545, with external fan and fan cover in metal	L91	1/28	2/105								
Version suitable for railways IC 418, EN IEC 60349, without EN 45545, without external fan and fan cover	L92		2/105								

Guide to selecting and ordering the motors

Balance and vibration severity Vibration severity grade B Balancing without feather key Full-key balancing Explosion-proof version Version (IP55) for Zones 2 or 22, for non-conductive dust Design for Zone 2 in Ex ec IIB T3 Gc VIK version Colors and paint finish Unpainted (only cast-iron parts primed) Unpainted, only primed Special paint finish C3 Special paint finish sea air resistant C4 Special paint finish for offshore C5	L00 L01 L02 B30 B31 C02 S00 S01 S02 S03	informa- tion, see	2 Standar Aluminum series 1LE10 2/106 2/106 2/106	Cast-iron series 1LE15 1LE16 2/114 2/114 2/114	Cast-iron series 1LE5	VSD mot for conve operation Alumi- num series 1FP10.4 1LE1092 4/43 4/43 4/99	erter	5 Explosic proof mo Aluminum series 1MB10 5/40 5/40 5/40	Cast-iron series 1MB15 1MB16 5/44 5/44 5/44	6 Smoke emotors Aluminum series 1PC1300 1PC1303 6/21 6/21 6/21	Cast-iror series 1PC130
Balance and vibration severity Vibration severity grade B Balancing without feather key Full-key balancing Explosion-proof version Version (IP55) for Zones 2 or 22, for non-conductive dust Design for Zone 2 in Ex ec IIB T3 Gc VIK version Colors and paint finish Unpainted (only cast-iron parts primed) Unpainted, only primed Special paint finish C3 Special paint finish sea air resistant C4 Special paint finish for offshore C5	L00 L01 L02 B30 B31 C02 S00 S01	1/56 1/56 5/6 5/6 1/28	num series 1LE10 2/106 2/106 2/106	series 1LE15 1LE16 2/114 2/114	series 1LE5 3/25 3/25	num series 1FP10.4 1LE1092 4/43 4/43	series 1FP15.4 1LE1592 4/47 4/47	5/40 5/40 5/40	5/44 5/44	num series 1PC1300 1PC1303 6/21 6/21	series 1PC130 1PC130- 6/23
Vibration severity grade B Balancing without feather key Full-key balancing Explosion-proof version Version (IP55) for Zones 2 or 22, for non-conductive dust Design for Zone 2 in Ex ec IIB T3 Gc VIK version Colors and paint finish Unpainted (only cast-iron parts primed) Unpainted, only primed Special paint finish C3 Special paint finish sea air resistant C4 Special paint finish for offshore C5	B30 B31 C02 S00 S01 S02	1/56 1/56 5/6 5/6 1/28	2/106 2/106	2/114	3/25	4/43	4/47	5/40 5/40	5/44	6/21	6/23
Balancing without feather key Full-key balancing Explosion-proof version Version (IP55) for Zones 2 or 22, for non-conductive dust Design for Zone 2 in Ex ec IIB T3 Gc VIK version Colors and paint finish Unpainted (only cast-iron parts primed) Unpainted, only primed Special paint finish C3 Special paint finish sea air resistant C4 Special paint finish for offshore C5	B30 B31 C02 S00 S01 S02	1/56 1/56 5/6 5/6 1/28	2/106 2/106	2/114	3/25	4/43	4/47	5/40 5/40	5/44	6/21	6/23
Full-key balancing Explosion-proof version Version (IP55) for Zones 2 or 22, for non-conductive dust Design for Zone 2 in Ex ec IIB T3 Gc VIK version Colors and paint finish Unpainted (only cast-iron parts primed) Unpainted, only primed Special paint finish C3 Special paint finish sea air resistant C4 Special paint finish for offshore C5	B30 B31 C02 S00 S01 S02	1/56 5/6 5/6 1/28	2/106			4/43	4/47	5/40	5/44		
Version (IP55) for Zones 2 or 22, for non-conductive dust Design for Zone 2 in Ex ec IIB T3 Gc VIK version Colors and paint finish Unpainted (only cast-iron parts primed) Unpainted, only primed Special paint finish C3 Special paint finish sea air resistant C4 Special paint finish for offshore C5	B31 C02 S00 S01	5/6 1/28 1/21	2/104			4/99	4/103	5/38			
Design for Zone 2 in Ex ec IIB T3 Gc VIK version Colors and paint finish Unpainted (only cast-iron parts primed) Unpainted, only primed Special paint finish C3 Special paint finish sea air resistant C4 Special paint finish for offshore C5	S00 S01 S02	1/28	2/104						5/42		
VIK version Colors and paint finish Unpainted (only cast-iron parts primed) Unpainted, only primed Special paint finish C3 Special paint finish sea air resistant C4 Special paint finish for offshore C5	S00 S01 S02	1/28	2/104					F (0.0	5/40		
Colors and paint finish Unpainted (only cast-iron parts primed) Unpainted, only primed Special paint finish C3 Special paint finish sea air resistant C4 Special paint finish for offshore C5	S00 S01 S02	1/21	2/104					5/38 5/38	5/42 5/42		
Unpainted (only cast-iron parts primed) Unpainted, only primed Special paint finish C3 Special paint finish sea air resistant C4 Special paint finish for offshore C5	S01 S02	·	2/104					3/30	3/42		
Special paint finish C3 Special paint finish sea air resistant C4 Special paint finish for offshore C5	S02	1/21		2/111	3/23	4/42 4/98	4/46 4/102	5/39	5/43	6/21	6/23
Special paint finish sea air resistant C4 Special paint finish for offshore C5			2/104	2/111	3/23	4/42 4/98	4/46 4/102	5/39	5/43	6/21	6/23
Special paint finish for offshore C5	S03	1/21	2/104	2/111	3/23	4/42 4/98	4/46 4/102	5/39	5/43		6/23
· · ·		1/21	2/104	2/111	3/23	4/42 4/98	4/46 4/102	5/39	5/43	6/21	6/23
Internal continu	S04	1/21		2/111	3/23	1,700	4/46 4/102		5/43		
Internal coating	S05	1/21	2/104	2/111	3/23	4/42 4/98	4/46 4/102				6/23
Top coat polyurethane	S06	1/21	2/104	2/111	3/23	1,00	1, 102	5/39	5/43	6/21	6/23
RAL 1002, 1013, 1015, 1019, 2003,	Y53 and paint finish RAL	1/23	2/104	2/111	3/23	4/98	4/46 4/102	5/39	5/43	6/21	6/23
For RAL colors, see "Special paint finish	Y56 and paint finish RAL	1/23	2/104	2/111	3/23	4/42 4/98	4/46 4/102	5/39	5/43	6/21	6/23
-	F74	1/36	2/106	2/115	3/26	4/43 4/99	4/48 4/104				
Fan cover for textile industry	F75	1/36	2/106			4/43 4/99	4/104				
Metal external fan	F76	1/36	2/106	2/115		4/43 4/99	4/48 4/104	5/40	5/45		
Without external fan and without fan cover	F90	1/36	2/106	2/115	3/26	4/43 4/99	1, 101			6/22	6/24
	Q02	1/36	2/106	2/115	3/26	4/43 4/99	4/48 4/104	5/40	5/45		
,	Q03	1/36	2/106	2/115	3/26	4/43 4/99	4/48 4/104	5/40	5/45		
,	Q06 New!				3/26						
Separately driven fan with non-standard voltage and/or frequency	Y81 and customer specifications	1/80		2/115	3/26		4/104				
Coolant temperature and installation alt Coolant temperature –50 to +40 °C	titude D02			2/113	3/25		4/47 4/103				
Coolant temperature -40 to +40 °C	D03	1/35	2/105	2/113	3/25	4/42	4/47	5/39	5/44		
Coolant temperature –30 to +40 °C	D04	1/35	2/105	2/113	3/25	4/98 4/42	4/103			6/21	6/23
Bearings and lubrication						4/98	4/103				
Regreasing device with M10 × 1 grease nipple according to DIN 71412-A	L19	1/59	2/105	2/114	3/25				5/44		6/23
	L20	1/58	2/105	2/114	3/25	4/43 4/99	4/47 4/103	5/40	5/44		
Located bearing NDE	L21	1/58	2/105	2/114		4/99 4/43 4/99	4/47 4/103	5/40	5/44		
Bearing design for increased cantilever forces	L22	1/58	2/105	2/114	3/25	4/43 4/99	4/47 4/103	5/40	5/44	6/21	6/23
	L23	1/59	2/105	2/114		4/43	4/47	5/40	5/44	6/21	6/23

Guide to selecting and ordering the motors

Special versions	Additional	For	Catalog	section – p	age						
	identification code -Z with order code and plain text if required	informa- tion, see	2 Standard	d motors	3	4 VSD mot for conve operation	erter	5 Explosion proof mo		6 Smoke e motors	xtraction
			Alumi- num series 1LE10	Cast-iron series 1LE15 1LE16	Cast-iron series 1LE5	Alumi- num series 1FP10.4 1LE1092	Cast-iron series 1FP15.4 1LE1592	num series	Cast-iron series 1MB15 1MB16	Alumi- num series 1PC1300 1PC1303	
Bearings and lubrication (continued)											
Hot bearing grease	L24 New!	1/50	0/105	0444	3/25	4/40	147	15/40	I = / 4 4		
Bearings reinforced at both ends for DE and NDE, bearing size 63	L25	1/58	2/105	2/114		4/43 4/99	4/47 4/103	5/40	5/44		
Bearings reinforced at both DE and NDE DE bearings for increased cantilever forces	L28			2/114			4/47 4/103				
Drainage for used grease	L30 New!				3/25						
Special version with higher speeds	L37 New!				3/25						
Bearing insulation DE	L50	1/58		2/114	3/25		4/103			6/21	6/23
Bearing insulation NDE	L51	1/58		2/114	3/25		4/103		5/44	6/21	6/23
Measuring nipple for SPM shock pulse measurement for bearing inspection Rating plate and additional rating plate	Q01 es	1/58	2/105	2/114	3/25	4/43 4/99	4/47 4/103	5/40	5/44	6/21	
Additional rating plate for voltage tolerance	B07	1/30	2/106	2/115	3/26					6/22	
Second rating plate, loose	M10	1/30	2/106	2/115	3/26	4/43 4/99	4/48 4/104	5/40	5/45	6/22	6/24
Rating plate, stainless steel	M11	1/30	2/106	2/115	3/26	4/43 4/99	4/48 4/104	5/40	5/45		
Additional rating plate with deviating rating plate data	Y80 and customer specifications	1/30	2/106	2/115	3/26			5/40	5/45	6/22	6/24
Additional rating plate with customer specifications	Y82 and customer specifications	1/30	2/106	2/115	3/26	4/43 4/99	4/48 4/104	5/40	5/45	6/22	6/24
Additional information on rating plate and on package label (max.20 characters)	Y84 and customer specifications	1/30	2/106	2/115	3/26	4/43 4/99	4/48 4/104	5/40	5/45	6/22	6/24
Adhesive label, supplied loose (printed with: Article No., Serial No.; 2 lines of text)	Y85 and customer specifications	1/30	2/106	2/115	3/26	4/43 4/99	4/48 4/104				
Mechanical version and degrees of pro- Low-noise version for 2-pole motors with clockwise direction of rotation		1/57	2/104	2/113	3/24			5/39	5/44		
Low-noise version for 2-pole motors with counterclockwise direction of rotation	F78	1/57	2/104	2/113	3/24			5/39	5/44		
Prepared for mountings, centering hole only	G40	1/79	2/104	2/113		4/42 4/98	4/47 4/103				
Prepared for mountings with D12 shaft	G41	1/79	2/104	2/113	3/24	4/42 4/98	4/47 4/103				
Prepared for mountings with D16 shaft	G42	1/79	2/104	2/113	3/24	4/42 4/98	4/47 4/103				
Mechanical protection for encoder	G43	1/79	2/104	2/113	3/24	4/42 4/98	4/47 4/103	5/39	5/44		
Protective cover	H00	1/50	2/105	2/113	3/24	4/42 4/98	4/47 4/103	5/39	5/44	6/21	
Screwed-on (instead of cast) feet	H01	1/41	2/105	2/113		4/42 4/98	4/47 4/103			6/21	6/23
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	H02	1/77	2/105	2/113	3/24	4/42 4/98	4/47 4/103	5/39	5/44		
Condensation drainage holes	H03	1/50	2/105	2/113	3/24	4/42 4/98		5/39	5/44		
Rust-resistant screws (externally)	H07	1/77	2/105	2/113	3/24	4/42 4/98	4/47 4/103	5/39	5/44	6/21	6/23
Housing with screw mounting	H10	1/41	2/105			4/42	4/47				
IP65 degree of protection	H20	1/50	2/105	2/113	3/24	4/42 4/98	4/47 4/103	5/39	5/44	6/21	6/23
IP54 degree of protection	H21			2/113	3/24		4/47 4/103				
IP56 degree of protection	H22	1/50	2/105	2/113	3/24	4/42 4/98	4/47 4/103	5/39	5/44	6/21	6/23
Drive-end seal for flange-mounted motors, oil-tight to 0.1 bar	H23	1/55	2/105	2/113	3/24	4/42 4/98	4/47 4/103	5/39	5/44		
Viton sealing ring	H25 New!				3/24						
Grounding brush for converter operation	L52	1/79		2/113	3/24		4/103				

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Special versions	Additional	For	Catalog s	section – p	age						CISIONS
	identification code -Z with		2		3	4		5		6	
	order code and plain text	tion, see page	Standard	d motors		VSD mot	erter	Explosion proof mo		Smoke e	xtraction
	if required		Alumi-	Cast-iron	Cast-iron	operation Alumi-	Cast-iron	Alumi-	Cast-iron	Alumi-	Cast-iron
			num series	series 1LE15	series 1LE5	num series	series 1FP15.4	num series	series 1MB15	num series	series 1PC1301
			1LE10	1LE16		1FP10.4 1LE1092	1LE1592	1MB10	1MB16	1PC1300 1PC1303	1PC1304
Modular technology – Basic versions Mounting of holding brake	F01	1/81	2/104	2/112	3/23	4/42	4/46				
(standard assignment)				2/112	0/20	4/98	4/102				
Mounting of brake for higher switching frequency (operating brake)	F02	1/81	2/104			4/42 4/98					
Mounting of PRECIMA brake Mounted separately driven fan	F04	1/93	2/104	2/112	3/23	4/42	4/46	5/39	5/43		
Mounting of 1XP8012-10 (HTL)	G01	1/98	2/104	2/112	3/23	4/98 4/42	4/102 4/46				
rotary pulse encoder Mounting of 1XF8012-10 (TTL)	G02		2/104	2/112	3/23	4/98	4/102 4/46				
rotary pulse encoder		1/98				4/42	4/102				
Mounting of Kübler Sendix 5020 HTL, 1024 I rotary pulse encoder	G11	1/104	2/104	2/112	3/23						
Mounting of Kübler Sendix 5020 TTL, 1024 I rotary pulse encoder	G12	1/104	2/104	2/112	3/23						
Modular technology – Additional versi Brake supply voltage	ons F10	1/82	2/104	2/112	3/23	4/42	4/46				
24 V DC						4/98	4/102				
Brake supply voltage 230 V AC, 50/60 Hz	F11	1/82	2/104	2/112	3/23	4/42 4/98	4/46 4/102				
Brake supply voltage 400 V AC, 50/60 Hz	F12	1/82	2/104	2/112	3/23	4/42 4/98	4/46 4/102				
Backstop, counterclockwise motion blocked, clockwise direction of rotation	F40	1/105		2/112	3/23		4/46				
Backstop, clockwise motion blocked, counterclockwise direction of rotation	F41	1/105		2/112	3/23		4/46				
Mechanical manual brake release with	F50	1/86	2/104	2/112		4/42 4/98	4/46 4/102				
lever (no locking) Motor connection and terminal box						4/90	4/ 102				
External grounding	H04	1/41	2/102	2/109		4/41 4/97	4/45 4/101			6/21	
Terminal box on NDE	H08	1/41	2/102	2/109	3/21	4/41 4/97	4/45 4/101			6/21	6/23
Second external grounding	H70	1/41		2/109	3/21	4/87	4/45				
Terminal box_rotated through 90°,	R10	1/42	2/102	2/109	3/21	4/41	4/101 4/45	5/38	5/42		
entry from DE Terminal box rotated through 90°,	R11	1/42	2/102	2/109	3/21	4/97 4/41	4/101 4/45	5/38	5/42		
entry from NDE Terminal box rotated through 180°	R12	1/42	2/102	2/110	3/22	4/97 4/41	4/101 4/45	5/38	5/42	6/21	6/23
Terminal box in position 0°;	R13	1/42	2/102		3,22	4/97 4/41	4/101	3,00	3, 12	6/21	6/23
connection from right		1/42	2/102	01110	0.00	4/97	1145			0/21	0/23
One EMC cable gland	R14			2/110	3/22		4/45 4/101				
One metal cable gland	R15	1/43	2/102	2/110	3/22	4/41 4/97	4/45 4/101				
EMC cable gland, maximum configuration	R16			2/110	3/22		4/45 4/101				
Stud terminal for cable connection, accessories pack (3 items)	R17			2/110	3/22		4/101		5/42		
Metal cable gland, maximum configuration	R18		2/102	2/110	3/22	4/41		5/38	5/42		
Saddle terminal for connection without	R19			2/110	3/22		4/101		5/42		
cable lug, accessories pack 3 cables protruding,	R20	1/43	2/102	2/110		4/41					
0.5 m long 3 cables protruding,	R21	1/43	2/102	2/110	3/22	4/97 4/41					
1.5 m long 6 cables protruding,	R22	1/43	2/102	2/110		4/41					
0.5 m long 6 cables protruding,	R23	1/43	2/102	2/110	3/22	4/97					
1.5 m long											
6 cables protruding, 3 m long	R24	1/43	2/103	2/110	3/22	4/41					
Reduction piece for M cable gland in accordance with British Standard,	R30	1/43	2/103	2/110							
both cable entries mounted											

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Special versions	Additional	For	Catalog s	section – p	age						
	identification code -Z with		2	·	3	4		5		6	
	order code and plain text if required	tion, see page	Standard	l motors		VSD mot for conve operation	erter	Explosion proof mo		Smoke ex motors	traction
	ii required		Alumi- num	Cast-iron series	Cast-iron series	Alumi- num	Cast-iron series	Alumi- num	Cast-iron series	Alumi- num	Cast-iron series
			series	1LE15	1LE5	series		series	1MB15	series	1PC1301
			1LE10	1LE16		1FP10.4 1LE1092	1LE1592	1MB10	1MB16	1PC1300 1PC1303	1PC1304
Motor connection and terminal box (co	ntinued) R50	1/41	2/103	2/110	3/22	4/41	4/45	5/38	5/42		
		1/41	2/103			4/97	4/101	0/30	5/42		
Terminal box without cable entry opening	R51			2/110	3/22		4/45 4/101				
Drilled removable entry plate	R52	1/48		2/110	3/22		4/45 4/101				
Undrilled removable entry plate	R53	1/48		2/110	3/22		4/45 4/101				
Auxiliary terminal box, aluminum	R60		2/103								
Cast-iron auxiliary terminal box (small)	R62	1/48		2/110	3/22		4/45 4/102		5/42		
Larger cast-iron terminal box Motor connector Han-Drive 10e for	R63 New!	1/48	2/103		3/22		4/41				
230 VΔ/400 VY		·					4/97				
Motor connector Han-Drive 10e EMC for 230 VΔ/400 VY	R71	1/43	2/103				4/41 4/97				
Small motor connector CQ12 with EMC	R72	1/43	2/103								
Small motor connector CQ12 without EMC	R73	1/43	2/103								
Silicon-free version Non-standard threaded through hole	R74			2/110	3/22		4/102 4/45				
(NPT or G thread)	Y61 and customer specifications			2/110	3/22		4/45 4/102				
Motor protection 1 or 3 PTC thermistors – for tripping	Q11	1/38	2/102	2/109	3/21	4/41	4/45				
(2 terminals)		·				4/97	4/101				
2 or 6 PTC thermistors – for alarm and tripping (4 terminals)	Q12	1/38	2/102	2/109	3/21	4/41 4/97	4/45 4/101				
1 KTY84-130 temperature sensor (2 terminals)	Q23		2/102	2/109	3/21	4/41 4/97	4/45 4/101				
2 KTY84-130 temperature sensors (4 terminals)	Q25		2/102	2/109	3/21	4/41 4/97	4/45 4/101				
3 bimetal sensors (normally closed contacts) for tripping (2 terminals)	Q31		2/102	2/109	3/21	4/41 4/97	4/45 4/101				
6 bimetal sensors (normally closed contacts) for alarm and tripping (4 terminals)	Q32		2/102	2/109	3/21	4/41 4/97	4/45 4/101				
3 bimetal sensors (normally closed contacts) for tripping (6 terminals)	Q33		2/102	2/109	3/21	4/41 4/97	4/45 4/101				
6 bimetal sensors (normally closed contacts) for alarm and tripping (12 terminals)	Q34		2/102	2/109	3/21	4/41	4/45 4/101				
1 Pt1000 resistance thermometer (2 terminals)	Q35	1/40	2/102	2/109	3/21	4/41 4/97	4/45 4/101	5/38	5/42		
2 Pt1000 resistance thermometers (4 terminals)	Q36	1/40	2/102	2/109	3/21	4/41 4/97	4/45 4/101	5/38	5/42		
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	Q60	1/40	2/102	2/109	3/21	4/41 4/97	4/45 4/101				
6 Pt100 resistance thermometers – 2-wire input (12 terminals)	Q61	1/40	2/102	2/109	3/21	4/41 4/97					
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	Q62	1/40	2/102	2/109	3/21	4/41 4/97	4/45 4/101				
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	Q63	1/40	2/102	2/109	3/21	4/41 4/97	4/45 4/101				
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	Q64	1/40	2/102	2/109	3/21	4/41 4/97	4/45 4/101				
2 Pt100 screw-in thermometers in basic configuration for bearings (2 terminals)	Q72	1/40	2/102	2/109	3/21	4/41 4/97	4/45 4/101		5/42		
2 Pt100 screw-in thermometers in 3-wire input for bearing (6 terminals)	Q78	1/40	2/102	2/109	3/21	4/41 4/97	4/45 4/101		5/42		
2 Pt100 double screw-in thermometers in 3-wire input for bearing (12 terminals)	Q79	1/40	2/102	2/109	3/21	4/41 4/97	4/45 4/101		5/42		
Special technology Mounting of LL 861 900 220 rotary pulse encoder	G04	1/99	2/104	2/112	3/24	4/42 4/98	4/46 4/102				
Mounting of HOG 9 DN 1024 I	G05	1/100	2/104	2/112	3/24	4/42	4/46				
rotary pulse encoder Mounting of HOG 10 D 1024 I	G06	1/103	2/104	2/112	3/24	4/98	4/102				
rotary pulse encoder						4/98	4/102	l			

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Special versions	Additional	For	Catalog s	section – p	age						701010110
opoolal volcione	identification code -Z with		2	section p	3	4		5		6	
	order code and plain text if required	tion, see	Standard	d motors		VSD mot for conve operation	erter	Explosion proof mo		Smoke e motors	xtraction
	·		Alumi- num	Cast-iron series	Cast-iron series	Alumi- num	Cast-iron series	Alumi- num	Cast-iron series	Alumi- num	Cast-iron series
			series 1LE10	1LE15 1LE16	1LE5	series 1FP10.4		series 1MB10	1MB15 1MB16	series 1PC1300	1PC1301 1PC1304
Special technology (continued)						1LE1092				1PC1303	
Mounting of POG 10D rotary pulse	G07	1/102		2/112	3/24		4/46				
encoder (only in combination with separately driven fan or brake)							4/102				
Mounting of POG9 rotary pulse encoder (only in combination with separately driven fan or brake)	G08	1/101		2/112	3/24		4/46 4/102				
Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box	G15			2/112	3/24						
moisture protection Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box	G16			2/112	3/24						
dust protection Mounting of explosion-proof rotary pulse	G30	5/10						5/39	5/43		
encoder for use in Zones 2, 21, and 22 Mounting of a special type of rotary pulse		0,10					4/46	0,00	0, 10		
encoder	customer specifications						4/102				
Mounting of HOG 10 DN 1024 I + FSL rotary pulse encoder, (integrated centrifugal switch, speed rpm),	Y74 and spec. speed rpm			2/112	3/24						
terminal box moisture protection Mounting of HOG 10 DN 1024 I + FSL				2/112	2/24						
rotary pulse encoder, (integrated centrifugal switch, speed rpm), terminal box dust protection	Y76 and spec. speed rpm			2/112	3/24						
Mounting of HOG 10 DN 1024 I + ESL 93 rotary pulse encoder, (integrated	spec. speed			2/112	3/24						
electronic speed switch, speed rpm), terminal box dust protection Extension of the liability for defects	(max. 3) rpm										
Extension of the liability for defects period by 12 months to a total of 24 months (2 years) from delivery	Q80	1/24		2/115	3/26		4/48 4/104				
Extension of the liability for defects period by 18 months to a total of 30 months (2.5 years) from delivery	Q81 New!				3/26						
Extension of the liability for defects period by 24 months to a total of 36 months (3 years) from delivery	Q82	1/24		2/115	3/26		4/48 4/104				
Extension of the liability for defects period by 30 months to a total of 42 months (3.5 years) from delivery	Q83 New!				3/26						
Extension of the liability for defects period by 36 months to a total of 48 months (4 years) from delivery	Q84 New!				3/26						
Extension of the liability for defects period by 42 months to a total of 60 months (5 years) from delivery	Q85 New!				3/26						
Packaging, safety notes, documentation		tificates									
Printed German/English Operating Instructions (compact) enclosed in each wire-lattice pallet	B01		2/107			4/44 4/100					
Acceptance test certificate 3.1 in accordance with EN 10204	B02	1/24	2/107	2/115	3/26	4/44 4/100	4/48 4/104	5/41	5/45	6/22	6/24
Printed German/English Operating Instructions enclosed	B04	1/24	2/107	2/115	3/26	4/44 4/100	4/48 4/104	5/41	5/45	6/22	6/24
Without "Made in manufacturing country" marking					3/26						
Equivalent circuit diagram	B51 New!	-			3/26						
Starting diagram (torque vs. speed and current vs. speed)	B52 New!				3/26						
Document - Electrical datasheet	B60		2/107	2/115	3/26	4/44 4/100	4/48 4/104				
Document – Order dimensional drawing	B61		2/107	2/115	3/26	4/44 4/100	4/48 4/104				
Standard test (routine test) with acceptance	B65			2/115	3/26		4/48 4/104			6/22	6/24
Temperature test without acceptance Temperature test with acceptance	B67 New!				3/26 3/26						

Guide to selecting and ordering the motors

Special versions	Additional	For	Catalog s	section – p	age						
Opeciai versions		further informa-	2	section – p	3	4		5		6	
	order code and plain text if required	tion, see	Standard	d motors		VSD mote for conve operation	rter	Explosio proof mo		Smoke ex motors	ktraction
			Alumi- num series 1LE10	Cast-iron series 1LE15 1LE16	Cast-iron series 1LE5	Alumi- num series 1FP10.4 1LE1092		Alumi- num series 1MB10	Cast-iron series 1MB15 1MB16	Alumi- num series 1PC1300 1PC1303	Cast-iron series 1PC1301 1PC1304
Packaging, safety notes, documentation	on and test cei	tificates (continuec	l)							
Type test with heat run for vertical motors, without acceptance	B80 New!				3/27						
Type test with heat run for vertical motors, with acceptance	B81 New!				3/27						
Type test with heat run for horizontal motors, without acceptance	B82	1/24		2/115	3/27			I		1-1	
Type test with heat run for horizontal motors, with acceptance	B83	1/24	2/107	2/115	3/27	4/44 4/100	4/48 4/104	5/41	5/45	6/22	6/24
"Basic" documentation package	B90 New!		2/107	2/115	3/27	4/44 4/100	4/48 4/104	5/41	5/45	6/22	6/24
"Advanced" documentation package	B91 New!		2/107	2/115	3/27	4/44 4/100		5/41	5/45	6/22	6/24
"Projects" documentation package	B92 New!		2/107	2/115	3/27	4/44 4/100	4/48 4/104	5/41	5/45	6/22	6/24
Wire-lattice pallet packaging	B99	1/24	2/107			4/44 4/100		5/41	5/45		
Connected in star for dispatch	M01	1/24	2/107	2/115	3/27	4/44 4/100	4/48 4/104	5/41	5/45		
Connected in delta for dispatch	M02	1/24	2/107	2/115	3/27	4/44 4/100	4/48 4/104	5/41	5/45		
Printed Operating Instructions (Compact) for explosion-proof motors enclosed in other official EU languages Shaft and rotor	Y98 and customer specifications							5/41	5/45		
Shaft extension with standard dimensions, without feather keyway	L04	1/54	2/106	2/114	3/25	4/43 4/99		5/40	5/45	6/22	6/23
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	L05	1/54	2/106	2/114	3/25	4/43 4/99	4/47 4/103	5/40	5/45	6/22	6/23
Standard shaft made of stainless steel (e.g. 1.4021)	L06	1/54	2/106	2/114	3/25	4/43 4/99	4/47 4/103	5/40	5/45		
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L07	1/55	2/106	2/114	3/25	4/43 4/99	4/47 4/103	5/40	5/45	6/22	6/24
Concentricity of shaft extension, coaxiality, and linear movement in accordance with DIN 42955 Tolerance R for flange-mounted motors	L08	1/55	2/106	2/114	3/25	4/43 4/99	4/47 4/103	5/40	5/45	6/22	6/24
Non-standard cylindrical shaft extension, DE	Y58 and customer specifications	1/54	2/106	2/114	3/26	4/43 4/99	4/47 4/104	5/40	5/45	6/22	6/24
Non-standard cylindrical shaft extension, NDE	Y59 and customer specifications	1/54	2/106	2/114	3/26	4/43 4/99	4/47 4/104	5/40	5/45	6/22	6/24
Special shaft steel	Y60 and customer specifications			2/114	3/26		4/47 4/104			6/22	6/24
Windings and insulation Temperature class 155 (F), utilized according to 155 (F), with service factor	N01	1/33	2/103	2/110	3/22						
Temperature class 155 (F), utilized	N02	1/33	2/103	2/110	3/22						
acc. to 155 (F), with increased power Temperature class 155 (F), utilized acc. to 155 (F), with increased coolant temperature	N03	1/33	2/103	2/110	3/22						
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %	N05	1/33	2/103	2/110	3/22			5/38	5/43		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %	N06	1/33	2/103	2/110	3/22			5/38	5/43		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %	N07	1/33	2/103	2/110	3/22			5/38	5/43		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	N08	1/33	2/103	2/111	3/22			5/38	5/43		
Temperature class 180 (H)	N10	1/33	2/103	2/111	3/22	1/12	1/16				
Temperature class 180 (H) at rated power and max. CT 60 °C	N11	1/33	2/103	2/111	3/22	4/42	4/46	F (0.0	5/40	0/04	0.100
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	N30	1/33	2/103	2/111	3/22	4/42 4/97	4/46 4/102	5/38	5/43	6/21	6/23

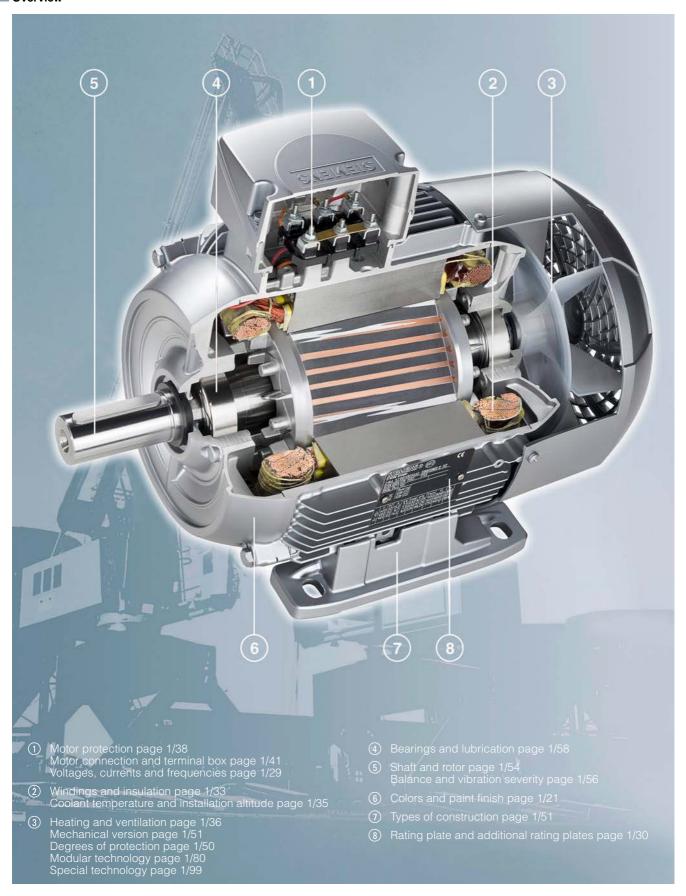
Guide to selecting and ordering the motors

Special versions	Additional	For	Catalog s	section – pa	age						
	identification code -Z with order code and plain text if required	informa- tion, see	2 Standard	l motors	3	4 VSD mot for conve operation	erter	5 Explosio proof mo		6 Smoke ex motors	ktraction
	ii required		Alumi- num series 1LE10	Cast-iron series 1LE15 1LE16	Cast-iron series 1LE5	Alumi- num series 1FP10.4 1LE1092	Cast-iron series 1FP15.4 1LE1592	Alumi- num series 1MB10	Cast-iron series 1MB15 1MB16	Alumi- num series 1PC1300 1PC1303	Cast-iron series 1PC1301 1PC1304
Windings and insulation (continued)											
Increased air humidity/temperature with 60 to 100 g water per m ³ of air	N31	1/33	2/103	2/111	3/22	4/42	4/46 4/102	5/39	5/43		
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	and spec. power, CT °C or IA m above sea level	1/33	2/103	2/111	3/22			5/39	5/43		
Temperature class 155 (F), utilized according to 155 (F), other requirements	and spec. power, CT °C or IA m above sea level	1/33	2/103	2/111	3/22						
Temperature class 180 (H), utilized according to 155 (F)	and spec. power, CT °C or IA m above sea level	1/33	2/103	2/111	3/22						
			6 Marine m	notors							
Marine version – Acceptance/certifica	tion										
Individual acceptance by marine classification society	B10		6/46 6	/49							
Type test with heat run for vertical motors, with acceptance	B81 New!		6/48								
Type test with heat run for horizontal motors, with acceptance	B83		6/46 6	/49							
Marine version – Basic version With type test certificate according to Lloyds Register (LR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E21		6/46 6	/49							
With type test certificate according to Bureau Veritas (BV), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E31		6/46, 6/47	7, 6/49							
With type test certificate according to Registro Italiano Navale (RINA), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E41		6/46 6	/49							
With type test certificate according to Russian Maritime Register (RS), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E46		6/46 6	/49							
With type test certificate according to DNV GL Maritime, CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E51		6/46 6								
With type test certificate according to American Bureau of Shipping (ABS), CT 50 °C, temperature class 155 (F), utilized according to 155 (F)	E52		6/46 6,								
With type test certificate according to Korean Register of Shipping (KR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E54		6/46, 6/47	7, 6/49							

General information

Cut-away diagram of a low-voltage motor

Overview



IntroductionGeneral information

Colors and paint finish

Overview

To protect the drives against corrosion and external influences, high-quality paint systems are available in various colors.

	Additional identifi	cation code -Z with	order code				
Standard version	S00	S01	S02	S03	S04	S05	S06
Paint finish, suitability	of paint finish for	climate group in a	ccordance with IE	C 60721-2-1			
Standard paint finish C2	Unpainted, but unfinished cast-iron surfaces are primed	Unpainted, motor primed	Special paint finish C3	Special paint finish system "sea air resistant" C4	Special paint finish system "offshore" C5	Interior paint finish, all bare internal components primed with rust inhibitor 1)	Polyurethane- based top coat, can only be ordered with \$03 or \$04
Use							
Moderate (extended) for indoor and outdoor installation under a roof not directly exposed to weather conditions.	The motors can be supplied unpainted on request.	The motors can be supplied with just a primer coat on request.	in direct sunlight and/or exposed to weather conditions.	Recommended for indoor or outdoor installation directly exposed to weather conditions, industrial climate with moderate SO ₂ exposure, VIK requirements, inshore maritime climate, but not offshore maritime climate, e.g. for crane drives and in the paper industry.	Recommended for outdoor installations exposed to direct weather conditions, industrial climate with moderate SO ₂ exposure, and offshore maritime climate, e.g. for crane drives.	The motors can be supplied with internal paint finish on request. Recommended when there is a risk of heavy condensate formation.	Exposure to direct sunlight (UV light) may cause a change in color. When color stability is a requirement, a polyurethane-based paint system is recommended for the top coat (RAL 7030). Colors other than RAL 7030 are available on request.
Test requirements acco	ording to EN ISO	12944-2 Corrosivity					
C2 Total film thickness – r	_	- 0/ 0/	C3	C4	C5	_	-
Motors in aluminum ve 2-K epoxy resin 30 4) 5)		30	60	120			
Polyurethane/ S06	_	30	00	120	_	_	_
-	-	-	-	120	-	-	Film thickness similar to S03/S04
Motors in cast-iron ver 2-K epoxy resin	sion						
60	30	60	90	150	170 ⁶⁾	_	_
Polyurethane/ S06	-	_	-	150	170 ⁶⁾	-	Film thickness
Resistance							similar to S03/S04
nesistance			For corrosive atmospheres up to 1 % acid and alkali concentration or permanent dampness in sheltered rooms.	Chemical exposure up to 5 % acid and alkali concentration.	Chemical exposure up to 5 % acid and alkali concentration.		Sunlight
Temperature range							
Up to 120 °C for brief periods Up to 100 °C continuously	-	-	Up to 140 °C for brief periods Up to 120 °C continuously	–40 140 °C	–40 140 °C		
Rel. air humidity at (ter 60 % (40 °C)	mperature)	-	100 % (40 °C)	75 % (50 °C)	75 % (60 °C)		

Table continues on the next page.

General information

Colors and paint finish

Overview (continued)

	Additional i	dentification co	de –Z with orde	r code			
Standard version	S00	S01	S02	S03	S04	S05	S06
Suitability for recoating ⁷⁾							
	Can be rec	oated within 1 w	veek				
Pre-treatment of parts							
	All parts cle	eaned and degr	eased, steel and	d cast-iron parts sa	andblasted		
Drying							
	All layers or	ven-dried					
Top coat colors							
Standard version	RAL 7030 (stone gray)					
Available colors	text of the r		mber (see table	rs must be ordered s for order codes '			specification in plain e for selection of
	S06 is avail	lable only in star	ndard RAL 7030)			
Treatment of bare metal areas of	shaft extensions	and flanges					
	Coated with	anti-corrosion	agent that repel	s water and palm	sweat		

Note:

For transport, the bare parts are coated with anti-corrosion paint which will last for a limited amount of time.

- 1) Machined laminated rotor core, shaft, inner diameter of cast-iron housing. interior surfaces of cast-iron bearing plates.
- 2) Total film thickness:
 - The specified film thickness represents average values for the external motor surfaces
 - Unpainted or one layer of paint (30 µm) less beneath the fan cover
 - The film thickness may differ at inaccessible locations (pockets/ recesses or bases of ribs)

The film thickness specified for aluminum/cast-iron versions refers not only to motors, but also to components such as the bearing plate and housing Motors are also available in an aluminum/cast-iron composite design

- 3) The paint coat can become electrostatically charged where there is a thick film. Electrostatic discharges can occur. There is a risk of explosion if potentially explosive mixtures are also present at this moment. This can result in death, serious injury or material damage. When painted surfaces are recoated, one of the following conditions must be fulfilled:
 - Limit the total paint film thickness according to the explosion protection group:
 - IIA, IIB: Total paint film thickness \leq 2 mm
 - IIC: Total paint film thickness ≤ 0.2 mm for motors of group II (gas)
 - · Limit the surface resistance of the paint used:
 - Surface resistance \leq 1 $G\Omega$ for motors of groups II and III (gas and dust)
 - · Charge transfer limit:
 - 60 nC for Group I or Group IIA devices
 - 25 nC for Group IIB devices
 - 10 nC for Group IIC devices
 - 200 nC for Group III devices
 - Breakdown voltage ≤ 4 kV for explosion group III (dust only)

Note: Paints for IIC with film thickness exceeding 200 µm are optionally available. Paints with film thickness exceeding 200 μ m have been tested for electrostatic charging. Motors with a coating thickness exceeding 200 μ m may only be painted over if the conditions mentioned above are complied with

Order code \$06 (polyurethane-based top coat) is not admissible for motors with type of protection Ex tb and Ex tc. Product has not yet been tested for electrostatic discharge in environments with explosive dusts.

- 4) Aluminum motors/components without a paint finish already meet the requirements for corrosivity class C2. It is not therefore necessary to apply paint to components that are not visible. Paint is therefore applied only for
- $^{5)}\,$ Aluminum motors with cast-iron components (e.g. DE bearing plate) have a film thickness of > 30 µm on cast-iron components.
- $^{6)}$ 50 μm zinc galvanized layer + 120 μm paint film thickness.
- 7) Primers, water-based 2-K epoxy resin paints and polyurethane-based paints can be overpainted with paints of the same kind if the motors are in the original packaging and are still covered by the warranty. A suitability test should be conducted before any recoating work is undertaken if the customer intends to use a coating of a different kind to overpaint the motor. Alternatively, a test in accordance with EN ISO 16927 "Determination of the overcoatability and recoatability of a coating" can be requested and

General information

Colors and paint finish

Overview (continued)

Paint finish in other standard RAL colors – Order code Y53 (RAL number is required in plain text)

RAL No.	Color name	RAL No.	Color name
3007	Black red	7000	Squirrel gray
5002	Ultramarine blue	7001	Silver gray
5007	Brilliant blue	7004	Signal gray
5009	Azure blue	7011	Iron gray
5010	Gentian blue	7016	Anthracite gray
5015	Sky blue	7022	Umbra gray
5017	Traffic blue	7031	Blue gray
5018	Turquoise blue	7032	Pebble gray
5019	Capri blue	7033	Cement gray
6011	Reseda green	7035	Light gray
6021	Pale green	9005	Jet black

The following weakly covering paints must be applied at least twice owing to their poor opacity. The standard paint finish for these colors is not possible and must be ordered with **\$02**, **\$03**, or **\$04**.

RAL No.	Color name
1002	Sand yellow
1013	Oyster white
1015	Light ivory
1019	Gray beige
2003	Pastel orange
2004	Pure orange
3000	Flame red
5012	Light blue
6019	Pastel green
9001	Cream white
9002	Gray white

Paint finish in special RAL colors – Order code Y56 (RAL number is required in plain text)

RAL No.	Color name	RAL No.	Color name
3004	Purple red	6034	Pastel turquoise
3011	Brown red	6034	Pastel turquoise
3015	Light pink	7005	Mouse gray
3020	Traffic red	7009	Green gray
4005	Blue lilac	7012	Basalt gray
5000	Violet blue	7015	Slate gray
5001	Green blue	7023	Concrete gray
5003	Sapphire blue	7036	Platinum gray
5005	Signal blue	7037	Dusty gray
5011	Steel blue	7038	Agate gray
5013	Cobalt blue	7039	Quartz gray
5014	Pigeon blue	7040	Window gray
5020	Ocean blue	7042	Traffic gray A
5021	Water blue	7044	Silk gray
5022	Night blue	7045	Telegray 1
5023	Distant blue	7046	Telegray 2
6000	Patina green	7047	Telegray 4
6001	Emerald green	8012	Red brown
6002	Leaf green	8025	Pale brown
6005	Moss green	8028	Terra brown
6009	Fir green	9003	Signal white
6010	Grass green	9004	Signal black
6016	Turquoise green	9006	White aluminum
6017	May green	9007	Gray aluminum
6018	Yellow green	9010	Pure white
6024	Traffic green	9011	Graphite black
6026	Opal green	9016	Traffic white
6029	Mint green	9017	Traffic black
6032	Signal green		

The following weakly covering paints must be applied at least twice owing to their poor opacity. The standard paint finish for these colors is not possible and must be ordered with **\$02**, **\$03**, or **\$04**.

RAL No.	Color name
1003	Signal yellow
1004	Golden yellow
1006	Maize yellow
1007	Daffodil yellow
1012	Lemon yellow
1014	lvory
1018	Zinc yellow
1021	Rape yellow
1023	Traffic yellow
1028	Melon yellow
1032	Broom yellow
1033	Dahlia yellow
2008	Bright red orange
2009	Traffic orange
2010	Signal orange
3002	Carmine red
5024	Pastel blue
6027	Light green

Coating structure and colors not specified in the catalog are available on request.

General information

Packaging and dispatch · Safety notes and documentation · Test certificates · Extension of the liability for defects

Overview

Connected in star for dispatch – Order code M01

The terminal board of the motor is connected in star for dispatch.

Connected in delta for dispatch - Order code M02

The terminal board of the motor is connected in delta for dispatch.

Packing weights

For motors			For land trans	•						
Frame size	Type		Type of consti				Types of construction IM B5, IM V1			
	1LE1 1LE5 1PC1 1MB1		in box Tare	on ISPM wooden base board with telescopic box Tare	on pallet Tare	in crate Tare	in box Tare	on ISPM wooden base board with telescopic box Tare	on pallet Tare	in crate Tare
			kg	kg	kg	kg	kg	kg	kg	kg
63 M		0B.2	0.65	_	_	_	0.65	_	_	_
71 M		0C.2	0.65	-	_	_	0.65	_	-	_
80 M		0D.2	0.65	_	_	_	0.65	_	_	_
90 S		0E.0	0.65	-	_	_	0.65	-	_	_
100 L		1A.4	-	5.0	_	_	_	5.0	_	_
		1A.5	-	5.0	_	_	_	5.0	_	_
		1A.6	-	5.0	_	_	_	5.0	_	_
112 M		1B.2	-	5.0	_	_	-	5.0	-	_
		1B.6	-	5.0	_	_	_	5.0	_	_
132 S		1C.0	4.7	_	_	_	5.2	_	_	_
		1C.1	4.7	-	-	-	5.2	-	-	-
132 M		1C.2	4.7	-	_	_	5.2	-	_	-
		1C.3	4.7	_	_	_	5.2	_	_	_
		1C.6	8.7	_	_	_	9.2	_	_	_
160 M		1D.2	4.8	_	_	_	5.7	_	_	_
		1D.3	4.8	_	_	_	5.7	_	_	_
160 L		1D.4	4.8	-	_	_	5.7	-	_	_
		1D.6	8.8	_	_	_	9.7	_	_	_
180			-	-	8.0	-	_	-	10.0	_
200			-	-	11.0	_	_	-	13.0	_
225			_	_	14.0	_	_	_	17.0	_
250			-	-	22.0	_	-	_	25.0	_
280			_	_	24.0	_	_	_	27.0	_
315			-	-	28.0	_	-	_	32.0	_
315	1LE5		-	-	32.0	_	-	_	46.0	_
355	1LE5		-	-	58.0	-	-	-	78.0	_

Data apply for individual packaging. Wire-lattice pallets can be used, order code B99

Safety notes

Printed German and English Operating Instructions (compact), enclosed in each wire-lattice pallet – Order code B04

Documentation

Printed German and English Operating Instructions enclosed with the motor are available as an option (standard documentation in PDF format can be obtained using the Drive Technology Configurator) – Order code **B04**

Test certificates

Acceptance test certificate 3.1 in accordance with EN 10204 – Order code B02

An acceptance test certificate 3.1 in accordance with EN 10204 can be supplied for most motors.

Type test with temperature-rise run for horizontal motors

- With acceptance Order code B83
- Without acceptance Order code B82

During the type test, a temperature-rise test is performed; no-load, short-circuit, and load characteristics are recorded; the iron losses and friction losses are determined and the efficiency is calculated from the summed losses. This option is only applicable to motors with a horizontal type of construction. Acceptance testing is performed by an external representative (e.g. customer, classification society). No acceptance test is performed when order code **B82** is stated.

Extension of the liability for defects for SIMOTICS 1LE15 and 1MB15 Low-Voltage Motors

For SIMOTICS 1LE15 and 1MB15 Low-Voltage Motors, it is possible to obtain an extension of the liability for defects beyond the standard liability period.

The standard warranty period is quoted in the standard conditions of supply and delivery and is 12 months. The standard warranty period for SIMOTICS 1LE16 and 1MB16 Low-Voltage Motors is 36 months.

For the case of a new product order

With the following optional order suffixes listed in the table, extension of the liability for defects beyond the standard liability period is possible in conjunction with a new order for a product.

The markup on the product price is graded according to the duration of the extension.

General information

Versions in accordance with standards and specifications

Overview

Applicable standards and specifications

The 1LE. motors comply with the IEC 60034 series of international product standards for rotating electrical machines and, in particular, those parts that are listed in the table below.

Title	IEC/EN	DIN EN
General specifications for rotating electrical machines	IEC 60034-1, IEC 60085	EN 60034-1
Specification of the losses and efficiency of rotating electrical machines	IEC 60034-2-1	EN 60034-2-1
General-purpose three-	IEC 60072	EN 50347
phase induction motors having standard dimensions and powers	Mounting dimensions and power series only (no assignment of frame size to power)	Mounting dimensions according to IEC 60072 and power assignment for Europe
Starting performance of rotating electrical machines	IEC 60034-12	EN 60034-12
Terminal designations and direction of rotation for electrical machines	IEC 60034-8	EN 60034-8
Designation for types of construction, mounting, and terminal box position (IM code)	IEC 60034-7	EN 60034-7
Terminal box cable entries	-	DIN 42925
Built-in thermal protection	IEC 60034-11	EN 60034-11
Noise limits of rotating electrical machines	IEC 60034-9	EN 60034-9
IEC standard voltages	IEC 60038	IEC 60038
Methods of cooling of rotating electrical machines (IC code)	IEC 60034-6	EN 60034-6
Vibration severity of rotating electrical machines	IEC 60034-14	EN 60034-14
Vibration limits	-	ISO 10816
Degrees of protection for rotating electrical machines (IP code)	IEC 60034-5	EN 60034-5
International efficiency classes for rotating electrical machines (IE code)	IEC 60034-30-1	EN 60034-30
In addition, the following ap	plies to Ex motors:	
General provisions	IEC/EN 60079-0	EN 60079-0
Type of protection "n" (non-sparking)	IEC/EN 60079-15	EN 60079-15
Areas containing flammable dust	IEC/EN 60079-31	EN 60079-31

The following applies to explosion-proof motors:

Since the requirements of explosion-proof motors comply with the European standards EN 60079-0, EN 60079-15, EN 60079-31 and Directive 2014/34/EU (ATEX 95), the certificates issued by authorized testing agencies (PTB, FTZU, etc.) are accepted by all member states of the EU. The remaining members of CENELEC, Switzerland in particular, also accept the certificates.

Tolerances for electrical data

According to EN 60034, the following tolerances are permitted: Motors that comply with EN 60034-1 must have a voltage tolerance of ± 5 %/frequency tolerance of ± 2 % (Design A). If this is fully utilized, the admissible limit temperature of the temperature class may be exceeded by 10 K.

Efficiency η at $P_{\text{rated}} \leq 150 \text{ kW: } -0.15 \cdot (1 - \eta)$ $P_{\text{rated}} > 150 \text{ kW: } -0.1 \cdot (1 - \eta)$

Where η is a decimal number.

Power factor $-\frac{1-\cos\varphi}{6}$

• Minimum absolute value: 0.02

• Maximum absolute value: 0.07

Slip ± 20 % (for motors < 1 kW ± 30 % is admissible) Locked-rotor current +20 % Locked-rotor torque -15 % to +25 % Breakdown torque -10 % Moment of inertia ± 10 %

Certifications

Product certifications are differentiated in terms of safety-related certificates and efficiency certificates.

Since 2011, it has been obligatory for low-voltage motors with power ratings in the range of 0.75 to 375 kW (2, 4, and 6-pole) to be classified in accordance with the IEC 60034-30-1 efficiency standard and to be marked with the corresponding IE code (International Efficiency IE1, IE2, or IE3). The efficiency is determined using the summed losses method in accordance with IEC 60034-2-1.

General information

Versions in accordance with standards and specifications

Overview (continued)

Energy-saving motors for the European Economic Area in accordance with EU Directive 640/2009

Since January 2017, all low-voltage motors that fall within the scope of the EU directive must fulfill the specifications of international efficiency class IE3.

- Line voltage ≤ 1000 V
- Line frequency 50 or 50/60 Hz
- Power range 0.75 to 375 kW
- Pole number 2, 4 and 6-pole
- Continuous duty S1

IE2 motors are only admissible if they are speed-controlled via converters.

Energy-saving motors for the North-American economic area in accordance with EISA

In accordance with EISA, modified conditions have been in effect since June 1, 2016.

This law stipulates that all motors must comply with the requirements stated in NEMA MG1 Table 12-12 (NPE = Nema Premium Efficient).

From this date onwards, therefore, motors previously covered by the EPAct must also comply with NPE. The NPE requirements apply to motors with the following characteristics / operating conditions:

- Line voltage ≤ 600 V
- Line frequency 60 Hz
- Power range 1 hp to 500 hp
- Number of poles: 2, 4, 6, 8-pole motors and geared motors
- Continuous duty S1

Explosion-proof motors are also included.

Exclusions from the EISA efficiency requirements:

- Brake motors
- · Converter motors

Note:

Option **D30**: el. acc. to NEMA Option **D31**: UL version

These options can be ordered for motors that are not subject to the EISA specifications (e.g. for use outside North America).

Options **D30** and **D31** do not authorize operation within North America.



The logo NEMA Premium is a registered trademark. It is only permitted to be used by companies that voluntarily submit to the control of the NEMA organization.

Approval for the USA: UL safety and DoE listing

For the USA, the motor series **1LE1.21** (NEE) and **1LE1.23** (NPE) are listed at the Department of Energy (DoE) and marked with the certification number **CC032A**.

Additional specifications to NEMA MG1: Nominal efficiency acc. to NEMA MG1 Table 12-11 or Table 12-12, design letter, code letter, CONT, CC No. CC 032A (Siemens) and service factor SF 1.15.

Motor series 1LE1.21 and 1LE1.23 remain certified up to a rated voltage of 600 V from Underwriters Laboratories Inc. and are marked accordingly ("Recognition Mark" = R/C).



CC032A

UL approval does not apply to motors for Zones 2, 21, 22 or marine motors.

Approval for Canada: CSA safety and CSA Energy Efficiency Verification

In April 2012, the EISA requirements were implemented in Canada; in this case, all powers are subject to certification without the restrictions applicable to the NEMA frame sizes. Motor series 1LE1.21 and 1LE1.23 are certified for Canada through the Canadian Standard Association (CSA), listed by the Office of Energy Efficiency (OEE) and marked with both the CSA safety logo and the CSA efficiency label. These motors comply with the efficiency requirements of the new CSA standard C390-10. The efficiency is determined in the same manner as with IEC 60034-2-1.



Externally or internally mounted components which are used are listed by CSA or are used by manufacturers in accordance with regulations. It may have to be decided whether the motor is suitable for the application. Approval does not apply to 1MB1 motors for Zones 2, 21, 22 or marine motors.

Approval for Mexico:

The EISA regulations are applicable for Mexico.

Korea certification - Order code D33

Minimum efficiencies required by law

According to a legislative amendment with reference to the MKE-2015-28 (Ministry of Knowledge Economy Korea) dated February 12, 2015, Minimum Efficiency IE3 shall become obligatory in Korea by the following dates:

- October 1, 2015 for motors ranging from 37 to 200 kW
- October 1, 2016 for motors ranging from 200 to 375 kW
- October 1, 2018 for motors ranging from 0.75 to 37 kW

For this reason, we shall be launching the SIMOTICS GP/SD APAC series (Asia/Pacific) with efficiency class IE3, which complies with the IE3 energy efficiency requirements for line frequencies 50 Hz and 60 Hz (P50) onto this market:

- SIMOTICS GP,
 - 2, 4, and 6-pole motors of the 1LE1043 motor series
- · SIMOTICS SD.
- 2, 4, and 6-pole motors of the 1LE1543 and 1LE1643 motor

Scope of Korean standard KS C 60034-2-1

This Korean standard is applicable to three-phase asynchronous motors with the following parameters:

- Voltage: ≤ 600 V
- Power supply:
 Rated power:
 Number of poles:
 Speed:
 Coolant temperature:
 40 Hz three-phase
 0.75 ... 375 kW
 2, 4, 6 and 8
 Constant
- Mounting method: Foot or flange-mounted

General information

Versions in accordance with standards and specifications

Overview (continued)

Korea Energy Label

Option **D33** KEMCO (Korea Energy Management Cooperation KEMCO) Korea Energy Efficiency Label can be ordered only for those motors which comply with Korean efficiency requirements. Confirmation that the motor efficiency and power factor comply with KS C 60034-2-1 is provided by certification.

The Korea Energy Label includes the following information:

- Full-load efficiency
- Motor Type (MT)
- Rated output power
- · No. of poles
- CO₂ emissions per hour
- Energy costs per annum



Rating plate

KEMCO-certified motors with option code **D33** are fitted with a modified rating plate that indicates the admissible minimum energy efficiency value (P50 for 60 Hz) in accordance with the Korean Energy Efficiency Ordinance with reference to Korean Standard KS C 60034-2-1.

The energy efficiency values stipulated by KS C 60034 are identical to the international efficiency values IE (IEC 60034-30).

SIE							UL	<i>E3</i> (H)	(
Made in Czech. Rep. D-90441 Nürnberg 3~Mot. 1CV3314B 1LE15433AB434AA4-Z UC 1701/1234567 001 001									
IEC/EN 60034 315L IMB3 IP55									
990kg	Th.Cl.	. 155(F)	-20°	C <=TAM	B<=40°C				
	E	Bearing		UNIREX-	N3				
_	DE 6	6319-C3	ŀ	40g IN	ΓERVAL:	6000h			_
	NE 6	6319-C3	ŀ	40g					
					KS	C 6003	34-2-1		
V	Hz	Α	kW	cosφ	NOM.EFF	1/min	IE-CL		
400 Δ	50	275	160	0.87	95.8	1490	IE3		
690 Y	50	161	160	0.87	95.8	1490	IE3		
460 A	60	275	184	0.88	96.2	1788	IE3		
460 Δ	60	240	160	0.87	96.2	1791	IE3		

You will find a complete list of KEMCO-certified motors (APAC Line) on the selection tables in Chapter 2.

1PC3 motors: 1PC3 motors are also covered by certification provided that the electrical design complies with local requirements as stipulated in standard KS C 60034-2-1. Please contact QC for further clarification if required.

Motors from the APAC Line can be ordered with or without option **D33** depending on the final destination region.

Energy-saving motors for China: China Energy Label

In 2012, the directive for the China Energy Label was redefined. Applicability was extended to explosion-proof motors.

- Line voltage ≤ 1000 V
- Line frequency 50 Hz
- Power range 0.75 kW to 375 kW
- Number of poles: 2, 4, 6-pole
- Continuous duty S1

The minimum requirements for the efficiency classes previously defined in the Chinese standard GB 18613-2006 were classified in the new standard GB 18613-2012 (Minimum Allowable Values of Energy Efficiency and Energy Efficiency Grades for Small and Medium Three-Phase Asynchronous Motors) in accordance with International Efficiency IE2-4.



IEC IE class	GB 18613-2012	
IE4	Grade 1	
IE3	Grade 2	
IE2	Grade 3	
IF1		

The 1LE1 motor series for IE2 and IE3, plus order code **D34** were previously certified for China Energy Label 2012.

CCC safety certification is also required for motors with lower powers.

CCC - China Compulsory Certification - Order code D01

Motors with small powers (small power motors) that are exported to China must be certified up to a rated power of:

2-pole: ≤ 2.2 kW
4-pole: ≤ 1.1 kW
6-pole: ≤ 0.75 kW
8-pole: ≤ 0.55 kW

Notes:

Chinese customs checks the need for certification of imported products by means of the commodity code.

The following do not need to be certified:

- Explosion-proof motors
- Multi-voltage motors
- Multi-speed motors with powers higher than those listed above
- Repair parts

General information

Versions in accordance with standards and specifications

Overview (continued)

VIK version

VIK = Verband der Industriellen Energie- und Kraftwirtschaft e.V. (German Association of the Energy and Power Supply Industry)

- VIK standard version 1LE1 + order code C02 "VIK" identification on rating plate.
 - → Product range in catalog section 2.
- VIK-Ex ec version 1MB1.3 + order code C02
 "VIK" and "Ex ec IIC T3 Gc" marking on the rating plate
 according to Directive 94/9/EC (ATEX).
 - → Product range in catalog section 5.

Both versions include technology for Zone 2 to type of protection Ex ec IIC T3 Gc. Motors up to frame size 355 can be supplied in accordance with the technical requirements of the VIK recommendation.

Minimum efficiency class:

- VIK standard version:
 IE3 in accordance with legal specifications.
- VIK Ex ec version: At least IE3 in accordance with the final draft of the VIK recommendation dated February 2017.

Notes:

- 8-pole motors or all motors < 0.75 kW are still possible as these motors are outside the power range specified for IE stamping.
- Motors in VIK version with mounted technology (brake, rotary pulse encoder and separately driven fan) are not compatible with Zone 2.

Versions for Zone 21/22 are not possible.

TR CU product safety certificate EAC for the Eurasian customs union (Russia, Belarus, Kazakhstan)
TR CU = Technical Regulation Customs Union
EAC = Eurasian Conformity

The TR CU product safety certificate is required in order to import motors into the Eurasian customs union area.

"TR CU product safety certificate EAC for Eurasian customs union" – order code **D47**

When motors are ordered with order code **D47**, the motor rating plate and packaging are marked with the logo "EAC".

The motor must have a "TR CU product safety certificate EAC", although the certificate does not generally have to be shipped with the motor. The customs authorities use the motor article number to check the motor certification.

The following are available in the SIOS (Siemens Industry Online Support) and the Drive Technology Configurator:

- TR CU product safety certificate in accordance with the Low-Voltage Directive
- Additional TR CU product certificate in accordance with the EMC Directive.

Train-compatible version

Train-compatible version IC418, EN IEC 60349, acc. to EN 45545, without external fan and without fan cover (1LE10 aluminum motors in frame sizes 80 to 200)

- Electrical design in accordance with EN IEC 60349;
 U_{rated} ≤ 500 V AC.
- DC-link voltage: U_{dc} ≤ 700 V; du/dt ≤ 5 kV/µs
- Vibration resistance to Class 3M4 according to IEC 60721-3-3
- · Metal cable gland
- Including external grounding depending on construction type (corresponds to order code H04).
- Standard paint finish certified according to EN 45545 (polyurethane-based paint without test certificate – corresponds to order code \$06)

Train-compatible version IC411, EN IEC 60349, with EN 45545, with external fan and fan cover in metal – order code **L91** for cooling method IC411

- 1LE10 aluminum motors in frame sizes 80 to 200
- Electrical design in accordance with EN IEC 60349; $U_{\rm rated} \leq$ 500 V AC
- DC-link voltage: $U_{\rm dc} \le 700 \text{ V}$; $du/dt \le 5 \text{ kV/}\mu\text{s}$
- Vibration resistance to Class 3M4 according to IEC 60721-3-3
- Metal cable gland
- Including external grounding depending on construction type (corresponds to order code H04)
- Standard paint finish certified according to EN 45545 (polyurethane-based paint without test certificate – corresponds to order code \$06)
- Incl. metal fan cover

Train-compatible version IC411, EN IEC 60349, without EN 45545, with external fan and fan cover in plastic – Order code **L90** for cooling method IC411

- 1LE10 aluminum motors in frame sizes 80 to 200
- Electrical design in accordance with EN IEC 60349; $U_{\rm rated} \leq$ 500 V AC
- DC-link voltage: U_{dc} ≤ 700 V; du/dt ≤ 5 kV/µs
- Vibration resistance to Class 3M4 according to IEC 60721-3-3
- · Metal cable gland
- Including external grounding depending on construction type (corresponds to order code H04)
- Standard paint finish, without EN 45545 (polyurethane-based paint without test certificate – corresponds to order code S06)
- · Incl. plastic fan cover

Recommended supplementary options:

- Located bearing DE (order code L20)
- Temperature class 155 (F), utilized according to 130 (B), coolant temperature 55 °C, derating approx. 13 % (order code N07)
- Coolant temperature -30 to +40 °C (order code **D04**)
- Coolant temperature -40 to +40 °C (order code D03)

Electrical design

Voltages, currents and frequencies · Powers

Overview

Voltages, currents and frequencies

Standard voltages

EN 60034-1 differentiates between Category A (combination of voltage deviation ± 5 % and frequency deviation ± 2 %) and Category B (combination of voltage deviation ± 10 % and frequency deviation $\pm 3/-5$ %) for voltage and frequency fluctuations. The motors can supply their rated torque in both Category A and Category B. In Category A, the temperature rise is approx. 10 K higher than during rated operation.

Standard	Category	Category
IEC 60034-1	Α	В
Voltage deviation Frequency deviation	±5 % ±2 %	±10 % +3 %/–5 %
Rating plate data stamped with rated voltage a (e.g. 230 V)	a ±5 % (e.g. 230 V ±5 %)	a ±10 % (e.g. 230 ±10 %)
Rating plate data stamped with rated voltage ranges b to c (e.g. 220 to 240 V)		b –10 % to c +10 % (e.g. 220 –10 % to 240 +10 %)

For further details, see EN 60034-1.

In Category B, the standard does not recommend extended operation, so it is not permissible for explosion-proof motors. See "Rating plates and additional rating plates" for details of the rating plate inscriptions and corresponding examples. The selection and ordering data give the rated current at 460 V, 60 Hz. The IEC 60038 standard specifies a tolerance of $\pm 10\%$ for line voltages of 230 V, 400 V, and 690 V.

Line voltages	Voltage code
1LE1 motors	
230 VΔ/400 VY, 50 Hz 460 VY, 60 Hz	22
400 VΔ/690 VY, 50 Hz 460 VΔ, 60 Hz	34
500 VY, 50 Hz 575 VY, 60 Hz	27
500 VΔ, 50 Hz 575 VΔ, 60 Hz	40

Area A 1.05 Rating point 0.95 0.98 1.00 1.02 X Area B (outside area A) 0.95 0.95 0.97 0.95

Y-axis: Voltage tolerance X-axis: Frequency tolerance

Non-standard voltages and/or frequencies

The tolerance laid down by EN 60034-1 applies to all non-standard voltages.

For some non-standard voltages at 50 or 60 Hz, order codes are specified. They are ordered by specifying the code digit **9** for voltage in the 12th position of the Article No. as well as the code digit **0** in the 13th position of the Article No. and the corresponding order code.

M1Y Non-standard rated voltage between 200 V and 690 V (voltages outside this range are available on request), frequency, circuit, for 60 Hz additionally required rated power in kW.

Motor series	Frame size		Rated voltages that can be supplied for M1Y Lowest/highest voltage for				
	Delta	Star					
1LF1_1MR1	63	315	200/690 V	250/690 V			

Order codes for other rated voltages are listed under "Order suffixes" in the "Selection and ordering data" as well as "Special versions" under "Voltages".

Line voltages according to NEMA

Assignment of rated voltage of the motor to that of the line

Line voltage	Motor voltage
208 V	200 V
240 V	230 V
480 V	460 V
600 V	575 V

Powers

The powers or rated powers are listed in the selection tables for both 50 Hz and 60 Hz. For 60 Hz, the rated power values must, in some cases, be increased, e.g. for pole-changing motors.

Assignment of standard powers kW-hp and vice versa, in accordance with IEC

 $kW \cdot 1.341 = hp$ $hp \cdot 0.746 = kW$

P_{rated}	P_{rated}	P_{rated}	P _{rated}	P _{rated}	P _{rated}	P_{rated}	P_{rated}	P _{rated}	P_{ated}	P_{rated}	$P_{\rm rated}$
kW	hp	kW	hp	kW	hp	kW	hp	kW	hp	kW	hp
0.06	0.08	0.37	0.5	2.2	3	11	15	37	50	110	150
0.09	0.12	0.55	0.75	3	3.7	15	20	45	60	132	200
0.12	0.16	0.75	1	4	5	18.5	25	55	75	160	250
0.18	0.25	1.1	1.5	5.5	7.5	22	30	75	100	200	300
0.25	0.33	1.5	2	7.5	10	30	40	90	125		

Electrical design

Rating plate and additional rating plates

Overview

In accordance with EN 60034-1, the approximate total weight is specified on the rating plate for all motors.

Supplementary data (maximum of 20 characters) can be indicated on the rating plate or additional rating plate and on the packaging label, order code **Y84.**

An adhesive label can also be supplied loose, order code **Y85.**

An additional rating plate for customer specifications is also possible, additional text: 9 lines of 40 characters each, order code **Y82**.

An additional rating plate with deviating rating plate data can also be ordered (only for ratings such as voltage, power, speed), order code **Y80.**

An "additional rating plate for voltage tolerance" can also be ordered.

Can be ordered for 230 V Δ /400 VY or 400 V Δ /690 VY (voltage code "22" or "34"). Not possible for pole-changing motors, naturally cooled 1PC1 motors, 8-pole motors and in combination with order code D34.

Order code **B07**

(voltage range plate is always provided in the form of an adhesive label)

The number of rating plates and/or the material quality of the rating plate including additional rating plates can be ordered using order codes Y82, Y84 and Y80. Does not apply to order code B07, rotational direction arrows, PTC thermistor plates, other notices

- Additional (rating) plate(s)
 Order code M10.
- Plate(s) with resistance to scratches, heat, cold and acid Order code M11.

In the standard version, the rating plate is available in international format or in the German/English language. The language for the rating plate can be ordered by specifying in plain text. An overview of the languages that can be ordered is provided by the table below.

Overview of languages on the rating plate

Motor type	Frame size	Rating plate German (de)	English (en)
		admian (ad)	Lingilori (ori)
1LE10	63 200		0
1LE15/6	71 315		0
1LE5	315 355		0
1MB1	80 315		0
1PC1	100 315		0

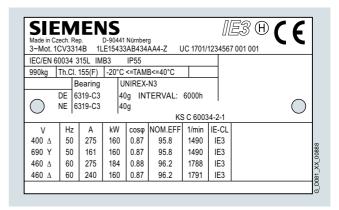
- Standard version
- Without additional charge

Other languages on request

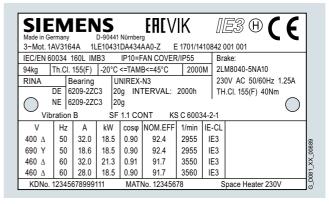
Examples of rating plates

CIPAPPIC Made in Germany								1
SIEMENS IEC/EN 60034							7	
3~MOT 1AV2092A 1LE10010EA422AA					AA0	TH.CL	IP55	
F no E1701/1234567 01 001 FS 90					90L	IMB3	WT	13kg
V	Hz	kW	Α	PF	RPM	EFF-CL	ETA %	
230 Δ	50	2.2	7.8	0.85	2890	IE2	83.2	IE2
400 Y	50	2.2	4.50	0.85	2890	IE2	83.2	\oplus
460 Y	60	2.55	4.35	0.86	3485	IE2	85.5	

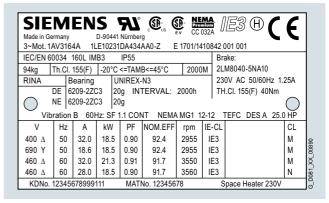
Adhesive rating plate up to frame size 90



Rating plate for motor with KEMCO certification



Standard rating plate (metal) for IEC motors – maximum characteristics

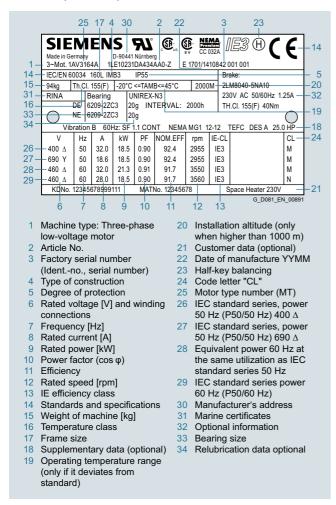


Standard rating plate (metal) for NEMA motors - maximum characteristics

Electrical design

Rating plate and additional rating plates

Overview (continued)



Explanation of the standard rating plate

Efficiency, power factor, rated speed, direction of rotation, rated torque

Overview

Efficiency and power factor

The efficiency η for 4/4, 3/4 and 1/2 load and the power factor $\cos \varphi$ for each rated power are listed in the selection tables in the individual sections of this catalog. See page 1/5 for minimum efficiencies.

Rated speed and direction of rotation

The rated speeds are applicable for the rated data. The synchronous speed changes proportionally with the line frequency. The motors are suitable for clockwise and counterclockwise rotation.

When U1, V1, W1 are connected to L1, L2, L3 the motor rotates clockwise when viewing the drive shaft extension. Counterclockwise rotation is achieved by swapping two phases (see also "Heating and ventilation" on page 1/36).

Rated torque

The rated torque in Nm delivered at the motor shaft is

$$T = \frac{9.55 \cdot P \cdot 1000}{n}$$

P Rated power in kW

n Speed in rpm

Note:

If the voltage deviates from its rated value within the admissible limits, the locked-rotor torque, the pull-up torque and the breakdown torque vary with the approximate square of the value, but the locked-rotor current varies approximately linearly.

In the case of squirrel-cage motors, the locked-rotor torque and breakdown torque are listed in the selection tables as multiples of the rated torque.

Preferred practice is to start squirrel-cage motors directly on line. The torque class indicates that with direct-on-line starting, even if there is an undervoltage of -5 %, it is possible to start up the motor against a load torque of

- 160 % for CL 16
- 130 % for CL 13
- 100 % for CL 10
- 70 % for CL 7
- 50 % for CL 5

of the rated torque.

Electrical design

Converter operation

Overview

All motors in the SIMOTICS generation are equipped with innovative insulation systems, consisting of high-quality enamel wires and insulating sheet materials in conjunction with highly temperature-resistant impregnations.

The motors can be operated with SINAMICS G and SINAMICS S converters (controlled and uncontrolled infeed) while adhering to the admissible voltage peaks in accordance with the adjacent table.

Continuous operation while fully utilizing the admissible voltage tolerances must be avoided and is not recommended in accordance with IEC 60034-1 2011 Chapter 7.3.

The preferred supply system configurations are TT systems and TN systems with neutral-point grounding. We do not recommend operation in TN systems because of the higher voltage load.

Operation on non-grounded IT systems is also possible. However, in a ground fault, the insulation is excessively stressed. In the case of a ground fault, the process should be terminated as quickly as possible (t < 2 h), and the fault resolved.

For motors with protruding connection cables (order codes **R20**, **R21**, **R22**, **R23**, and **R24**), please inquire in the case of converter operation.

Impulse Voltage Insulation Class (IVIC) - category C (strong)

The insulation system of SIMOTICS motors significantly exceeds the requirements of stress category C (IVIC C = high stress). If voltage peaks higher than those specified according to IVIC C can occur, observe the data in the following table.

- For a line voltage (converter input voltage) up to max. 500 V and operation connected to a SINAMICS G/SINAMICS S converter with uncontrolled infeed (BLM, SLM), the relevant guidelines for the motor and converter configuration must be observed.
- For a line voltage (converter input voltage) up to max. 480 V and operation connected to a SINAMICS S converter with controlled infeed (ALM), the relevant guidelines for the motor and converter configuration must be observed.
- For line voltages (converter input voltages) higher than those stated above (max. 690 V), motors that are ordered for converter operation must have a suitable insulation system.
- For operation of a converter of another manufacturer, the permissible voltage peaks according to IEC 60034-18-41 in accordance with stress category C (see table below) must be observed, depending on the particular line voltage (converter input voltage) and the motor insulation system.

					•			
		Line vo	ltage <i>U</i> ra	ted	ed			
		400 V		480 V		500 V		
Standard		IVIC C	Siemens	IVIC C	Siemens	IVIC C	Siemens	
Uphase Uphase-to-ground	V _{pk/pk}	1680	2200	2016	2200	2100	2200	
$\hat{U}_{\text{phase-to-ground}}$	V_{pk}	840	1100	1008	1100	1050	1100	
Uphase Uphase-to-phase	V _{pk/pk}	2360	3000	2832	3000	2950	3000	
Û _{phase-to-phase}	V_{pk}	1180	1500	1416	1500	1475	1500	

The following applies for the voltage rise time: $T_a > 0.3 \mu s$.

The voltages according to EN 60034-18-41/IVIC CC are specified as peak-to-peak values $(V_{pk}/_{pk}).$ For information, the conventional peak values (V_{pk}) are also stated.

Insulation systems for converter operation > 480 V/500 V

The SIMOTICS motors can be operated in their standard version on SINAMICS converters without an additional filter up to a maximum converter input voltage of 500 V 3 AC on uncontrolled infeeds (SINAMICS G/S/V, BLM/SLM) and up to 480 V 3 AC on controlled infeeds (SINAMICS S, ALM). The specific configuration guidelines for motors and converters must be observed.

For higher converter input voltages, > 480 V/500 V 3 AC, a special insulation system of the motor (PREMIUM) is required. This is available for converter motors, such as SIMOTICS GP/SD VSD10, SIMOTICS DP crane motors, SIMOTICS FD, and the converter-capable SIMOTICS SD Pro motors.

For IE3 standard motors as of frame size 225, the PREMIUM insulation system can be obtained on request.

Bearing insulation/shaft grounding brushes

To avoid damage to bearings due to bearing currents, we recommend bearing insulation at the non-drive end (NDE) for frame size 225 and larger (order code **L51**).

For frame size 315 and larger, bearing insulation at the non-drive end (NDE) is always provided (order code **L51**).

When rotary encoders are used, it must be ensured that these do not bypass the bearing insulation. The rotary encoders in this catalog meet this requirement except for type 1XP8.

In most cases, NDE bearing insulation provides sufficient protection against damage to bearings due to bearing currents.

In rare cases, depending on the application and system, it may be necessary to take further measures on the converter or motor. On the motor side, bearing insulation is provided on the drive end (DE) (order code **L50** on frame size 225 and larger) and shaft grounding brushes (order code **L52** as of frame size 280).

When NDE bearing insulation is used together with DE bearing insulation, the option "shaft grounding brush" must additionally be selected to keep the shaft at a defined potential. In this constellation, to avoid damage to the bearings of the driven machine due to bearing currents, it is also necessary to insulate the coupling between the motor and the driven machine.

The EMC guidelines must always be complied with when the drive system is installed.

Thermal utilization of the motor

When motors are operated on a converter, additional losses occur due to the harmonics in the motor currents, which, depending on the permissible winding temperature, can make it necessary to reduce the torque. For operation on SINAMICS converters, the permissible torque values can be obtained from the SIZER engineering tool.

For operation on SINAMICS converters with the power ratings specified in the catalog, the motors are used according to temperature class 155 (F), i.e. in this case neither a service factor > 1 nor an increased coolant temperature is possible (order codes **N01**, **N02** and **N03** cannot be ordered).

Explosion-proof motors

For converter operation of Ex motors, special measures must be considered, see Chapter 5.

Electrical design

Windings and insulation

Overview

DURIGNIT IR 2000 insulation system

The DURIGNIT IR 2000 insulation system consists of highquality enamel wires and insulating sheet materials in conjunction with temperature-resistant resin impregnation.

This ensures that these motors will have a high mechanical and electrical strength, high service value, and a long lifetime. The insulation system protects the winding to a large degree against aggressive gases, vapors, dust, oil and increased air humidity. It can withstand the usual vibration stressing. The insulation is suitable up to an absolute air humidity of 30 g water per m³ of air. Moisture condensation should be prevented from forming on the winding. For higher values, the **N30** and **N31** options are available – see page 1/34.

Please inquire about extreme applications.

Restarting against residual field and opposite phase

All motors can be restarted against 100 % residual field after a line voltage failure.

Winding and insulation version with regard to temperature class

All motors are designed for temperature class 155 (F). At rated power with line operation, the motors can be used in temperature class 130 (B).

Temperature class 155 (F), utilized according to 155 (F), with service factor (SF)

According to the selection table, at rated power and rated voltage, all 1LE1/1PC1 motors in line operation have a service factor of 1.15. An exception to this are IE1 motors, which have a service factor of 1.1.

Order code N01

Temperature class 155 (F), utilized according to 155 (F), for higher power

When utilized according to temperature class 155 (F), the rated power specified in the selection and ordering data can be increased by 15 %. Exception for IE1 motors – can be increased by 10 %.

Order code N02

Temperature class 155 (F), utilized acc. to 155 (F), with increased coolant temperature

With power as defined in the catalog and line operation, coolant temperature is permitted to rise to 55 $^{\circ}$ C. Order code **N03**

The service factor (SF) is not indicated on the rating plate for order codes **N02** and **N03**.

For converter operation at the power specified in the catalog, the motors are utilized according to temperature class 155 (F). Order codes **N01**, **N02**, and **N03** are not possible.

Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %

Motor series 1LE1 and 1MB1 can be ordered according to temperature class 155 (F) for utilization according to temperature class 130 (B) and a maximum coolant temperature of 45 °C with derating of 4 %.

Order code N05

Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %

Motor series 1LE1 and 1MB1 can be ordered according to temperature class 155 (F) for utilization according to temperature class 130 (B) and a maximum coolant temperature of 50 °C with derating of 8 %.

Order code N06

Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %

Motor series 1LE1 and 1MB1 can be ordered according to temperature class 155 (F) for utilization according to temperature class 130 (B) and a maximum coolant temperature of 55 $^{\circ}$ C with derating of 13 %.

Order code N07

Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %

Motor series 1LE1 and 1MB1 can be ordered according to temperature class 155 (F) for utilization according to temperature class 130 (B) and a maximum coolant temperature of 60 °C with derating of 18 %.

Order code **N08**

Temperature class 180 (H)

With motor series 1LE1, and 1PC1, utilization according to temperature class 180 (H) is permitted. Order code $\bf N10$

Temperature class 180 (H) at rated power and max. CT 60 °C

With motor series 1LE1, and 1PC1, utilization according to temperature class 180 (H) is permitted at rated power and a maximum coolant temperature of 60 °C.

Order code **N11** (not possible for 1LE15 and 1LE16 motors with increased power).

The grease lifetime specified is valid for a coolant temperature of 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.

Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude

The motors can be ordered according to temperature class 155 (F) for utilization according to temperature class 130 (B) with other customized requirements if they are specified in plain text in the order.

Order code **Y50**

Temperature class 155 (F), utilized according to 155 (F), other requirements

The motors can be ordered according to temperature class 155 (F) for utilization according to temperature class 155 (F) with other customized requirements if they are specified in plain text in the order.

Order code **Y52**

Temperature class 180 (H), utilized according to 155 (F)

The motors can be ordered according to temperature class 180 (H) for utilization according to temperature class 155 (F) with other customized requirements if they are specified in plain text in the order.

Order code Y75

Electrical design

Windings and insulation

Overview (continued)

Increased air humidity/temperature with 30 to 60 g water per m³ of air

With motor series 1LE1, 1MB1 and 1PC1, motors are available in a version designed for increased air humidity in the range of 30 to 60 g water per m³ of air, depending on the temperature, as shown in the table below. This version has condensation drainage holes (sealed).

Order code **N30** (includes order code **H03**, **M11**, stainless bolts in the terminal box cover, and **S02** standard/special paint finish for Performance Line cast-iron motors).

You must contact us if order code **N30** is to be combined with mountings (e.g. rotary pulse encoders or brakes).

Increased air humidity/temperature with over 60 to 100 g $\overline{\text{water per m}^3 \ \text{air}}$

With motor series 1LE1, 1MB1 and 1PC1, motors are available in a version designed for increased air humidity of over 60 to 100 g water per m³ of air, depending on the temperature, as shown in the table below. This version has condensation drainage holes.

Order code **N31** (includes order code **H03**, **M11**, stainless bolts in the terminal box cover, and either the **S02** special paint finish or the **S03** "sea air resistant" special paint finish for Performance Line cast-iron motors).

Please inquire before combining order code **N31** with mountings (e.g. rotary pulse encoder, brakes)!

Absolute/relative conversion of air humidity

Relative humidity	Temperature							
	up to 20 °C	up to 30 °C	up to 40 °C	up to 50 °C	up to 60 °C	up to 70 °C	up to 80 °C	up to 90 °C
10 %	2	3	5	8	13	20	29	42
15 %	3	5	8	12	19	30	44	63
20 %	3	6	10	17	26	39	58	84
25 %	4	8	13	21	32	49	73	105
30 %	5	9	15	25	39	59	87	126
35 %	6	11	18	29	45	69	102	146
40 %	7	12	20	33	52	79	116	167
45 %	8	14	23	37	58	89	131	188
50 %	9	15	26	41	65	98	145	209
55 %	10	17	28	46	71	108	160	230
60 %	10	19	31	50	78	118	174	251
65 %	11	20	33	54	84	128	189	272
70 %	12	21	36	58	91	138	203	293
75 %	13	23	38	62	97	148	218	314
80 %	14	24	41	66	104	157	233	335
85 %	15	26	43	70	110	167	247	356
90 %	16	27	46	74	117	177	262	377
95 %	16	29	49	79	123	187	276	398
100 %	17	30	51	83	130	197	291	419

The values in the table with a blue background are covered by the standard version (up to < 30 g water per m^3 of air).

The values in the table with a light gray background are covered by order code ${\bf N30}$ (30 to < 60 g of water per ${\bf m}^3$ of air).

The values in the table with a dark gray background are covered by order code $\bf N31$ (60 to < 100 g of water per m³ of air).

Please get in contact regarding requirements exceeding 100 g water per m^3 of air.

Note:

- The coolant temperature and installation altitude can be found from page 1/35 onwards!
- The metal fan cover is available in combination with order code F74 (not standard). Metal fan cover is always standard for cast-iron Performance Line motors (1LE16).
- In case of increased thermal stress, please combine with the order codes N05 to N08.
- In conjunction with more stringent requirements for the paint finish or corrosion protection stress (offshore, sea air, etc.), the corresponding order codes S02, S03, S04, and potentially H07, must be combined.
- Order code N31 requires additional specifications for the ambient temperature CT 50 °C to CT 90 °C.

Electrical design

Coolant temperature and installation altitude

Overview

The specified rated power is applicable for continuous duty in accordance with IEC 60034-1 at the frequency of 50 Hz, a coolant temperature (CT) or ambient temperature of 40 °C and an installation altitude (IA) up to 1000 m above sea level. 1LE1, 1MB1 and 1PC1 motors for ambient temperatures exceeding 40 °C are equipped with various types of seal. Mountings such as brake, terminal box at NDE, type of construction IM V1, type of construction IM V3 can sometimes exceed utilization in accordance with temperature class 130 (B).

For higher coolant temperatures and/or installation altitudes greater than 1000 m above sea level, the specified motor power must be reduced using the factor $k_{\rm HT}$.

Depending on the frame size of the motor or the number of poles, special windings may be added to the motors for the different operating conditions.

This results in an admissible motor power of:

$$P_{\text{adm}} = P_{\text{rated}} \cdot k_{\text{HT}}$$

If the admissible motor power is no longer adequate for the drive, it should be checked whether the motor with the next higher rated power fulfills the requirements.

Abbreviation	Description	Unit
P_{adm}	Admissible motor power	kW
P _{rated}	Rated power	kW
k _{HT}	Factor for abnormal coolant temperature and/or installation altitude	

The motors are designed for temperature class 155 (F) and utilized in temperature class 130 (B). Under non-standard operating conditions, if they are to be used in this class, the admissible power rating must be determined from the table

Reduction factor k_{HT} for different installation altitudes and/or coolant temperatures

Installation altitude above sea level	Coolant tempe	Coolant temperature									
m	< 30 °C	30 40 °C	45 °C	50 °C	55 °C	60 °C					
1000	1.07	1.00	0.96	0.92	0.87	0.82					
1500	1.04	0.97	0.93	0.89	0.84	0.79					
2000	1.00	0.94	0.90	0.86	0.82	0.77					
2500	0.96	0.90	0.86	0.83	0.78	0.74	<u> </u>				
3000	0.92	0.86	0.82	0.79	0.75	0.70	<u> </u>				
3500	0.88	0.82	0.79	0.75	0.71	0.67	<u> </u>				
4000	0.82	0.77	0.74	0.71	0.67	0.63					

Coolant temperature and installation altitude are rounded to 5 °C and 500 m respectively.

For details of derating for utilization in temperature class 155 (F), see "DURIGNIT IR 2000 insulation system".

Motors for coolant temperatures other than 40 °C or installation altitudes higher than 1000 m above sea level for utilization in temperature class 130 (B) must always be ordered with the additional identification code "–Z" and plain text. In the case of extreme derating, the operating data for the motors, i.e. efficiency and power factor, will also be less favorable due to partial utilization.

The following special versions are possible for 1LE1 and 1PC1 motors:

- Motors for coolant temperatures from –40 to +40 °C order code D03
- Motors for coolant temperatures from –30 to +40 °C order code **D04**

When ordering with order codes **D03** or **D04** in combination with mountings, the respective technical specifications have to be observed and it is necessary to inquire.

For details of order codes for use in temperature class 155 (F), see "DURIGNIT IR 2000 insulation system" under "Windings and insulation" on page 1/33.

Ambient temperature:

All motors can be used in the standard version at ambient temperatures between –20 and +40 °C. Exposure to direct sunlight can result in uncontrollable rises in motor temperature. To prevent this, appropriate shading measures such as a sun protective cover are recommended.

Motors can be utilized in temperature class 155 (F)

- at 40 °C with service factor 1.1, i.e. the motor can be continuously overloaded with 10 % of the rated power in the case of IE1 motors
- at 40 °C with service factor 1.15, i.e. the motor can be continuously overloaded with 15 % of the rated power in the case of IE2 motors and higher efficiency classes
- above 40 °C at rated power.

When motors are used in temperature class 130 (B) for higher ambient temperatures and/or installation altitudes, derating occurs in accordance with the Table "Reduction factor $k_{\mbox{\scriptsize HT}}$ for different installation altitudes and/or coolant temperatures". For motors ex stock, the service factor is indicated on the rating plate.

For other temperatures, special measures are necessary. When brakes are to be mounted on motors intended for operation at temperatures below freezing, please inquire.

Electrical design

Heating and ventilation

Overview

Anti-condensation heating

Supply voltage 230 V (1AC) Order code **Q02**

Supply voltage 115 V (1AC) Order code **Q03**

For motors with windings at risk of condensation due to the climatic conditions, e.g. inactive motors in humid atmospheres or motors that are subjected to widely fluctuating temperatures, anti-condensation heaters must be used.

An additional cable entry is provided for the connecting cable in the terminal box.

Motor series	Frame size	Cable entry		
Aluminum motors (GP)	≤ 200	$1 \times M16 \times 1.5$		
Cast-iron motors (SD)	≤ 180	1 × M16 × 1.5		
	200	1 × M20 × 1.5		
	225 315	2 × M20 × 1.5		
	355	2 × M20 × 1.5		

Anti-condensation heating must not be switched on during operation.

Frame size	Heat power of the anti-condensation heating						
	Supply voltage at						
	230 V	115 V (110 V)					
	Order code Q02	Order code Q03					
	W	W					
1LE1/1LE5/1PC1 motor	s						
63 80	12.5	12.5					
90 112	25	25					
132 200	50	50					
225 250	92	92					
280 315	109	109					
315 355	218	218					
1MB1 motors							
80 112	7	7					
132 160	12	12					
180 200	57	57					
225 250	92	92					
280 315	109	109					

Instead of an anti-condensation heater, another possibility is to connect a voltage that is approximately 4 to 10 % of the rated motor voltage to stator terminals U1 and V1; 20 to 30 % of rated motor current is sufficient to heat the motor.

Fans/separately driven fans

1LE1 and 1MB1 motors of frame size 71 to 315 have radial-flow fans in the standard version (with the exception of 1LE1, 1MB1 with option **F90** – version "Forced-air cooled motors without external fan and fan cover") that cool regardless of the direction of rotation of the motor (cooling method IC411 acc. to EN 60034-6). The air flow is forced from the non-drive-end (NDE) to the drive end (DE).

For details of separately driven fans for frame size 100 to 315, see also "Separately driven fans" on page 1/80.

Supply voltage of separately driven fan for 1LE1 motors: The supply voltage tolerance of the separately driven fan is ±5 %. For voltage ranges, see page 1/80. In confined spaces, it must be ensured that the minimum spacing is maintained between the fan cover and the wall. This also applies to adjacent parts, such as large handwheels and flywheels on the second shaft extension.

Clearance from wall/fan grilles									
Frame size	mm								
63, 71	15								
80, 90, 100	20								
112	25								
132	30								
160	40								
180, 200	90								
225, 250	100								
280, 315	110								
355	140								

For version of the fan and the fan cover, see the table below.

Motor series	tor series Frame size		Fan cover material
1LE10	63 71	Plastic	Metal
	80 200	Plastic	Plastic 1)
1LE15	71 90	Plastic	Metal
	100 315	Plastic	Plastic
1LE16	100 315	Plastic	Metal
1LE55	315	Metal	Plastic
1LE56	315 355	Metal	Metal
1MB1.3	71 90	Metal	Metal
1MB1.3	100 315	Plastic	Metal
1MB1.1, 1MB1.2	71 315	Metal	Metal

Metal external fan impeller

The standard fan impeller made of plastic can be replaced with a fan impeller made of metal. This version is available for motor series 1LE1 (with the exception of 1LE1 with option **F90** – version "Forced-air cooled motors without external fan and fan cover"). A metal external fan is already included for the low-noise version. Up to frame size 160, the metal external fan impeller is manufactured from aluminum.

Order code F76

Fan cover for textile industry

For 1LE1 motors (with the exception of 1LE1 with option **F90** – version "Forced-air cooled motors without external fan and fan cover") the standard version of the fan cover cannot be used in the textile industry.

For the motor series 1LE1 (with the exception of 1LE1 with option F90 – version "Forced-air cooled motors without external fan and fan cover") a special version of the fan cover is available for the textile industry. This has a protective cover and is made of non-corrosive sheet steel.

The motor length increases when the fan cover for the textile industry is mounted, see page 1/111 Fig. 12 Order code **F75**

Sheet metal fan cover

In place of the plastic fan cover, a sheet metal fan cover can be ordered for motor series 1LE1 (with the exception of 1LE1 with option **F90** – version "Forced-air cooled motors without external fan and fan cover"). Order code **F74**

The sheet metal fan cover is supplied as standard with 1LE16 motors (Performance Line).

¹⁾ For the frame size codes A, D, F, H, J, K, L, N, T, U, and V, a screwed-on cover (plastic or metal) is used in conjunction with the option H03 (condensation drainage holes). Mounted separately driven fans or brakes are only available in sheet metal version.

Electrical design

Heating and ventilation

Overview (continued)

Necessary minimum cooling air flow for forced-air cooled motors in standard duty

The cooling air flow specified in the selection table applies to continuous duty according to EN 60034-1 at a coolant temperature (CT) or ambient temperature of 40 °C respectively and an installation altitude (IA) up to 1000 m above sea level.

In the 1LE1/1LE5 motor version without external fan and fan cover, order code **F90**, the motor is located in the air flow of the

driven fan that must drive the minimum cooling air flow over the motor housing. The minimum air flow must pass closely over the housing (comparable to self-ventilation of the motor). Otherwise higher air flows are required to comply with admissible motor heating levels.

1LE1 motors

Frame size	Required cooling air flow for number of poles									
	2		4				6		8	
	IE2									
	50 Hz	60 Hz	50 Hz	50 Hz		60 Hz		60 Hz	50 Hz	60 Hz
	m ³ /min	m ³ /min	m ³ /min		m ³ /min		m ³ /min	m ³ /min	m ³ /min	m ³ /min
63	0.83	1.02	0.41		0.48	0.48		0.32	_	_
71	1.49/1.73	1.81/2.08	0.75/0.86		0.87/1.02		0.49/0.58	0.58/0.71	0.36/0.42	0.43/0.54
80	1.82	2.18	0.9		1.1		0.6	0.73	0.44	0.53
90	3.3	4.03	1.64		2.01		1.11	1.31	0.76	0.94
	IE2/IE1		IE2		IE1	IE1			IE2/IE1	
	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
	m ³ /min	m ³ /min	m ³ /min	m ³ /min	m ³ /min	m ³ /min	m ³ /min	m ³ /min	m ³ /min	m ³ /min
100	3.8	4.4	2.1	2.6	2.3	2.8	1.5	1.8	1.2	1.3
112	5.0/5.4 ¹⁾	5.7/6.1 ¹⁾	2.9	3.5	2.9	3.5	1.9	2.3	1.4	1.6
132	6.3	7.2	4.6	5.7	4.6	5.7	3.1	3.8	2.4	2.9
160	10.9	13.3	6.7	8.1	7.6	9.1	5	6.1	3.8	4.5
180	12.4	14.8	7.8	9.4	7.8	9.4	5.2	6.2	4.8	5.8
200	14.3	17.2	10.4	12.5	10.4	10.4 12.5		9.5	6	7.2
	IE2		_							
	50 Hz	60 Hz	50 Hz		60 Hz		50 Hz	60 Hz	50 Hz	60 Hz
	m ³ /min	m ³ /min	m ³ /min		m ³ /min		m ³ /min	m ³ /min	m ³ /min	m ³ /min
225	22	26	19		23		15	17.5	11.5	13.5
250	28	33	21		24.5		19	22.5	14.5	16.3
280	32	37.5	32.5		39		24	29.5	18	22
315	48	58	49		58		34	40	25	30.5
	IE4/IE3									
	50 Hz	60 Hz	50 Hz		60 Hz		50 Hz	60 Hz	50 Hz	60 Hz
	m ³ /min	m ³ /min	m ³ /min		m ³ /min		m ³ /min	m ³ /min	m ³ /min	m ³ /min
180	10.3	12.3	7		8.3		5.2	6.2	_	-
200	10.4	12.5	7.6		9.1		6.5	7.8	_	_
225	14	17.5	12		15		15.5	18	11.5	12.5
250	18.5	22	12		15		16	20	12	13.5
280	26	30.5	27.5		32.5		22.5	26.5	18	21.5
315	40	48.5	32.5		39		31	37	25	30.5
	IE3/IE2									
	50 Hz	60 Hz	50 Hz		60 Hz		50 Hz	60 Hz	50 Hz	60 Hz
	m ³ /min	m ³ /min	m ³ /min		m ³ /min		m ³ /min	m ³ /min	m ³ /min	m ³ /min
80	1.36	1.66	0.66		0.8		0.42	0.51	0.3	0.38
90	2.86	3.41	1.34		1.7		0.87	1.06	0.65	0.8

1LE5 motors

Frame size	Required of	Required cooling air flow for number of poles										
	2		4		6		8					
	IE3/IE4											
	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz				
	m ³ /min	m ³ /min	m ³ /min	m ³ /min	m ³ /min	m ³ /min	m ³ /min	m ³ /min				
315	46/44	56/53	38.5/38	46/46	26.5/-	31/–	-	_				
355	44/-	53/-	63/63	75/75	40.5/-	48.5/-	_	_				

¹⁾ Value: IE2/IE1

Electrical design

Motor protection

Overview

The order variants for motor protection are coded with letters in the 15th position of the Article No. and, if necessary, using order codes.

In the standard version, the motor is designed without motor protection.

15th position of the Article No. letter A.

A distinction is made between current-dependent and motor-temperature-dependent protection devices.

The following applies to all motors:

The motors can withstand 1.5 times the rated current at rated voltage and frequency for two minutes (EN 60034).

Current dependent protection devices

Fuses are only used to protect power cables in the event of a short-circuit. They are not suitable for overload protection of the motor

The motors are usually protected by thermally delayed overload protection devices (circuit breakers for motor protection or overload relays), for example with SIRIUS switching and protective devices. For further details, see Catalog IC 10.

This protection is current-dependent and is particularly effective in the case of a locked rotor.

For standard duty with short start-up times and starting currents not too excessive and for low numbers of switching operations, motor protection switches provide adequate protection. Motor protection switches are not suitable for heavy starting duty or large numbers of switching operations. Differences in the thermal time constants for the protection equipment and the motor result in unnecessary early tripping when the protection switch is set to rated current.

Motor-temperature-dependent protective devices and motor temperature detection with converter operation

Depending on the specific requirements, various different components can be built into the motor winding for switching off the motor before it overheats and for monitoring the winding temperature and motor temperature.

Temperature detectors – Bimetal switches

Bimetal switches operate on the principle of mechanical deformation as a result of long-term heating. Bimetal strips bent as a result of such heating have a spring action that results in sudden reversal of the curvature (concave to convex or vice-versa).

When a limit temperature is reached, these temperature detectors (NC contacts) can deactivate an auxiliary circuit. The circuit can only be reclosed following a considerable fall in temperature. Bimetal switches are suitable protection devices in the case of slowly rising motor temperatures. When the motor current rises quickly (e.g. with a locked rotor), these switches are not suitable due to their large thermal time constants.

Temperature detectors for tripping:

15th position of the Article No. letter **Z** and order code **Q3A**.

The temperature detectors have the following current-carrying capacity and switching capacity:

230 V, AC: 2.5 A 24 V, DC: 1.6 A

PTC thermistors – Thermistor motor protection

PTC thermistors provide the most comprehensive protection against thermal overloading of the motor. A rise in the winding temperature over the admissible value can be accurately detected thanks to the low heat capacity of these PTC (Positive Temperature Coefficient) thermistors and their excellent heat contact with the winding. When the limit temperature is reached (rated tripping temperature), the PTC thermistors undergo a sudden change in resistance. This is evaluated by tripping units and can be used to open auxiliary circuits. PTC thermistors can

not themselves be subjected to high currents and voltages. This results in the destruction of the semiconductor. The switching hysteresis of the PTC thermistor and tripping unit is low, which supports fast restarting of the drive. Motor protection of this type is recommended for heavy duty starting, switching duty, extreme changes in load, high ambient temperatures or fluctuating supply systems.

Motor protection with PTC thermistor for tripping. In the terminal box, two auxiliary terminals are required.

15th position of the Article No. letter B.

Two temperature sensor circuits are used if a warning is required before the motor is shut down (tripped).

The warning is normally set to 10 K below the tripping temperature.

Motor protection with PTC thermistor for alarm and tripping. In the terminal box, 4 auxiliary terminals are required. 15th position of the Article No. letter **C.**

Motor protection for frame sizes 80 and 90 is implemented with the 15th position of the Article No. letter **B**, and with the order code **Q11** with a PTC thermistor.

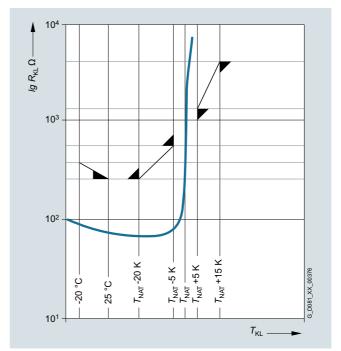
Motor protection for frame sizes 80 and 90 is implemented with the 15th position of the Article No. letter **C**, and with the order code **Q12** with two PTC thermistors.

In order to achieve full thermal protection, it is necessary to combine a thermally delayed overcurrent release and a PTC thermistor. For full motor protection implemented only with PTC thermistors, please inquire.

The SIRIUS 3RN2 thermistor motor protection device for protecting motors against overheating by means of direct temperature measurement, also for a hazardous area with ATEX approval, can be ordered separately. For further details, see Catalog IC 10 or www.siemens.com/product?3RN2.

PTC sensor characteristic

The PTC thermistor is a temperature-dependent component. At the smallest changes in temperature in the region of the rated shutdown temperature, the resistance of the PTC increases steeply.



PTC sensor characteristic

Electrical design

Motor protection

Overview (continued)

NTC thermistor

NTC thermistors have a negative temperature coefficient and conduct current at higher temperatures better than at lower temperatures.

NTC thermistors are typically used for temperature compensation of electronic circuits, or to limit inrush currents, to achieve the soft starting of electrical machines, for example.

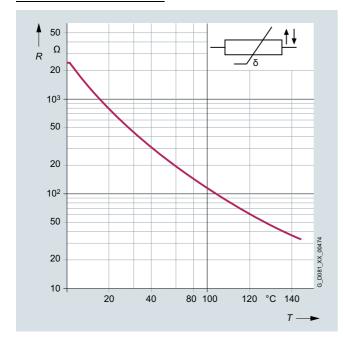
Motor temperature monitoring and shutdown using NTC thermistors is unusual, but it is technically possible. The tripping temperature can be set when using suitable tripping devices of this type.

NTC thermistors for tripping: 15th position of the Article No. letter ${\bf Z}$ and order code ${\bf Q2A}$.

For line operation, the SIRIUS temperature monitoring relays 3RS1, 3RS2, components of the protective device, can be ordered separately.

For further details, see Catalog IC 10 or www.siemens.com/product?3RS1.

NTC thermistor characteristic



KTY 84-130 temperature sensor

This temperature sensor is a semiconductor which, in a similar manner to a PTC thermistor, changes its resistance as a function of its temperature at a defined rate. Within the measuring range, however, the KTY 84-130 characteristic rises almost linearly. The temperature sensor is embedded in the winding overhang of the motor in the same way as the components mentioned above. It is characterized by its outstanding precision, high reliability, and temperature stability, as well as a fast response time. Thanks to these properties, which permit the almost analog monitoring of winding temperature, the KTY 84-130 is preferred for converter operation.

Motor temperature detection with embedded KTY 84-130 temperature sensor: In the terminal box, two auxiliary terminals are required.

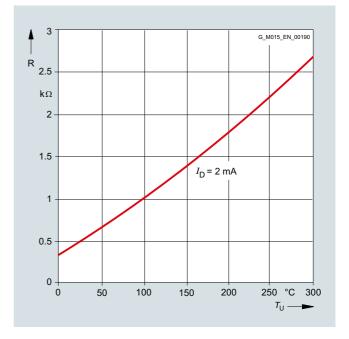
15th position of the Article No. letter F.

Temperatures for alarm and tripping can be set as required when using converters from Siemens that determine the motor temperature in accordance with the measuring principle described above. With these devices, the measured signal is evaluated directly in the converter.

For line operation, the SIRIUS 3RS1, 3RS2 temperature monitoring device, which is part of the protection equipment, can be ordered separately.

For further details, see Catalog IC 10 or www.siemens.com/product?3RS1.

KTY 84-130 temperature sensor characteristic



Electrical design

Motor protection

Overview (continued)

Pt100/Pt1000 resistance thermometer

The resistance thermometer has a chip for a temperature sensor, the resistance of which changes in relation to temperature according to a series of reproducible basic values. The changes in resistance are transferred as changes in current. At 0 °C, the measurement resistances are adjusted to 100 Ω for the Pt100 and 1000 Ω for the Pt1000, and correspond to the accuracy class B (i.e. the relationship between resistance and temperature). The limit deviation is ± 0.3 °C, and the admissible deviations are defined in EN 60751.

The Pt1000 resistance thermometer will, in the future, gradually replace the KTY84-130 temperature sensors available today. Similar to the method of operation of the Pt100, the relationship between the temperature and the electrical resistance of conductors is utilized in the Pt1000 to measure the temperature, just like with the additional resistance thermometers described above

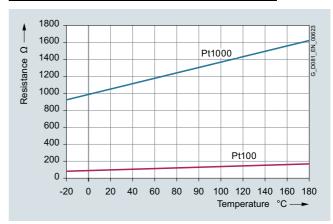
Pure metals undergo larger changes in resistance than alloys and have a relatively constant temperature coefficient.

The order options for the Pt100/Pt1000 temperature sensors are described in Chapter 2 (15th position of the Article No.: **H, J, K, L, P, Q**, or **R**, or order codes **Q35**, **Q36**, **Q60**, **Q61**, **Q62**, **Q63**, **Q64**, **Q72**, **Q78**, or **Q79**).

Temperatures for alarm and tripping can be set as required when using converters from Siemens that determine the motor temperature in accordance with the measuring principle described above. With these devices, the measured signal is evaluated directly in the converter.

In line operation, the SIRIUS 3RS1, 3RS2 temperature monitoring relay can be ordered separately for the protection equipment. For further details, see Catalog IC 10 or www.siemens.com/product?3RS1.

Pt100/Pt1000 resistance thermometer characteristics



Electrical design

Connection, circuit and terminal boxes

Overview

Location of the terminal box

The terminal box of the motor can be mounted in four different locations or positions. For the motors of the 1LE10 aluminum series, frame sizes 63 and 71, the terminal box can only be mounted on the top (16th position of the Article No. 4). The position of the terminal box is coded using the 16th position of the motor Article No.

When defining the position of the terminal box, please observe the following:

- Motors with feet must always be viewed looking onto the drive end with the shaft in the horizontal position. The feet are then always at "6 o'clock". This is especially important with construction types IM B6, IM B7, and IM B8, and also applies to combined construction types such as IM B35.
- Flange-mounted motors (e.g. IM B5) whose drive-end flange has a condensation drainage hole must always be viewed looking onto the drive end with the shaft in the horizontal position. The condensation drainage hole is then always at "6 o'clock".

The aluminum series motors 1LE10 and 1PC10 with feet and standard power range have cast feet in the standard version in frame sizes up to 160, e.g. IM B3, IM B6, etc. (applies only to IE3 motors with standard housing; IE3 motors with long housing always have screwed-on feet). Motors from frame size 180 upwards have screwed-on feet. If rotation of the terminal box is to be possible in the future, the "Screwed-on feet" option, order code **H01**, must be ordered.

In accordance with the type of construction, spare holes that are not used for mounting the feet can be used by the customer. If the customer would like this option, it is advisable to include order code **H10** "Housing with screw mounting" in the order – possible only for frame sizes 80, 90, 180 and 200. Responsibility for any strength calculations required for this type of customer mounting lies with the customer.

For all motors with increased power and with feet, the feet are screw-mounted as standard. The terminal box can be rotated later. Motors with frame sizes 225 to 315 are supplied as standard with cast feet.

Terminal box on right-hand side: 16th position of the Article No. digit **5**

Terminal box on left-hand side: 16th position of the Article No. digit **6**

Terminal box below: 16th position of the Article No. digit **7**

Standard H08

Standard H08

G_D081_EN_00461

Location of the terminal box with the corresponding digits in the 16th position of the Article No.

The number of winding ends depends on the winding design. Three-phase motors are connected to the three phase conductors L1, L2 and L3 of a three-phase system. The rated voltage of the motor in the running connection must match the phase conductor voltages of the network.

When the three phases are operating in a time sequence and are connected to the terminals of the motor in alphabetical order U1, V1 and W1, clockwise rotation of the motor shaft is established as viewed onto the drive end. The direction of rotation of the motor can be changed to counterclockwise if two connecting leads are interchanged.

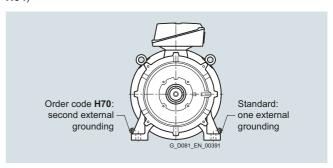
Labeled terminals are provided to connect the protective conductor

A PE terminal is provided in the terminal box for grounding. A grounding terminal is provided on the outside of the motor frame – special version for 1LE1/1PC1 motors.

Order code **H04**

External grounding terminal/external grounding is standard for 1LE15/16 motors from frame size 180 upwards.

A second external grounding connection can also be ordered. Order code **H70** (must be ordered in combination with option **H04**)



If a brake control system or thermal protection is installed, the connections will also be in the terminal box. The motors are suitable for direct connection to the line supply.

Design of the terminal box

The number of terminals and the size of the terminal box are designed for standard requirements.

For special requirements, or on customer request, a larger terminal box can be supplied.

For motors with frame sizes 71 up to 90, the following constraints apply:

When the terminal box is located on the left or right-hand sides, the customer must not align the cable entry towards the housing feet, because this can cause collisions between the motor connection cables and the foundations.

Larger terminal box Order code **R50**

If the necessary installation angle of the motor would cause machine components to collide with the terminal box, the terminal box can be moved from the drive end (DE) to the non-drive end (NDE). Only use according to temperature class 155 (F). When the terminal box is rotated to the non-drive end (NDE) of the motor, it is important to note that dimensions "C" and "CA" will not comply with the values specified by EN 50347. Dimensional drawings can be requested via DT Configurator.

Order code H08

Electrical design

Connection, circuit and terminal boxes

Overview (continued)

Motor connection

Line feeder cables

The line feeder cables must be dimensioned acc. to DIN VDE 0298. The number of required feeder cables, if necessary in parallel, is defined by:

- The max. cable cross-section which can be connected
- · The cable type
- The cable routing
- The ambient temperature and the corresponding admissible current in accordance with DIN VDE 0298

For motors with auxiliary terminals (e.g. 15th position of the Article No. letter ${\bf B}$), additional cable entry holes are provided (M16 \times 1.5 or M20 \times 1.5 depending on frame size). For further details, see the data sheet function in the DT Configurator.

The terminal box is located on the housing and bolted in place. The terminal box can be turned by $4 \times 90^{\circ}$ degrees on the terminal base of the machine housing in the case of a terminal board with 6 terminal studs (standard version).

Parallel feeders

Some motors must be fitted with parallel feeders due to the maximum permissible current per terminal.

These motors are indicated in the selection and ordering data in the respective chapter.

The temperature rises in the terminal box must be taken into account when selecting the connection cable or individual connections.

These approximate temperature rises are as follows:

- Range of ambient temperature (T_{amb}) +50 K for motors with temperature class Th.Cl.155 (F).
- Range of ambient temperature (T_{amb}) +60 K for motors with temperature class Th.Cl.180 (H).
- Without any specifications in field 19 (T_{amb}) on the rating plate, T_{amb} is equal to 40 °C.

Cable entry on terminal box

With a view onto the drive end of the motor with the shaft in the horizontal position and the terminal box on the top, the cable entry is always on the right-hand side of the motor, as shown in the figure below. Standard position 0°, (smoke extraction motors, order code R13). The terminal box can be rotated on the base of the motor housing such that the cable entry is located in the positions given below:

- Towards the drive end (DE)
 (rotation of terminal box by 90°,
 entry from DE) for B5 types of constructions only with
 order code H08!
 With B14 construction types, the customer must ensure that
 sufficient space is available for cable outlet.
 Order code R10
- Towards the fan end (NDE) (rotation of terminal box by 90°, entry from NDE) Order code R11
- Opposite the standard position 0° (rotation of terminal box by 180°, entry opposite the standard position 0°)
 Order code R12

The dimensions of the terminal box are listed in the section "Dimensions" on pages 2/122 to 2/153 in accordance with the frame size and the "Dimensional drawings".

If the position of the terminal box (right-hand side, left-hand side, or top) is changed, the position of the cable entry must be checked and, if necessary, ordered with the corresponding order codes (**R10**, **R11**, and **R12**).

Location of the cable entries with the corresponding order codes

	355	TB3R01	V	V	V	V	~	V	V	√ ²⁾	~	~	Yes
1LE5	315	TB3Q01	/	/	~	~	V	/	/	/	~	/	Yes
Туре		Туре					Article No. 5	with -Z 6	9	order o		R12	
				Right sition of A	Left Article N	Right In and	Right	Leit		Article	No. with	- 7 and	possible
			Top Left	Top	45°	45°	90°	90° Left	Bottom	-90°	+90°	180°	Retrofit- ting
Motor	Frame size	Terminal box		l box pos									
1LE15, 1LE16, 1MB15, 1MB16	100 315	TB1F01 TB1R01	•	-	~		-	-	~	•	•	/	Yes
	80, 90	TB1D01	V	~	~		-	-	~	~		V	Yes
1LE15	71	TB1D01	V	V	~	'	-	-	~	~	'	V	Yes
	200	TB1L00, TB1L10	V	~	~	1	_ 1)	-	~	~	•	V	Yes
	160, 180	TB1J00, TB1J10	V	~	~		_ 1)	-	~	~	1	V	Yes
	132	TB1H00, TB1H10	V	~	~		_ 1)	_	~	~		V	Yes
	100, 112	TB1F00, TB1F10	V	~	~		_ 1)	_	~			V	Yes
1PC10	80 90	TB1E00, TB1E10	V	V	~		_ 1)	_	· /			V	Yes
1LE10, 1MB10,	63 71	TB1B00, TB1B10	~	_	_		_ 1)	_	V	~		V	Yes
			Order c	oue			H01		R10	R	11	R12	
Туре		Туре	4 Order c	•	6		4						
T		Time	with spe	sition of A ecification 5	n of ord		Article No.	with -Z		le No. w r code	ith -Z an	ıd	
			Тор	Right- hand side	ha si	eft- and de	Retrofitting possible	Continu- ously by 360°			90°	180°	Retrofit- ting possible
Motor	Frame size	Terminal box	Termina	l box pos	sition			Rotation	of the ter	rminal b	ox and c	able entry	

¹⁾ Not applicable for smoke extraction motors.

²⁾ Not possible together with terminal box code (16th position of the Article No.) 0, 1, 5, 6 and flange A 900.

Electrical design

Connection, circuit and terminal boxes

Overview (continued)



Terminal box in standard position, detailed view

Ordering example:

Terminal box on right-hand side (16th position of the Article No. digit 5):

Cable entry is from below unless another order code is specified.

Cable entry from drive end (DE) – Article No. with ${ extbf{-Z}}$ and order code ${ extbf{R10}}$.

For cable entry to a standard terminal box, a metal cable gland can be ordered for motor connection.

One metal cable gland – Article No. with **-Z** and order code **R15**.

For special requirements for which standard holes for the cable entries are inadequate for the UK market, reduction pieces for M cable glands in accordance with British Standard that are mounted on both cable entries can be supplied (only up to frame size 160).

Order code R30

Frame size	Cable entry acc. to						
	IEC	British Standard					
100	2 × M32	2 × M20					
112/132	2 × M32	2 × M25					
160	2 × M40	2 × M32					

Motor connectors

Motors of frame sizes 80 to 132 can be supplied with a motor connector

The motor connectors are mounted on the specially designed terminal box at the factory and are aligned towards NDE in the basic version. The terminal boxes can be rotated by $4\times90^\circ$ on the base of the motor housing (order codes **R10**, **R12**, and **R13**).

The following motor connector variants are available:

- Motor connector HAN10B-10E Order code R70
- Motor connector HAN10B-10E EMC Order code R71
- Motor connector HAN3A-Q12 EMC Order code R72
- Motor connector HAN3A-Q12 Order code R73

Motor connector assignment

Motor Type	Frame size	Motor connectors Type	Size of the terminal box
1LE10	63 70	HAN10B-10E HAN10B-10E EMC	TB1B60
	80 90	HAN3A-Q12 HAN3A-Q12 EMC	TB1E00 with mounted brake TB1E10
	80 90	HAN10B-10E HAN10B-10E EMC	Only possible with TB1E10
1LE10, 1PC10	100 132	HAN10B-10E HAN10B-10E EMC	Currently only available with TB1F10 (frame sizes 100 and 112) or TB1H10 (frame size 132)

Technical characteristic values of motor connectors according to EN 60664-1 and EN 61984

Characteristic value	Motor co		HAN10B-1	0E
	Degree of	of pollution		
	3	2	3	2
Rated current	10 A		16 A	
Rated voltage	400 V	400/690 V	500 V	400/690 V
Rated voltage acc.	600 V		600 V	

For further technical specifications of the motor connectors, refer to the catalog of Harting Deutschland GmbH & Co. at www.harting.com

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https://b2b.harting.com/ebusiness/de/industrie-steckverbinder-han/100382.

Protruding cable ends

For confined spaces, protruding cable ends can be ordered without a terminal box with cover plate.

The following lengths of protruding cables can be ordered as standard using order codes:

- 3 cables protruding, 0.5 m long ¹⁾ Order code R20
- 3 cables protruding, 1.5 m long ¹⁾
 Order code R21
- 6 cables protruding, 0.5 m long Order code R22
- 6 cables protruding, 1.5 m long Order code R23
- 6 cables protruding, 3.0 m long Order code **R24**

The cross-section of the named cable refers to a coolant temperature of up to CT 40 $^{\circ}$ C.

¹⁾ For 3 protruding cables only, it must be specified in plain text whether star or delta connection is required (voltage code 90 and M1Y).

Electrical design

Connection, circuit and terminal boxes

Overview (continued)





Terminal box type TB1E00



Terminal box types TB1F00, TB1H00, TB1J00



Terminal box type TB1L00



Terminal box type TB1B10



Terminal box type TB1E10 – order code **R50**



Terminal box type TB1F10, TB1H10, TB1J10 – order code **R50**



Terminal box type TB1L10 – order code **R50**



Electrical design

Connection, circuit and terminal boxes

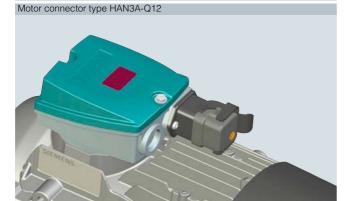
Overview (continued)

Terminal box type TB1N01















Electrical design

Connection, circuit and terminal boxes

Overview (continued)

Basic data for terminal boxes for 1LE1, 1MB1 and 1PC1 motors

Motor	Frame size	Terminal box	Cable entries/locking	Terminal box material	Feeder connection
1LE10/1	MB10/1PC10				
1LE10	63 71	TB1B00 TB1B10	2 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Aluminum alloy	Cable lugRigid cable, no cable lug
1LE10	80 90	TB1E00	1 entry complete with sealing plugs, thread in terminal box, (2 entries with additional mounting components in the winding) Terminal box mounted and screwed	Aluminum alloy	Cable lug Rigid cable, no cable lug
1LE10/ 1MB10	80 90	TB1E10	2 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Aluminum alloy	Cable lugRigid cable, no cable lug
1LE10 1MB10 ¹⁾ 1PC10	100 180 80 160 100 160	TB1F00 TB1H00 TB1J00 TB1F10 TB1H10 TB1J10	2 entries complete with sealing plugs and locknuts, terminal box mounted and screwed in place	Aluminum alloy	Cable lug Rigid cable, no cable lug
1LE10	200	TB1L00 TB1L10	2 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Aluminum alloy	Cable lugRigid cable, no cable lug
1LE15/1L	_E16/1LE5/1N	IB15/1MB16			
1LE15/ 1MB15 ¹⁾	71 90	TB1D01	2 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Cast iron	Cable lugRigid cable, no cable lug
1LE15/ 1LE16/ 1MB15/ 1MB16 ¹⁾	100 315	TB1F01 TB1R01	2 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Cast iron	Cable lug Rigid cable, no cable lug
1LE5	315 355	TB3Q01 TB3R01	2 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Cast iron	Cable lugRigid cable, no cable lug
1LE5	355 (500 kW)	TB3R01	4 entries complete with sealing plugs, thread in terminal box, terminal box mounted and screwed in place	Cast iron	Cable lugRigid cable, no cable lug

¹⁾ The certified cable entries are supplied as standard for explosion-proof

^{Frame sizes 225 to 315: Two certified metric cable glands}

Electrical design

Connection, circuit and terminal boxes

Overview (continued)

Technical specifications for terminal boxes for 1LE1, 1LE5, 1MB1, and 1PC1 motors

Frame size	Terminal box 1)	Number of terminals	Thread of the contact screw	Max. connectable cable	Outer cable diameter (sealing range)	Cable entry ^{2) 3)}
	Standard/larger (order code R50)			mm^2	mm	
1LE10/1ME						
63 71	TB1B00/TB1B10	6	M4	1.5/2.5 with cable lug	M16 × 1.5: 4.5 10; M25 × 1.5: 9 17	1 × M25 × 1.5/ 1 × M16 × 1.5 + 1 × M25 × 1.5
80 and 90	TB1E00/TB1E10 4)	6	M4	1.5/2.5 with cable lug	M16 × 1.5: 4.5 10; M25 × 1.5: 9 17	1 × M25 × 1.5/ 1 × M16 × 1.5 + 1 × M25 × 1.5
100	TB1F00/TB1F10	6	M4	4	11 21	2 × M32 × 1.5
112	_					
132	TB1H00/TB1H10	6	M4	6	11 21	2 × M32 × 1.5
160 180	TB1J00/TB1J10	6	M5	16	19 28	2 × M40 × 1.5
200	TB1L00/TB1L10	6	M6	25	27 35	2 × M50 × 1.5
1LE15/1ME	315					
71 90	TB1D01	6	M4	1.5/2.5 with cable lug	M16 × 1.5: 4.5 10 M25 × 1.5: 9 17	1 × M16 × 1.5 + 1 × M25 × 1.5
1LE15/1LE	16/1MB15/1MB16					
100 112	TB1F01/TB1J01	6	M4	4	11 21	$2 \times M32 \times 1.5/$ $2 \times M40 \times 1.5$
132	TB1H01/TB1J01	6	M4	6	11 21	2 × M32 × 1.5
160	TB1J01/TB1K01	6	M5	16	19 28	2 × M40 × 1.5
180	TB1J01/TB1K01	6	M5/M6	16/25	19 28/ 27 35	2 × M40 × 1.5/ 2 × M50 × 1.5
200	TB1L01/TB1L01	6	M6/M8	25/35	27 35/ 27 35	$2 \times M50 \times 1.5/$ $2 \times M50 \times 1.5$
225	TB1L01/TB1N01	6	M8/M10	35/120	27 35/ 34 42	$2 \times M50 \times 1.5/$ $2 \times M63 \times 1.5$
250	TB1N01/TB1Q01	6	M10/M12	120/240	34 42/	2 × M63 × 1.5
280					38 45	$2 \times M63 \times 1.5$
315	TB1Q01/TB1R01	6	M12/M16	240	38 45/ 44 54	2 × M63 × 1.5 2 × M63 × 1.5
	TB3Q01	6	M12	185	38 45	2 × M63 × 1.5 2 × M63 × 1.5
	TB3Q61		IVI I∠	240	42 54	2 × M63 × 1.5
355	TB1R01	6	M16	240	56 68.5	2 × M80 × 2
555	1511101	12	2 × M16		00 00.0	4 × M80 × 2
1LE55/1LE	56		2 X W 10			. A MIOO A E
315	TB3Q01/TB3R01	6	M12/M16	185/240	38 45/	2 × M63 × 1.5
			•		42 54	4 × M80 × 2
355	TB3R01/TB3R61	12	M16/2 × M16	300	56 68.5/	2 × M80 × 2
					56 68.5	$4 \times M80 \times 2$

not available

Terminal connection

The terminal board accommodates the terminals that are connected to the leads to the motor windings. The terminals are designed so that for frame sizes 71 to 315, the external (line) connections can be made without the need for cable lugs.

¹⁾ In addition to the exact part designation, please specify the machine type and the serial number in all orders for spare parts and repair parts.

 $^{^{2)}\,}$ Designed for cable glands with O-ring.

³⁾ NPT threads can be ordered with order code Y61.

 $^{^{\}rm 4)}$ For 1LE1021 and 1LE1023 terminal boxes TB1E10 normal version.

Electrical design

Connection, circuit and terminal boxes

Overview (continued)

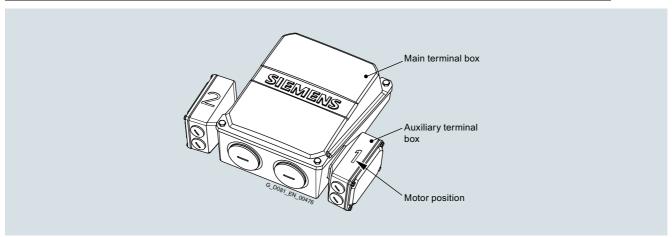
Maximum number of auxiliary terminal boxes for main terminal box

Maximum n	number of auxiliar	y terminal b	ooxes TB2	101, TB2N0	1 (order co	ode R62 , R6	3) in com	bination with	standard	terminal bo	x	
		Frame siz	ze .									
		100, 112	132	160	180	200	225	250	280	315		355
		Terminal I	box									
Auxiliary ter	minal box	Type										
Туре	Order code	TB1F01	TB1H01	TB1J01		TB1L01		TB1N01		TB1Q01	TB3Q01	TB3R01
TB2J01	R62	-	-	2		2		2		2	4	4
TB2N01	R63	_	_	_		_		_		_	2	2

Maximum n	number of auxiliar	y terminal l	oxes TB	2J01, TB2N0	1 (order c	ode R62 , R63	3) in combi	nation with	large teri	minal box (or	der code F	R50)
		Frame siz	e									
		100, 112	132	160	180	200	225	250	280	315		355
		Terminal I	OOX									
Auxiliary ter	minal box	Type										
Type	Order code	TB1J01		TB1K01		TB1L01	TB1N01	TB1Q01		TB1R01	TB3R01	
TB2J01	R62	2	2	2		2	2	2		2	4	4
										(3, 4 on requ.)		
TB2N01	R63	_	_	_		_	_	_		_	2	2

	umber of auxiliar R52 or R53)	y terminal boxes TB2J01, TB2N0	1 (order cod	de R62 , R63	3) in combi	nation with	universal t	terminal bo	x	
		Frame size 100 160 Terminal box	180	200	225	250	280	315		355
Auxiliary terr	minal box Order code	Туре	TB1J61	TB1L61		TB1N61		TB1Q61	TB3Q41	TB3R41
TB2J01	R62	Not available	2	2		2 (3, 4 on requ.)		2 (3, 4 on requ.)	4	4
TB2N01	R63	_	_	_		_		_	2	2

Position of auxiliary terminal box in relation to position of TB1J01, TB1N01, TB1N01, TB1Q01, TB1K01 main terminal box



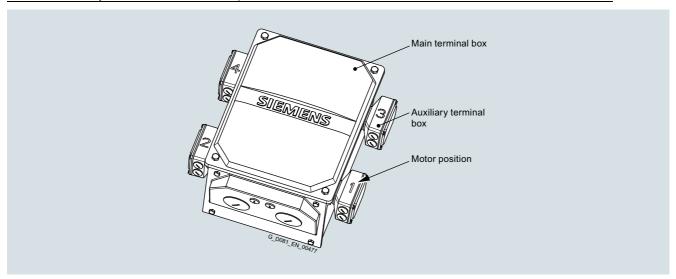
Auxiliary term		2J01 (order the main ter	,	n combina	tion with TE	31J01, TB1L	.01, TB1N01	1, TB1Q01,	TB1K01 ma	in terminal	box		
	Тор				Right-hand	d side			Left-hand side				
	16th position	on of Article	No. and wh	en ordering	with order of	ode, Article	No. with -Z						
	4				5				6				
	Rotation of	terminal bo	X										
	0° (default)	90°, entry from DE	90°, entry from NDE	180°	0° (default)	90°, entry from DE	90°, entry from NDE	180°	0° (default)	90°, entry from DE	90°, entry from NDE	180°	
	Order code	Э											
Number of auxiliary terminal boxes	_	R10	R11	R12	-	R10	R11	R12	_	R10	R11	R12	
	Positions o	f auxiliary te	rminal boxe	s – see Figu	ıre								
1	1	1	1	2	1	2	1	2	2	1	2	1	
2	1 + 2	1 + 2	1 + 2	1 + 2	1 + 2	-	-	1 + 2	1 + 2	-	-	1 + 2	

Electrical design

Connection, circuit and terminal boxes

Overview (continued)

Position of auxiliary terminal box in relation to position of TB1R01, TB1J61, TB1L61, TB1N61, TB1Q61 main terminal box



Auxiliary termi		nal box TB2J01 (order code R62) in combination with TB1R01, TB1J61, TB1L61, TB1N61, TB1Q61 main terminal box Position of the main terminal box											
	Тор				Right-hand	side			Left-hand s	side			
	16th position	on of Article	No. and whe	en ordering	with order c	ode, Article	No. with -Z						
	4				5				6				
	Rotation of	terminal box	<										
	0° (default)	90°, entry from DE	90°, entry from NDE	180°	0° (default)	90°, entry from DE	90°, entry from NDE	180°	0° (default)	90°, entry from DE	90°, entry from NDE	180°	
	Order code	e											
Number of Auxiliary terminal boxes	-	R10	R11	R12	-	R10	R11	R12	-	R10	R11	R12	
	Positions o	f auxiliary te	rminal boxes	s – see Figu	re								
1	1	1	1	2	1	2	1	2	2	1	2	1	
2	1 + 3	1 + 3	1 + 3	2 + 4	1 + 3	2 + 4	1 + 3	2 + 4	2 + 4	1 + 3	2 + 4	1 + 3	
(3 on requ.)	1 + 2 + 3	1 + 2 + 3	1 + 2 + 3	1 + 2 + 4	1 + 2 + 3	-	-	1 + 2 + 4	1 + 2 + 4	-	-	1 + 2 + 3	
(4 on requ.)	1+2+3+	1+2+3+	1+2+3+	1+2+3+	1+2+3+	_	-	1+2+3+	1+2+3+	_	-	1+2+3+	

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Electrical design

Degrees of protection

Overview

All motors are designed to degree of protection IP55. They can be installed in dusty or humid environments. The motors are suitable for operation in tropical climates. Guide value < 60% relative air humidity at CT 40 °C. Other requirements are available on request (see table on page 1/34).

Brief explanation of the degree of protection

IP54:

- Protection against harmful dust deposits
- · Protected against spray water

IP55

- · Protection against harmful dust deposits
- Protection against water jets from any direction

IP56

- · Protection against harmful dust deposits
- Protection against powerful water jets from any direction Order code H22

Important: Note that submersion by waves or total immersion, even temporarily, is not permitted especially in the case of motors with fans. This corresponds to IP67 or IP68 degree of protection (please inquire).

EN 60034-5 defines protection level 6 for water protection as: "Protection against water due to heavy seas or water in a powerful jet". IP56 degree of protection can only be used with the requirement "Protection against a powerful jet" and not for the requirement "Protection against heavy sea". Not possible in combination with brake 2LM8 (order code **F01**).

IP65

- · Complete protection against dust deposits
- Protection against water jets from any direction Order code H20

In EN 60034-5, the code 6 for protection against the ingress of foreign bodies and touch hazard protection for electrical machines is not listed – Data for code 6 (protection against the ingress of dust) is given in EN 60529.

Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code **G05**) and/or brake 2LM8 (order code **F01**) and/or paint finish, cast-iron parts primed (order code **S00**).

EN 60529 contains a comprehensive description of this degree of protection as well as test conditions.

With motors that have a vertical shaft extension, the end user must prevent an ingress of fluid along the shaft.

For motors with shaft extension pointing downwards, the version "Protective cover for types of construction" order code **H00** is urgently recommended, see also the explanations on "Types of construction" on page 1/51.

With flange-mounted motors, for IM V3 type of construction, collection of fluid in the flange basin can be prevented by drainage holes (on request).

The condensation drainage holes at the drive end (DE) and non-drive end (NDE) are sealed (IP55) on delivery. If the condensation drainage holes are ordered for motors of the IM B6, IM B7 or IM B8 type of construction (feet on side or top), the position of the drainage holes will be in the correct position for the type of construction.

Order code H03

Introduction Mechanical version

Types of construction

Overview

Standard types of construction and special types of construction

Standard types of construction	and special types of construction			
Type of construction acc. to EN 60034-7		Frame size	Letter of the 14th position of the Article No.	Additional identification code –Z with order code
Without flange				
IM B3/IM 1001		63 to 355	А	-
IM B6/IM 1051		63 to 355	Т	-
IM B7/IM 1061		63 to 355	U	-
IM B8/IM 1071		63 to 355	V	-
IM V5/IM1011 without protective cover		63 to 355	C 1)	-
IM V6/IM 1031		63 to 355	D	-
IM V5/IM 1011 with protective cover		71 to 355	С	+ H00 ²⁾
With flange				
IM B5/IM 3001		63 to 355	F	-
IM V1/IM 3011 without protective cover		63 to 355	G 1)	-
IM V1/IM 3011 with protective cover		71 to 355	G	+ H00 ²⁾
IM V3/IM 3031		63 to 355	Н	-
IM B35/IM 2001		63 to 355	J	-

In the EN 50347 standard, flanges FF with through holes and flanges FT with tapped holes are specified.

¹⁾ The following applies for explosion-proof motors: In the case of the types of construction with shaft extension pointing downwards, the version "with protective cover" is required. For types of construction with shaft extension pointing upwards, a suitable cover must be implemented to prevent small parts from falling into the fan cover (see the standard IEC/EN 60079-0). The cover must not block the cooling air flow.

²⁾ Standard cylindrical shaft extension (second shaft extension) L05 is not possible.

Mechanical version

Types of construction

Overview (continued)					
Type of construction acc. to EN 60034-7			Frame size	Letter of the 14th position of the Article No.	Additional identification code –Z with order code
With flange					
IM B14/IM 3601	£		80 to 315	К	-
IM V19/IM 3631		<u>ah</u>	80 to 315	L	-
IM V18/IM 3611 without protective cover			80 to 315	M 1)	-
IM V 18/IM 3611 with protective cover			80 to 315	М	+ H00 ²⁾
IM B34/IM 2101	-		80 to 315	N	-
With special flange					
IM B14/IM 3601	£		80 to 315	К	+ P01
IM B34/IM 2101	£		80 to 315	N	+ P01
IM V18/IM 3611 without protective cover			80 to 315	M ¹⁾	+ P01
IM V 18/IM 3611 with protective cover			 80 to 315	М	+ P01 + H00 ²⁾
IM V19/IM 3631		<u>ah</u>	80 to 315	L	+ P01

In EN 50347, flanges are assigned to the frame sizes as FT with tapped holes. See the table on the next page for flange dimensions.

The dimensions of the following types of construction are identical: IM B3, IM B6, IM B7, IM B8, IM V5 and IM V6 IM B5, IM V1 and IM V3 IM B14, IM V18 and IM V19

Motors in the standard power range can be ordered in basic types of construction IM B3, IM B5 or IM B14 and operated in mounting positions IM B6, IM B7, IM B8, IM V5, IM V6, IM V1, IM V3 (up to frame size 160 L) or IM V18 and IM V19. Lifting eyes are available for transport and installation in a horizontal position. In conjunction with the lifting eyes, for the purpose of stabilizing the position when the motor is arranged vertically, additional lifting straps (EN 1492-1) and/or clamping bands (EN 12195-2) must be used.

When a motor for mounting position IM V1 is ordered directly, the motor is supplied with lifting eyes for vertical mounting (up to frame size 90 and frame sizes 180 and 200 for aluminum motors without eyebolts).

1) The following applies for explosion-proof motors: In the case of the types of construction with shaft extension pointing downwards, the version "with protective cover" is required. For types of construction with shaft extension pointing upwards, a suitable cover must be implemented to prevent small parts from falling into the fan cover (see the standard IEC/EN 60079-0). The cover must not block the cooling air flow. The motors are designated in accordance with the types of construction on the rating plate.

With motors that have a vertical shaft extension, the end user must prevent an ingress of fluid along the shaft. In the case of all types of construction with shaft extension pointing downwards, the version "with protective cover" is urgently recommended, see section "Degrees of protection" on page 1/50 – housing version.

Motors with feet, in some cases, have two fixing holes at the non-drive end (NDE), see dimension tables on pages 2/122 to 2/153

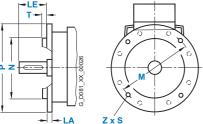
A screw-mounted cover (made of sheet metal or plastic depending on shaft height) is included as standard for horizontal types of construction and types of construction with shaft pointing upwards (14th position of the Article No. letter **A**, **T**, **U**, **V**, **D**, **F**, **H**, **J**, **K**, **L**, **N**) on motors up to FS 160 in combination with condensation drainage holes, order code **H03**.

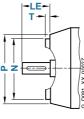
²⁾ Standard cylindrical shaft extension (second shaft extension) L05 is not possible.

Mechanical version

Flange dimensions

Overview







In EN 50347, the frame sizes are allocated flange FF with through holes and flange FT with tapped holes. The designation of flange A and C according to DIN 42948 (invalid since September 2003) are also listed for information purposes. See the table below.

(**Z** = the number of retaining holes)

Type of construction	-	LA ZXS		Z	x S							
M. BS, IM P3S, IM V1, IM V3 Flange FF15	Frame size	Type of construction	Flange type			Dim	ensior	n desig	natior	ı acc.	to IEC	;
MB SS, M M SS, M M Y, M Y S										_		_
MB 114, MB 34, MV 18, MV 19		NADE NADOS NAVA NAVO	-							-		-
IMB SI, M BSS, IMV SI, MV SI Part	33 M									_		
March Marc												
MB14, IMB 54, IMB 718, IMB 719 Range		· · · · ·	Order code P01									
M 1914, M 294, M V10, M V10 Parce Pa	1 M					5						
ONL MBS, IMBS, IMVI, IMV3 Flange FF165 A 200 10 40 165 130 200 12 3.5 MBH, IMBS, IMVI, IMV9 Not largest flange FF100 C 120 - 40 100 80 120 M6 3.5 MBH, IMBS, IMVI, IMV9 Not largest flange FF100 C 120 - 40 100 80 120 M6 3.5 MBH, IMBS, IMBS, IMVI, IMV9 Not largest flange FF165 A 200 10 50 165 130 200 12 3.5 MBH, IMBS, IMBS, IMVI, IMV9 Not largest flange FF165 A 200 10 50 165 130 200 12 3.5 MBH, IMBS, IMBS, IMVI, IMV9 Not largest flange FF165 A 200 11 60 215 180 250 145 4 MBS, IMBS, IMBS, IMVI, IMV9 Not largest flange FF165 A 200 11 60 215 180 250 145 4 MBS, IMBS, IMBS, IMVI, IMV3 Not largest flange FF165 A 200 11 60 215 180 250 145 4 MBS, IMBS, IMBS, IMVI, IMV3 Not largest flange FF165 A 200 11 60 215 180 250 145 4 MBS, IMBS, IMBS, IMVI, IMV3 Not largest flange FF165 A 200 11 60 215 180 250 145 4 MBS, IMBS, IMVI, IMV3 Not largest flange FF165 A 200 11 60 215 180 250 145 4 MBS, IMBS, IMVI, IMV3 Not largest flange FF165 A 200 11 60 215 180 250 145 4 MBS, IMBS, IMVI, IMV3 Not largest flange FF165 A 200 11 60 215 180 250 145 4 MBS, IMBS, IMVI, IMV3 Not largest flange FF165 A 200 11 60 215 180 250 145 4 MBS, IMBS, IMVI, IMV3 Not largest flange FF165 A 200 11 60 215 180 250 145 4 MBS, IMBS, IMVI, IMV3 Not largest flange FF165 A 200 11 60 215 180 250 300 145 4 MBS, IMBS, IMWI, IMV3 Not largest flange FF165 A 200 11 60 151 10 250 2												
MB 114, IMB 24, IMB 718, IMB 719 Flange F1100 C 120 - 40 100 10 120 M8 3			Next largest flange 17 – Order code P01	FT115	C 140	_	30	115	95	140	M8	3
MB 14, MB 24, MA V18, MA V19	0 M		Flange	FF165	* * * * * * * * * * * * * * * * * * * *	10						
OSAL IM B5, IM B35, IM V1, IM V3 Flange F165 A 200 10 50 166 130 200 12 3.5			•	FT100		_				_	_	_
MB B14, MB B34, MV 18, MV 19 Flange		IM B14, IM B34, IM V18, IM V19		FT130	C 160	_	40	130	110	160	M8	3.5
MB 14, IM B34, IM V18, IM V19 Next largest lange - Order code P01 FF130 C 160 - 50 130 10 160 M8 3.5	0 S/L	IM B5, IM B35, IM V1, IM V3	Flange	FF165	A 200	10	50	165	130	200	12	3.5
MBS, IMBS,		IM B14, IM B34, IM V18, IM V19	Flange	FT115	C 140	_	50	115	95	140	M8	3
MB S, IM B3S, IM V1, IM V3		IM B14, IM B34, IM V18, IM V19		FT130	C 160	-	50	130	110	160	M8	3.5
Order code PO1 MBS, IMBS, I	00 L	IM B5, IM B35, IM V1, IM V3	Flange	FF215	A 250	11	60	215	180	250	14.5	4
MB14, IMB34, IMV18, IMV19 Plange FT130 C 160 - 60 130 110 160 M8 3.5		IM B5, IM B35, IM V1, IM V3		FF265	A 300	12	60	265	230	300	14.5	4
MB 114, IM B34, IM V18, IM V19 Flange		IM B5, IM B35, IM V1, IM V3		FF165	A 200	11	60	165	130	200	12	3.5
IM B14, IM B34, IM V18, IM V19		IM B14, IM B34, IM V18, IM V19		FT130	C 160	_	60	130	110	160	M8	3.5
12 M M E5, M B35, M V1, M V3 Flange FF215 A 250 11 60 215 180 250 14.5 4 1 M 55, M B35, M V1, M V3 Next largest flange PF265 A 300 12 60 265 230 300 14.5 4 4 1 M 55, M B35, M V1, M V3 Next smallest flange PF165 A 200 11 60 65 130 200 12 3.5 3.5 1 M 14, M B34, M V18, M V19 Flange FF130 C 160 - 60 130 110 160 M8 3.5 M 14, M B34, M V18, M V19 Flange FF165 C 200 - 60 165 130 200 M 10 3.5 1 M 51, M B35, M V1, M V3 Flange FF265 A 300 12 80 265 230 300 14.5 4 4 M 534, M V18, M V19 Flange FF265 A 300 12 80 265 230 300 14.5 4 M 14, M 1			Next largest flange -			-						
IM B5, IM B35, IM V1, IM V3	12 M	IM R5 IM R35 IM V1 IM V3		EE215	A 250	11	60	215	180	250	14.5	4
IM B5, IM B35, IM V1, IM V3	1 Z IVI		Next largest flange -									
MB14, IMB34, IMV18, IMV19 Flange FT130 C 160 - 60 130 110 160 M8 3.5		IM B5, IM B35, IM V1, IM V3	Next smallest flange -	FF165	A 200	11	60	165	130	200	12	3.5
MB 14, IM B34, IM V18, IM V19		IM B14 IM B34 IM V18 IM V19		FT130	C 160	_	60	130	110	160	M8	3.5
MBS, IMBS,			Next largest flange -			-						
IM B5, IM B35, IM V1, IM V3	32 S/M	IM B5 IM B35 IM V1 IM V3		EE265	A 300	12	80	265	230	300	14.5	4
MB 5, IM B35, IM V1, IM V3	32 3/W		Next largest flange -		***							
MB14, IM B34, IM V18, IM V19		IM B5, IM B35, IM V1, IM V3	Next smallest flange -	FF215	A 250	11	80	215	180	250	14.5	4
IM B14, IM B34, IM V18, IM V19		IM R14 IM R34 IM V18 IM V19		ET165	C 200		80	165	130	200	M10	3.5
Order code P01 State F1300 A 350 A 350 B 1 10 300 250 350 18.5 5 A 300 B 1 10 300 250 350 18.5 5 B 1 1 10 300 250 350 18.5 5 B 1 1 10 300 250 350 18.5 5 B 1 1 10 300 250 350 18.5 5 B 1 1 10 300 250 350 18.5 5 B 1 1 10 300 250 350 18.5 5 B 1 1 10 300 250 350 18.5 5 B 1 1 10 300 250 350 18.5 5 B 1 1 10 300 250 350 18.5 5 B 1 1 10 300 250 350 18.5 5 B 1 1 10 300 250 350 18.5 5 B 1 1 10 300 250 350 18.5 5 B 1 1 10 300 250 350 18.5 5 B 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1												
IM B5, IM B35, IM V1, IM V3		, -, -,										
Order code P02 IM B14, IM B34, IM V18, IM V19 Flange FT215 C 250 - 110 215 180 250 M12 4	60 M/L	IM B5, IM B35, IM V1, IM V3	Flange	FF300	A 350	13	110	300	250	350	18.5	5
March Marc		IM B5, IM B35, IM V1, IM V3		FF265	A 300	12	110	265	230	300	14.5	4
IM B5, IM B35, IM V1, IM V3 Next smallest flange		IM B14, IM B34, IM V18, IM V19	Flange	FT215	C 250	_	110	215	180	250	M12	4
Order code P02 IM B5, IM B35, IM V1, IM V3 Flange FF350 A 400 15 110 350 300 400 18.5 5 IM B5, IM B35, IM V1, IM V3 Next smallest flange	80 M/L	IM B5, IM B35, IM V1, IM V3	Flange	FF300	A 350	13	110	300	250	350	18.5	5
IM B5, IM B35, IM V1, IM V3 Next smallest flange – Order code P02 FF400 A 450 13 110 300 250 350 18.5 5 25 S/M		IM B5, IM B35, IM V1, IM V3		FF 265	A 300	12	110	265	230	300	14.5	4
Order code P02 25 S/Mpole	00 L	IM B5, IM B35, IM V1, IM V3	Flange	FF350	A 400	15	110	350	300	400	18.5	5
-pole IM B5, IM B35, IM V1, IM V3 Flange FF400 A 450 16 110 400 350 450 18.5 5 8-pole IM B5, IM B35, IM V1, IM V3 Flange FF500 A 550 18 140 500 450 550 18.5 5 80 S/M IM B5, IM B35, IM V1, IM V3 Flange FF500 A 550 18 140 500 450 550 18.5 5 15 S/M/L -pole IM B5, IM B35, IM V1, IM V3 Flange FF600 A 660 22 140 600 550 660 24 6 8-pole IM B5, IM B35, IM V1, IM V3 Flange FF740 A 800 25 140 740 680 800 24 6 -pole IM B5, IM B35, IM V1, IM V3 Next smallest flange FF600 A 660 22 140 600 550 660 24 6 -pole IM B5, IM B35, IM V1, IM V3 Next smallest flange FF600 A 660 22 140 600 550 660 24 6 -pole IM B5, IM B35, IM V1, IM V3 Next smallest flange FF600 A 660 25 140 740 680 800 24 6 -pole IM B5, IM B35, IM V1, IM V3 Next smallest flange FF600 A 660 25 140 600 550 660 24 6 -pole IM B5, IM B35, IM V1, IM V3 Flange FF600 A 660 25 140 840 780 900 24 6		IM B5, IM B35, IM V1, IM V3		FF300	A 350	13	110	300	250	350	18.5	5
50 M IM B5, IM B35, IM V1, IM V3 Flange FF500 A 550 18 140 500 450 550 18.5 5 80 S/M IM B5, IM B35, IM V1, IM V3 Flange FF500 A 550 18 140 500 450 550 18.5 5 15 S/M/L pole IM B5, IM B35, IM V1, IM V3 Flange FF600 A 660 22 140 600 550 660 24 6 170 15 L for 1LE5 pole IM B5, IM B35, IM V1, IM V3 Flange FF740 A 800 25 140 740 680 800 24 6 pole IM B5, IM B35, IM V1, IM V3 Next smallest flange FF600 A 660 22 140 600 550 660 24 6 pole IM B5, IM B35, IM V1, IM V3 Next smallest flange FF600 A 660 25 140 600 550 660 24 6 pole IM B5, IM B35, IM V1, IM V3 Next smallest flange FF600 A 660 25 140 600 550 660 24 6 pole IM B5, IM B35, IM V1, IM V3 Next smallest flange FF600 A 660 25 140 840 780 900 24 6	-pole	IM B5, IM B35, IM V1, IM V3	Flange	FF400	A 450	16		400	350	450	18.5	5
80 S/M IM B5, IM B35, IM V1, IM V3 Flange FF500 A 550 18 140 500 450 550 18.5 5 15 S/M/L pole IM B5, IM B35, IM V1, IM V3 Flange FF600 A 660 22 140 600 550 660 24 6 15 L for 1LE5 pole IM B5, IM B35, IM V1, IM V3 Flange FF740 A 800 25 140 740 680 800 24 6 pole IM B5, IM B35, IM V1, IM V3 Next smallest flange FF600 A 660 22 140 600 550 660 24 6 pole IM B5, IM B35, IM V1, IM V3 Next smallest flange FF600 A 660 22 140 600 550 660 24 6 pole IM B5, IM B35, IM V1, IM V3 Next smallest flange FF600 A 660 25 140 600 550 660 24 6 pole IM B5, IM B35, IM V1, IM V3 Flange FF840 A 900 25 140 840 780 900 24 6		IM R5 IM R35 IM V/1 IM V/3	Flango	EEEOO	Λ 550	10		500	450	550	18.5	5
15 S/M/L pole IM B5, IM B35, IM V1, IM V3 Flange FF600 A 660 22 140 600 550 660 24 6 170 15 L for 1LE5 pole IM B5, IM B35, IM V1, IM V3 Flange FF740 A 800 25 140 740 680 800 24 6 pole IM B5, IM B35, IM V1, IM V3 Next smallest flange FF600 A 660 22 140 600 550 660 24 6 pole IM B5, IM B35, IM V1, IM V3 Next smallest flange FF600 A 660 22 140 600 550 660 24 6 pole IM B5, IM B35, IM V1, IM V3 Flange FF840 A 900 25 140 840 780 900 24 6		, , ,										
Folic		IIVI DO, IIVI DOO, IIVI V I, IIVI VO	i iaiige	FF300	A 330	10	140	500	+50	330	10.5	J
pole IM B5, IM B35, IM V1, IM V3 Flange FF740 A 800 25 140 740 680 800 24 6 pole IM B5, IM B35, IM V1, IM V3 Next smallest flange – FF600 A 660 22 140 600 550 660 24 6 pole Order code P02 550 M/L for LE5 pole IM B5, IM B35, IM V1, IM V3 Flange FF840 A 900 25 140 840 780 900 24 6	-pole	IM B5, IM B35, IM V1, IM V3	Flange	FF600	A 660	22	140 170	600	550	660	24	6
-pole Order code P02 170 55 M/L for 1LE5 -pole IM R5 IM R35 IM V1 IM V3 Flange FF840 A 900 25 140 840 780 900 24 6	15 L for 1Ll	E5 IM B5, IM B35, IM V1, IM V3	Flange	FF740	A 800	25	140	740	680	800	24	6
555 M/L for 1LE5 -pole IM R5 IM R35 IM V1 IM V3 Flange FFR40 A 900 25 140 840 780 900 24 6	-pole -pole	IM B5, IM B35, IM V1, IM V3		FF600	A 660	22	170 140 170	600	550	660	24	6
-pole IM B5, IM B35, IM V1, IM V3 Next smallest flange – FF740 A 800 25 140 740 680 800 24 6 170 -pole Order code P02	55 M/L for	1LE5 IM B5 IM B35 IM V1 IM V3		FF840	Δ 900	25		8/10	780	900	24	6
-pole IM B5, IM B35, IM V1, IM V3 Next smallest flange – FF740 A 800 25 140 740 680 800 24 6 70le	-pole		•				170	J40				
	-pole -pole	IM B5, IM B35, IM V1, IM V3		FF740	A 800	25	140	740	680	800	24	6

¹⁾ With reference to standard EN 50347, flanges that are 2 steps larger are used with option P01 in the frame sizes 71 and 80.

Mechanical version

Shaft and rotor

Overview

Shaft extension

60° center hole acc. to DIN 332, Part 2 with M3 to M24 tapped hole depending on the shaft diameter (see dimension tables in section 2 of the catalog).

DE (shaft extension)	
Diameter	Thread
mm	mm
7 10	DR M3
> 10 13	DR M4
> 13 16	DR M5
> 16 21	DR M6
> 21 24	DR M8
> 24 30	DR M10
> 30 38	DR M12
> 38 50	DR M16/DS M16
> 50 85	DS M20
> 85 130	DS M24

Shaft extension with standard dimensions, without feather keyway

For motor series 1LE1, 1MB1 and 1PC1, the standard shaft extension can be ordered with standard dimensions without a feather keyway. The key convention does not have to be stamped onto the rating plate for balancing. Order code **L04**

Standard shaft made of stainless steel

A standard shaft made of stainless steel can be ordered (e.g. 1.4021) for the 1LE1, 1MB1 and 1PC1 motor series. This is only possible for shaft extensions of standard dimensions. Order code **L06**

Special non-rusting materials are only available on request.

Non-standard cylindrical shaft extension

The non-standard cylindrical shaft extension can be used on the drive end (DE) (with plain text according to table). The feather keys are supplied in every case. Order code **Y58**

For order code Y58 non-standard cylindrical shaft extension (DE):

- Dimension D: less than or equal to the inner diameter of the roller bearing, tolerance band less than tolerance band acc. to EN 50347.
- Dimension E: less than or equal to 2 × length E (standard) of the shaft extension.

See the table below "Admissible changes to the shaft extension DE" and the dimension tables in the relevant sections of the catalog.

Admissible changes to the shaft extension DE (Y58)

rearries of a rigor to the origin exterior 22 (100)							
Motor series	Frame size	No. of poles	Shaft extension length E in mm		Shaft e diamet in mm	extension er D	l
			Stan- dard	up to max.	mini- mum	Stan- dard	up to max. 1)
1LE1	63	2 6	23	46	11	11	12
1LE1,	71	2 8	30	60	14	14	15
1MB1	80	2 8	40	80	19	19	20
	90		50	100	24	24	25
1LE1,	100	2 8	60	120	24	28	30
1MB1,	112	_					
1PC1	132	2 8	80	160	28	38	40
	160	2 8	110	220	38	42	45
1LE15,	180	2 8	110	220		48	48
1LE16,	200	2 8	110	220		55	55
1MB1	225	2	110	220		55	60
		4 8	140	280		60	60
	250	2	140	280		60	70
		4 8	140	280	On	65	70
	280	2	140	280	re-	65	70
		4 8	140	280	quest	75	80
	315	2	140	280		65	75
		4 8	140	280		80	90
1LE5	315	2	140	280	_	65	75
		4	170	280		85	90
	355	2 4	140	280		75	85
		4	170	340		95	95

Standard, cylindrical shaft extension NDE acc. to EN 50347 (second shaft extension)

Order code L05 (on request)

For a coupling output, the standard, cylindrical shaft extension can transmit the full rated power.

Please also inquire about the transmitted power and admissible cantilever force if belt pulleys, chains or gear pinions are used on the standard, cylindrical shaft extension.

A standard, cylindrical shaft extension (second shaft extension) NDE is not available if a rotary pulse encoder and/or a separately driven fan has been mounted onto the motor. Please inquire for mounted brakes.

Dimensions and tolerances for keyways and keys are designed to EN 50347. The motors are always supplied with a key inserted in the shaft.

If the second shaft extension has non-standard dimensions, this must be ordered with order code **L05** in combination with order code **Y59** non-standard shaft dimensions NDE.

For the order code **L05**, this is with order code **Y59** (with plain text specifications according to the table).

- Dimension D: less than or equal to fan hub inner diameter, for frame size 160 tolerance band is less than tolerance band to EN 50347
- $\bullet\,$ Dimension E: less than or equal to 2 × length E (standard) of the shaft extension

See the table below "Admissible changes to the shaft extension NDE" and the dimension tables in the relevant sections of the catalog.

Admissible changes to the shaft extension NDE (Y59)

7 (0111100	Administration changes to the chart extension TVBE (100)							
Motor series	Frame size	No. of poles	length E		oles length E diameter D			1
			Stan- dard	up to max.	mini- mum	Stan- dard	up to max. 1)	
1LE1	63	2 6	23	46	11	11	12	
1LE1, 1MB1	71	2 8	30	60		14	15	
1LE1, 1MB1	80/90	2 8	40	80	_	19	20	
1LE1,	100	2 8	50	100	_	24	25	
1MB1, 1PC1	112	_						
1PC1	132	2 8	60	120	_	28	35	
	160	2 8	110	220	_	42	45	
1LE15,	180	2 8	110	220	_	48	48	
1LE16,	200	2 8	110	220	_ _ On	55	55	
1MB1	225	2	110	220	re-	48	55	
		4 8	110	220	quest	55	55	
	250	2	110	220	_	55	70	
		4 8	140	280		60	70	
	280	2	140	280	_	60	70	
		4 8	140	280		65	70	
	315	2	140	280	_	60	75	
		4 8	140	280		70	75	
1LE5	315	2	140	280		60	75	
		4	140	280		70	75	
	355	2	140	280	_	60	75	
		4	170	280	_	80	90	

Non-standard, cylindrical shaft extensions up to the specified lengths and diameters can be supplied for the motor series listed in the tables "Admissible changes to the shaft extension DE (Y58)" and "Admissible changes to the shaft extension NDE (Y59)". All other dimensions are available on request.

It is the responsibility of the customer to ensure that the admissible cantilever forces are reduced in accordance with the non-standard shaft extension.

¹⁾ At maximum admissible diameter, a step increase in shaft diameter is not possible.

Mechanical version

Shaft and rotor · **Measures for gear mounting**

Overview (continued)

Concentricity of shaft extension, coaxiality, and linear movement in accordance with IEC 60072-1 Tolerance R for flange-mounted motors

The following are specified in DIN 42955 with Tolerance N (normal) and Tolerance R (reduced):

- 1. Concentricity tolerances for the shaft extension
- 2. Coaxiality tolerances for the shaft extension and flange centering
- 3. Linear movement tolerances for the shaft extension and flange surface

The concentricity of the shaft extension, coaxiality and linear movement according to IEC 60072-1 Tolerance R for flange-mounted motors can be ordered using order code **L08**. This order code can be combined for motors with deep-groove bearings of series 60.., 62.. and 63... This is not possible in combination with a mounted brake or encoder.

Concentricity of the shaft extension can be ordered according to IEC 60072-1 Tolerance R for types of construction without flange with order code **L07**.

Concentricity tolerance for the shaft extension

Diameter of the cylindrical shaft extension	Concentricity tolerance			
d	N (normal)	R (reduced)		
mm	mm	mm		
≤ 10	0.03	0.015		
> 10 18	0.035	0.018		
> 18 30	0.04	0.021		
> 30 50	0.05	0.025		
> 50 80	0.06	0.03		
> 80 120	0.07	0.035		
> 120 180	0.08	0.04		
> 180 250	0.09	0.045		
> 250 315	0.1	0.05		
> 315 400	0.11	0.055		
> 400 500	0.125	0.063		
> 500 600	0.14	0.07		

IEC dimension code D

Coaxiality tolerance of the centering spigot and linear movement tolerance of the flange surface to the shaft extension axis

Mounting flange Coaxiality tolerance and Centering diameter linear movement tolera				
N (normal)	R (reduced)			
mm	mm			
0.05	0.025			
0.06	0.03			
0.08	0.04			
0.1	0.05			
0.125	0.063			
0.16	0.08			
0.2	0.1			
0.25	0.125			
0.315	0.16			
	linear movement to N (normal) mm 0.05 0.06 0.08 0.1 0.125 0.16 0.2 0.25			

IEC dimension code N

Overview

The flange-mounted motors can be equipped with a radial sealing ring in order to mount gearing.

Order code **H23**

It must be ensured that the sealing ring is lubricated using grease, oil mist, or oil spray. (It is not admissible to use pressurized oil > 0.1 bar.) We recommend that the admissible bearing loads are carefully checked.

Mechanical version

Balance and vibration severity

Overview

All rotors are dynamically balanced with an inserted half key. This corresponds to vibration severity grade A (normal or standard). EN 60034-14 Sept. 2004 regulates the vibrational behavior of machinery. Based on ISO 8821, the key convention "half key (H)" must be used for balancing.

Note:

If there is a keyway, a full feather key is always inserted on delivery.

The type of key convention is stamped on the face of the shaft extension at the customer side DE/NDE:

F = Balancing with full key (full-key convention)

H = Balancing with half key

(half-key convention) - standard

N = Balancing without key -

Plain text required (convention without key)

For motors up to frame size 112 the code is stamped on the rating plate.

Full-key balancing or balancing with full feather key (F) is possible by specifying order code **L02** (additional charge).

Balancing without feather key (N) is possible by specifying order code **L01** (additional charge).

Vibration severity grade A is the standard version and is valid up to a rated frequency of 60 Hz. If 2-pole motors of frame sizes 280

and 315 are to be rigidly installed, cast feet are necessary in order to comply with the vibration requirements of IEC 60034-14. IE4 2-pole motors in frame size 315 and pole-changing motors (4-pole/2-pole) fulfill the vibration requirements specified in IEC 60034-14 only when the motor is elastically suspended.

The low-vibration version B can be supplied to fulfill stricter requirements on smooth running (additional charge).

Vibration severity grade B Not possible with parallel roller bearings. Order code **L00**

The order code **L00** vibration severity grade B is not possible in combination with order codes **G40**, **G41**, **G42**. 2-pole transstandard aluminum motors in frame sizes 180 and 200 (14th position of the Article No. is A, C, D, J, T, U, V) and order code **L00** have cast-iron feet.

This vibration is assessed in accordance with vibration severity grade A or B according to EN 60034-14 (see table).

The limits stated in the table apply to uncoupled, freely suspended, idling motors.

For converter operation with frequencies higher than 60 Hz, special balancing is required for compliance with the specified limit values (plain text: maximum supply frequency/speed).

For further details, see the online help in the DT Configurator.

Limits (rms values) for ma Vibration severity grade	x. vibration severity in terms Machine installation	erity in terms of vibration displacement (s), vibration velocity (v), and acceleration (a) for the shaft height H tallation Shaft height H in mm					: H			
		56 ≤ H ≤ 132		132 < H ≤ 280		H > 280				
		s _{rms} μm	v _{rms} mm/s	a _{rms} m/s ²	s _{rms} μm	v _{rms} mm/s	a _{rms} m/s ²	s _{rms} µm	v _{rms} mm/s	a _{rms} m/s ²
A	Free suspension	25	1.6	2.5	35	2.2	3.5	45	2.8	4.4
	Rigid clamping	21	1.3	2.0	29	1.8	2.8	37	2.3	3.6
В	Free suspension	11	0.7	1.1	18	1.1	1.7	29	1.8	2.8
	Rigid clamping	_	_	_	14	0.9	1.4	24	1.5	2.4

For details, see standard EN 60034-14 Sept. 2004.

If the type tests for machines with shaft height H > 280 mm demonstrate a determining component with twice the line frequency, the limit for maximum vibration severity in Table 1 (grade A) can be increased from 2.3 mm/s (rms value) to 2.8 mm/s (rms value). Higher values must be agreed beforehand. A component with twice the line frequency is regarded as dominant if the type test shows that it is greater than 2.3 mm/s (rms value).

Mechanical version

Noise levels for line operation

Overview

The noise is measured in accordance with EN ISO 1680 in a dead room. It is specified as A-weighted enveloping surface sound pressure level $L_{\rm pfA}$ in dB (A). This value is the spatial average value of the sound pressure levels measured at the measuring surface. The measuring

This value is the spatial average value of the sound pressure levels measured at the measuring surface. The measuring surface is a cube 1 m away from the surface of the motor. The sound power level is also specified as $L_{\rm WA}$ in dB (A). The specified values are valid at 50 Hz and rated power (see the

The specified values are valid at 50 Hz and rated power (see the selection and ordering data). The tolerance is +3 dB. Noise values for motors in converter operation on request.

To reduce noise levels, 2-pole motors of frame size 132 S and higher can be equipped with a unidirectional axial fan. The values are listed in the table "Low-noise version" below.

Clockwise rotation:

Order code F77

Counterclockwise rotation:

Order code F78

Second shaft extension and/or mountings (mounting of brake, separately driven fan or encoder) not possible.

Low-noise version			
Motor series	Frame size	2-pole motors L _{pfA} dB (A)	L _{WA} dB (A)
1LE1 ¹⁾	132	60	72
1MB1 ¹⁾	160	60	72
1LE10, 1LE15/6,	180	63	76
1MB15/6	200	64	77
1LE15/6, 1MB15/6	225 250 280 315	72 73 72 76	86 87 85 90
1LE5	315	78.9	93.6
	355	79.2	94

With the exception of 1LE1 and 1MB1 motors with option F90 – version "Forced-air cooled motors without external fan and fan cover".

Mechanical version

Bearings and lubrication

Overview

Bearing lifetime (nominal lifetime)

The nominal bearing lifetime is defined according to standardized calculation procedures (ISO 281) and is reached or even exceeded for 90 % of the bearings when the motors are operated in compliance with the data provided in the catalog.

Under average operating conditions, a lifetime (L_{10h}) of 100 000 hours can be achieved.

Generally, the bearing lifetime is defined by the bearing size, the bearing load, the operating conditions, the speed and the grease lifetime. A bearing lifetime calculation is possible on request.

Bearing system

The bearing lifetime of motors with horizontal mounting is 40 000 hours if there is no additional axial loading at the coupling output and 20 000 hours when utilized according to the maximum admissible load. This assumes that the motor is operated at 50 Hz. The nominal bearing lifetime is reduced for converter operation at higher frequencies.

In order to achieve the calculated lifetime in continuous operation, the admissible vibration values (measured at bearing plate) must be determined according to evaluation zones A and B stipulated in ISO 10816. If higher vibration velocities occur in operation (e.g. with option **H02**), special measures must be taken (please inquire).

Due to their physical characteristics, variable-speed motors have a different bearing lifetime under the same load conditions – this relationship is linear, i.e. if the frequency increases by 20 % from 50 Hz to 60 Hz, the lifetime decreases by 20 % from 20 000 to 16 000 hours under the load conditions specified in the catalog.

If the frequency falls by 20 % from 50 Hz to 40 Hz, under the load conditions specified in the catalog, the lifetime rises by 20 % from 20 000 to 24 000 hours.

It should be observed that, for types of construction IM B6, IM B7, IM B8, IM V5, and IM V6, the belt tension is only permitted to act parallel to the mounting plane or towards the mounting plane and the feet must be supported. Both feet must be secured for foot-mounting types of construction.

In the basic bearing system, the floating bearing is situated at the drive end (DE) and the located bearing is situated at the non-drive end (NDE).

The bearing system is axially preloaded with a spring element at the drive end (DE) to ensure smooth running of the motor without play (see Fig. 1 in the diagrams of bearings on page 1/65).

From frame size 160 upwards, the located bearing is axially secured at the non-drive end (NDE). Up to frame size 132, an additional axially-secured located bearing can be supplied on the non-drive end (NDE) complete with a retaining ring (see Fig. 2 in the diagrams of bearings on page 1/65). Order code **L21**

On request, the located bearing can also be supplied at the drive end (DE) (see Fig. 3 in the diagrams of bearings on Page 1/65). A located bearing at the drive end (DE) is recommended when gearing is installed or pumps and fans are mounted directly on the motor shaft.

Order code L20

For increased cantilever forces (e.g. belt drives), reinforced bearings can be used at the drive end (DE). Order code **L22**

1LE1, 1MB1, and 1PC1 motors can be supplied with reinforced bearings (size range 03) at both ends.

In this case, the bearing plates are made of cast iron (standard for series 1LE16 motors).

Order code L25

A measuring nipple for SPM shock pulse measurement can be mounted to check bearing vibration. The motors have an M8 tapped hole for each bearing plate and a measuring nipple with a protective cap. If a second tapped hole is provided, it is fitted with a sealing cap. Not possible for frame sizes < 100. Order code **Q01**

Bearing selection for increased cantilever forces (see the Table "Bearing selection for 1LE10, 1MB10, and 1PC10 motors – Bearings for increased cantilever forces" on page 1/61) – for the maximum axial load, see page 1/71 onwards.

Bearing insulation

To prevent damage caused by bearing currents, insulated bearings can be supplied for frame sizes 225 to 355 – they are recommended for motors from frame size 225 upwards.

- L50 (DE bearing insulation) means NDE located bearing as standard
- L51 (NDE bearing insulation) means DE located bearing as standard
- L50 + L51 (insulated DE and NDE bearings) means NDE located bearing as standard
- Combination of order codes L50 or L51 or L50 + L51 with L22 (bearing version for increased cantilever forces) means NDE located bearing as standard.

According to IEC 60034-1-11, it is up to the user in the case of DE bearing insulation (order code **L50**) + NDE bearing insulation (order code **L51**) to ensure grounding of the rotor.

The rotor grounding can be implemented either in the system via the coupled driven machine or in the motor via a grounding brush.

The grounding brush (order code **L52**) must always be provided when the driven machine is connected to the motor via an insulating coupling or an insulating belt output shaft.

Permanent lubrication

On motors equipped with permanent lubrication, the bearing grease lifetime is matched to the bearing lifetime. This can, however, only be achieved if the motor is operated in accordance with the catalog specifications.

In the basic version, the motors have permanent lubrication.

Mechanical version

Bearings and lubrication

Overview (continued)

Regreasing

For motors which can be regreased at defined regreasing intervals, the bearing lifetime can be extended and/or unfavorable factors such as temperature, mounting conditions, speed, bearing size, and mechanical load can be compensated.

This regreasing option is possible in the following frame sizes:

- Frame sizes 100 to 160: M8 x 1 acc. to DIN 71412-A (conical lubricating nipple)
- Frame sizes 180 to 315: M10 x 1 acc. to DIN 3404-A (flat lubricating nipple).

Order code L23

(frame sizes ≥ 280 basic version, for the Performance Line motors of frame sizes ≥ 160 basic version)

A regreasing device with M10 \times 1 lubricating nipple to DIN 71412-A can be optionally provided for frame sizes 180 to 315.

Order code L19

In the case of motors equipped with regreasing device, information regarding regreasing intervals, quantity of grease, type of grease and any additional data is provided on the lubrication plate or rating plate. For regreasing intervals for the basic version, see the Table "Grease lifetime and regreasing intervals for horizontal installation". For motors with a mounted holding brake (order code **F01**) a regreasing device cannot be installed, including up to FS 160.

Mechanical stress and grease lifetime

High speeds that exceed the rated speed with converter operation and the resulting increased vibrations alter the mechanical running smoothness and the bearings are subjected to increased mechanical stress. This reduces the grease lifetime and the bearing lifetime (please inquire where applicable).

The use of rigid couplings should be avoided as far as possible. For converter operation in particular, compliance with the mechanical limit speeds $n_{\rm max}$ at maximum supply frequency $f_{\rm max}$ is essential, see the following table "Mechanical limit speeds $n_{\rm max}$ at maximum supply frequency $f_{\rm max}$ ".

Mechanical version

Bearings and lubrication

Overview (continued)

Mechanical limit speeds n_{max} at maximum supply frequency f_{max} (standard values) for 1LE1, 1PC1 motors – basic version and 1LE15 and 1LE16 motors – basic version with order codes L22, L25, L28 – 1MB10/5/6 motors with order codes L22 and L25

Frame size	Type	2-pole		4-pole		6-pole		8-pole	
		n_{max}	f_{max}	n _{max}	f_{max}	n_{max}	f_{max}	n_{max}	f_{max}
		rpm	Hz	rpm	Hz	rpm	Hz	rpm	Hz
1LE10 motors,	basic version								
	1LE10								
63	0B	6000	100	4200	140	3600	180	3000	200
71	0C	6000	100	4200	140	3600	180	3000	200
80 M	0D	6000	100	4200	140	3600	180	3000	200
90 S/L	0E	6000	100	4200	140	3600	180	3000	200
	ne motors – bea								
1LE15 Basic Li	ne motors – bear	rings reinforce	d at both end	s – order code	L25				
	1LE15	2000	100	4000		2222	400	0000	000
71 M	0C	6000	100	4200	140	3600	180	3000	200
80 M	0D	6000	100	4200	140	3600	180	3000	200
90 S/L	0E	6000	100	4200	140	3600	180	3000	200
	otors, basic vers		a baayinga	for increased o	autilavau fava	sa ayday aada	1.00		
	ne and 1LE16 Pe ne and 1LE16 Pe						L22		
	1LE1 1PC1		J.						
100 L	1A	6000	100	4200	140	3600	180	3000	200
112 M	1B	6000	100	4200	140	3600	180	3000	200
132 S/M	1C	5600	90	4200	140	3600	180	3000	200
160 M/L	1D	4800	80	4200	140	3600	180	3000	200
180 M/L	1E	4600	76	4200	140	3600	180	3000	200
200 L	2A	4500	75	4200	140	3600	180	3000	200
1LE15 Basic Li 1LE15 Basic Li	ne and 1LE16 Pe ne and 1LE16 Pe ne and 1LE16 Pe ne and 1LE16 Pe	erformance Lin erformance Lin	e – bearings e – bearings	for increased careful at both	oth ends – ord	ler code L25		code L28	
	1LE15 1LE16								
180 M/L	1E	4600	76	4200	140	3600	180	3000	200
200 L	2A	4500	75	4200	140	3600	180	3000	200
225 S/M	2B	4500	75	4500	150	4400	220	4400	293
250 M	2C	3900	65	3700	123	3700	185	3700	247
280 S/M	2D	3600	60	3000	100	3000	150	3000	200
315 S/M/L	3A	3600	60	2600	87	2600	130	2600	173
	ne and 1LE56 Pe ne and 1LE56 Pe				antilever force	es – order code	L22		
	1LE55 1LE56								
315 L	3A	5200	87	3400	113	3400	170	3400	227
355 M/L	3B	5200	87	3800	93	2800	140	2800	187

The specified limit speeds are applicable to motors without additional mountings, such as brakes or rotary encoders. In such applications, the characteristics of the respective mounting parts must be taken into account.

Overview (continued)

Grease lifetime and regreasing intervals for horizontal installation

Motor series	Frame size	No. of poles	3			
Permanent lubricat	tion ¹⁾					
			Grease lifetime up to CT	40 °C ²⁾		
1LE1/1MB1/1PC1	71 250	2 8	20000 h or 40000 h 3)			
Regreasing 1)						
			Lubrication interval ISO C	CI F 155 °C	Lubrication interval ISO C	CI H 180 °C
			CT ≤ 60 °C	60 °C < CT ≤ 80 °C	40 °C < CT ≤ 60 °C	60 °C < CT ≤ 80 °C
1LE1/1MB1/1PC1	100 160	2 8	8000 h	4000 h ²⁾	4000 h	2000 h ²⁾
	180 280	2	4000 h	2000 h ²⁾	1000 h	1000 h ²⁾
		4 8	8000 h	4000 h ²⁾	2000 h	2000 h ²⁾
	315	2	3000 h	1500 h ²⁾	1000 h	1000 h ²⁾
		4 8	6000 h	3000 h ²⁾	1500 h	1500 h ²⁾
			CT ≤ 40 °C	40 °C < CT ≤ 80 °C	CT ≤ 40 °C	40 °C < CT ≤ 80 °C
1LE5	315, 355	2	3000 h	1500 h ²⁾	3000 h	1500 h ²⁾
		4, 6	6000 h	3000 h ²⁾	6000 h	3000 h ²⁾

Bearing selection table for 1LE10, 1MB10, and 1PC10 motors - basic version

The bearing selection tables are only intended for planning purposes. Authoritative information on the actual type of bearings fitted in motors already supplied can be obtained by the factory by quoting the serial number or can be read from the rating plate.

When deep-groove bearings with side plates are used, the side plate is on the inside. Located bearing at drive end (DE) for 1LE1, 1MB1 and 1PC1 motors, see special version Fig. 2 in the "Diagrams of bearings" on Page 1/65.

		_		
Frame size	No. of poles	Drive end (DE) bearing	Non-drive end (NDE) bearing	Fig. No. on page 1/65
		Horizontal and vertical types of construction	Horizontal and vertical types of construction	
1LE10/1MB10				
63	2 6	6201 2ZC3	6201 2ZC3	_
71	2 8	6202 2ZC3	6202 2ZC3	_
80	2 8	6004 2ZC3	6004 2ZC3	Fig. 1
90	2 8	6205 2ZC3	6004 2ZC3	Fig. 1
1LE10/1MB10/1PC10				
100 L	2 8	6206 2ZC3	6206 2ZC3	Fig. 1
112 M	2 8	6206 2ZC3	6206 2ZC3	Fig. 1
132 S/M	2 8	6208 2ZC3 ⁴⁾	6208 2ZC3 ⁴⁾	Fig. 1
160 M/L	2 8	6209 2ZC3 ⁴⁾	6209 2ZC3 ⁴⁾	Fig. 2
1LE10				
180 M/L	2 8	6210 ZC3 ⁵⁾	6210 ZC3 ⁵⁾	Fig. 4
200 L	2 8	6212 ZC3 ⁵⁾	6212 ZC3 ⁵⁾	Fig. 4

Bearing selection table for 1LE10, 1MB10, and 1PC10 motors – bearings for increased cantilever forces – order code L22

Please inquire about noise and vibration data. The bearing selection tables are only intended for planning purposes. Authoritative information on the actual type of bearings fitted in motors already supplied can be obtained by the factory by quoting the serial number or can be read from the rating plate.

When deep-groove bearings with side plates are used, the side plate is on the inside.

Frame size	No. of poles	Drive end (DE) bearing Horizontal and vertical types of construction	Non-drive end (NDE) bearing Horizontal and vertical types of construction	Fig. No. on page 1/65
1LE10/1MB10				
80	2 8	6304 2ZC3	6204 2ZC3	_
90	2 8	6305 2ZC3	6205 2ZC3	_
1LE10/1MB10/1PC10				
100 L	2 8	6306 2ZC3	6206 2ZC3	Fig. 1
112 M	2 8	6306 2ZC3	6206 2ZC3	
132 S/M	2 8	6308 2ZC3 ⁴⁾	6208 2ZC3 ⁴⁾	
160 M/L	2 8	6309 2ZC3 ⁴⁾	6209 2ZC3 ⁴⁾	Fig. 2
1LE10				
180 M/L	2 8	6310 ZC3 ⁵⁾	6210 ZC3 ⁵⁾	Fig. 4
200 L	2 8	6312 ZC3 ⁵⁾	6212 ZC3 ⁵⁾	Fig. 4

¹⁾ For special uses and special greases, please inquire about grease lifetime and regreasing intervals.

²⁾ For every 10 K the coolant temperature is increased above 80 °C, the grease lifetime and regreasing interval are halved.

^{3) 40 000} hours apply to horizontally installed motors with coupling output without additional axial loads.

⁴⁾ Deep-groove bearings with a side plate are used for regreasable versions (L23).

⁵⁾ Deep-groove bearings without a side plate are used for regreasable versions (L23).

Mechanical version

Bearings and lubrication

Overview (continued)

Bearing selection table for 1LE10, 1MB10, and 1PC10 motors – bearings reinforced at both ends – order code L25

Please inquire about noise and vibration data. The bearing selection tables are only intended for planning purposes. Authoritative information on the actual type of bearings fitted in motors already supplied can be obtained by the factory by quoting the serial number or can be read from the rating plate.

When deep-groove bearings with side plates are used, the side plate is on the inside.

Frame size	No. of poles	Drive end (DE) bearing Horizontal and vertical types of construction	Non-drive end (NDE) bearing Horizontal and vertical types of construction	Fig. No. on page 1/65
1LE10/1MB10				
80	2 8	6304 2ZC3	6204 2ZC3	_
90	2 8	6305 2ZC3	6205 2ZC3	_
1LE10/1MB10/1PC10				
100 L	2 8	6306 2ZC3	6306 2ZC3	Fig. 1
112 M	2 8	6306 2ZC3	6306 2ZC3	
132 S/M	2 8	6308 2ZC3 ¹⁾	6308 2ZC3 ¹⁾	
160 M/L	2 8	6309 2ZC3 ¹⁾	6309 2ZC3 ¹⁾	Fig. 2
1LE10				
180 M/L	2 8	6310 ZC3 ²⁾	6310 ZC3 ²⁾	Fig. 4
200 L	2 8	6312 ZC3 ²⁾	6312 ZC3 ²⁾	Fig. 4

Bearing assignment for 1LE15/1MB15, 1LE16/1MB16, and 1LE5 motors (basic version)

Frame size	No. of poles	Drive end (DE) I	Drive end (DE) bearing Horizontal and vertical type of construction Non-drive end (NDE) bearing Horizontal and vertical type of construction		Non-drive end (NDE) bearing		
					Fig. No. on page 1/65		
1LE15, 1MB15 – I	Basic Line						
71 M	2 8	6202 2ZC3		6202 2ZC3		Fig. 1	
80 M	2 8	6204 2ZC3		6204 2ZC3		Fig. 1	
90 S/L	2 8	6205 2ZC3		6204 2ZC3		Fig. 1	
100 L	2 8	6206 2ZC3 ¹⁾		6206 2ZC3 ¹⁾ 6206 2ZC3 ¹⁾		Fig. 1	
112 M	2 8	6206 2ZC3 1)					
132 S/M	2 8	6208 2ZC3 1)		6208 2ZC3 ¹⁾			
160 M/L	2 8	6209 2ZC3 1)		6209 2ZC3 ¹⁾		Fig. 2	
180 M/L	2 8	6210 ZC3 ²⁾		6210 ZC3 ²⁾		Fig. 4	
200 L	2 8	6212 ZC3 ²⁾		6212 ZC3 ²⁾			
225 S/M	2 8	6213 ZC3 ²⁾		6213 ZC3 ²⁾		Fig. 1	
250 M	2 8	6215 ZC3 ²⁾		6215 ZC3 ²⁾			
280 S/M	2	6315 C3		6315 C3		Fig. 2	
	4 8	6317 C3		6317 C3			
315 S/M/L	2	6316 C3		6316 C3			
	4 8	6319 C3		6319 C3			
1LE16, 1MB16 – I	Performance Line						
100 L	2 8	6306 2ZC3 6306 2ZC3		6306 2ZC3		Fig. 1	
112 M	2 8			6306 2ZC3			
132 S/M	2 8	6308 2ZC3		6308 2ZC3			
160 M/L	2 8	6309 ZC3		6309 ZC3		Fig. 2	
180 M/L	2 8	6310 C3		6310 C3		Fig. 4	
200 L	2 8	6312 C3		6312 C3			
225 S/M	2 8	6313 C3		6313 C3		Fig. 4	
250 M	2 8	6315 C3		6315 C3			
280 S/M	2	6315 C3		6315 C3			
	4 8	6317 C3		6317 C3			
315 S/M/L	2	6316 C3		6316 C3			
	4 8	6319 C3		6319 C3			
		Type of construction		Type of construction			
		Horizontal	Vertical	Horizontal	Vertical		
1LE5							
315 L	2	6316 C4	6316 C4	6316 C4	7316 B	-	
	4, 6	6319 C4	6319 C4	6319 C4	7319 B	_	
355 M/L	2	6317 C4	6317 C4	6317 C4	7317 B	_	
	4, 6	6320 C4	6320 C4	6320 C4	7320 B	_	

Deep-groove bearings with a side plate are used for regreasable versions (L23).

²⁾ Deep-groove bearings without a side plate are used for regreasable versions (L23).

Mechanical version

Bearings and Iubrication

Overview (continued)

Bearing selection table for 1LE15, 1MB15, 1LE16, and 1MB16 motors (bearings for increased cantilever forces – order code L22)

For NU bearings (cylindrical roller bearings), in contrast to ball bearings, a minimum cantilever force is required. Cylindrical roller bearings are not suitable for coupling output.

 $F_{\text{min}} \sim F_{\text{max}}/2$

Frame size	No. of poles	Drive end (DE) bearing Horizontal and vertical type of construction		Non-drive end (NDE) bearing Horizontal and vertical type of construction		Fig. No. on page 1/65
1LE15/1MB15 – B	asic Line					
71 M	2 8	6302 2ZC3		6202 2ZC3 ³⁾		
80 M	2 8	6304 2ZC3		6204 2ZC3 ³⁾		
90 S/L	2 8	6305 2ZC3		6204 2ZC3		
100 L	2 8	6306 2ZC3 1)		6206 2ZC3 ¹⁾³⁾		
112 M	2 8	6306 2ZC3 ¹⁾		6206 2ZC3 ¹⁾³⁾		
132 M	2 8	6308 2ZC3 1)		6208 2ZC3 ¹⁾³⁾		
160 M/L	2 8	6309 2ZC3 ¹⁾		6209 2ZC3 ¹⁾³⁾		
180 M/L	2 8	NU 210		6210 C3		Fig. 5
200 L	2 8	NU 212	NU 212 6212 C3			
225 M	2 8	NU 213		6213 C3		
250 M	2 8	NU 215		6215 C3		
280 M	2	NU 315		6315 C3 ³⁾		
	4 8	NU 317		6317 C3 ³⁾		
315 M/L	2	NU 316		6316 C3 ³⁾		
	4 8	NU 319		6319 C3 ³⁾		
1LE16/1MB16 – P	erformance Line					
100 L	2 8	2)				
112 M	2 8	2)				
132 M	2 8	2)				
160 M/L	2 8	2)				
180 M/L	2 8	NU 310		6310 C3 ³⁾		
200 L	2 8	NU 312		6312 C3 ³⁾		
225 M	2 8	NU 313		6313 C3 ³⁾		Fig. 5
250 M	2 8	NU 315		6315 C3 ³⁾		<u> </u>
280 M	2	NU 315		6315 C3 ³⁾		
	4 8	NU 317		6317 C3 ³⁾		
315 M/L	2	NU 316		6316 C3 ³⁾		
	4 8	NU 319		6319 C3 ³⁾		
		Type of construction		Type of construction		
		Horizontal	Vertical	Horizontal	Vertical	
1LE5						
315 L	2	NU316	NU316	6316 C4	O. R.	-
	4, 6	NU319	NU319	6319 C4	O. R.	_
355 M/L	2	NU317	NU317	6317 C4	O. R.	_
	4. 6	NU320	NU320	6320 C4	O. R.	_

Mechanical version

Bearings and lubrication

Overview (continued)

Bearing selection table for 1LE15/1MB15 and 1LE16/1MB16 motors (bearings reinforced at both ends – order code L25, for 1LE16 motors – standard)

6320 C4

4, 6

-						
Frame size	No. of poles	Drive end (DE) bearing		Non-drive end (NDE) bearing		Fig. No. on page 1/65
		Horizontal and v construction	rertical type of	Horizontal and ver construction	rtical type of	
ILE15, 1MB15 –	Basic Line					
71 M	2 8	6302 2ZC3 6302 2ZC3				
30 M	2 8	6304 2ZC3		6304 2ZC3		
90 S/L	2 8	6305 2ZC3		6304 2ZC3		
100 L	2 8	6306 2ZC3 1)		6306 2ZC3 ¹⁾		
112 M	2 8	6306 2ZC3 1)		6306 2ZC3 ¹⁾		
132 M	2 8	6308 2ZC3 ¹⁾		6308 2ZC3 ¹⁾		
160 M/L	2 8	6309 2ZC3 ¹⁾		6309 2ZC3 ¹⁾		
180 M/L	2 8	6310 ZC3 ⁴⁾		6310 ZC3 ⁴⁾		
200 L	2 8	6312 ZC3 ⁴⁾		6312 ZC3 ⁴⁾		
225 M	2 8	6313 ZC3 ⁴⁾		6313 ZC3 ⁴⁾		Fig. 4
250 M	2 8	6315 ZC3 ⁴⁾		6315 ZC3 ⁴⁾		
280 M	2	6315 C3 ³⁾		6315 C3 ³⁾		
	4 8	6317 C3 ³⁾		6317 C3 ³⁾		
315 M/L	2	6316 C3 ³⁾		6316 C3 ³⁾		
	4 8	6319 C3 ³⁾		6319 C3 ³⁾		
1LE16, 1MB16 –	Performance Line – bea	aring version Perform	ance Line basic v	ersion		
		Type of construction		Type of construction		
		Horizontal	Vertical	Horizontal	Vertical	
1LE5						
315 L	2	6316 C4	6316 C4	6316 C4	7316 B	-
	4, 6	6319 C4	6319 C4	6319 C4	7319 B	-
355 M/L	2	6317 C4	6317 C4	6317 C4	7317 B	_

6320 C4

6320 C4

7320 B

Deep-groove bearings with a side plate are used for regreasable versions (L23).

²⁾ Not permitted.

³⁾ As for basic version.

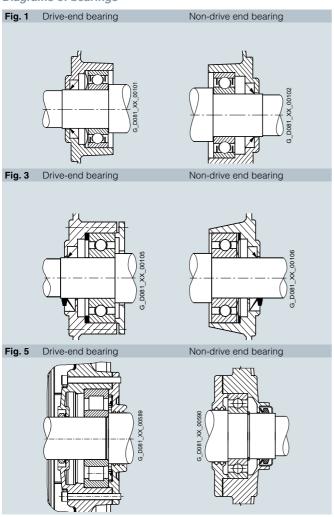
⁴⁾ Deep-groove bearings without a side plate are used for regreasable versions (L23).

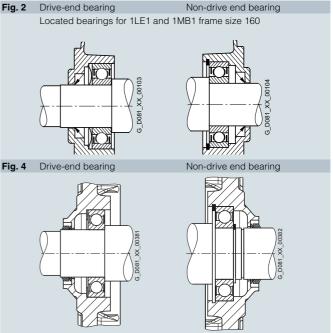
Mechanical version

Bearings and Iubrication

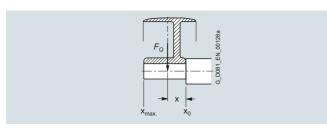
Overview (continued)

Diagrams of bearings





Admissible cantilever forces



In order to calculate the admissible cantilever forces for a radial load, the line of force (i.e. the centerline of the pulley) of the cantilever force $F_{\rm Q}$ (N) must be within the free shaft extension (dimension x)

Dimension x (mm) is the distance between the point of application of the force F_Q and the shaft shoulder. The dimension x_{max} corresponds to the length of the shaft extension.

Total cantilever force $F_{Q} = c \cdot F_{u}$

The pre-tension factor c is a value gained from experience from the belt manufacturer. The following approximate value can be assumed:

For normal flat leather belts with an idler pulley c = 2; for V-belts c = 2 to 2.5;

for special synthetic belts (depending on the type of load and type of belt) c=2 to 2.5.

The circumferential force $F_{\rm u}$ (N) is calculated using the following equation

$$F_{\rm u} = 2 \cdot 10^7 \frac{P}{n \cdot D}$$

F_u circumferential force in N

rated motor power (transmitted power) in kW

n rated motor speed in rpm

D belt pulley diameter in mm

Mechanical version

Bearings and lubrication

Overview (continued)

Admissible cantilever forces - basic version

1LE10, 1MB10 motors (frame sizes 80 ... 160) and 1PC10 (frame sizes 100 ... 160) at 50 Hz Valid are: x_0 values for x = 0 and $x_{max.}$ values for x = I (I = shaft extension) Admissible cantilever force F_{Q} For motors at x₀ at x_{max} Frame size Type No. of poles N Ν 1LE1 motors – values for IE2 motors with increased power 400 1LE1001-0DA 1LE1001-0DB 4 625 515 735 1LE1001-0DC 6 605 90 1LE1001-0EA 2 725 605 1LE1001-0EB 920 775 1LE1001-0EC 6 1090 910 100 1010 825 1LE1001-1AA 2 1LE1001-1AB 4 1230 1010 1LE1001-1AC 1440 1180 6 112 1LE1001-1BA 970 785 1LE1001-1BB 1235 1000 1LE1001-1BC 6 1440 1165 132 1LE1001-1CA 2 1470 1180 1LE1001-1CB 4 1830 1470 2150 1730 1LE1001-1CC 6 160 1LE1001-1DA 2 1550 1270 1LE1001-1DB 4 1910 1550 1LE1001-1DC 2230 1810 63 1LE1001-0BA 270 240 1LE1001-0BB 4 350 305 71 1LE1001-0CA 415 355 1LE1001-0CB 530 450 80 1LE1001-0DA 2 485 400 1MB10.1-0DA 1PC1001-0DA 1LE1001-0DB 515 625 4 1MB10.1-0DB 1PC1001-0DB 1LE1001-0DC 605 6 735 1MB10.1-0DC 1PC1001-0DC 1LE1001-0DD 815 8 675 1PC1001-0DD 90 1LE1001-0EA 2 725 605 1MB10.1-0EA 1PC1001-0EA 1LE1001-0EB 4 920 775 1MB10.1-0EB 1PC1001-0EB 1LE1001-0EC 1MB10.1-0EC 1090 910 1PC1001-0EC 1LE1001-0ED 1PC1001-0ED 1230 1030

	310 motors (frame ne sizes 100 16		60) and		
Valid are: x ₀	ovalues for x = 0 tension)	and x _{max.} val	ues for x = I		
For motors	,		Admissible cantilever force I at x ₀ at x _{max} .		
Frame size	Туре	No. of poles	N	N N	
1LE1 motor 1MB1 moto 1PC1 motor	s – standard valu rs – standard valu rs – standard valu	ies for IE2 mo ues for IE2 mo ues for IE2 mo	otors ¹⁾ otors ¹⁾ otors ¹⁾		
100	1LE1001-1AA 1MB10.1-1AA 1PC1001-1AA	2	1020	815	
	1LE1001-1AB 1MB10.1-1AB 1PC1001-1AB	4	1250	1000	
	1LE1001-1AC 1MB10.1-1AC 1PC1001-1AC	6	1450	1155	
	1LE1001-1AD 1MB10.1-1AD 1PC1001-1AD	8	1615	1290	
112	1LE1001-1BA 1MB10.1-1BA 1PC1001-1BA	2	1000	790	
	1LE1001-1BB 1MB10.1-1BB 1PC1001-1BB	4	1250	990	
	1LE1001-1BC 1MB10.1-1BC 1PC1001-1BC	6	1450	1150	
	1LE1001-1BD 1MB10.1-1BD 1PC1001-1BD	8	1610	1275	
132	1LE1001-1CA 1MB10.1-1CA 1PC1001-1CA	2	1505	1170	
	1LE1001-1CB 1MB10.1-1CB 1PC1001-1CB	4	1880	1460	
	1LE1001-1CC 1MB10.1-1CC 1PC1001-1CC	6	2170	1680	
	1LE1001-1CD 1MB10.1-1CD 1PC1001-1CD	8	2420	1880	
160	1LE1001-1DA 1MB10.1-1DA 1PC1001-1DA	2	1560	1240	
	1LE1001-1DB 1MB10.1-1DB 1PC1001-1DB	4	2040	1590	
	1LE1001-1DC 1MB10.1-1DC 1PC1001-1DC	6	2350	1820	
	1LE1001-1DD 1MB10.1-1DD 1PC1001-1DD	8	2610	2030	
180	1LE10	2 4 6	1670 2150 2500	1380 1740 2000	
200	1LE10	2 4 6	2460 3180 3600	2070 2630 2980	

In the case of cantilever forces that exceed this, see "Bearings for increased cantilever forces".

Note:

1PC10 only for frame sizes 100 to 160.

 $^{^{1)}}$ For IE1 motors, the admissible cantilever force can be increased by up to 5 %.

Mechanical version

Bearings and lubrication

Overview (continued)

For motors	sion)	Admissible cantileve	r force
		at x ₀	at x _{max}
Frame size	No. of poles		N
1LE1501/03/21			
71	2	400	340
	4	500	420
	6	570	490
80	2	680	570
	4	860	720
	6	980	820
90	2	760	620
	4	950	790
	6	1090	900
100	2	1010	815
	4	1230	1000
	6	1440	1155
	8	1615	1290
112	2	970	785
	4	1235	990
	6	1440	1150
			1275
120	2	1610	
132		1470	1170
	4	1830	1460
	6	2150	1680
	8	2420	1880
160	2	1550	1240
	4	1910	1550
	6	2230	1810
	8	2610	2030
180	2	1670	1380
	4	2150	1740
	6	2500	2000
200	2	2460	2070
	4	3180	2630
	6	3600	2980
225	2	2850	2300
	4	3550	2800
	6	4050	3240
	8	4500	3500
250	2	3250	2600
200	4		3400
		4100 4800	
	6	- 111	4000
000	8	5250	4450
280	2	5200	4200
	4	8500	7000
	6	9800	8150
	8	10800	9000
315 S/M	2	5300	4500
	4	9150	7400
	6	10750	8750
	8	11600	9600
315 L	2	4900	4300
	4	8900	7700
	6	10100	9150
	8	11100	10200
1LE5504/34/03			10200
315 L		5800	5200
313 L	2		
	4	9300	8000
	6	10600	9200
	8	12000	9200

Valid are: x ₀ v (I = shaft exte	nsion)	A almain a lie I e e e	llavar fara
For motors		Admissible cant at x ₀	ilever torce at x _{max}
Frame size	No. of poles	•	N
ILE1601/03/2	1/23, 1MB16 – F	Performance Line	
100	2	1585	1270
	4	1960	1575
	6	2270	1815
	8	2520	2015
112	2	1545	1240
	4	1960	1555
	6	2270	1800
	8	2510	1990
132	2	2285	1795
.02	4	2860	2250
	6	3320	2580
	8	3700	2870
160	2	2800	2170
. 55	4	3450	2750
	6	4000	3160
	8	4510	3500
180	2	3250	2610
100	4	4110	3270
	6	4720	3740
200	2	4320	3550
200	4		
		5480	4500
205	6	6220	5110
225	2	5000	4150
	4	6250	4900
	6	7200	5750
250	8	7800	6200
250	2	6000	4800
	4	7600	6200
	6	8750	7350
	8	9500	8000
280	2	5200	4200
	4	8500	7000
	6	9800	8150
	8	10800	9000
315 S/M	2	5300	4500
	4	9150	7400
	6	10750	8750
	8	11600	9600
315 L	2	4900	4300
	4	8900	7700
	6	10100	9150
	8	11100	10200
ILE5604/34/0	3/33 – Performa	ınce Line	
315 L	2	5800	5200
	4	9300	8000
	6	10600	9200
	8	12000	9200
355 M,L	2	5800	5200
	4	9900	8700
	6	11200	9800
	8	11200	10000

In the case of cantilever forces that exceed this, see "Bearings for increased cantilever forces".

Mechanical version

Bearings and lubrication

Overview (continued)

forces - order code L22

Admissible	e cantilever for	ces – bearir	ngs for in	creased cantileve
100 160) a	at 50 Hz with reir	forced deep-g	groove bea	_
-	$_{0}$ values for $x = 0$	and x _{max} valu		I (I = shaft extension
For motors				le cantilever force F_Q
Frame size	Туре	No. of poles	at x ₀	at x _{max}
	s – values for IE			
100	1LE1001-1AA	2 motors with	1585	1300
100	1LE1001-1AB	4	1960	1610
	1LE1001-1AC	6	2270	1865
112	1LE1001-1BA	2	1545	1250
112	1LE1001-1BB	4	1960	1585
	1LE1001-1BC	6	2270	1835
132	1LE1001-1CA	2	2285	1840
	1LE1001-1CB	4	2860	2300
	1LE1001-1CC	6	3320	2670
160	1LE1001-1DA	2	2800	2240
	1LE1001-1DB	4	3450	2270
	1LE1001-1DC	6	4000	3200
1LE1 motor	s – standard val	ues for IE2 m	otors 1)	
1MB1 moto	rs – standard va rs – standard va	lues for IE2 m	otors 1)	
	rs – standard val 1LE1001-1AA			1070
100	1LE1001-1AA 1MB10.1-1AA	2	1585	1270
	1PC1001-1AA			
	1LE1001-1AB	4	1960	1575
	1MB10.1-1AB			
	1PC1001-1AB	0	0070	4045
	1LE1001-1AC 1MB10.1-1AC	6	2270	1815
	1PC1001-1AC			
	1LE1001-1AD	8	2520	2015
	1MB10.1-1AD			
	1PC1001-1AD			
112	1LE1001-1BA	2	1545	1240
	1MB10.1-1BA 1PC1001-1BA			
	1LE1001-1BB	4	1960	1555
	1MB10.1-1BB	•	1000	1000
	1PC1001-1BB			
	1LE1001-1BC	6	2270	1800
	1MB10.1-1BC 1PC1001-1BC			
	1LE1001-1BD	8	2510	1990
	1MB10.1-1BD	0	2010	1550
	1PC1001-1BD			
132	1LE1001-1CA	2	2285	1795
	1MB10.1-1CA			
	1PC1001-1CA 1LE1001-1CB	4	2860	2250
	1MB10.1-1CB	4	2000	2230
	1PC1001-1CB			
	1LE1001-1CC	6	3320	2580
	1MB10.1-1CC			
	1PC1001-1CC	0	0700	0070
	1LE1001-1CD 1MB10.1-1CD	8	3700	2870
	1PC1001-1CD			
160	1LE1001-1DA	2	2800	2170
	1MB10.1-1DA			
	1PC1001-1DA		0.455	
	1LE1001-1DB 1MB10.1-1DB	4	3450	2750
	1PC1001-1DB			
	1LE1001-1DC	6	4000	3160
	1MB10.1-1DC			0
	1PC1001-1DC			
	1LE1001-1DD	8	4510	3500
	4MD404455			
	1MB10.1-1DD			
180	1PC1001-1DD	2	3250	2610
180		2	3250 4110	2610 3270
180	1PC1001-1DD	4	4110	3270
180	1PC1001-1DD	6	4110 4720	3270 3740
	1PC1001-1DD 1LE1001-1EA	4 6 8	4110 4720 5130	3270 3740 4050
180	1PC1001-1DD	6	4110 4720 5130 4320	3270 3740
	1PC1001-1DD 1LE1001-1EA	4 6 8 2	4110 4720 5130	3270 3740 4050 3550

at DE up to frame size 160 with cylindrical roller bearings at DE in frame size 180 and above Valid are: x_0 values for x = 0 and x_{max} values for x = I (I = shaft extension) For motors Admissible cantilever force at x₀ at x_{max} Frame size Type No. of poles N Ν 1LE1501/03/21/23, 1MB15 - Basic Line 1LE15..-0CA 400 340 1MB15..-0CA 1LE15..-0CB 490 420 1MB15..-0CB 1LE15..-0CC 1MB15..-0CC 570 490 LE15..-0CD 1MB15..-0CD 640 540 8 80 1LE15..-0DA 1MB15..-0DA 2 570 680 1LE15..-0DB 840 720 4 1MB15..-0DB 1LE15..-0DC 970 820 6 1MB15..-0DC 1LE15..-0DD 8 1090 910 1MB15..-0DD 90 1LE15..-0EA 2 720 605 1MB15..-0EA 1LE15..-0EB 4 920 775 1MB15..-0EB 1LE15..-0EC 1MB15..-0EC 1060 910 6 1LE15..-0ED 1200 1030 8 1MB15..-0ED 1LE15..-1AA 100 1585 1270 2 1MB15..-1AA 1LE15..-1AB 1960 1575 4 1MB15..-1AB 1LE15..-1AC 1MB15..-1AC 6 2270 1815 1LE15..-1AD 8 2520 2015 1MB15..-1AD 112 1LE15..-1BA 1MB15..-1BA 2 1545 1240 1LE15..-1BB 1MB15..-1BB 4 1960 1555 1LE15..-1BC 1800 6 2270 1MB15..-1BC 1LE15..-1BD 8 2510 1990 1MB15..-1BD 132 1LE15..-1CA 2285 1795 1MB15..-1CA 1LE15..-1CB 1MB15..-1CB 2250 4 2860 1LE15..-1CC 1MB15..-1CC 6 3320 2580 1LE15..-1CD 2870 8 3700 1MB15..-1CD 160 1LE15..-1DA 2800 2170 2 1MB15..-1DA 1LE15..-1DB 3450 2750 4 1MB15..-1DB 1LE15..-1DC 4000 3160 6 1MB15..-1DC 1LE15..-1DD 4510 3500 1MB15..-1DD 180 1LE15..-1EA 2 4520 3630 1MB15..-1EA 1LE15..-1EB 4050 4 5560 1MB15..-1EB 1LE15..-1EC 6280 4050 6 1MB15..-1EC

1LE15 and 1MB15 motors at 50 Hz with reinforced deep-groove bearings

8

2

4

8

6790

6840

8440

9480

10100

4050

5610

6000

6000

6000

1LE15..-1ED

1MB15..-1ED

1LE15..-2AA

1MB15..-2AA

1LE15..-2AB

1MB15..-2AB

1LE15..-2AC

1MB15..-2AC 1LE15..-2AD 1MB15..-2AD

200

¹⁾ For IE1 motors, the admissible cantilever force can be increased by up to 5%

Note: 1PC10 and 1MB10 not for frame sizes 180 to 200.

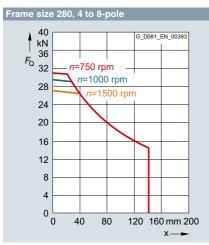
Bearings and lubrication

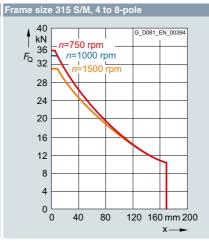
Overview (continued)

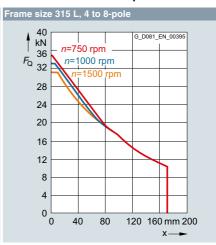
at DE up to	MB15 motors at frame size 160 w 80 and above			
Valid are: x ₀	values for $x = 0$	and x _{max} valu	es for x = I (I =	shaft extension)
For motors			Admissible car at x ₀	ntilever force at x _{max}
Frame size	Туре	No. of poles	N	N
1LE1501/03	/21/23, 1MB15 –	Basic Line (c	ontinued)	
225	1LE152BA 1MB152BA	2	8000	6800
	1LE152BB 1MB152BB	4	9800	7250
	1LE152BC 1MB152BC	6	11100	7300
	1LE152BD 1MB152BD	8	11300	7300
250	1LE152CA 1MB152CA	2	9500	7400
	1LE152CB 1MB152CB	4	12500	9400
	1LE152CC 1MB152CC	6	13500	9700
	1LE152CD 1MB152CD	8	14700	9700
280 1)	1LE152DA 1MB152DA	2	16500	9800
315 ¹⁾	1LE153AA 1MB153AA	2	18400	7600

1LE16 and 1MB16 r with reinforced cyli	ndrical roller	bearings (DE)	
Valid are: x ₀ values	for $x = 0$ and	x_{max} values for $x = 1$	(I = shaft extension)
For motors		Admissible cantileve	er force
		at x ₀	at x _{max}
Frame size	No. of poles	N	N
1LE1601/03/21/23, 1	MB16 – Perfo	ormance Line	
100, 112, 132, 160	2, 4, 6, 8	-	_
180	2	8150	4050
	4	9800	4050
	6	9800	4050
200	2	11200	6000
	4	13600	6000
	6	13600	6000
225	2	12700	7900
	4	15700	7250
	6	15700	7300
	8	15700	7300
250	2	17000	7750
	4	21000	9400
	6	21000	9700
	8	21000	9700
280 ¹⁾	2	16500	9800
315 S, M ¹⁾	2	18400	7600
315 L ¹⁾	2	18400	7600

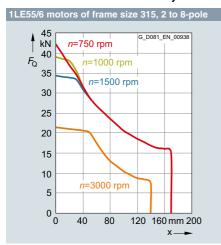
1LE15/6 and 1MB15/6 motors for 50 Hz with cylindrical roller bearings (DE) for frame sizes 280 to 315 in 4 to 8-pole version

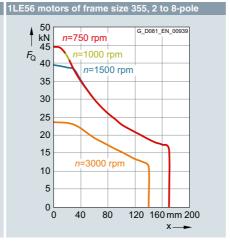






1LE55/6 motors for 50 Hz with cylindrical roller bearings (DE) for frame sizes 315 to 355 in 2 to 8-pole version





¹⁾ For admissible cantilever forces 4, 6, and 8-pole versions, see diagrams on this page.

Mechanical version

Bearings and lubrication

Overview (continued)

Admissible cantilever forces – bearings reinforced at both ends – order code **L25**

1LE10, 1MB10 motors (frame sizes 80 ... 160) and 1PC10 (frame sizes 100 ... 160) for 50 Hz with deep-groove bearings reinforced at both ends

Valid are: x_0 values for x = 0 and x_{max} values for x = I (I = shaft extension)

Valid are: x ₀ va	alues for $x = 0$	and x _{max} va	lues for x = I (I = shaft extension)
For motors		Admissible at x ₀	e cantilever force at x _{max}
Frame size	No. of pole	s N	N
1LE1501/03/21 1LE10, 1MB10	I/23, 1MB15 –), 1PC10	Basic Line	
71	2	610	510
	4	760	640
	6	880	740
	8	970	820
80	2	950	800
	4	1190	1000
	6	1370	1150
	8	1520	1270
90	2	1200	1000
	4	1530	1270
	6	1760	1450
	8	1950	1610
100	2	1585	1270
100	4	1960	1575
	6	2270	1815
	8	2520	2015
112	2	1545	1240
112	4	1960	1555
	6	2270	1800
	8	2510	1990
132	2	2285	1795
102	4	2860	2250
	6	3320	2580
	8	3700	2870
160	2	2800	2170
100	4	3450	2750
	6	4000	3160
	8	4510	3500
180	2	3250	2610
100	4	4110	3270
	6	4720	3740
		5130	4050
200	2	4320	3550
200	4	5480	4500
	6	6220	5110
	8	6870	5640
225	2	5000	4150
225	4		
		6250	4900
	8	7200	5750
250	2	7800	6200 4800
230		6000	
	4	7600	6200
	6	8750	7350
280 ¹⁾	8	9500	8000
	2, 4, 6, 8	-	
315	2, 4, 6, 8	_	_

Note:

1PC10 only for frame sizes 100 to 160.

Admissible cantilever forces – bearings reinforced at both ends. DE bearings for increased cantilever forces – order code **L28**

1LE15 and 1MB15 motors for 50 Hz with cylindrical roller bearings (DE) with deep-groove bearings (NDE)

Valid are: x_0 values for x = 0 and x_{max} values for x = I (I = shaft extension)

valid are. x ₀ v	alues for x = 0 a	illu A _{max} values loi A	- I (I - SIIAIT EXTERISION)
For motors		Admissible cantileve at x ₀	r force at x _{max}
Frame size	No. of poles	-	N
1LE1501/03/2	1/23, 1MB15 – B	asic Line	
100	2, 4, 6, 8	-	-
112	2, 4, 6, 8	-	-
132	2, 4, 6, 8	-	-
160	2, 4, 6, 8	-	-
180	2	8150	4050
	4	9800	4050
	6	9800	4050
200	2	11200	6000
	4	13600	6000
	6	13600	6000
225	2	12700	7900
	4	15700	7250
	6	15700	7300
	8	15700	7300
250	2	17000	7750
	4	21000	9400
	6	21000	9700
	8	21000	9700
280	2, 4, 6, 8	-	_
315 S, M	2, 4, 6, 8	-	-
315 L	2, 4, 6, 8	-	-

¹⁾ For values for frame sizes 280 to 315, see page 1/67. For frame sizes 280 to 315, bearings of size 63 are standard.

Mechanical version

Bearings and lubrication

Overview (continued)

Admissible axial load

1LE10, 1MB10, and 1PC10 motors in vertical type of construction – basic version (with the exception of motors with increased power)

Frame size	3000 rp	m			1500 rp	m			1000 rp	om			750 rpm				
	Shaft e down	xtension	pointing up	1	down		up		down		up		down		up		
	Load down N	up N	down N	up N	down N	up N	down N	up N	down N	up N	down N	up N	down N	up N	down N	up N	
63	80	245	230	95	80	330	310	95	80	410	390	95	_	_	_	_	
71	105	365	335	130	90	380	440	130	90	590	550	130	90	700	660	130	
80	110	425	360	160	100	540	480	165	100	650	590	165	100	760	700	165	
90	110	440	360	180	100	680	580	190	100	920	820	190	100	1150	1050	190	
100	140	700	550	280	130	990	820	285	130	1280	1110	285	130	1560	1390	285	
112	140	710	550	300	130	1000	820	310	130	1290	1110	310	130	1570	1390	310	
132	200	1200	950	470	180	1680	1200	470	180	1900	1600	470	190	2200	1900	440	
160	1500	1400	950	1900	1900	1800	1300	2200	2200	2200	1600	2700	2700	2700	1950	2900	
180	1260	1230	500	1990	1600	1770	840	2530	1920	2150	1160	2900	2050	2500	1290	3260	
200	1810	1720	660	2870	2410	2480	1260	3630	2700	3050	1550	4200	3060	3510	1910	4660	

The values shown do not assume a cantilever force on the shaft extension.

The admissible loads are valid for operation at 50 Hz; for 60 Hz, please inquire.

The calculation of the admissible axial load was based on the drive with generally available coupling. For suppliers, see section "Accessories" on page 2/117 in the respective section of the catalog.

Please inquire if the load direction alternates.

1LE10, 1MB10, ¹⁾ and 1PC10 ¹⁾ motors in horizontal type of construction – basic version (with the exception of motors with increased power)

Frame size	3000 rp	000 rpm			1500 rp	m			1000 rp	m			750 rpm	1		
	Tensile load	Thrust I	oad		Tensile load	Thrust I	oad		Tensile load	Thrust I	oad		Tensile load			
		with radial lo at	adial load radia			radial load		without radial load		with radial lo at	ad	without radial load		with radial lo at	ad	without radial load
		x ₀	x _{max.}			x ₀	x _{max.}			x ₀	x _{max.}			x ₀	x _{max.}	
	N	Ν	Ν	Ν	Ν	Ν	Ν	Ν	N	Ν	Ν	N	N	N	Ν	Ν
63	90	120	90	240	90	140	110	320	90	170	120	400	-	_	-	-
71	120	150	120	350	120	210	150	460	120	260	180	570	120	300	210	680
80	140	190	150	400	140	300	260	510	140	330	280	620	140	340	290	730
90	150	300	280	400	150	400	360	630	150	480	430	870	150	550	500	1100
100	220	450	350	630	220	600	500	910	220	650	550	1200	220	750	650	1480
112	220	450	350	630	220	600	500	910	220	650	550	1200	220	750	650	1480
132	350	650	520	1200	350	850	700	1600	350	1020	890	1900	350	1150	1020	2200
160	1500	850	720	1500	1500	1050	920	1800	1500	1250	1120	2200	1500	1350	1220	2600
180	1630	-	-	870	2070	-	-	1310	2420	-	-	1660	2660	-	_	1900
200	2340	-	-	1190	3020	-	-	1870	3450	-	-	2300	3860	-	-	2710

The values shown do not assume a cantilever force on the shaft extension.

The admissible loads are valid for operation at 50 Hz; for 60 Hz, please inquire.

The calculation of the admissible axial load was based on the drive with generally available coupling. For suppliers, see the section "Accessories" on page 2/117.

Please inquire if the load direction alternates.

^{1) 1}MB10 and 1PC10 motors only available for frame sizes 100 to 160.

Mechanical version

Bearings and lubrication

Overview (continued)

1LE15, 1MB15, 1LE16, 1MB16, 1LE55, and 1LE56 motors in vertical type of construction – basic version

Frame siz	e Type		– 3000 r			4-pole	– 1500 r	pm		6-pole	– 1000 r	pm		8-pole	– 750 rp	m	
		Shaft e down	extensio	n pointi up	ng	down		up		down		up		down		up	
		Load down	up	down	up	down	up	down	up	down	up	down	up	down	up	down	up
11 545 41	MB15 – Basic Li	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
71	11501-0C.2	ne 220	100	80	240	210	220	180	240	210	300	260	250	_	_	_	_
•	11501-0C.3	220	90	70	240	210	210	170	250	210	300	260	250	_	_	_	_
	11503-0C.2	220	90	70	240	210	210	170	250	210	300	260	250	_	-	-	_
	11503-0C.3	210	100	60	250	200	200	150	260	200	290	230	260	_	_	_	_
80	11501-0D.2	240	280	240	280	230	460	400	290	230	600	540	290	_	_	_	_
	11501-0D.3	230	270	220	280	230	450	390	290	220	590	510	300	-	-	-	-
	11503-0D.2	230	270	220	280	230	450	390	290	220	590	510	300	-	-	-	-
	11503-0D.3	230	270	210	290	220	440	360	300	210	590	490	300	-	-	_	-
90	11501-0E.0	210	300	230	280	210	480	400	290	210	620	540	290	-	-	-	-
	11501-0E.4	210	300	220	290	200	480	380	300	200	620	520	300	_	_	_	_
	11503-0E.0	210	300	220	290	200	480	380	300	200	620	520	300	-	-	-	-
	11503-0E.4	210	290	210	290	200	460	360	300	200	610	510	300	-	-	-	-
100	115.1-1A.4	300	450	340	410	280	720	570	430	260	930	740	450	280	1100	940	440
	115.1-1A.5	-	-	-	-	270	710	540	440	-	-	-	-	260	1100	910	450
	115.1-1A.6	290 290	440	310	420	250	710	500	460	240	920	690	470	_	_	_	_
	115.3-1A.4	290	440	310	420	250 250	710	500	460					-	-		
112	115.3-1AB5 115.1-1B.2	280	460	310	430	260	710 730	500 540	460 450	250	940	730	460	250	1110	900	460
112	115.1-1B.2 115.1-1B.6	260	460	270	450	250	730	510	470	240	930	700	470	-	-	-	-
	115.3-1B.2	260	460	270	450	250	730	510	470	240	930	700	470	_	_	_	_
132	115.1-1C.0	510	600	370	740	490	1000	730	760	490	1310	1040	760	480	1570	1280	770
. 02	115.1-1C.1	490	610	340	760	-	_	-	-	_	-	-	-	_	-	-	_
	115.1-1C.2	_	_	_	_	460	1000	670	790	470	1310	1000	780	450	1580	1220	810
	115.1-1C.3	_	_	_	_	_	_	_	_	440	1310	940	810	_	_	_	_
	115.1-1C.6	450	610	260	800	410	1010	580	840	390	1320	850	860	_	_	_	_
•	115.3-1C.0	490	610	340	760	410	1010	580	840	440	1310	940	810	-	-	-	_
	115.3-1C.1	450	610	260	800	_	_	_	_	_	_	_	_	_	_	_	-
	115.3-1C.2	-	_	_	_	410	1010	580	840	440	1310	940	810	-	_	_	_
	115.3-1C.3	-	_	-	_	-	_	-	-	400	1320	850	860	-	-	-	_
160	115.1-1D.2	1560	890	500	1950	1930	1340	870	2400	2190	1700	1130	2760	2540	1990	1480	3050
	115.1-1D.3	1510	900	450	1960	-	-	-	-	-	-	-	-	2430	1980	1370	3040
	115.1-1D.4	1470	900	410	1960	1840	1350	780	2410	2070	1710	1010	2770	2350	2000	1290	3060
	115.1-1D.6	1370	900	310	1960	1760	1380	700	2440	1930	1720	870	2780	-	-	_	-
	115.1-1D.7	-	_	_	_	1640	1400	580	2460	_	_	_	_	_	_	_	_
	115.3-1D.2	1510	900	450	1960	1840	1350	780	2410	2070	1710	1010	2770	-	-	-	-
	115.3-1D.3	1470	900	410	1960	-	_	_	_	_	-	_	-	-	-	_	-
100	115.3-1D.4	1370	900	310	1960	1760	1380	700	2440	1930	1720	870	2780	_	_	_	_
180	1151E.2	1290	1220	530	1980	1680	1750	920	2500	-	-	-	-	-	-	-	-
	1151E.4	1000	-	- E00	1000	1610	1760	850	2520	1920	2120	1160	2880	2270	2440	1510	320
200	1151E.6 1152A.4	1260 1920	1230 1680	500 760	1990 2830	1600	1770	840	2530	1920 2880	2150 2970	1160 1720	2900 4120	2050	2500	1290	326
.00	1152A.4 1152A.5	1810	1700	660	2860	- 2410	- 2450	- 1260	3600	2770	3010	1620	4160	- 3240	- 3450	2090	460
	1152A.6	1810	1720	660	2870	2410	2480	1260	3630	2700	3050	1550	4200	3060	3510	1910	466
25	1152B.0	-	-	-	-	2200	2800	1180	3830	_	-	-	-	3200	3750	2180	477
-20	1152B.2	1720	2000	630	3020	2100	2850	1070	3900	2340	3470	1300	4480	3090	3800	2070	4820
	1152B.6	1720	2000	630	3020	2100	2850	1070	3900	2300	3500	1280	4480	2780	3950	1770	4970
250	1152C.2	1630	2600	830	3400	1980	3580	1180	4390	2440	4210	1650	5020	3180	4760	2380	5560
	1152C.6	1630	2650	830	3450	1940	3740	1140	4530	2440	4320	1640	5120	2950	4850	2150	5650
280	1152D.0	3540	4280	1950	5850	5320	6930	3640	8500	6630	7990	5000	9570	7930	9030	6200	105
	1152D.2	3250	4390	1650	5950	4790	6990	3170	8580	6350	8150	4700	9700	7690	9180	6000	106
	1152D.6	3180	4540	1580	6100	4770	7170	3150	8750	6230	8400	4600	9900	7370	9300	5700	107
15	1153A.0	3580	4710	1450	6850	5640	7790	3600	9850	6800	9100	4700	11100	8500	10150	6450	118
	1153A.2	3180	4960	1050	7100	4780	7920	2700	9900	6080	9300	4000	11300	8150	10400	6100	119
	1153A.4	2890	5080	770	7200	4820	7580	2750	9600	5400	9750	3350	11700		10650	5200	120
	1153A.5	2240	5480	100	7600	3720	7620	1650	9650	4800	10150	2750	11800	6500	10900	4450	123
	1153A.6	-	-	-	-	-	-	-	-	4550	10000	2500	11800	5900	11000	3900	125
	asic Line																
15	1LE553A.6	12500		10100	622	19100	2293	16700	4633	22000	19600	3014	5354	-	-	-	-
	1LE553A.7	12000		9600	622	19000	2353	16600	4693	21000	18600	4054	6394	_	_	_	_

Mechanical version

Bearings and lubrication

Overview (continued)

Frame s	ize Type	2-pole	– 3000 ı	rpm		4-pole	– 1500 r	pm		6-pole	– 1000 r	pm		8-pole	– 750 rp	m	
		Shaft e	extensio	n pointi up	ng	down		up		down		up		down		up	
		Load		·		dauna				daum				daus			
		down N	up N	down N	up N	down N	up N	down N	up N	down N	up N	down N	up N	down N	up N	down N	up N
1LE16.	1MB16 – Perform			14	14	14	14	14	14	14	14	14	14	14	14	14	14
100	116.1-1A.4	220	930	820	330	200	1330	1180	350	180	1640	1450	370	200	1900	1740	360
	116.1-1A.5	_	_	_	_	190	1320	1150	360	_	_	_	_	_	_	_	_
	116.1-1A.6	210	930	800	340	170	1320	1110	380	160	1640	1410	390	180	1900	1710	370
	116.3-1A.4	210	930	800	340	170	1320	1110	380	-	_	_	_	_	_	_	_
	116.3-1A.5	-	-	-	-	170	1320	1110	380	-	-	-	-	-	-	-	-
112	116.1-1B.2	200	940	790	350	180	1340	1150	370	170	1650	1440	380	_	-	_	_
	116.1-1B.6	180	940	750	370	170	1340	1120	390	160	1640	1410	390	170	1910	1700	380
	116.3-1B.2	180	940	750	370	170	1340	1120	390	160	1640	1410	390	-	-	-	
132	116.1-1C.0	540	1120	890	770	520	1700	1430	790	520	2150	1880	790	510	2530	2240	800
	116.1-1C.1	520	1130	860	790	-	_	-	-	-	-	-	-	-	_	-	-
	116.1-1C.2	-	-	-	-	490	1710	1380	820	500	2150	1840	810	480	2540	2180	840
	116.1-1C.3	-	-	-	-	-	-	-	-	470	2150	1780	840	-	-	_	-
	116.1-1C.6	480	1130	780	830	440	1710	1280	870	420	2160	1690	890	_	_	_	
	116.3-1C.0	520	1130	860	790	440	1710	1280	870	470	2150	1780	840	-	_	_	_
	116.3-1C.1	480	1130	780 _	830	-	- 1710	1000	- 070	470	- 0150	1700	-	_	_	-	-
	116.3-1C.2			_	_	440	1710 –	1280 –	870 –	470 420	2150 2160	1780 1690	840 890	_	_	_	_
160	116.3-1C.3 116.1-1D.2	2200	1870	1480	2590	2860	2610	2140	3330	3320	3170	2600	3890	3830	3620	3110	4340
100	116.1-1D.3	2150	1880	1430	2600	_	_	_	-	-	-	_	-	3730	3620	3010	4340
	116.1-1D.4	2120	1890	1400	2610	2760	2610	2040	3330	3200	3180	2480	3900	3650	3640	2930	4360
	116.1-1D.6	2020	1890	1300	2610	2680	2640	1960	3360	3050	3180	2330	3900	_	-	_	_
	116.1-1D.7	_	-	-	_	2570	2670	1850	3390	_	-	_	-	_	_	_	_
	116.3-1D.2	2150	1880	1430	2600	2760	2610	2040	3330	3200	3180	2480	3900	_	_	_	_
	116.3-1D.3	2120	1890	1400	2610	_	_	_	_	_	_	_	_	_	_	_	_
	116.3-1D.4	2020	1890	1300	2610	2680	2640	1960	3360	3050	3180	2330	3900	_	_	_	-
180	1161E.2	2510	2050	1360	3200	3240	2920	2090	4070	_	-	_	-	-	_	-	_
	1161E.4	-	_	_	-	3180	2930	2020	4090	3740	3560	2580	4710	4300	4090	3150	5240
	1161E.6	2490	2060	1330	3220	3160	2950	2010	4100	3740	3570	2580	4730	4090	4140	2940	5290
200	1162A.4	2920	3030	2110	3840	-	-	-	-	4570	5010	3760	5820	-	-	-	-
	1162A.5	2810	3060	2000	3870	3820	4210	3010	5020	4470	5060	3660	5870	5200	5750	4390	6560
	1162A.6	2810	3060	2000	3870	3820	4230	3010	5040	4400	5090	3590	5900	5010	5800	4200	6610
225	1162B.0	-	-	-	-	4200	4750	3150	5800	-	-	-	-	5900	6400	4850	7650
	1162B.2	3100	3400	2050	4450	4100	4850	3000	5850	4700	5800	3650	6850	5800	6450	4700	7500
250	1162B.6 1162C.2	3100 3850	3400 4100	2050 2250	4450 5600	4100 4850	4850 5650	3000 3250	5850 7250	4650 5750	5850 6750	3600 4200	6900 8350	5500 6900	6600 7700	4400 5300	7650 9200
230		3850	4100	2250	5600	4800	5750	3200	7400	5750	6750	4200	8450	6700	7800	5000	9300
280	1162C.6 1162D.0	3540	4280	1950	5850	5320	6930	3640	8500	6630	7990	5000	9570	7930	9030	6200	10500
200	1162D.2	3250	4390	1650	5950	4790	6990	3170	8580	6350	8150	4700	9700	7690	9180	6000	10600
	1162D.6	3180	4540	1580	6100	4770	7170	3150	8750	6230	8400	4600	9900	7370	9300	5700	10700
315	1163A.0	3580	4710	1450	6850	5640	7790	3600	9850	6800	9100	4700	11100	8500	10150	6450	11800
	1163A.2	3180	4960	1050	7100	4780	7920	2700	9900	6080	9300	4000	11300	8150	10400	6100	11900
	1163A.4	2890	5080	770	7200	4820	7580	2750	9600	5400	9750	3350	11700		10650		12000
	1163A.5	2240	5480	100	7600	3720	7620	1650	9650	4800	10150		11800	6500	10900		12300
	1163A.6	_	_	_	_	_	_	_	_	4550	10000		11800	5900	11000		12500
1LE5 –	Performance Line	•															
315	1LE563A.6	12500	-	10100	622	19100	2293	16700	4633	-	-	-	-	-	-	_	_
	1LE563A.7	12000	-	9600	622	19000	2353	16600	4693	-	-	_	_	-	-	_	_
355	1LE563B.2	-	-	-	-	-	-	-	-	25500	21700	4791	8591	-	-	-	_
			497	10000	2325	24000		20200			21200		9041	-	-	-	-
		11500		9600	2705	23500		19700			21200	5241	9041	-	-	_	-
	1LE563B.5	11200	1237	9300	3065	22500	3236	18700	7036	-	-	-	_	-	-	-	-

Mechanical version

Bearings and lubrication

Overview (continued)

1LE15 and 1MB15 motors in vertical type of construction – bearings reinforced at both ends – order code L25

Frame size	Туре		– 3000 r	•		4-pole	- 1500 I	rpm		6-pole	– 1000 i	rpm		8-pole	– 750 rp	om	
		down	extensio	n point up	ing	down		up		down		up		down		up	
		Load down	up	down	up N	down	up N	down	up N	down	up N	down N	up	down	up N	down	up
41 E4E 4M	B15 – Basic L	N	N	N	IN	N	IN	N	IN	N	IN	IN	N	N	IN	N	N
71/80/90	ID 13 – Basic Li		ole soon														
100	115.1-1A.4	220	930	820	330	200	1330	1180	350	180	1640	1450	370	200	1900	1740	360
	115.1-1A.5	-	-	-	_	190	1320	1150	360	-	_	-	_	180	1900	1710	370
	115.1-1A.6	210	930	800	340	170	1320	1110	380	160	1640	1410	390	-	-	-	-
	115.3-1A.4	210	930	800	340	170	1320	1110	380	_	_	-	_	-	-	_	_
	115.3-1A.5	-	-	-	_	170	1320	1110	380	-	_	-	_	_	_	-	_
112	115.1-1B.2	200	940	790	350	180	1340	1150	370	170	1650	1440	380	170	1910	1700	380
	115.1-1B.6	180	940	750	370	170	1340	1120	390	160	1640	1410	390	-	-	-	_
	115.3-1B.2	180	940	750	370	170	1340	1120	390	160	1640	1410	390	-	-	-	-
132	115.1-1C.0	540	1120	890	770	520	1700	1430	790	520	2150	1880	790	510	2530	2240	800
	115.1-1C.1	520	1130	860	790	-	-	-	-	-	_	-	_	-	-	-	-
	115.1-1C.2	-	-	-	-	490	1710	1380	820	500	2150	1840	810	480	2540	2180	840
	115.1-1C.3	-	_	-	_	-	-	-	-	470	2150	1780	840	-	_	-	-
	115.1-1C.6	480	1130	780	830	440	1710	1280	870	420	2160	1690	890	-	-	-	-
	115.3-1C.0	520	1130	860	790	440	1710	1280	870	470	2150	1780	840	-	-	-	-
	115.3-1C.1	480	1130	780	830	-	-	-	-	-	-	-	-	-	-	-	-
	115.3-1C.2	-	-	-	-	440	1710	1280	870	470	2150	1780	840	-	-	-	-
	115.3-1C.3	-	-	_	-	-	-	-	-	420	2160	1690	890	-	-	-	_
160	115.1-1D.2	2200	1870	1480	2590	2860	2610	2140	3330	3320	3170	2600	3890	3830	3620	3110	4340
	115.1-1D.3	2150	1880	1430	2600	-	-	-	-	-	-	-	-	3730	3620	3010	4340
	115.1-1D.4	2120	1890	1400	2610	2760	2610	2040	3330	3200	3180	2480	3900	3650	3640	2930	4360
	115.1-1D.6	2020	1890	1300	2610	2680	2640	1960	3360	3050	3180	2330	3900	-	-	-	-
	115.1-1D.7	-	-	-	-	2570	2670	1850	3390	-	-	-	-	-	-	-	-
	115.3-1D.2	2150	1880	1430	2600	2760	2610	2040	3330	3200	3180	2480	3900	_	_	-	_
	115.3-1D.3	2120	1890	1400	2610	-	-	-	-	-	-	-	-	-	-	-	_
	115.3-1D.4	2020	1890	1300	2610	2680	2640	1960	3360	3050	3180	2330	3900	-	-	_	_
180	1151E.2	2510	2050	1360	3200	3240	2920	2090	4070	-	-	-	-	-	-	-	-
	1151E.4	_	-	-	-	3180	2930	2020	4090	3740	3560	2580	4710	4300	4090	3150	5240
	1151E.6	2490	2060	1330	3220	3160	2950	2010	4100	3740	3570	2580	4730	4090	4140	2940	5290
200	1152A.4	2920	3030	2110	3840	-	-	-	-	4570	5010	3760	5820	-	-	-	-
	1152A.5	2810	3060	2000	3870	3820	4210	3010	5020	4470	5060	3660	5870	5200	5750	4390	6560
005	1152A.6	2810	3060	2000	3870	3820	4230	3010	5040	4400	5090	3590	5900	5010	5800	4200	6610
225	1152B.0	-	-	-	-	4200	4750	3150	5800	-	-	-	-	5900	6400	4850	7650
	1152B.2	3100	3400	2050	4450	4100	4850	3000	5850	4700	5800	3650	6850	5800	6450	4700	7500
	1152B.6	3100	3400	2050	4450	4100	4850	3000	5850	4650	5850	3600	6900	5500	6600	4400	7650
250	1152C.2	3850	4100	2250	5600	4850	5650	3250	7250	5750	6750	4200	8350	6900	7700	5300	9200
	1152C.6	3850	4100	2250	5600	4800	5750	3200	7400	5750	6750	4200	8450	6700	7800	5000	9300

For frame sizes > 250 standard version.

Introduction Mechanical version

Bearings and lubrication

Overview (continued)

1LE15, 1MB15, 1LE16, 1MB16, 1LE55, and 1LE56 motors in horizontal type of construction – basic version

Frame size	Туре	2-pole 3000 rp		4-pole 1500 r		6-pole 1000 r _l		8-pole 750 rp		Туре	2-pole 3000 r		4-pole 1500 r _l		6-pole 1000 rj		8-pole 750 rp	
					n Thrust							n Thrust						
		N	N	N	N	N	N	N	Ν		N	N	N	N	N	Ν	N	N
- ,	1MB15 – Basi									1LE16, 1MB16	– Perf	ormand	e Line					
71	11501-0C.2	230	90	230	200	230	280	_	-	-	-	_	-	-	-	-	-	-
	11501-0C.3	230	80	230	190	230	280	_	_	-	-	-	_	-	_	_	_	-
	11503-0C.2	230	80	230	190	230	280	-	-	-	-	-	-	-	-	-	-	-
	11503-0C.3	230	80	230	180	230	260	-	-	-	-	-	-	-	-	-	-	-
80	11501-0D.2	260	260	260	430	260	570	-	-	-	-	-	-	-	-	-	-	-
	11501-0D.3	260	250	260	420	260	550	_	-	_	-	-	-	-	-	-	-	-
	11503-0D.2	260	250	260	420	260	550	-	-	-	-	-	-	-	-	-	-	-
	11503-0D.3	260	240	260	400	260	540	_	-	-	-	-	-	-	-	-	-	-
90	11501-0E.0	250	270	250	440	250	580	_	_	-	-	_	-	-	-	_	-	-
	11501-0E.4	250	260	250	430	250	570	_	-	-	-	-	-	-	-	-	-	-
	11503-0E.0	250	260	250	430	250	570	-	-	-	-	-	-	-	-	-	-	-
	11503-0E.4	250	250	250	410	250	560	_	-	_	-	-	-	-	-	-	_	-
100	115.1-1A.4	1120	400	1370	650	1560	840	1740	1020	116.1-1A.4	1440	880	1820	1260	2110	1550	2380	1820
	115.1-1A.5	-	-	1350	630	-	-	1730	1010	116.1-1A.5	-	-	1800	1240	-	-	2370	1810
	115.1-1A.6	1000	380	1330	610	1530	810	-	-	116.1-1A.6	1430	870	1780	1220	2090	1530	_	-
	115.3-1A.4	1000	380	1330	610	-	-	-	-	116.3-1A.4	1430	870	1780	1220	-	-	-	-
	115.3-1A.5	-	-	1330	610	-	-	-	-	116.3-1A.5	-	-	1780	1220	-	-	_	-
112	115.1-1B.2	1110	390	1360	640	1560	840	1730	1010	116.1-1B.2	1430	870	1810	1250	2110	1550	2370	1810
	115.1-1B.6	1090	370	1340	620	1540	820	-	-	116.1-1B.6	1410	850	1790	1230	2090	1530	-	-
	115.3-1B.2	1090	370	1340	620	1540	820	_	-	116.3-1B.2	1410	850	1790	1230	2090	1530	-	-
132	115.1-1C.0	1750	490	2130	870	2440	1180	2690	1430	116.1-1C.0	2330	1010	2890	1570	3340	2020	3710	2390
	115.1-1C.1	1740	480	_	_	_	_	_	_	116.1-1C.1	2320	1000	_	_	_	_	_	-
	115.1-1C.2	-	_	2100	840	2420	1160	2660	1400	116.1-1C.2	-	_	2870	1550	3320	2000	3680	2360
	115.1-1C.3	_	-	_	_	2390	1130	_	_	116.1-1C.3	-	_	_	_	3290	1970	_	-
	115.1-1C.6	1700	440	2060	800	2350	1090	_	_	116.1-1C.6	2280	960	2820	1500	3250	1930	_	-
	115.3-1C.0	1740	480	2060	800	2390	1130	-	-	116.3-1C.0	2320	1000	2820	1500	3290	1970	-	-
	115.3-1C.1	1700	440	-	_	-	-	_	_	116.3-1C.1	2280	960	-	-	-	_	-	-
	115.3-1C.2	-	_	2060	800	2390	1130	_	-	116.3-1C.2	-	_	2820	1500	3290	1970	-	-
	115.3-1C.3	_	-	_	_	2350	1090	_	_	116.3-1C.3	-	_	_	_	3250	1930	_	-
160	115.1-1D.2	1760	700	2170	1110	2480	1420	2800	1740	116.1-1D.2	2400	1680	3100	2380	3610	2890	4090	3370
	115.1-1D.3	1740	680	-	-	-	-	2740	1680	116.1-1D.3	2380	1660	-	-	-	-	4040	3320
	115.1-1D.4	1720	660	2130	1070	2420	1360	2710	1650	116.1-1D.4	2370	1650	3050	2330	3550	2830	4010	3290
	115.1-1D.6	1670	610	2100	1040	2360	1300	-	-	116.1-1D.6	2320	1600	3020	2300	3480	2760	-	-
	115.1-1D.7	-	-	2050	990	-	-	_	-	116.1-1D.7	-	-	2980	2260	-	-	-	-
	115.3-1D.2	1740	680	2130	1070	2420	1360	-	-	116.3-1D.2	2380	1660	3050	2330	3550	2830	-	-
	115.3-1D.3	1720	660	-	-	-	-	-	-	116.3-1D.3	2370	1650	-	-	-	-	-	-
	115.3-1D.4	1670	610	2100	1040	2360	1300	_	-	116.3-1D.4	2320	1600	3020	2300	3480	2760	-	-
180	1151E.2	1640	880	2100	1340	-	-			1161E.2	2860	1710	3660	2510	-	-	-	-
	1151E.4	-	-	2070	1310	2420	1660	2740	1980	1161E.4	-	-	3630	2480	4230		4770	3620
	1151E.6	1630	870	2070	1310		1660	2660	1900	1161E.6	2850	1700	3630	2480	4230	3080	4690	3540
200	1152A.4	2380	1230	-	-	3510	2360	-	-	1162A.4	3390		-	-	5210	4400	-	-
	1152A.5	2340	1190	3020	1870	3470	2320	3920		1162A.5	3340		4430	3620	5170	4360	5880	5070
	1152A.6	2340	1190	3020	1870		2300	3860		1162A.6	3340	2530		3620	5150	4340		5000
225	1152B.0	-	-	3020	1980	-	-	3950		1162B.0	-	-	4950	3900	-	-	6600	5550
	1152B.2	2350	1300	3020	1980	3400	2400	3900		1162B.2	3800	2750	4950	3900	5750	4700	6550	5500
	1152B.6	2350	1300	3020	1980	3400	2400	3800		1162B.6	3800	2750	4900	3850	5700	4650	6500	5450
250	1152C.2	2600	1750	3200	2400	3750	3000	4350		1162C.2	4750	3150	6050	4450	7100	5500	8100	6500
	1152C.6	2550	1700	3200	2400	3750	3000	4300		1162C.6	4750	3150	6050	4450	7100	5500	8000	6400
280	1152D.0	4500	2900	6700	5100	7900	6350	8800		1162D.0	4500	2900	6700	5100	7900	6350	8800	7200
	1152D.2	4450	2850	6600	5000	7850	6300	8800	7200	1162D.2	4450	2850	6600	5000	7850	6300	8800	7200
	1152D.6	4450	2850	6600	5000	7850	6300	8800	7200	1162D.6	4450	2850	6600	5000	7850	6300	8800	7200
315	1153A.0	5000	2900	7550	5500	8900	6850	9800	7800	1163A.0	5000	2900	7550	5500	8900	6850	9800	7800
	1153A.2	4800	2700	7300	5250	8900	6850	9800	7800	1163A.2	4800	2700	7300	5250	8900	6850	9800	7800
	1153A.4	4750	2650	7300	5250	8550	6500	9500	7500	1163A.4	4750	2650	7300	5250	8550	6500	9500	7500
	1153A.5	4700	2600	7050	5000	8250	6200	9300	7300	1163A.5	4700	2600	7050	5000	8250	6200	9300	7300
	1153A.6	_	_	_	_	8250	6200	9100	7100	1163A.6	_	_	_	_	8250	6200	9100	7100

Mechanical version

Bearings and lubrication

Overview	(continued)

Frame size	Туре	2-pole - 3000 rp Load		4-pole 1500 rp		6-pole - 1000 rp		8-pole 750 rpr		Туре	2-pole 3000 rp		4-pole - 1500 rp		6-pole - 1000 rp		8-pole 750 rpr	
			Thrust	Tension	Thrust	Tension	Thrust	Tension	Thrust			Thrust	Tension	Thrust	Tension	Thrust	Tension	Thrust
		Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν		Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν
1LE55 -	– Basic Line									1LE56 - Perfo	rmance	Line						
315	1LE553A.6	5400	3000	7750	5400	-	-	-	-	1LE563A.6	5400	3000	7750	5400	-	-	-	-
	1LE553A.7	5200	2800	7750	5400	9100	6750	-	-	1LE563A.7	5200	2800	7750	5400	9100	6750	-	-
	1LE553A.8	-	-	-	-	9000	6650	-	-	1LE563A.8	-	-	-	-	9000	6650	-	-
355	-	-	-	-	-	-	-	-	-	1LE563B.2	-	-	-	-	9900	6000	-	-
	_	-	_	_	-	_	_	-	-	1LE563B.3	5000	3200	8800	5000	9800	5900	-	-
	-	-	-	-	-	-	-	-	-	1LE563B.4	5000	3200	8750	4950	9800	5900	-	-
	_	_	-	_	-	_	-	_	-	1LE563B.5	5000	3200	8700	4900	_	-	-	_
1LE15	and 1MB15	motors	in ho	rizonta	l type	of con	structi	ion – b	earing	gs reinforced	at both	n ends	s – orde	er coc	e L25			
Frame size	Туре	2-pole -		1-pole – 1500 rpn		oole – 00 rpm	750	rpm		rame Type		2-pole – 8000 rpr		oole – 00 rpm	6-pa	le –) rom	8-pole	

size				1500			1000 rpm		700 Ipili	
		Load Ten- sion	Thrust	Ten- sion	Thrust	Ten- sion	Thrust	Ten- sion	Thrust	
		Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	
1LE15,	1MB15 – Basic	Line								
71/80/9	0	Availa	able so	on						
100	115.1-1A.4	1440	880	1820	1260	2110	1550	2380	1820	
	115.1-1A.5	-	_	1800	1240	-	_	2370	1810	
	115.1-1A.6	1430	870	1780	1220	2090	1530	-	-	
	115.3-1A.4	1430	870	1780	1220	-	-	-	_	
	115.3-1A.5	-	_	1780	1220	-	_	-	_	
112	115.1-1B.2	1430	870	1810	1250	2110	1550	2370	1810	
	115.1-1B.6	1410	850	1790	1230	2090	1530	-	_	
	115.3-1B.2	1410	850	1790	1230	2090	1530	-	-	
132	115.1-1C.0	2330	1010	2890	1570	3340	2020	3710	2390	
	115.1-1C.1	2320	1000	-	_	-	_	-	_	
	115.1-1C.2	-	_	2870	1550	3320	2000	3680	2360	
	115.1-1C.3	-	_	-	_	3290	1970	-	_	
	115.1-1C.6	2280	960	2820	1500	3250	1930	-	_	
•	115.3-1C.0	2320	1000	2820	1500	3290	1970	-	-	
	115.3-1C.1	2280	960	-	_	-	-	-	_	
	115.3-1C.2	-	-	2820	1500	3290	1970	-	-	
	115.3-1C.3	-	-	-	-	3250	1930	_	-	

Frame size	Туре	2-pole 3000		4-pole 1500		6-pole 1000		8-pole 750 rj	
		Load Ten- sion	Thrust	Ten- sion	Thrust	Ten- sion	Thrust	Ten- sion	Thrust
		Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν
1LE15,	1MB15 – Basi	c Line							
160	115.1-1D.2	2400	1680	3100	2380	3610	2890	4090	3370
	115.1-1D.3	2380	1660	-	-	-	-	4040	3320
	115.1-1D.4	2370	1650	3050	2330	3550	2830	4010	3290
	115.1-1D.6	2320	1600	3020	2300	3480	2760	_	_
	115.1-1D.7	-	-	2980	2260	-	_	_	_
	115.3-1D.2	2380	1660	3050	2330	3550	2830	-	_
	115.3-1D.3	2370	1650	-	_	-	_	_	_
	115.3-1D.4	2320	1600	3020	2300	3480	2760	-	-
180	1151E.2	2860	1710	3660	2510	-	-	-	_
	1151E.4	-	-	3630	2480	4230	3080	4770	3620
	1151E.6	2850	1700	3630	2480	4230	3080	4690	3540
200	1152A.4	3390	2580	-	_	5210	4400	-	_
	1152A.5	3340	2530	4430	3620	5170	4360	5880	5070
	1152A.6	3340	2530	4430	3620	5150	4340	5810	5000
225	1152B.0	-	-	4950	3900	-	-	6600	5550
	1152B.2	3800	2750	4950	3900	5750	4700	6550	5500
	1152B.6	3800	2750	4900	3850	5700	4650	6500	5450
250	1152C.2	4750	3150	6050	4450	7100	5500	8100	6500
	1152C.6	4750	3150	6050	4450	7100	5500	8000	6400

For frame sizes > 250 standard version.

Mechanical version

T-drain - adjustable drainage of condensed water

Overview

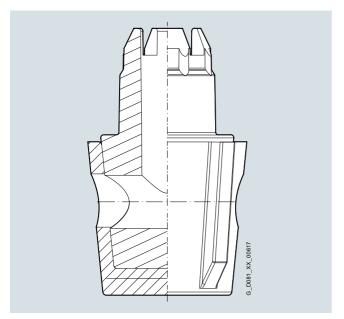
The drainage of condensed water is an important aspect of proper motor maintenance.

Drainage of condensed water is made easy by rotating the outer cap.

If there are condensate drain holes present, these must be opened at regular intervals, depending on climatic conditions and in accordance with the motor operating instructions.

"Modifiable T-Drain" is closed on delivery of the motor and corresponds to degree of protection IP55/IP56.

When opened, it corresponds to degree of protection IP45/IP46. The opened T-Drain can be used for continuous drainage of condensed water in environments with low amounts of dust.



Note:

Motors of the LOHER CHEMSTAR series can be designed in IP66, see Catalog D 83.1.

A screw-mounted cover (made of sheet metal or plastic depending on shaft height) is included as standard for horizontal types of construction and types of construction with shaft pointing upwards (14th position of the Article No. letter **A**, **T**, **U**, **V**, **D**, **F**, **H**, **J**, **K**, **L**, **N**) in combination with condensation drainage holes, order code (**H03**) to facilitate assembly/disassembly.

When the motors are used or stored outdoors, we recommend that they be kept under some sort of additional cover so that they are not subjected to direct intensive solar radiation, rain, snow, ice or dust over a long period of time. In such cases, technical consultation may be appropriate.

When the motors are used outdoors or in a corrosive environment, it is recommended that non-rusting screws are used externally.

Order code H07

Vibration-proof version

Continuous vibration resistance to class 3M4 according to IEC 721-3-3:1994 (order code **H02** in combination with order code **G01**, **G02**, **G04**, **G05**, **G06**, **G11**, and **G12** or **F70** on request only).

Order code H02

For availability of individual options for the relevant motor series, see section "Special versions" in the respective sections of the catalog.

Mechanical version

Lifting eyes and transport

Overview

1LE10, 1MB10 and 1PC10 motors without feet have four cast lifting eyes as standard, each offset by 90°; in the case of screwed-on feet, two lifting eyes are covered by the feet, so in this case only two lifting eyes are available for use. This data is only valid up to frame size 200.

Housing material			
Motor series	Frame size	Housing material	Housing feet
1LE10, 1PC1 ²⁾	63 160	Aluminum alloy	cast 1)
	180 200	Aluminum alloy	screwed on 1)
1MB10	100 160	Aluminum alloy	cast 1)
1LE15 1MB15 1PC1301 ³⁾	71 315	Cast iron	cast 1)
1LE16 1MB16	100 315	Cast iron	cast 1)

Arrangement of lifting eyes/eyebolts (standard)

Frame size	Terminal box position	Cast-iron motors	Aluminum motors	Arrangement of eyebolts	Thread size
63	-	-	None	_	-
71	-	None	None	_	M8
80	Short housing	None	None	_	M8
	Top (long housing)	Two eyebolts	_	Left/right center	=
	Left/right (long housing)	One eyebolt	_	Top center	_
90	Тор	Two eyebolts	None	Left/right center	M8
	Left/right	One eyebolt	_	Top center	_
100		Depending on type of construction ⁴⁾	Lifting eyes	Тор;	M8
		construction 4)		Left DE side/	_
112				right NDE side 10)	_
132					
160					M10
180		Two eyebolts 10)	_		M12
200					M16
225		Two eyebolts 11)	-	5) 6) 7)	M16
250					M20
280					
315 S/M ¹²⁾					M24
315 L		Four eyebolts	_	top;	_
315 L (1LE5) 355 M/L (1LE5)		Two eyebolts	_	left/right DE and NDE side ^{8) 9)}	M30

- Basic version, cast feet: Special version "Screwed-on feet (instead of cast)* with digits **5**, **6**, and **7** in the 16th position of Article No. or digit **4** with order code **H01**. Screwed-on feet as standard for 1LE10 motors in frame sizes 180 and 200 and motors with increased power.
- Aluminum motors in frame sizes 80 and 90 and 1PC10 motors in frame sizes 100 to 160 without lifting eyes. Aluminum motors in frame sizes 100 to 200 with cast lifting eyes (does not apply to 1PC10 and 1MB10 motors in frame sizes 180 and 200)
- 1LE16 motors frame size 100 and above, 1PC1301 motors frame size 180 and above.
- Two eyebolts for -IM B5, IM B14, IM V1 or -IM B34, IM B35 with **H01** or left/right, side terminal box position. Lifting eyes for
- IM B34, IM B35 without H01 or non-side left/right terminal box position.

- For IM B3; IM B5: top; DE side left / NDE side right. With rotation of the terminal box through 180° (R12): top; NDE side left / DE side right.
- 6) For IM V1: top; NDE side right; down; NDE side left.
- 7) For IM V3: top; DE side left; down; DE side right.
- 8) For IM V1: NDE side, left/right; top/bottom.
- 9) For IM V3: DE side, left/right; top/bottom.
- $^{10)}$ With rotation of the terminal box through 180° (R12): top; NDE side left / DE side right.
- 11) Motors with brakes have four top eyebolts. For IM V1: NDE side, left/right; top/bottom. For IM V3: DE side, left/right; top/bottom.
- $^{12)}$ The assignment 315 L is used for 1000 kg and over.

Mounting technology

Preparation for mountings

Overview

Brakes as well as rotary encoders of the "modular and special technology" can be retrofitted. The motor must be prepared for this. This is possible for all 1LE1 motors (with the exception of 1LE1 with option **F90** – version "Forced-air cooled motors without external fan and fan cover").

Preparation of the shaft extension at NDE can be ordered with the option "Prepared for mountings, only center hole", order code **G40** for the following frame sizes and mountings:

- Frame sizes 80 to 315: brakes with order code F01
- Frame sizes 71 and 90: only rotary encoders with order codes G01, G02, G11, or G12 from the "modular technology" range
- Frame sizes 100 to 315: all rotary encoders from the "modular and special technology" ranges

Dimensions of ce	nter holes	
Frame size	Ø	L (drilling depth)
100	16 ^{H7}	34
112	16 ^{H7}	34
132	22 ^{H8}	39
160	28 ^{H8}	42

The length of the motor does not change because the shaft extension is still under the fan cover.

For motors ordered with order code **G40**, the following conversion combinations are possible:

- Frame sizes 71 and 90:
 Either brakes with order code F01 or rotary encoders
 with order code G01 or G02 from the "modular technology".
 The combination of brake (F01) and rotary encoder (G01/G02)
 is not possible.
- Frame sizes 100 to 315:
 Brakes with order code F01 or rotary encoders from the "modular and special technology". The combination of brake (F01) and rotary encoder is possible.

Conversion is performed exclusively by the authorized contractual partners of Siemens.

For motors of series 1LE15 and 1LE16 frame sizes 100 to 315, grounding brushes are available for converter operation. Order code **L52**. Please contact your local Siemens office for advice.

For mountings, such as rotary encoders, supplied by the customer, the following applies:

For the rotary encoders:

- 1XP8012-10, order code G01
- 1XP8012-20, order code G02
- Sendix 5020, order code G11 and G12

from the "modular technology" this preparation of the shaft extension on NDE can be ordered with the option "Prepared for mounting with shaft D12".

Order code G41

The length of the motor increases by Δl due to option **G41**. For an explanation of the additional dimensions and weights, see "Modular technology" "Dimensions and weights".

For the rotary encoders:

- LL 861 900 220, order code G04
- HOG 9 DN 1024 I, order code G05
- HOG 10 D 1024 I, order code **G06**

from the "special technology" this preparation of the shaft extension on NDE can be ordered with the option "Prepared for mounting with shaft D16" for motors of frame sizes 100 to 160 only.

Order code G42

The length of the motor increases by Δl due to option **G42**. For an explanation of the additional dimensions and weights, see "Modular technology" "Dimensions and weights".

Motors that are prepared for mountings supplied by the customer (order codes **G41**, **G42**) are supplied without a protective cover as standard. These mountings can be installed by the customer.

If a protective cover is requested as a cover or mechanical protection for mountings provided by the customer, this can be ordered with order code **G43**.

This protective cover is designed and mounted differently as described below according to frame size:

Frame sizes 71 to 90 and 180 to 200:

Motors ordered with order code **G43** are fitted as standard with a screw-mounted cover (made of sheet metal or plastic depending on shaft height). The protective cover is mounted in the factory. To install the mountings supplied by the customer, the protective cover must be removed beforehand by unscrewing the external fixing screws and reattached afterwards. Protective covers for motors of these frame sizes are not suitable for mountings that correspond to the shape and size of the rotary encoders of the "special technology" (**G04**, **G05**, **G06**, see above).

Frame sizes 100 to 315:

The protective cover must be installed by the customer in accordance with the assembly instructions supplied. It has supports of varying length that can be used for installation according to the height of the planned mountings.

The standard protective cover (order code **H00**) is not suitable for protection of additional mountings, such as rotary encoders.

Order codes ${\bf G40},\,{\bf G41},\,{\bf G42}$ are not possible in conjunction with order code ${\bf L00}$ vibration severity grade B.

Order code **G43** is only appropriate in combination with order codes **G41** and **G42**, and not in combination with **G40**.

Mounting technology

Modular technology

Overview

The 1LE and 1FP motors (with the exception of 1LE1 with option F90 – version "Forced-air cooled motors without external fan and fan cover" and 1PC1) can be used in a much wider range of applications (e.g. as motors with brakes) if the following modules are mounted:

- Separately driven fan
- Brake
- · Rotary pulse encoder

Separately driven fan

The use of a separately driven fan is recommended to increase motor utilization at low speeds and to limit noise generation at speeds significantly higher than the synchronous speed. Both of these results can only be achieved with converter operation. Please inquire about traction and vibratory operation.

The separately driven fan can be supplied already fitted, order code **F70**. There is no automatic adjustment of the voltage for the separately driven fan when ordering a "special voltage" for the motor. This must be specified in addition using the **Y81** option.

The brake must always be mounted in the factory for safety reasons. The rotary pulse encoder and/or the separately driven fan can also be retrofitted.

The degree of protection of the motors with modular technology is IP55. Higher degrees of protection on request.

Attaching rotary pulse encoder, brake, and separately driven fan increases the length of the motor by dimension Δl . For explanations of the additional dimension and weights, see "Mounting technology" and "Dimensions and weights" from page 1/106.

It can also be ordered separately and retrofitted. For selection information and article numbers, see the section "Accessories" (available soon). A rating plate listing all the important data is fitted to the separately driven fan. Please note the direction of rotation of the separately driven fan (axial-flow fan) when connecting it. Admissible coolant temperatures CT_{min} –25 °C, CT_{max} +65 °C $^{1)}$, lower/higher coolant temperatures are available on request. When the separately driven fan is mounted, the length of the motor increases by $\Delta l.$ For explanations of the additional dimension and weights, see "Mounting technology" and "Dimensions and weights" from page 1/106.

		ons of forced venti ces of EN 60034-1)			
Frame size	Rated vol	tage range	Frequency	P_{max}	I _{max}
	V		Hz	kW	Α
63	1 AC	230 to 277	50	0.027	0.11
	3 AC	200 to 303 Δ	50	0.028	0.12
	3 AC	346 to 525 Y	50	0.028	0.07
	1 AC	230 to 277	60	0.032	0.12
	3 AC	220 to 332 Δ	60	0.028	0.1
	3 AC	380 to 575 Y	60	0.028	0.06
71	1 AC	230 to 277	50	0.027	0.1
	3 AC	200 to 303 Δ	50	0.031	0.11
	3 AC	346 to 525 Y	50	0.031	0.06
	1 AC	230 to 277	60	0.033	0.12
	3 AC	220 to 332 Δ	60	0.029	0.1
	3 AC	380 to 575 Y	60	0.029	0.06
80	1 AC	230 to 277	50	0.029	0.11
	3 AC	200 to 303 Δ	50	0.031	0.11
	3 AC	346 to 525 Y	50	0.031	0.06
	1 AC	230 to 277	60	0.037	0.14
	3 AC	220 to 332 Δ	60	0.034	0.1
	3 AC	380 to 575 Y	60	0.034	0.06
90	1 AC	220 to 277	50	0.065	0.29
	3 AC	200 to 303 Δ	50	0.091	0.38
	3 AC	346 to 525 Y	50	0.091	0.22
	1 AC	220 to 277	60	0.065	0.25
	3 AC	220 to 332 Δ	60	0.077	0.33
	3 AC	380 to 575 Y	60	0.077	0.19
100	1 AC	220 to 277	50	0.066	0.28
	3 AC	200 to 303 Δ	50	0.091	0.37
	3 AC	346 to 525 Y	50	0.091	0.22
	1 AC	220 to 277	60	0.075	0.3
	3 AC	220 to 332 Δ	60	0.087	0.31
	3 AC	380 to 575 Y	60	0.087	0.18

	Technical specifications of forced ventilation (according to tolerances of EN 60034-1)												
Frame size	Rated vol	tage range	Frequency	P_{max}	I _{max}								
	V		Hz	kW	Α								
112	1 AC	220 to 277	50	0.071	0.28								
	3 AC	200 to 303 Δ	50	0.097	0.35								
	3 AC	346 to 525 Y	50	0.097	0.2								
	1 AC	220 to 277	60	0.094	0.37								
	3 AC	220 to 332 Δ	60	0.103	0.31								
	3 AC	380 to 575 Y	60	0.103	0.18								
132	1 AC	230 to 277	50	0.098	0.4								
	3 AC	200 to 303 Δ	50	0.124	0.58								
	3 AC	346 to 525 Y	50	0.124	0.33								
	1 AC	230 to 277	60	0.149	0.57								
	3 AC	220 to 332 Δ	60	0.148	0.44								
	3 AC	380 to 575 Y	60	0.148	0.25								
160 to 200	1 AC	230 to 277	50	0.253	0.97								
	3 AC	200 to 303 Δ	50	0.247	0.87								
	3 AC	346 to 525 Y	50	0.247	0.5								
	3 AC	220 to 332 Δ	60	0.36	0.93								
	3 AC	380 to 575 Y	60	0.36	0.56								
225 M to	3 AC	200 to 240 Δ	50	0.450	2.00								
280 M	3 AC	380 to 420 Y	50	0.450	1.15								
	3 AC	440 to 480 Y	60	0.520	1.05								
315	3 AC	200 to 240 Δ	50	0.650	2.85								
2-pole	3 AC	380 to 420 Y	50	0.650	1.64								
	3 AC	440 to 480 Y	60	0.750	1.60								
315	3 AC	200 to 240 Δ	50	0.450	2.00								
4, 6, 8-pole	3 AC	380 to 420 Y	50	0.450	1.15								
	3 AC	440 to 480 Y	60	0.520	1.05								
355	3 AC	200 to 240 Δ	50	0.650	2.85								
2 and 4-	3 AC	380 to 420 Y	50	0.650	1.64								
pole	3 AC	440 to 480 Y	60	0.750	1.60								

For article numbers and type details, see operating instructions.

 $^{^{1)}}$ For single-phase variants (1 AC) of frame size 160, the admissible coolant temperature $\rm CT_{max}$ is +50 °C.

Mounting technology

Modular technology

Overview (continued)

Brakes

The brakes with order code **F01** (**F02** brake for increased frequency of operation for SIMOTICS GP motors on request) are designed to be spring-operated brakes. When the brake is ordered, the supply voltage must be specified. For an explanation of the supply voltage, see the descriptions of each brake model in "Modular technology".

For the design of the braking time, run-on revolutions, braking energy per braking procedure as well as the lifetime of the brake linings, see "Configuration of motors with brakes" on page 1/92.

When a brake is mounted, the length of the motor increases by Δl . For explanations of the additional dimension and weights, see "Mounting technology" and "Dimensions and weights" from page 1/106.

The brake can be retrofitted by authorized partners. The motor must be prepared for this. When the motor is ordered, the option "Prepared for mountings, center hole only" order code **G40** must be specified (see "Mechanical version and degrees of protection" on page 1/79).

Ambient temperature

- -40°C to +45°C (with nominal excitation) for SFB-SH brake
- -40°C to +75°C (with double excitation) for SFB-SH brake
- –20 to +40 °C holding/operating brake (standard 2LM8)
- up to +60 °C only as holding brake
- –20 to +60 °C holding/operating brake only for KFB and FDX brake

Definition of duty type

· Operating brake:

The motor shaft can be braked from full operating speed down to zero speed of the motor. All the kinetic energy produced by the drive train is converted to heat by friction during braking. Braking energy is produced at n>0 rpm. The maximum permissible switching frequency must be taken into account. When this brake is used, installation of a separately driven fan is recommended in order to ensure adequate cooling when the motor is at a standstill. The operating brake is also capable of functioning as a holding brake.

· Holding brake:

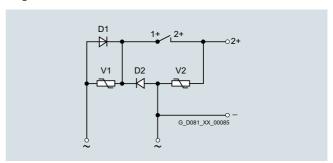
The purpose of braking or "holding" the motor shaft is merely to suppress unintended rotation caused by externally applied torque forces, e.g. when a load is suspended from a crane rope drum. The holding brake is primarily deployed when the motor is at a standstill (n = 0 rpm) by holding the motor shaft or is close to n = 0 rpm and coasting down to a standstill. As a result, no additional braking energy or braking heat is transferred to the motor.

Note:

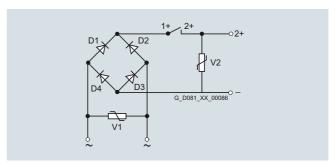
A holding brake must not be used as an operating brake as it could then cause danger to life and damage to property.

Bridge rectifier / half-wave rectifier

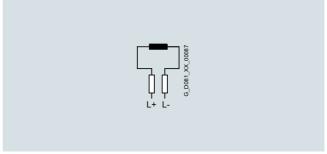
Brakes are connected through a standard bridge or half-wave rectifier or directly to the 2LM8/SFB-SH brake. See the circuit diagrams below.



Half-wave rectifier 400 V AC



Bridge rectifier 230 V AC



Brake connection for 24 V DC

Mounting technology

Modular technology

Overview (continued)

2LM8 spring-operated disk brake

Motor series

This brake is the standard brake for 1LE1/1FP1 motors in frame sizes 63 to 225 (except for 1LE1 with order code **F90** version "Forced-air cooled motors without external fan and fan cover").

Other characteristics of the 2ML8 brake

The 2LM8 brake has IP55 degree of protection.

Please inquire if motors with brakes are to be operated below the freezing point or in conjunction with very humid environments (e.g. close to the sea) with long standstill times. Please also inquire if motors with brakes are to be used for low-speed converter operation.

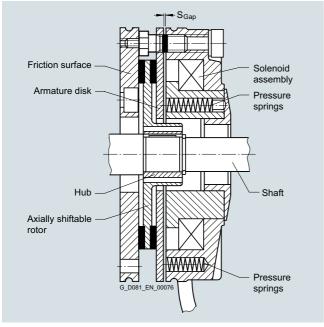
Design and mode of operation

The brake takes the form of a single-disk brake with two friction surfaces.

The braking torque is generated by friction when pressure is applied by one or more pressure springs in the de-energized state.

The brake is released electromagnetically.

When the motor brakes, the rotor which can be axially shifted on the hub or the shaft is pressed via the armature disk against the friction surface by means of the springs. In the braked state, there is a gap S_{Gap} between the armature disk and the solenoid component. To release the brake, the solenoid is energized with DC voltage. The resulting magnetic force pulls the armature disk against the spring force on to the solenoid component. The spring force is then no longer applied to the rotor, which can rotate freely.



Design of the 2LM8 spring-operated disk brake

Rating plate

The following brake data is specified on the motor rating plate:

- Brake type
- Supply voltage
- Frequency
- Current
- · Temperature class
- Braking torque

Voltage and frequency

The solenoids and the brake rectifier are designed for connection to the following voltages or can be supplied for the following voltages:

- Brake supply voltage 24 V DC Order code **F10**
- Brake supply voltage 230 V AC Order code F11
- Brake supply voltage 400 V AC (directly at the terminal strip) Order code F12

When 60 Hz is used, the voltage for the brake must not be increased!

Order codes **F10**, **F11**, and **F12** must only be used in conjunction with order code **F01**.

Lifetime of the brake lining

The braking energy $L_{\rm N}$ until readjustment of the brake depends on various factors. The main influencing factors include the masses to be braked, the operating speed, the switching frequency, and therefore the temperature at the frictional surfaces. This means it is not possible to specify a value for the friction energy until readjustment that is valid for all operating conditions.

When used as an operating brake, the specific frictional surface wear (wear volume for the frictional work) is approximately 0.05 to 2 cm³/kWh.

IntroductionMounting technology

Modular technology

Overview (continued)

Opera	ting values for sprin	g-operated	brakes v	vith stan	dard exci	itation							of the br	
or notor rame size	Brake type	Rated braking torque at 100 rpm	100 rpn	oraking to n in % at g speeds 3000 rpm	the	Supply voltage	Currer power	it/ input ¹⁾	Brake application time $t_2^{(2)}$	Brake release time	Brake moment of inertia	Noise level L _p with rated air gap	Lifetime L of the brake lining	Air gap adjustmen required after braking energy L _N
		Nm	%	%	%	V	Α	W	ms	ms	kgm ²	dB (A)	Nm · 10 ⁶	
63	2LM8 005-1NA10	5	87	80	65	AC 230	0.1	20	25	56	0.000013	77	105	16
	2LM8 005-1NA60					AC 400	0.11							
	2LM8 005-1NA80					DC 24	0.83							
71	2LM8 005-2NA10	5	87	80	65	AC 230	0.1	20	25	56	0.000013	77	105	16
	2LM8 005-2NA60					AC 400	0.11							
	2LM8 005-2NA80					DC 24	0.83							
30	2LM8 010-3NA10	10	85	78	65	AC 230	0.12	25	26	70	0.000045	75	270	29
	2LM8 010-3NA60					AC 400	0.14							
	2LM8 010-3NA80					DC 24	1.04							
90	2LM8 020-4NA10	20	83	76	66	AC 230	0.15	32	37	90	0.00016	75	740	79
	2LM8 020-4NA60					AC 400	0.17							
	2LM8 020-4NA80					DC 24	1.25							
100	2LM8 040-5NA10	40	81	74	66	AC 230	0.2	40	43	140	0.00036	80	1350	115
	2LM8 040-5NA60					AC 400	0.22							
	2LM8 040-5NA80					DC 24	1.67							
112	2LM8 060-6NA10	60	80	73	65	AC 230	0.25	53	60	210	0.00063	77	1600	215
	2LM8 060-6NA60					AC 400	0.28							
	2LM8 060-6NA80					DC 24	2.1							
132	2LM8 100-7NA10	100	79	72	65	AC 230	0.27	55	50	270	0.0015	77	2450	325
	2LM8 100-7NA60					AC 400	0.31							
	2LM8 100-7NA80					DC 24	2.3							
160	2LM8 260-8NA10	260	75	68	65	AC 230	0.5	100	165	340	0.0073	79	7300	935
	2LM8 260-8NA60					AC 400	0.47							
	2LM8 260-8NA80					DC 24	4.2							
180	2LM8 315-0NA10	315	75	68	65	AC 230	0.5	100	152	410	0.0073	79	5500	470
	2LM8 315-0NA60					AC 400	0.56							
	2LM8 315-0NA80					DC 24	4.2							
200,	2LM8 400-0NA10	400	73	68	65	AC 230	0.55	110	230	390	0.0200	93	9450	1260
225	2LM8 400-0NA60					AC 400	0.61							
	2LM8 400-0NA80					DC 24	4.6							

values, which may vary depending on factors such as the rectifier type and the release travel. The brake application time for switching on the AC side, for example, is approximately 6 times longer than for switching on the DC side.

 $^{^{1)}}$ For 400 V AC and for 24 V DC, the power can deviate by up to +10 % as a function of the selected supply voltage.

²⁾ The specified switching times are valid for switching on the DC side with a rated release travel and with the coil already warm. They are average

Mounting technology

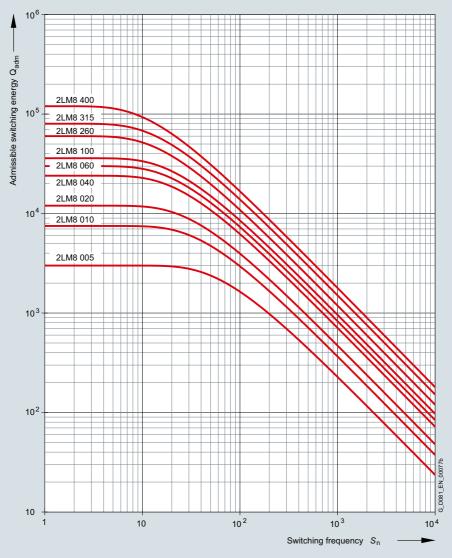
Modular technology

Overview (continued)

Maximum admissible speeds

The maximum admissible speeds from which emergency stops can be made are listed in the next table. These speeds should be considered as guide values and must be checked for the specific operating conditions.

The maximum admissible friction energy depends on the switching frequency and is shown for the individual brakes in the following diagram. Increased wear can be expected when the brakes are used for emergency stops.



		Maximum adn	nissible speed	s	Changing the	braking tor	que	Readjustir	ng the air ga	p
For motor frame size	Brake type	Max. adm. operating rpm if max. operating energy utilized	Max. adm. no emergency si for horizontal mounting position	o-load rpm with top function for vertical mounting position	Reduction per notch	Dimension "O ₁ "	Min. braking torque	Rated air gap S _{Gap rated}	Maximum air gap S _{Gap max} .	Minimum rotor thickness h _{min.}
		rpm	rpm	rpm	Nm	mm	Nm	mm	mm	mm
63	2LM8 005-1NA	3000	6000	6000	0.17	7	3.7	0.2	0.4	4.5
71	2LM8 005-2NA	3000	6000	6000	0.17	7	3.7	0.2	0.4	4.5
80	2LM8 010-3NA	3000	6000	6000	0.35	8.0	7.0	0.2	0.45	5.5
90	2LM8 020-4NA	3000	6000	6000	0.76	7.5	18.2	0.2	0.55	7.5
100	2LM8 040-5NA	3000	6000	6000	1.29	12.5	21.3	0.3	0.65	8.0
112	2LM8 060-6NA	3000	6000	6000	1.66	11.0	32.8	0.3	0.75	7.5
132	2LM8 100-7NA	3000	5300	5000	1.55	13.0	61.1	0.3	0.75	8.0
160	2LM8 260-8NA	1500	4400	3200	5.6	17.0	157.5	0.4	1.2	12.0
180	2LM8 315-0NA	1500	4400	3200	5.6	17.0	178.4	0.4	1.0	12.0
200, 225	2LM8 400-0NA	1500	3000	3000	6.15	21.0	248.7	0.5	1.5	15.5

IntroductionMounting technology

Modular technology

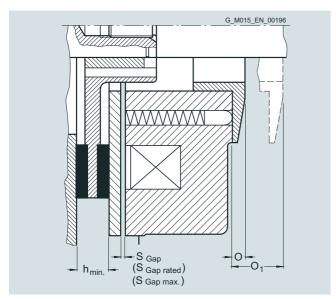
Overview (continued)

Changing the braking torque

The brake is supplied with the braking torque already set. For 2LM8 brakes, the torque can be reduced to the dimension O_1 by unscrewing the adjusting ring with a hook wrench. The braking torque changes by the values shown in the above table for each notch of the adjusting ring.

Readjusting the air gap

Under normal operating conditions, the brake is practically maintenance-free. The air gap S_{Gap} must only be checked at regular intervals if the application requires an extremely large amount of frictional energy and readjusted to the rated air gap $S_{\text{Gap rated}}$ at the latest when the maximum air gap $S_{\text{Gap max}}$ is reached.



Connection

Labeled terminals are provided in the main terminal box of the motor to connect the brake.

The AC voltage for the brake excitation winding is connected to the two free terminals of the rectifier block (\sim).

The brake can be released when the motor is at a standstill by separately exciting the solenoid. In this case, an AC voltage must be connected at the rectifier block terminals. The brake remains released as long as this voltage is present.

The rectifiers are protected against overvoltages by varistors in the input and output circuits.

For 24 V DC brakes, the brake terminals are directly connected to the DC voltage source.

For this purpose, see the circuit diagrams on page 1/81.

Fast brake application

If the brake is disconnected from the line supply, the brake is applied.

The application time for the brake disk is delayed as a result of the inductance of the solenoid (shutdown on the AC side). This results in a considerable delay before the brake is mechanically applied. In order to achieve short brake application times, the circuit must be interrupted on the DC side. To realize this, the wire jumpers, located between contacts 1+ and 2+ at the rectifier, are removed and replaced by the contacts of an external switch.

For this purpose, see the circuit diagrams on page 1/81.

Mechanical manual brake release with lever

The brakes can be supplied with a mechanical manual release with lever.

Order code F50

The dimensions of the brake lever depend on the motor frame size and can be read from the dimensional drawing generator for motors in the DT Configurator tool for low-voltage motors.

Mounting technology

Modular technology

Overview (continued)

KFB spring-operated brake



KFB spring-operated brake

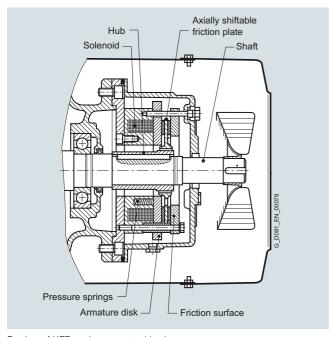
The KFB solenoid double-disk spring-operated brake is a safety brake that brakes the motor if the supply is disconnected (power failure, emergency stop). The KFB brake with degree of protection IP67 is mainly used for electric motors for traversing, cross-traversing and lifting gear in cranes as well as for special industrial applications.

Motor series

This brake is the standard brake for 1LE1 motors in frame sizes 250 to 315. For frame sizes 180 to 225, apart from the standard brake 2LM8, KFB brakes can also be supplied. Special brake selections are available on request.

Design and mode of operation

When the brake current is switched on, an electromagnetic field develops which overcomes the spring force of the brake. The corresponding modules, including the motor shaft, can rotate freely. The brake is released. If the brake current is switched off or if there is a power failure, the electromagnetic field of the brake disappears. The mechanical braking energy is transferred to the motor shaft. The motor is braked.



Design of KFB spring-operated brakes

Other characteristics of the KFB brake

- High degree of protection IP67.
- · Corrosion-resistant in seawater and in the tropics.
- The brake is a dynamic brake, not simply a holding brake.
 For this reason there is less wear, especially in the case of emergency stops (commissioning).
- High wear reserves repeated stepless air gap readjustment is possible. This results in extremely long operating times and low service and operating costs.
- The function and wear can be monitored with microswitches and proximity switches. Microswitch On/Off is standard for 1LE motors, frame size 250 to 315. Microswitch On/Off is not standard for 1LE motors, frame size up to 225. Anti-condensation heating is possible as an option.
- Fully functional brake for housing acceptance test. Visual inspection of brake is possible during operation.
- The brake (air gap) can be adjusted in the factory, for example, and mounted on the drive motor without further adjustments.
- The wear parts can be replaced without great outlay. After the housing has been opened (three screws), it is easy to replace the friction plate. It is not necessary to disassemble the entire brake

Voltage and frequency

The solenoids and the brake rectifier can be connected to the following voltages:

1 AC 50 Hz 230 V ±10 %

When 60 Hz is used, the voltage for the brake must not be increased!

The brake can also be supplied for other voltages:

 Brake supply voltage: 24 V DC Order code F10

 Brake supply voltage: 230 V AC Order code F11

 Brake supply voltage: 400 V AC (directly at the terminal strip)
 Order code F12

Order codes **F10** and **F12** may only be used in conjunction with order code **F01**.

Fast brake application

Not available for the KFB brake.

Mechanical manual brake release with lever

The brake can be released manually with screws as standard. Mechanical manual release with a lever can be ordered with order code **F50**.

The dimensions of the brake lever depend on the motor frame size and can be read from the dimensional drawing generator for motors in the DT Configurator tool for low-voltage motors. Up-to-date data are available from the brake manufacturer.

Mounting technology

Modular technology

Overview (continued)

Connection

Labeled terminals are provided in the main terminal box of the motor to connect the brake.

KFB brakes are connected through a standard bridge or half-wave rectifier.

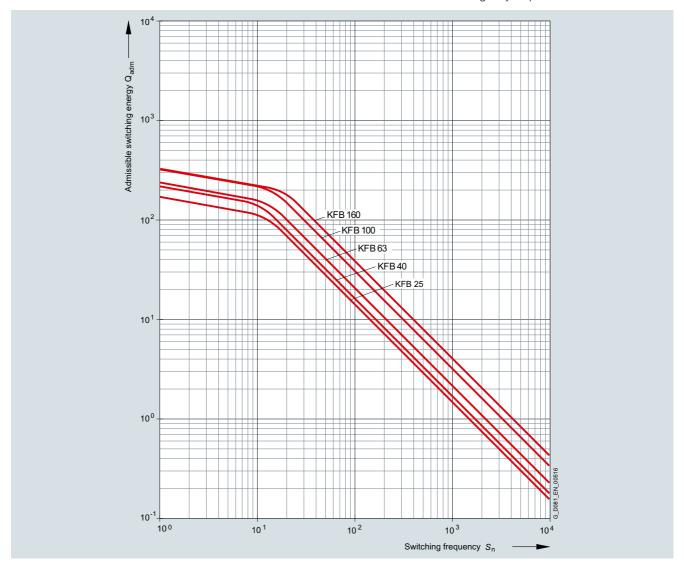
A special circuit is not required. Optimal switching times are achieved without the need to use special circuits.

For this purpose, see the circuit diagrams on page 1/81.

Maximum admissible speeds

The maximum admissible speeds from which emergency stops can be made are listed in the next table. These speeds should be considered as guide values and must be checked for the specific operating conditions.

The maximum admissible friction energy depends on the switching frequency and is shown for the individual brakes in the following diagram. Increased wear can be expected when the brakes are used for emergency stops.



Mounting technology

Modular technology

Overview (continued)

Overview of brake selection for 1LE1 motors		For motor frame sizes						
			180 ¹⁾	200 1)	225 ¹⁾	250 ²⁾	280 ²⁾	315 ²⁾
No. of poles			2 to 8	2 to 8	2 to 8	2 to 8	4 to 8	4 to 8
Flanged end shield NDE brake installa	ation		A300	A350	A350	A400	A450	A550
Max. diameter of 2nd shaft extension			48 _{k6}	55 _{m6}	55 _{m6}	60 _{m6}	65 _{m6}	70 _{m6}
Brake type		KFB 25	KFB 40	KFB 40	KFB 63	KFB 100	KFB 160	
Braking torque		Nm	225	360	360	567	900	1440
Nominal dynamic braking torque acco	ording to VDE 0580	Nm/rpm	250/127	400/117	400/117	630/92	1000/78	1600/69
Dynamic braking torque 3)	at 750 rpm	Nm	207	332	332	504	780	1248
	at 1000 rpm	Nm	200	316	316	491	760	1200
	at 1500 rpm	Nm	192	304	304	466	720	1136
	at 3000 rpm	Nm	175	276	276	378	580	880
	at n _{max}	Nm	137	220	220	346	500	800
Maximum speed n _{max} – IM B3/V1		rpm	6000	5500	5500	4700	4000	3600
Power at 110 V DC		W	158	196	196	220	307	344
Power at 230 V AC		W	160	188	188	206	316	340
Current at 110 V DC		Α	1.44	1.78	1.78	2	2.79	3.13
Current at 230 V AC (207 V DC coil voltage)		А	0.77	0.91	0.91	1	1.53	1.64
Current at 400 V AC (180 V DC coil voltage)		А	0.8	1.18	1.18	1.25	1.8	2.1
Current at 24 V DC		Α	5.21	6.92	6.92	8.17	12.2	12.8
Weight, approx.		kg	42	55	55	74	106	168
Application time t ₁		ms	70	80	80	112	126	183
Release time t ₂		ms	240	250	250	342	375	500
Brake moment of inertia		kgm ²	0.0048	0.0068	0.0068	0.0175	0.036	0.05
		Nm · 10 ⁶	3600	3110	3110	4615	7375	10945
Air gap adjustment L _N required after braking energy Nm · 10		Nm · 10 ⁶	810	935	935	1185	2330	3485

¹⁾ The standard brake for frame sizes 180 to 225 is the 2LM8 brake. KFB brake on request.

 $^{^{2)}\,}$ The standard brake for frame sizes 250 to 315 is the KFB brake.

³⁾ The dynamic braking torque also depends on the load data; temperatures in excess of the maximum admissible lining surface temperatures must be avoided.

Mounting technology

Modular technology

Overview (continued)

SFB-SH solenoid double-disk spring-operated brake

Motor series

This brake is the standard brake for 1LE5 motors in frame sizes 315 to 355.

Special brake selections are available on request.



SFB-SH solenoid double-disk spring-operated brake

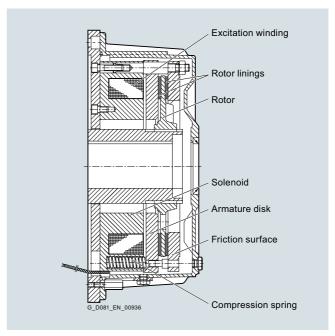
SFB-SH solenoid double-disk spring-operated brakes are safety brakes that are mechanically operated on a power failure. This ensures that the brake still works during a power failure. These brakes are designed for dry running, must only ever be operated in a safe state, and only installed, commissioned, operated, and maintained by specially trained installation personnel. The brakes of the SFB-SH type series have an increased braking torque due to use of a different friction material and are used for emergency stops as a dynamically loaded brake with a safety margin.

Other characteristics of the SFB-SH brake

- High degree of protection IP67.
- · Corrosion-resistant in seawater and in the tropics.
- High wear margins simple air-gap adjustment. This results in extremely long operating times and low service and operating costs.
- The function and wear can be monitored with microswitches and proximity switches. Microswitch On/Off is standard for 1LE5 motors. Anti-condensation heating is possible as an option.
- Fully functional brake for housing acceptance test. Visual inspection of brake is possible during operation.
- The brake (air gap) can be adjusted in the factory, for example, and mounted on the drive motor without further adjustments.
- The wear parts can be replaced without great effort. After the housing has been opened (three acorn nuts), it is easy to replace the friction plate. It is not necessary to disassemble the entire brake.

Design and mode of operation

When the brake current is switched on, an electromagnetic field develops which overcomes the spring force of the brake. The corresponding modules, including the motor shaft, can rotate freely. The brake is released. If the brake current is switched off or if there is a power failure, the electromagnetic field of the brake disappears. The mechanical braking energy is transferred to the motor shaft. The motor is braked.



Design of the SFB-SH solenoid double-disk spring-operated brake

Voltage and frequency

The solenoids and the brake rectifier can be connected to the following voltages:

1 AC 50 Hz 230 V ±10 %

When 60 Hz is used, the voltage for the brake must not be increased!

The brake can also be supplied for other voltages:

- Brake supply voltage: 24 V DC Order code F10
- Brake supply voltage: 230 V AC Order code F11
- Brake supply voltage: 400 V AC (directly at the terminal strip) Order code F12

Order codes F10 and F12 may only be used in conjunction with order code F01.

Mounting technology

Modular technology

Overview (continued)

Connection

Labeled terminals are provided in the main terminal box of the motor to connect the brake.

The AC voltage for the brake excitation winding is connected to the two free terminals of the rectifier block (~). The rectifier is located in the main terminal box and must be connected in the customer's switchboard.

The brake can be released when the motor is at a standstill by separately exciting the solenoid. In this case, an AC voltage must be connected at the rectifier block terminals. The brake remains released as long as this voltage is present.

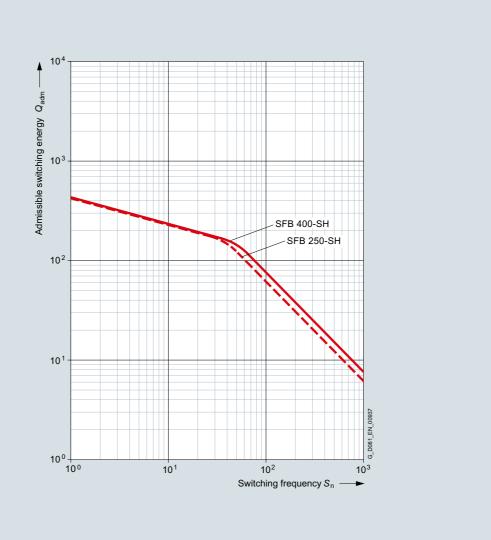
For 24 V DC brakes, the brake terminals are directly connected to the DC voltage source.

For this purpose, see the circuit diagrams on page 1/81.

Maximum admissible speeds

The maximum admissible speeds from which emergency stops can be made are listed in the next table. These speeds should be considered as guide values and must be checked for the specific operating conditions.

The maximum admissible friction energy depends on the switching frequency and is shown for the individual brakes in the following diagram. Increased wear can be expected when the brakes are used for emergency stops.



Introduction Mounting technology

Modular technology

Overview (continued)

Overview of brake selection for 1LE5 motors			For motor frame sizes		
			315	355	
No. of poles			4 to 8	4 to 8	
Flanged end shield NDE brake installation			FF500 (A550) 1)	FF600 (A660) ²⁾	
Max. diameter of 2nd shaft extension			75 _{m6}	90 _{m6}	
Brake type			SFB 250-SH	SFB 400-SH	
Braking torque		Nm	2970	4680	
Nominal dynamic braking torque according to VDE 0580		Nm/rpm	3300/54	5200/47	
Dynamic braking torque 3)	at 750 rpm	Nm	2400	2100 ⁴⁾	
	at 1000 rpm	Nm	2200	2300 ⁴⁾	
	at 1500 rpm	Nm	1850	2100 ⁴⁾	
	at n _{max}	Nm	1580	2100 ⁴⁾	
Maximum speed n _{max} - IM B3/V1		rpm	2800	2500	
Power at 110 V DC		W	495	553	
Power at 230 V AC (207 V DC coil voltage)		W	511	-	
Current at 110 V DC		А	4.5	5.03	
Current at 230 V AC (207 V DC coil voltage)		А	2.47	-	
Current at 400 V AC (180 V DC coil voltage)		А	2.98	3.36	
Current at 24 V DC		А	19.93	-	
Weight, approx.		kg	306	357	
Application time t ₁		ms	640	700	
Release time t ₂		ms	690	1100	
Brake moment of inertia		kgm ²	0.14	0.325	
Minimum air gap		mm	0.4	0.4	
Maximum air gap		mm	2.5	2.5	

¹⁾ External dimension increases to 560 mm.

²⁾ External dimension decreases to 640 mm.

³⁾ The dynamic braking torque also depends on the load data, temperatures in excess of the maximum admissible lining surface temperatures must be avoided.

⁴⁾ Value is guaranteed by the brake manufacturer. In practice, a higher braking torque can be expected. Restrictions are determined at the test station of the brake manufacturer.

Mounting technology

Modular technology

Overview (continued)

Configuration of motors with brakes

Braking time

The time it takes the motor to come to a standstill comprises two components:

a.) The application time of the brake t_2

b.) The braking time t_{Br}

$$t_{\rm Br} = \frac{J \cdot n_{\rm rated}}{9.55 \cdot (T_{\rm B} \pm T_{\rm L})}$$

Braking time in s t_{Br}

Total moment of inertia in kgm²

 $n_{\rm rated}$ Rated speed of the motor with brake in rpm

Rated braking torque in Nm

Average load torque in Nm (If T_1 supports the braking operation, T_L is positive)

Braking energy per braking operation Q_{adm}

The braking energy per braking operation in Nm comprises the energy of the moments of inertia to be braked Q_{Kin} and the energy Q, which must be applied in order to brake against a load torque:

$$Q_{\text{adm}} = Q_{\text{Kin}} + Q$$

a.) The energy of the moments of inertia in Nm

$$Q_{Kin} = \frac{J \cdot n_{rated}^2}{182.4}$$

 $n_{\rm rated}$ Rated speed before braking in rpm Total moment of inertia in kgm². The mass moment of inertia J specified in the formula corresponds to the total moment of inertia of all braked masses referred to the motor/brake speed.

b.) Braking energy on emergency trip

The braking energy for occasional emergency trips must be checked to ensure that it does not cause the brake to overheat. Please refer to table "Technical specifications of brakes" for admissible values. The braking energy produced for traversing gear can be calculated approximately with the following equation:

$$Q = \frac{J_{\text{tot}} \cdot n^2_{\text{Br}}}{182.4 \cdot 10^3} \cdot \frac{T_{\text{Br}}}{T_{\text{Br}} \pm T_{\text{L}}}$$

Q Energy capability/braking energy in kJ

Braking torque in Nm $T_{\rm Br}$

Total of all load torques in Nm referred to the brake (motor) shaft

Speed of brake (motor) shaft in rpm $n_{\rm Br}$

Total moment of inertia to be braked in kgm² reduced to J_{tot} the brake (motor) shaft

 T_{L} is positive if it supports braking

(e.g. hoisting a load)

 T_{L} is negative if it counteracts braking

(e.g. lowering a load)

The total moment of inertia J_{tot} is the sum of the individual moments of inertia of the system components to be braked, reduced to the brake (motor) shaft, and the moments of inertia of the linear-motion masses. The equivalent mass inertia J_{Eqv} of a linear-motion mass m with velocity v, referred to the brake (motor) speed $n_{\rm Br}$, is calculated as follows:

$$J_{\text{Eqv}} = 91.2 \cdot m \cdot \left(\frac{V}{n_{\text{Br}}}\right)^2$$

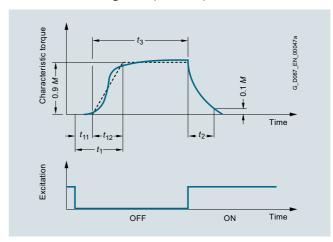
m Mass of the linear-motion load in kg

Velocity of the linear-motion load in m/s

Speed of brake (motor) shaft in rpm n_{Br}

The velocity and/or speed to be entered here must equal the maximum values in normal operation. An increase in velocity resulting from wind forces may also need to be taken into account

Definition of switching times (VDI 2241)



Brake switching times

Switching times:

Brake application time t_1

 t_2 Disconnection time

Slip time tз

Response delay t₁₁

Rise time

Run-on revolutions U

The number of run-on revolutions *U* of the motor with brake can be calculated as follows:

$$U = \frac{n_{\text{rated}}}{60} \left(t_1 + \frac{t_{\text{Br}}}{2} \right)$$

Brake application time in ms

Lifetime of the brake lining L and readjustment of the air gap

The brake lining wears due to friction which increases the air gap and the release time for the brake at standard excitation.

In order to calculate the lifetime of the brake lining in terms of operations S_{max} , the lifetime of the brake lining L in Nm must be divided by the braking energy Q_{adm} :

$$S_{\text{max}} = \frac{L}{Q_{\text{adm}}}$$

The interval between adjustments N can be calculated in terms of operations by dividing the braking energy $L_{\rm N}$ that the brake can output until it is necessary to readjust the working air gap by Q_{adm} :

$$N = \frac{L_{\rm N}}{Q_{\rm adm}}$$

Mounting technology

Modular technology

Overview (continued)

FDX spring-operated brake

Motor series

This brake is provided for 1LE1 motors in frame sizes 225 to 315.

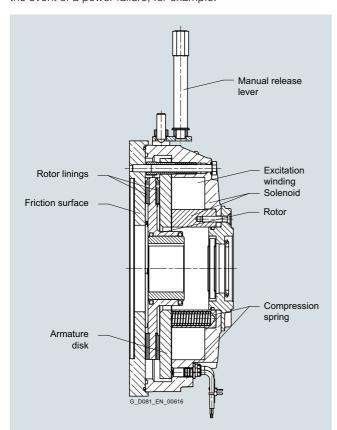
Mode of operation of FDX spring-operated brake (holding brake/operating brake)

The FDX solenoid spring-operated brakes (order code **F04**), with IP67 degree of protection, are quiescent current brakes, meaning that the braking torque is produced by spring force and increased by magnetic force in normal operation.

During the braking operation, the built-in compression springs apply pressure to the rotor that interlocks radially with the machine shaft using the axially moving armature disk. In turn, this applies pressure to the opposing side against the friction surface (\rightarrow motor label). The braking torque is produced from the linings of the rotor and the armature disk/friction surface being in contact.

During the brake release process, a magnetic force is produced by applying a direct current via the excitation winding in the solenoid. The armature disk is thereby pulled from the solenoid and the rotor is released.

During the manual brake release process (only available for the brake version with manual brake release), the armature disk is pressed mechanically against the solenoid by operating the manual release lever. The brake can therefore still be released in the event of a power failure, for example.



Voltage and frequency

The solenoids and the brake rectifier are designed for connection to the following voltages or can be supplied for the following voltages:

- Brake supply voltage 230 V AC Order code **F11**
- Brake supply voltage 400 V AC Order code F12

When 60 Hz is used, the voltage for the brake must not be increased!

Order codes F11 and F12 may only be used in conjunction with order code F04.

Connection

Labeled terminals are provided in the main terminal box of the motor to connect the brake.

The AC voltage for the brake excitation winding is connected to the two free terminals of the rectifier block (~).

The brake can be released when the motor is at a standstill by separately exciting the solenoid. In this case, an AC voltage must be connected at the rectifier block terminals. The brake remains released as long as this voltage is present.

The rectifiers are protected against overvoltages by varistors in the input and output circuits. The function and wear can be monitored with microswitches and proximity switches. Microswitch On/Off is standard for 1LE1 motors. Anti-condensation heating is possible as an option.

Mechanical manual brake release with lever

The brake can be supplied with a mechanical manual release with lever.

Order code F50

The dimensions of the brake lever depend on the motor frame size and can be read from the dimensional drawing generator for motors in the DT Configurator tool for low-voltage motors.

Lifetime

The amount of frictional energy that can be transferred before the rotor must be replaced depends on various factors:

- · Mass to be decelerated
- Switching frequency
- Speed
- Resulting temperature on the friction surfaces

As a result, only guide values can be specified for the frictional energy to be transferred until rotor replacement.

Mounting technology

Modular technology

Overview (continued)

Abbreviations and definitions used (with their units):

 T_{IR} = Motor starting torque (Nm)

 $T_{\rm b}$ = Braking torque (Nm)

 T_{breq} = Required braking torque (Nm)

 $T_{\rm b, rated}$ = Rated torque of the spring-operated brake (Nm)

 $T_{\rm I}$ = Load torque (Nm)

 $T_{\text{tot}} = \text{Total torque (Nm)}$

F = Force(N)

r = Lever arm (m)

n =Speed (rpm)

 $K = \text{Safety factor } K \ge 2$

P = Power(kW)

t = Overall braking time (ms)

 t_{st} = Startup time (s)

 $t_{\rm B}$ = Braking time (s)

 t_2 = Disconnection time (ms)

 t_1 = Application time (ms)

 t_{11} = Response delay (ms)

 P_{R} = Frictional power (J/s)

 $W_{\rm R}$ = Friction energy (J)

S = Switching cycles (brake operations) per second (Hz)

 $J_{\rm F}$ = Internal moment of inertia (kgm²)

 $J_{\text{add}} = \text{Additional moment of inertia (kgm}^2)$

 $J_{2,3}$ = Moment of inertia (kgm²)

 J_{tot} = Total moment of inertia (kgm²)

 n_1 = Motor speed (rpm)

 $n_{2.3..}$ = Speeds (rpm)

Multiple moments of inertia with different speeds are converted into a moment of inertia relative to the motor shaft:

$$J_{\text{add}} = \frac{J_2 \cdot n_2^2 + J_3 \cdot n_3^2 \cdots}{n_1^2} \text{ (kgm}^2)$$

Torque

A spring-operated brake is designed mainly in accordance with the required braking torque $T_{\rm breq}$. If the moment of inertia, speed, and admissible braking time of the machine are known, the braking torque of the spring-operated brake can be calculated. If the masses that are to be decelerated by the spring-operated brake are running at a different speed from the shaft decelerated by the spring-operated brake, the moment of inertia of these masses ($J_{\rm add}$) must be calculated relative to this shaft (see above). In addition, the moment of inertia of the rotor-hub system ($J_{\rm E}$) must be taken into account.

Load torque (static loading)

Torque which is present when the system is at a standstill and must be held by the brake. The loading force is converted into the load torque via the relevant lever arm

$$T_L = F \cdot r \text{ (Nm)}$$

Braking torque (dynamic loading)

A purely dynamic load is present when flywheels, rollers, etc., are to be delayed and the static load torque is negligibly small.

The required braking torque is calculated as follows:

$$T_{\rm b} = 1.046 \cdot 10^2 \cdot J_{\rm tot} \cdot \frac{n}{t - t_1} \, (Nm)$$

$$T_{\text{breq}} = T_{\text{b}} \cdot K \leq T_{\text{b, rated}} \text{ (Nm)}$$

Dynamic and static loading

Most applications involve dynamic loading as well as static load torque:

$$T_{\text{breq}} = (T_{\text{b}} \pm T_{\text{L}}) \cdot K \text{ (Nm)}$$

$$T_{\text{breq}} = (1.046 \cdot 10^{2} \cdot J_{\text{tot}} \cdot \frac{n}{t - t_{1}} \pm T_{\text{L}}) \cdot K \text{ (Nm)}$$

$$T_{\text{breq}} \leq T_{\text{b. rated}} \text{ (Nm)}$$

Sign for T_1 :

+ T_L = Load torque is applying force (in the direction of motion)

 $-T_L$ = Load torque is applying a decelerating force (opposite to the direction of motion)

If both cases occur, the specific configuration is always adapted to the larger torque.

Approximate determination of T_{breq}

If the moment of inertia is not known and if the input power has been defined, the required braking torque is determined as follows:

$$T_{\text{breq}} = 9.55 \cdot 10^3 \cdot \frac{P}{n} \cdot K \le T_{\text{b, rated}} \text{ (Nm)}$$

 $K \ge 2$

Braking time

General

$$t = 1.046 \cdot 10^2 \cdot J_{\text{tot}} \cdot \frac{n}{T_{\text{b, rated}} \pm T_{\text{L}}} + t_1 \text{ (ms)}$$

Sign for T_1 :

 $-T_L$ = Load torque is applying force (in the direction of motion)

+ T_L = Load torque is applying a decelerating force (opposite to the direction of motion)

Calculation of the starting and braking time for motors Startup time for motors with brakes

$$t_{\rm st} = J_{\rm tot} \cdot \frac{n_1}{9.55 \cdot (T_{\rm LR} \pm T_{\rm L})} + \frac{t_2}{1000}$$
 (s)

 $J_{\text{tot}} = J_{\text{E}} + J_{\text{add}} (\text{kgm}^2)$

Sign for T_1 :

+ $T_{\rm L}$ = Load torque is applying force (in the direction of motion)

 $-T_L$ = Load torque is applying a decelerating force (opposite to the direction of motion)

Mounting technology

Modular technology

Overview (continued)

Braking time for motors with brakes

$$t_{\rm B} = J_{\rm tot} \cdot \frac{n_1}{9.55 \cdot (T_{\rm b, rated} \pm T_{\rm L})} + \frac{t_1}{1000}$$
 (s)

Sign for T_L :

- $-T_L$ = Load torque is applying force (in the direction of motion)
- + $T_{\rm L}$ = Load torque is applying a decelerating force (opposite to the direction of motion)

Thermal load

When braking, friction energy is applied during the slip phase, which releases thermal energy.

Friction energy per braking operation

$$W_{\rm R} = J_{\rm tot} \cdot n^2 \cdot \frac{T_{\rm b, rated}}{182.5 \cdot (T_{\rm b, rated} \pm T_{\rm L})}$$
 (J)

Sign for T_1 :

- $-T_L$ = Load torque is applying force (in the direction of motion)
- + $T_{\rm L}$ = Load torque is applying a decelerating force (opposite to the direction of motion)

The friction energy per braking operation must be no greater than the admissible value $W_{\rm Bmax}$

$$W_{\mathsf{R}} \leq W_{\mathsf{Rmax}}(\mathsf{J})$$

Frictional power

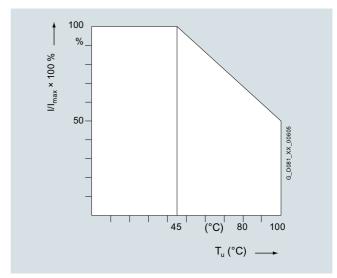
$$P_{\mathsf{R}} = W_{\mathsf{R}} \cdot S \, (\mathsf{J/s})$$

The friction energy must be no greater than the admissible value $P_{\rm Rmax}$

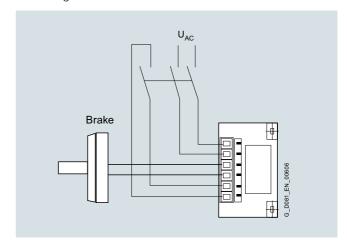
$$P_{R} \le P_{Rmax} (J/s)$$

Connection

Load rating of the rectifier diodes as a function of the ambient temperature:



Block diagram:



The high-speed rectifier performs the following functions:

- The coil is first supplied with a voltage $U_2 = 0.9 \times U_1$: Over-excitation of the brake
- After excitation time t_1 the voltage is reduced to $U_3 = 0.45 \times U_1$: Non-release voltage of the brake

Designation	Supply voltage (V AC)	Output voltage (V DC)		Ambient temperature	
Article No.:	U ₁ at 50/60 Hz	U_2	U_3	°C	
PMG 480	215 500	$0.9 \times U_{1}$	$0.45 \times U_{1}$	-15 +80	

Mounting technology

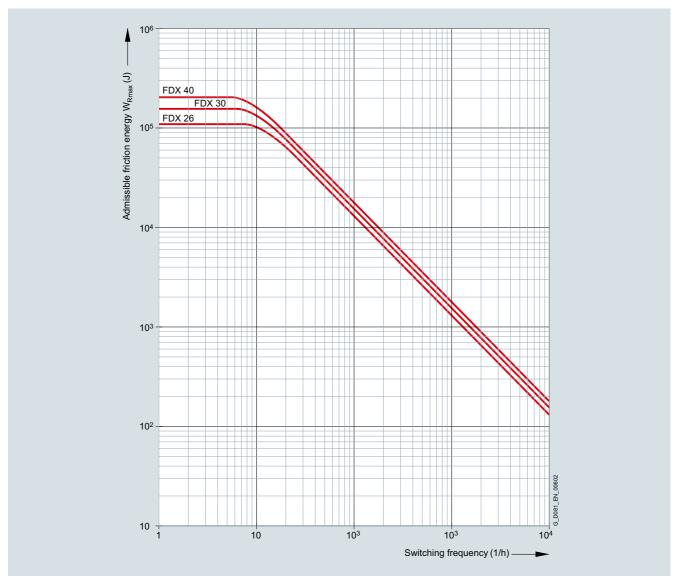
Modular technology

Overview (continued)

Maximum admissible speeds

The maximum admissible speeds from which emergency stops can be made are listed in the next table. These speeds should be considered as guide values and must be checked for the specific operating conditions.

The maximum admissible friction energy depends on the switching frequency and is shown for the individual brakes in the following diagram. Increased wear can be expected when the brakes are used for emergency stops.



Introduction Mounting technology

Modular technology

Overview (continued)

Overview of brake selection for 1LE1 motors (option F04)			For motor frame sizes			
			225	250	280	315
No. of poles			2 to 8	2 to 8	2 to 8	2 to 8
Flange bearing plate for brake mounting	g on the NDE side		A350	A400	A450	A535
Max. diameter for the second shaft extensions			55m6	48m6	65m6	48m6
Brake type			FDX 30	FDX 30	FDX 40	FDX 40
Static braking torque		Nm	450	567	900	1440 ¹⁾
Dynamic rated braking torque acc. to		Nm/rpm	500/88	630/88	1000/65	1600 ¹⁾ /65
DÍN VDE 0580	at 750 rpm	Nm	480	600	800	1200 ¹⁾
	at 1000 rpm	Nm	460	580	740	1150 ¹⁾
	at 1500 rpm	Nm	460	580	740	1150 ¹⁾
	at 3000 rpm	Nm	380	480	600	860 ¹⁾
Admissible speed n _{max}		rpm	3000 ²⁾ /6000 ³⁾			
Power at 180 V DC		W	880/220	880/220	1080/270	1080/270
Power at 103 V DC		W	560/140	560/140	560/140	560/140
Rated current at 230 V AC (103 V DC coil voltage)		Α	2.72/1.36	2.72/1.36	2.72/1.36	2.72/1.36
Rated current at 400 V AC (180 V DC coil voltage)		А	2.44/1.22	2.44/1.22	3/1.5	3/1.5
Weight, approx.		kg	45	45	80	80
Closing time t_1 (switching on the DC side)		ms	60	60	160	160
Release time t_2 (switching on the DC side)		ms	140	140	320	320
Brake moment of inertia		kgm ²	0.0195	0.0195	0.0445	0.0445
Lifetime L of brake lining		Nm · 10 ⁶	3700	3700	4900	4900

Limit: ON time S3 -50 %
 Operating brake
 Holding brake

Mounting technology

Modular technology

Overview (continued)

1XP8 012 rotary pulse encoder

The rotary pulse encoder can be supplied already mounted in an HTL version as **1XP8 012-10** with order code **G01** or in a TTL version as **1XP8 012-20** with order code **G02**. In combination with the separately driven fan, rotary pulse encoders are supplied with a plug connector externally. The rotary pulse encoder can only be mounted on a standard non-drive end (NDE), i.e. a second shaft extension cannot be supplied.

The encoder can be retrofitted. The motor must be prepared for this. When the motor is ordered, the option "Prepared for mountings, center hole only" order code **G40** or the option "Prepared for mountings with shaft D12" order code **G41** must be specified (see "Mechanical version and degrees of protection" on page 1/79).

Attaching the rotary encoder increases the length of the motor by dimension Δl . For an explanation of the additional dimensions and weights, see "Special technology" "Dimensions and weights" from page 1/106. The rotary pulse encoders of "Modular technology" and "Special technology" are fitted as standard with a protective cover made of non-corrosive sheet steel.

Mounting of encoder for temperatures below $-20~^{\circ}\text{C}$ and higher than $+40~^{\circ}\text{C}$ available on request.

Technical specifications of rotary pulse encoders Supply voltage U_B	1XP8 012-10 (HTL version) +10 V to +30 V	1XP8 012-20 (TTL version) 5 V ±10 %	
Current input without load	150 mA	120 mA	
Admissible load current per output	max. 100 mA	max. 20 mA	
Pulses per revolution	1024	1024	
Outputs	2 square-wave pulses A, B – 2 ir Zero pulse and inverted zero pul	pulses A, B – 2 inverted square-wave pulses A, B inverted zero pulse	
Pulse offset between the two outputs	90°	90°	
Output amplitude	$U_{\text{High}} = U_{\text{B}} - 2.5 \text{ V}$ $U_{\text{Low}} = 1.6 \text{ V}$	<i>U</i> _{High} > 2.5 V <i>U</i> _{Low} < 0.5 V	
Edge interval	≥ 0.43 µs	≥ 0.43 µs	
Sampling rate	≤ 300 kHz	≤ 300 kHz	
Maximum speed	6000 rpm	6000 rpm	
Transport/storage temperature range	−30 to +80 °C	−30 to +80 °C	
Operating temperature range flange socket or fixed cable	−40 to +100 °C	-40 to +100 °C	
Operating temperature range flexible cable	−10 to +100 °C	−10 to +100 °C	
Degree of protection	IP66	IP66	
Maximum admissible radial cantilever force	60 N	60 N	
Maximum admissible axial force	40 N	40 N	
Connection system	12-pin connector (mating connector	ctor is supplied)	
Certifications	CSA, UL	CSA, UL	
Weight	0.3 kg	0.3 kg	

Mounting technology

Special technology

Overview

"Special technology" comprises rotary pulse encoders of 1LE1 motors (with the exception of 1LE1 with order code **F90** – version "Forced-air cooled motors without external fan and fan cover" and 1PC1).

1LE1 motors with order codes **F70** (mounting of separately driven fan), **F01** (mounting of holding brake (standard arrangement)) and **F01** + **F70** (mounting of brake and separately driven fan) from the modular mounting concept can be combined with rotary pulse encoders LL 861 900 220, HOG 9 DN 1024 I and HOG 10 D 1024 I from the "Special technology" range. The length of the motor increases by ΔI when the rotary pulse encoder is mounted. For an explanation of the additional dimensions and weights, please refer to "Mounting technology", "Dimensions and weights" from page 1/106.

The rotary pulse encoders of "Modular technology" and "Special technology" are fitted as standard with a protective cover made of non-corrosive sheet steel.

For mounting of rotary pulse encoders with order codes **G01** and **G02** for frame sizes 80 to 315, a protective cover is supplied as standard, with order codes **G04**, **G05**, and **G06** up to frame size 200.

LL 861 900 220 rotary pulse encoder



With its rugged construction, this rotary pulse encoder is also suitable for difficult operating environments. It is resistant to shock and vibration and has insulated bearings.

The LL 861 900 220 rotary pulse encoder can be supplied already mounted.

Order code G04

The LL 861 900 220 rotary pulse encoder can be retrofitted. The motor must be prepared for this. When the motor is ordered, the option "Prepared for mountings, center hole only", order code **G40**, or the option "Prepared for mountings with shaft D16", order code **G42**, must be specified (see "Mechanical version and degrees of protection" on page 1/79). The rotary pulse encoder is not part of the scope of supply in this case.

The version of the rotary pulse encoder with a diagnostics system (ADS) can be supplied by Leine and Linde.

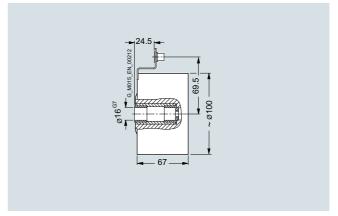
Manufacturer: Leine und Linde AG Olivehällsvägen 8 SE-64542 Strängnäs Phone +46 152 265 00 Fax +46 152 265 05

www.leinelinde.com Email: info@leinelinde.se For frame size 180 and above, a protective cover is <u>not</u> supplied as standard when rotary pulse encoders are mounted for order codes **G04**, **G05**, **G06**, **G07** and **G08**.

For mounting of rotary pulse encoders with order codes **G01**, **G02**, **G11**, **G12** + **F70** (mounting of separately driven fan): The cable end is connected to a connector that is located outside the fan cover. The fan cover does not have to be removed to connect the rotary pulse encoder. The rotary pulse encoder can be connected to the main terminal box or an auxiliary terminal box where necessary.

For mounting of rotary pulse encoders with order codes **G04**, **G05**, **G06** + **F70** (mounting of separately driven fan):

- Up to frame size 200, the fan cover has to be removed to connect the rotary pulse encoder. The rotary pulse encoder can also be connected to the main terminal box or an auxiliary terminal box where necessary.
- As of frame size 225, the fan cover does not have to be removed to connect the rotary pulse encoder. The rotary pulse encoder can be connected to the main terminal box and can be connected to the auxiliary terminal box where necessary.



Mounting dimensions of LL 861 900 220 rotary pulse encoder

Technical specifications for LL 861 900 220 (HTL version)

Mounting of encoder for temperatures below –20 °C and higher than +40 °C available on request.

proof square-wave 0'
ut load)
0 m cable
in encoder
ion M20 × 1.5 radial

Mounting technology

Special technology

Overview (continued)

HOG 9 DN 1024 I rotary pulse encoder



The encoder is fitted with insulated bearings.

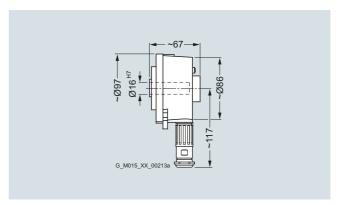
The HOG 9 DN 1024 I rotary pulse encoder can be supplied already mounted.

Order code **G05**

The HOG 9 DN 1024 I rotary pulse encoder can be retrofitted. The motor must be prepared for this. When the motor is ordered, the option "Prepared for mountings, center hole only", order code **G40**, or the option "Prepared for mountings with shaft D16", order code **G42**, must be specified (see "Mechanical version and degrees of protection" on page 1/79). The rotary pulse encoder is not part of the scope of supply in this case.

Manufacturer: Baumer Hübner GmbH Max-Dohrn-Str. 2+4 10589 Berlin, Germany Phone +49 (30) 69003-0 Fax +49 (30) 69003-104

www.baumerhuebner.com Email: info@baumerhuebner.com



Mounting dimensions of HOG 9 DN 1024 I rotary pulse encoder Technical specifications for HOG 9 DN 1024 I (HTL version)

Mounting of encoder for temperatures below –20 °C and higher than +40 °C available on request.

Supply voltage U _B	+9 V to +30 V
Current input without load	50 to 100 mA
Admissible load current per output	150 mA, 800 mA peak
Pulses per revolution	1024
Outputs	6 short-circuit-proof square-wave pulses A+, A-, B+, B-, R+, R-
Pulse offset between the two outputs	90° ±20 %
Output amplitude	$U_{\text{High}} \ge U_{\text{B}} - 3.5 \text{ V}$ $U_{\text{Low}} \le 1.5 \text{ V}$
Mark space ratio	1:1 ±20 %
Edge steepness	10 V/μs
Maximum frequency	120 kHz
Maximum speed	7000 rpm
Temperature range	−30 to +100 °C
Degree of protection	IP56
Maximum adm. radial cantilever force	500 N
Maximum adm. axial force	400 N
Connection system	M23 flange socket, radial (mating connector is part of the scope of supply)
Mech. version acc. to Baumer Hübner Ident. No.	73 522 B
Weight	approx. 0.9 kg

Mounting technology

Special technology

Overview (continued)

POG 9 rotary pulse encoder



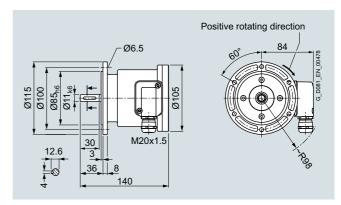
The POG 9 rotary pulse encoder can be supplied already mounted.

Order code **G08**

The POG 9 rotary pulse encoder can be retrofitted. The motor must be prepared for this. When the motor is ordered, the option "Prepared for mountings, center hole only", order code **G40**, or the option "Prepared for mountings with shaft D16", order code **G42**, must be specified (see "Mechanical version and degrees of protection" on page 1/79). The rotary pulse encoder is not part of the scope of supply in this case.

Manufacturer: Baumer Hübner GmbH Max-Dohrn-Str. 2+4 10589 Berlin, Germany Phone +49 (30) 69003-0 Fax +49 (30) 69003-104

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Mounting dimensions of POG 9 rotary pulse encoder Technical specifications for POG 9

Mounting of encoder for temperatures below –20 °C and higher than +40 °C available on request.

0	0.1/1. 00.1/	E.V. E.O.
Supply voltage U _B	+9 V to +30 V	+5 V ±5 %
Current input without load	< 100 mA	
Admissible load current per output	60 mA average 300 mA peak	25 mA average 75 mA peak
Pulses per revolution	300 2500	
Output amplitude	$\begin{array}{c} U_{\text{High}} \geq U_{\text{B}} - 3.5 \text{ V} \\ U_{\text{Low}} \leq 1.5 \text{ V} \end{array}$	$U_{\text{High}} \ge 2.5 \text{ V}$ $U_{\text{Low}} \le 0.5 \text{ V}$
Mark space ratio	1:1 ±20 %	
Operating speed	≤ 12000 rpm	
Switching rate	120 kHz	
Temperature range	−30 to +100 °C	
Degree of protection	IP56	
Maximum adm. radial cantilever force	150 N	
Maximum adm. axial force	80 N	
Connection system	Terminal box	
Weight	approx. 1.4 kg	

Mounting technology

Special technology

Overview (continued)

POG 10 rotary pulse encoder



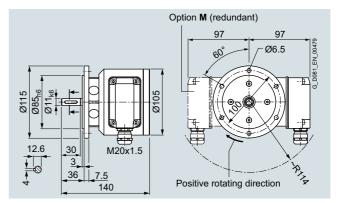
The POG 10 rotary pulse encoder can be supplied already mounted.

Order code G07

The POG 10 rotary pulse encoder can be retrofitted. The motor must be prepared for this. When the motor is ordered, the option "Prepared for mountings, center hole only", order code **G40**, or the option "Prepared for mountings with shaft D16", order code **G42**, must be specified (see "Mechanical version and degrees of protection" on page 1/79). The rotary pulse encoder is not part of the scope of supply in this case.

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Mounting dimensions of POG 10 rotary pulse encoder

Technical specifications for POG 10

Mounting of encoder for temperatures below $-20~^{\circ}\text{C}$ and higher than $+40~^{\circ}\text{C}$ available on request.

Supply voltage U _B Current input without load	+9 V to +30 V < 100 mA	
Admissible load current per output	60 mA average 300 mA peak	25 mA average 75 mA peak
Pulses per revolution	300 2500	
Mark space ratio	40:60 60:40	
Operating speed	≤ 12000 rpm	
Switching rate	120 kHz	
Temperature range	-40 to +100 °C	
Degree of protection	IP66	
Maximum adm. radial cantilever force	≤ 450 N	
Maximum adm. axial force	≤ 300 N	
Connection system	Terminal box	
Weight	approx. 1.9 kg	

IntroductionMounting technology

Special technology

Overview (continued)

HOG 10 D 1024 I rotary pulse encoder



This encoder is extremely rugged and is therefore suitable for difficult operating conditions. It is fitted with insulated bearings.

The HOG 10 D 1024 I rotary pulse encoder can be supplied already mounted.

Order code G06

The HOG 10 D 1024 I rotary pulse encoder can be retrofitted. The motor must be prepared for this. When the motor is ordered, the option "Prepared for mountings, center hole only", order code **G40**, or the option "Prepared for mountings with shaft D16", order code **G42**, must be specified (see "Mechanical version and degrees of protection" on page 1/79). The rotary pulse encoder is not part of the scope of supply in this case. The letters FSL and ESL stand for the following terms:

FSL: (mechanical) centrifugal switch

ESL: electronic speed switch

Both switch types are suitable for tripping the motor when a critical limit speed is reached, or for accelerating the motor along a control ramp into the permissible speed range again, or for shutting down the motor completely (depending on the customer application).

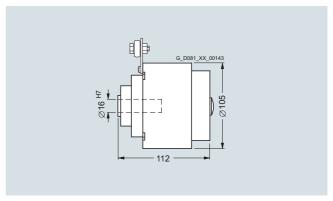
The electronic speed switch is particularly suitable for converter operation.

The critical limit rotational speed to be monitored for the customer's application must be specified in the order. Further settings might also be necessary. These settings will be made at the Baumer & Hübner factory according to customer

Manufacturer: Baumer Hübner GmbH Max-Dohrn-Str. 2+4 10589 Berlin, Germany Phone +49 (30) 69003-0 Fax +49 (30) 69003-104

specifications.

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Mounting dimensions of HOG 10 D 1024 I rotary pulse encoder Technical specifications for HOG 10 D 1024 I (HTL version)

Mounting of encoder for temperatures below $-20~^{\circ}\text{C}$ and higher than $+40~^{\circ}\text{C}$ available on request.

Supply voltage U _B	+9 V to +30 V
Current input without load	approx. 100 mA
Admissible load current per output	600 mA, 300 mA peak
Pulses per revolution	1024
Outputs	4 short-circuit proof square-wave pulses A, B and A', B'
Pulse offset between the two outputs	90° ±20 %
Output amplitude	$U_{\text{High}} \ge U_{\text{B}} - 3.5 \text{ V}$ $U_{\text{Low}} \le 1.5 \text{ V}$
Mark space ratio	1:1 ±20 %
Edge steepness	10 V/μs
Maximum frequency	120 kHz
Maximum speed	7000 rpm
Temperature range	-40 to +100 °C
Degree of protection	IP66
Maximum adm. radial cantilever force	150 N
Maximum adm. axial force	80 N
Connection system	Terminals, cable connection M20 × 1.5
Mech. version acc. to Baumer Hübner Ident. No.	74 055 B
Weight	approx. 1.6 kg

Mounting technology

Special technology

Overview (continued)

Sendix 5020 rotary pulse encoder



The Sendix 5020 rotary pulse encoder can be ordered completely assembled as an HTL version with order code **G11** or as a TTL version with order code **G12**.

Features of the G11 and G12 encoders:

- Use of insulation to avoid surge currents
- Safety-lock technology for high resistance to vibrations, shaft loads, and installation errors
- Cable lengths available up to 300 m

In combination with a separately driven fan, the rotary pulse encoders are supplied with an external plug connection. The rotary pulse encoder can only be attached to a standard NDE shaft extension, meaning that a second shaft extension will not be available.

The encoder can be retrofitted. When the motor is ordered, the option "Prepared for mountings, center hole only" order code **G40** or the option "Prepared for mountings with D12 shaft" order code **G41** must be specified.

The dimensions of the motor are increased by Δl by mounting the rotary pulse encoder. The "Modular technology" and "Special technology" rotary pulse encoders are fitted with a protective cover made from corrosion-resistant sheet metal as standard. Mounted encoders for temperatures below –20 °C and above +40 °C are available on request.

Technical specifications for Sendix 5020 (HTL/TTL version)

	Sendix 5020 (HTL version)	Sendix 5020 (TTL version)
Supply voltage	10 30 V DC	5 V DC ± 5 %
Energy consumption with inverted signal (no-load operation)	max. 100 mA	max. 90 mA
Admissible load/channel	max. ± 40 mA	max. ± 20 mA
Pulses per revolution	1024 (2048; 512)	
Outputs	2 square-wave pulses - 2 inverted square-wa	
Pulse offset between the two outputs	90°	
Signal level	$U_{\text{High}} = \text{min. } U_{\text{B}} - 1 \text{ V}$ $U_{\text{Low}} = \text{max. } 0.5 \text{ V}$	U _{High} = min. 2.5 V
Edge rise time t_r	max. 1 µs	max. 200 μs
Edge fall time t_f	max. 1 µs	max. 200 μs
Pulse frequency	max. 300 kHz	
Maximum speed	12000 rpm/6000 rpm (continuous)
Working temperature range	-40 ¹⁾ +100 °C	
Degree of protection acc. to EN 60529	IP65	
Maximum admissible radial cantilever force	100 N	
Maximum admissible axial force	50 N	
Connection system	12-pin M23 connector (mating connectors are	e always supplied)
Certificates	UL, CSA (ATEX on req	uest)
Weight	0.4 kg	
Explosion protection certificate for explosive areas	Available on request for	or Zones 2 and 22
Shock resistance acc. to EN 60068-2-27	3000 m/s ² , 6 ms	
Vibration resistance acc. to EN 60068-2-6	300 m/s ² , 10 2000 l	Hz

Manufacturer: Fritz Kübler GmbH Schubertstrasse 47 78054 Villingen-Schwenningen, Germany Phone +49 (7720) 3903-0 Fax +49 (7720) 21564

www.kuebler.com/drehgeber Email: info@kuebler.com

¹⁾ With connector: -40 °C, permanently installed cable: -30 °C, moving cable: -20 °C.

Introduction Mounting technology

Special technology

Overview (continued)

Backstop, counterclockwise/clockwise motion blocked

The backstop (order code F40/F41) prevents the motor from moving while in de-energized state against its direction of rotation in the energized state.

The backstop is only available for SIMOTICS SD - 1LE15/1LE16, VSD10, VSD4000 motors.
- Counterclockwise motion blocked: Option **F40**

- Clockwise motion blocked: Option F41

Frame size	Order code F40 ΔI mm	F41 Δl mm
71	-	-
80	_	_
90	_	_
100	_	_
112	_	_
132	114	114
160	130	130
180	126	126
200	137	137
225	172	172
250	96	96
280	104	104
315	105	105

Protective cover diameter

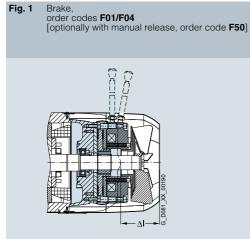
Frame size	Protective cover for separately driven fan	Protective cover	Protective for encode		Protective cover for encoder adapter	Protective cover
		H00	G01/G02	G04 G06	G41/G42	F75
	mm	mm	mm	mm	mm	mm
71	140	125	125	_	-	_
80	157	155	155	_	155	160
90	177	155	155	_	155	180
100	210	195	195	195	195	195
112	249	195	195	195	195	195
132	300	260	260	260	260	260
160	338	260	260	260	260	260
180	340	340	340	340	340	340
200	338	340	340	340	340	340
225	470	425	165	250	165	-
250	470	470	165	250	165	_
280	525	525	165	250	165	_
315	590	525	165	250	165	-

Mounting technology

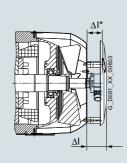
Dimensions and weights of the mountings

Overview

Dimensions and weights







	Assignme	nt										
	Fig. 1		Fig. 2									
Frame	Brake		Rotary p	ulse encoder	including p	orotective cov	ver (G43)					
size	Order code	es	1XP8 012 Order codes G01/G02		LL 861 9 Order co		HOG 9 I Order co G05	ON 1024 I ode	HOG 10 Order co	D 1024 I ode	Sendix Order of G11/G1	odes
	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight approx
	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
1LE1												
80	60	3.5	68.5	0.7	_	-	_	-	-	-	-	-
90	77.5	5.3	68.5	0.7	-	_	-	-	-	_	-	-
100	81	5.9	56	0.9	83	1.9	83	1.5	126	2.2	-	-
112	88	7.8	56	0.8	83	1.9	83	1.5	126	2.2	-	-
132	114	11.9	60	1.3	87	2.4	87	2	130	2.7	-	-
160	130	30.7	60	1.5	87	2.7	87	2.3	130	3	-	-
180	126	28	87	2.1	136.5	2.3	136.5	1.9	136.5	2.6	-	-
200	137	38	87	2.3	136.5	2.5	136.5	2.1	136.5	2.8	-	-
225	135/199	63/49	87	0.9	135	2	135	1.6	135	2.3	87	1
250	225/185	83/54	87	0.9	135	2	135	1.6	135	2.3	87	1
280	297/192	118/92	87	0.9	135	2	135	1.6	135	2.3	87	1
315	308/188	256/167	87	0.9	135	2	135	1.6	135	2.3	87	1
ILE5												
315	309	355	87	0.9	135	2	135	1.6	135	2.3	87	1
355	324	425	87	0.9	135	2	135	1.6	135	2.3	87	1

	Assignmo	ent								
Frame	Rotary pu	lse encoder wit	hout protective	ve cover						
size	1XP8 012	!	LL 861 9	00 220	HOG 9 D	N 1024 I	HOG 10	D 1024 I	Sendix 5	020
	Order cod	des	Order co	Order code G04		Order code G05		de	Order co	des
	G01/G02		G04					G06		!
	Δl^*	Weight, approx.	Δl^{\star}	Weight, approx.	Δl^{\star}	Weight, approx.	Δl^{\star}	Weight, approx.	Δl^{\star}	Weight, approx.
	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
1LE1										
225	51	0.3	75	1.3	72	0.9	116	1.6	65	0.4
250	51	0.3	75	1.3	72	0.9	116	1.6	65	0.4
280	51	0.3	75	1.3	72	0.9	116	1.6	65	0.4
315	51	0.3	75	1.3	72	0.9	116	1.6	65	0.4

Mounting technology

Dimensions and weights of the mountings

Overview (continued)

Fig. 3 Brake and rotary pulse encoder (on cover), order codes F01/F04
+ G01/G02/G04/G05/G06/G11/G12
[optionally with manual release, order code F50;
G01, G02, G11, G12 protective cover as standard]

Fig. 4 Separately driven fan, order code F70

	Assignn Fig. 3	nent									Fig. 4		
Frame		nd rotary pul	lse encode	er (on cover)							Separat	ely driven	fan
size	1XP8 01 Order co F01 + G01/G	odes	LL 861 900 220 Order codes F01 + G04		HOG9 D 1024 I Order codes F01 + G05					5020 codes G12	Order code F70		
	ΔΙ	Weight, approx.	Δl^{\star}	Weight, approx.	Δl^*	Weight, approx.	Δl^*	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	М	Weight, approx.
	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm	mm	kg
1LE1													
71	-	-	_	_	_	_	-	-	-	-	75	30	1.9
80	128.5	4.2	-	_	-	_	-	_	-	_	88	10	1.9
90	146	6	-	_	-	_	-	_	-	-	104	20	2.5
100	137	6.8	164	7.8	164	7.4	207	8.1	-	-	86.5	30	2.6
112	144	8.6	171	9.7	171	9.3	214	10	-	_	81.5	30	2.9
132	174	13.2	201	14.3	201	13.9	244	14.6	-	-	116	40	3.9
160	190	32.2	217	33.4	217	33	260	33.7	-	-	135.5	40	5.6
180	216	30.1	216	30.3	216	29.9	252	30.6	-	-	257	40	8.3
200	228	40.3	228	40.5	228	40.1	264	40.8	-	-	262	40	9.3
225	186	63.3	210	64.3	207	64.2	251	63.9	186	63.4	221	-	22
250	276	83.3	300	84.3	297	84.2	341	83.9	276	83.4	226	-	25
280	348	118.3	372	119.3	369	119.2	413	118.9	348	118.4	222	-	28
315	359	255.3	383	256.3	380	256.2	424	255.9	359	256.4	236 ¹⁾	-	36 ¹⁾
315 1LE5	-	_	_	_	_	_	_	-	_	-	276 ²⁾	_	38.8 ²⁾
315 2-pole 4-pole	396	355.9	444	357	444	356.6	444	357.3	396	356	275 235	=	37.6 35.3
355	411	425	459	427	459	426.6	459	427.3	411	426	248	_	27.5

	Assignr Fig. 3	ment								
Frame	Brake ar	nd rotary pul	se encode	er (on cover)						
size	Order co	1XP8 012 Order codes F04 + G01/G02		LL 861 900 220 Order codes F04 + G04		HOG9 D 1024 I Order codes F04 + G05		HOG10 D 1024 I Order codes F04 + G06		5020 odes
	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.
1LE1	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
225	285.5	49.3	274	50.3	271	49.9	315	50.6	285.5	49.4
250	271.5	54.3	260	55.3	257	54.9	301	55.6	271.5	54.4
280	278.5	92.3	267	93.3	264	92.9	308	93.6	278.5	92.4
315	274.5	167.3	263	168.3	260	167.9	304	168.6	274.5	167.4

¹⁾ Valid for 4-pole, 6-pole, and 8-pole motors

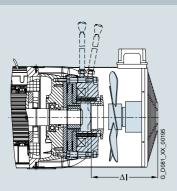
²⁾ Valid for 2-pole motors

Mounting technology

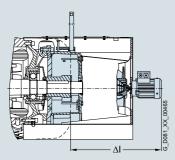
Dimensions and weights of the mountings

Overview (continued)

Brake and separately driven fan, order codes F01/F04 + F70 [optionally with manual release, order code F50] Fig. 5

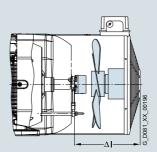


Frame sizes 100 to 200

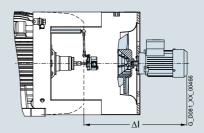


Frame sizes 225 to 355

Rotary pulse encoder (under cover) and separately driven fan, order codes F70 + G01/G02/G04/G05/G06/G11/G12 Fig. 6



Frame sizes 100 to 200



Frame sizes 225 to 355

	Assignm Fig. 5				Fig. 6									
Frame	Brake an	d separate	ely driven	fan	Separate	ely driven fa	an and rot	ary pulse e	encoder (u	nder cover)			
size	Order co F01 + F7		Order co		Order co	odes	Order co	odes	Order co	odes	Order codes F70		Order codes F70	
					+ G01/G	i02	+ G04		+ G05		+ G06		+ G11/G	i12
	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.
	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg
1LE1														
71	-	_	_	_	165	2.6	_	_	_	_	_	_	_	_
80	161.5	5.4	-	-	161.5	2.9	-	-	-	-	-	-	-	-
90	174	7.7	-	-	174	3.5	-	-	-	-	-	-	-	-
100	161.5	8.3	-	-	161.5	3.8	161.5	4.8	161.5	4.4	246.5	5.3	-	-
112	156.5	10.4	-	_	156.5	4	156.5	5.1	156.5	4.7	241.5	5.6	-	-
132	186	15.7	-	-	186	5.7	186	6.8	186	6.4	291	7.4	-	-
160	205.5	37.2	-	-	205.5	8.6	205.5	9.8	205.5	9.4	320.5	10.5	-	-
180	257	40	-	-	257	10.4	257	10.6	257	10.2	400	10.9	-	-
200	262	53	-	-	262	11.6	262	11.8	262	11.4	397	12.1	-	-
225	563	87	440.5	60	410	25	410	26	410	26	410	26	410	25
250	609	110	409	79	425	27	425	28	425	28	425	28	425	27
280	571	149	402	120	429	30	429	31	429	31	429	31	429	30
315 (4,- 6-, and 8-pole)	540	296	432	203	432	41	432	42	432	42	432	42	432	41
315 (2-pole)	588	299	-	-	472	44	472	45	472	45	472	45	472	44
1LE5														
315 2-pole 4-pole	633 593	415.7 413.7	_	_	425 385	400.9 398.9	633 593	402 400	633 593	401.6 399.6	633 593	402.3 400.3	633 593	401 399
355	628	471.7	-	-	381	453.6	381	454.7	381	454.3	381	455	381	453.7

Mounting technology

Dimensions and weights of the mountings

Frame sizes 225 to 355

Overview (continued)

Frame sizes 100 to 200

Fig. 7 Brake, rotary pulse encoder (under cover) and separately driven fan, order codes Fo1/IF04 + F70
+ G01/G02/G04/G05/G06/G11/G12
[optionally with manual release, order code F50]

Fig. 8 Protective cover for separately driven fan, order code H00

Fig. 8 Protective cover for separately driven fan, order code H00

Frame sizes 100 to 200

Frame sizes 225 to 355

	Assignm Fig. 7	ent									Fig. 8		
Frame size	_	parately dr	iven fan, ar	nd rotary pu	lse encode	r (under co	ver)		Sendix	5020	_		r separately
	Order cod F01 + F70 + G01/G0	0	Order co F01 + F7 + G04					Order codes F01 + F70 + G06		odes 70 i12	Order code H00		
	Δl Weight, approx.		ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	Diameter of the sepa- rately-driven- fan cover
	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	mm
1LE1													
80	186.5	6.6	-	-	-	-	-	_	-	-	124.5	0.2	157
90	199	8.9	-	-	-	-	-	-	-	-	141.5	0.2	177
100	196.5	9.9	196.5	10.9	196.5	10.5	246.5	11.5	-	-	124	1.4	210
112	191.5	12	191.5	13.1	191.5	12.7	241.5	13.6	-	-	122	1.8	249
132	241	17.9	241	19	241	18.6	291	19.6	-	-	149	2.4	300
160	270.5	39.7	270.5	40.9	270.5	40.5	320.5	41.6	-	-	177	3	338
180	257	38.4	257	38.6	257	38.2	400	40.6	-	-	288	1.7	338
200	262	49.6	262	49.9	262	49.1	397	51.5	-	-	293	1.7	338
225	563	87.3	563	88.3	563	88.2	563	88.9	563	87.4	305	2.5	210
250	609	110.3	609	111.3	609	111.2	609	111.9	609	110.4	311	2.5	249
280	571	149.3	571	150.3	571	150.2	571	150.9	571	149.4	307	2.5	300
315 (4, 6, 8-pole)	540	296.3	540	297.3	540	297.2	540	297.9	540	296.4	321 ¹⁾	2.5 ¹⁾	338 ¹⁾
315 (2-pole)	580	299.3	580	300.3	580	300.2	580	300.9	580	300.9	-	-	_
1LE5													
315 2-pole 4-pole	_	_	_	=	_	_	_	Ξ	_	_	402 317	46.1 43.5	690 690
355	-	-	_	-	-	-	-	-	-	-	330	36	690

	Assignn Fig. 7	nent									
Frame	Brake, s	eparately dr	iven fan, a	and rotary pu	lse encod	ler (under co	ver)		Sendix	5020	
size	Order co	odes	Order codes		Order c	Order codes		Order codes		Order codes	
	F04 + F7	70	F04 + F	70	F04 + F70		F04 + F	70	F04+ F7	70	
	+ G01/G	i02	+ G04		+ G05		+ G06		+ G11/G12		
	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	
	mm	kg	mm	kg	mm	kg	mm	kg	mm	kg	
1LE1											
225	593.5	66.3	593.5	67.3	593.5	66.9	593.5	67.6	593.5	66.4	
250	609	79.3	609	80.3	609	79.9	609	80.6	609	79.4	
280	572	120.3	572	121.3	572	120.9	572	121.6	572	120.4	
315	540	203.3	540	204.3	540	203.9	540	204.6	540	203.4	
1LE5											
315 2-pole 4-pole	633 593	416.6 414.6	633 593	417.7 415.7	633 593	417.3 415.6	633 593	418 416	633 593	416.7 414.7	
355	628	472.6	628	473.7	628	473.3	628	474	628	472.7	

¹⁾ Valid for FS 315 (2, 4, 6, and 8-pole)

Mounting technology

Dimensions and weights of the mountings

Overview (continued)

Prepared for mountings, center hole only (for 2LM8 brake, order code **F01** and/or encoder order code **G01/G02/G04/G05/G06**), order code **G40** (up to frame size 160, standard with frame size 180 and above)

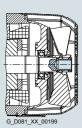
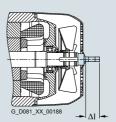


Fig. 10 Prepared for mountings with shaft D12/D16, order code G41/G42



Assignment

Fig. 9

Frame size

Prepared for mountings, center hole only (for brake, order code F01 and/or encoder order codes G01/G02/G04/G05/G06) order code G40

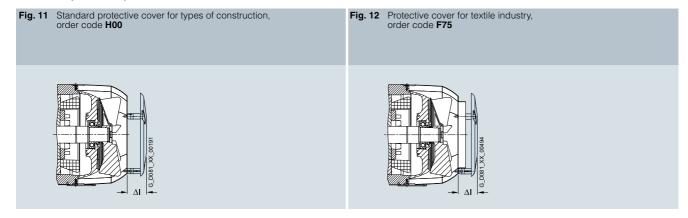
Fig. 10 Prepared for mountings with shaft D12/D16, order code **G41/G42**

	order code G40					
	Order code		Order code		Order code	
	G40		G41		G42	
	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.
	mm	kg	mm	kg	mm	kg
1LE1						
71	-	_	_	_	_	_
80	0	0	22	0.1	52	0.1
90	0	0	22	0.1	52	0.1
100	0	0	18.3	0.15	54.3	0.2
112	0	0	14.5	0.15	54.3	0.2
132	0	0.1	18.8	0.3	58.8	0.4
160	0	0.2	18.6	0.4	55.6	0.7
180	0	0	18	0.27	57	0.33
200	0	0	17	0.27	56	0.27
225	0	0	23	0.27	58	0.33
250	0	0	23	0.27	58	0.33
280	0	0	23	0.27	58	0.33
315	0	0	23	0.27	58	0.33
1LE5						
315	0	0	23	0.27	58	0.33
355	0	0	23	0.27	58	0.33

Mounting technology

Dimensions and weights of the mountings

Overview (continued)



	Assignment Fig. 11		Fig. 12	
Frame	Protective cover		Protective cover	
size	Order code		Order code	
	H00		F75	
	ΔΙ	Weight, approx.	ΔΙ	Weight, approx.
	mm	kg	mm	kg
71	29	0.15	-	-
80	128	0.3	17	0.3
90	144	0.4	15	0.4
100	137	0.5	64	0.7
112	122	0.7	64	0.9
132	156	1.3	71	1.3
160	182.5	1.7	71	1.9
180	285	1.7	90	3.2
200	297	1.7	90	3.4
225	100	2.2	On request	On request
250	100	2.4	On request	On request
280	110	3.4	On request	On request
315	110	4	On request	On request
1LE5				
315	110	8	-	-
355	140	8.5	_	_

Mounting technology

Notes

with increased power Cast-iron series

with increased power

• 1LE1541 self-ventilated or forced-air cooled

• 1LE1541 self-ventilated or forced-air cooled

2/68

2/70

SIMOTICS GP/SD 1LE1 standard motors





2/2	Orientation		SIMOTICS GP/SD 1LE1 – Eagle Line
2/2	Overview, benefits, application, technical specifications, more information		Simorics GF/SD TLET - Eagle Line
2/6	Converter operation	2/71	NEMA Premium Efficient motors
2/6	Overview, benefits, application,	2/71	Aluminum series 1LE1023 self-ventilated or forced-air cooled
2/7	technical specifications Article number code	2/73	Cast-iron series 1LE1523/1LE1623
2/1			self-ventilated or forced-air cooled
	SIMOTICS GP/SD 1LE1	2/80	NEMA Energy Efficient motors
2/8	Motors with IE4 Super Premium Efficiency	2/80	Aluminum series 1LE1021 self-ventilated or forced-air cooled
2/8	Aluminum series 1LE1004	2/81	Cast-iron series 1LE1521
2/9	self-ventilated or forced-air cooled Cast-iron series 1LE1504/1LE1604	_, -, -	self-ventilated or forced-air cooled
_, -	self-ventilated or forced-air cooled		SIMOTICS GP 1LE1 – pole-changing
2/13	Motors with IE3 Premium Efficiency		Aluminum series
2/12	Aluminum series	2/82	• 1LE1011 self-ventilated.
2/13 2/16	1LE1003 self-ventilated1LE1003 self-ventilated with increased power		const. load torque
2,10	Cast-iron series	2/83	1LE1011/1LE1012 self-ventilated, square-law load torque
2/17	1LE1503/1LE1603 self-ventilated or forced-air cooled	2/85	<u> </u>
2/24	1LE1503/1LE1603 self-ventilated with	2/65	Article No. supplements and special versions
_,	increased power	2/85	Voltages
2/26	Motors with IE2 High Efficiency	2/90	Types of construction
	Aluminum series	2/98	Motor protection
2/26	1LE1001 self-ventilated or forced-air cooled	2/100 2/102	Terminal box position Options
2/30	1LE1001 self-ventilated with increased power	2/117	Accessories
	•		
	Cast-iron series	2/118	Dimensions
2/32	• 1LE1501/1LE1601 self-ventilated	2/118	Overall dimensions
2/32 2/40	1LE1501/1LE1601 self-ventilated or forced-air cooled	2/118 2/121	Overall dimensions Notes on the dimensions
	• 1LE1501/1LE1601 self-ventilated	2/118	Overall dimensions
	1LE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with	2/118 2/121 2/121	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series
2/40 2/44	1LE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series	2/118 2/121	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2,
2/40 2/44 2/44	1LE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series 1LE1002 self-ventilated or forced-air cooled	2/118 2/121 2/121	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power –
2/40 2/44	1LE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series 1LE1002 self-ventilated or forced-air cooled 1LE1002 self-ventilated with increased power Cast-iron series	2/118 2/121 2/121 2/122 2/122	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2
2/44 2/44 2/47 2/48	1LE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series 1LE1002 self-ventilated or forced-air cooled 1LE1002 self-ventilated with increased power Cast-iron series 1LE1502 self-ventilated or forced-air cooled	2/118 2/121 2/121 2/122 2/124 2/126	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2 forced-air cooled/naturally cooled – IE1, IE2
2/44 2/44 2/47	• 1LE1501/1LE1601 self-ventilated or forced-air cooled • 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series • 1LE1002 self-ventilated or forced-air cooled • 1LE1002 self-ventilated with increased power Cast-iron series • 1LE1502 self-ventilated or forced-air cooled • 1LE1502 self-ventilated or forced-air cooled	2/118 2/121 2/121 2/122 2/124 2/126 2/128 2/132	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2
2/44 2/44 2/47 2/48	1LE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series 1LE1002 self-ventilated or forced-air cooled 1LE1002 self-ventilated with increased power Cast-iron series 1LE1502 self-ventilated or forced-air cooled 1LE1502 self-ventilated or forced-air cooled with increased power	2/118 2/121 2/121 2/122 2/124 2/126 2/128 2/132 2/134	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2 forced-air cooled/naturally cooled – IE1, IE2 self-ventilated – IE3, NEMA Premium Efficient self-ventilated with increased power – IE3 forced-air cooled – IE3
2/40 2/44 2/47 2/48 2/52	1LE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series 1LE1002 self-ventilated or forced-air cooled 1LE1002 self-ventilated with increased power Cast-iron series 1LE1502 self-ventilated or forced-air cooled 1LE1502 self-ventilated or forced-air cooled with increased power SIMOTICS GP/SD 1LE1 – APAC Line	2/118 2/121 2/121 2/122 2/124 2/126 2/128 2/132	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2 forced-air cooled/naturally cooled – IE1, IE2 self-ventilated – IE3, NEMA Premium Efficient self-ventilated with increased power – IE3 forced-air cooled – IE3 self-ventilated – IE3
2/44 2/44 2/47 2/48	ILE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series 1LE1002 self-ventilated or forced-air cooled 1LE1002 self-ventilated with increased power Cast-iron series 1LE1502 self-ventilated or forced-air cooled 1LE1502 self-ventilated or forced-air cooled 1LE1502 self-ventilated or forced-air cooled with increased power SIMOTICS GP/SD 1LE1 – APAC Line Motors with IE3 Premium Efficiency	2/118 2/121 2/122 2/122 2/124 2/126 2/128 2/132 2/134 2/138	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2 forced-air cooled/naturally cooled – IE1, IE2 self-ventilated – IE3, NEMA Premium Efficient self-ventilated with increased power – IE3 forced-air cooled – IE3 self-ventilated – IE3
2/40 2/44 2/47 2/48 2/52	1LE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series 1LE1002 self-ventilated or forced-air cooled 1LE1002 self-ventilated with increased power Cast-iron series 1LE1502 self-ventilated or forced-air cooled 1LE1502 self-ventilated or forced-air cooled with increased power SIMOTICS GP/SD 1LE1 – APAC Line	2/118 2/121 2/121 2/122 2/124 2/126 2/128 2/132 2/134	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2 forced-air cooled/naturally cooled – IE1, IE2 self-ventilated – IE3, NEMA Premium Efficient self-ventilated with increased power – IE3 forced-air cooled – IE3 self-ventilated – IE4 Cast-iron series self-ventilated – IE1, IE2, NEMA Energy Efficient
2/40 2/44 2/44 2/47 2/48 2/52 2/54	ILE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series	2/118 2/121 2/122 2/124 2/124 2/128 2/132 2/134 2/138 2/140 2/148	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2 forced-air cooled/naturally cooled – IE1, IE2 self-ventilated – IE3, NEMA Premium Efficient self-ventilated with increased power – IE3 forced-air cooled – IE3 self-ventilated – IE4 Cast-iron series self-ventilated – IE1, IE2, NEMA Energy Efficient self-ventilated – IE3, NEMA Premium Efficient
2/40 2/44 2/47 2/48 2/52 2/54	ILE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series	2/118 2/121 2/122 2/124 2/124 2/128 2/132 2/134 2/138	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2 forced-air cooled/naturally cooled – IE1, IE2 self-ventilated – IE3, NEMA Premium Efficient self-ventilated with increased power – IE3 forced-air cooled – IE3 self-ventilated – IE4 Cast-iron series self-ventilated – IE1, IE2, NEMA Energy Efficient
2/40 2/44 2/47 2/48 2/52 2/54	ILE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series	2/118 2/121 2/122 2/124 2/124 2/128 2/132 2/134 2/138 2/140 2/148	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2 forced-air cooled/naturally cooled – IE1, IE2 self-ventilated – IE3, NEMA Premium Efficient self-ventilated with increased power – IE3 forced-air cooled – IE3 self-ventilated – IE4 Cast-iron series self-ventilated – IE1, IE2, NEMA Energy Efficient self-ventilated – IE3, NEMA Premium Efficient
2/40 2/44 2/47 2/48 2/52 2/54 2/56 2/57	1LE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series 1LE1002 self-ventilated or forced-air cooled 1LE1002 self-ventilated with increased power Cast-iron series 1LE1502 self-ventilated or forced-air cooled 1LE1502 self-ventilated or forced-air cooled with increased power SIMOTICS GP/SD 1LE1 – APAC Line Motors with IE3 Premium Efficiency Aluminum series 1LE1043 self-ventilated or forced-air cooled with increased power Cast-iron series 1LE1543/1LE1643 self-ventilated or forced-air cooled with increased power Cast-iron series 1LE1543/1LE1643 self-ventilated or forced-air cooled	2/118 2/121 2/122 2/124 2/124 2/128 2/132 2/134 2/138 2/140 2/148	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2 forced-air cooled/naturally cooled – IE1, IE2 self-ventilated – IE3, NEMA Premium Efficient self-ventilated with increased power – IE3 forced-air cooled – IE3 self-ventilated – IE4 Cast-iron series self-ventilated – IE1, IE2, NEMA Energy Efficient self-ventilated – IE3, NEMA Premium Efficient
2/40 2/44 2/47 2/48 2/52 2/54 2/54 2/56	1LE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series 1LE1002 self-ventilated or forced-air cooled 1LE1002 self-ventilated with increased power Cast-iron series 1LE1502 self-ventilated or forced-air cooled 1LE1502 self-ventilated or forced-air cooled with increased power SIMOTICS GP/SD 1LE1 – APAC Line Motors with IE3 Premium Efficiency Aluminum series 1LE1043 self-ventilated or forced-air cooled itE1043 self-ventilated or forced-air cooled with increased power Cast-iron series 1LE1543/1LE1643 self-ventilated or	2/118 2/121 2/122 2/124 2/124 2/128 2/132 2/134 2/138 2/140 2/148	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2 forced-air cooled/naturally cooled – IE1, IE2 self-ventilated – IE3, NEMA Premium Efficient self-ventilated with increased power – IE3 forced-air cooled – IE3 self-ventilated – IE4 Cast-iron series self-ventilated – IE1, IE2, NEMA Energy Efficient self-ventilated – IE3, NEMA Premium Efficient
2/40 2/44 2/47 2/48 2/52 2/54 2/56 2/57	ILE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series	2/118 2/121 2/122 2/124 2/124 2/128 2/132 2/134 2/138 2/140 2/148	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2 forced-air cooled/naturally cooled – IE1, IE2 self-ventilated – IE3, NEMA Premium Efficient self-ventilated with increased power – IE3 forced-air cooled – IE3 self-ventilated – IE4 Cast-iron series self-ventilated – IE1, IE2, NEMA Energy Efficient self-ventilated – IE3, NEMA Premium Efficient
2/40 2/44 2/47 2/48 2/52 2/54 2/56 2/57 2/63 2/65	ILE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series	2/118 2/121 2/122 2/124 2/124 2/128 2/132 2/134 2/138 2/140 2/148	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2 forced-air cooled/naturally cooled – IE1, IE2 self-ventilated – IE3, NEMA Premium Efficient self-ventilated with increased power – IE3 forced-air cooled – IE3 self-ventilated – IE4 Cast-iron series self-ventilated – IE1, IE2, NEMA Energy Efficient self-ventilated – IE3, NEMA Premium Efficient
2/40 2/44 2/47 2/48 2/52 2/54 2/56 2/57 2/63	ILE1501/1LE1601 self-ventilated or forced-air cooled 1LE1501/1LE1601 self-ventilated with increased power Motors with IE1 Standard Efficiency Aluminum series	2/118 2/121 2/122 2/124 2/124 2/128 2/132 2/134 2/138 2/140 2/148	Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing self-ventilated with increased power – IE1, IE2 forced-air cooled/naturally cooled – IE1, IE2 self-ventilated – IE3, NEMA Premium Efficient self-ventilated with increased power – IE3 forced-air cooled – IE3 self-ventilated – IE4 Cast-iron series self-ventilated – IE1, IE2, NEMA Energy Efficient self-ventilated – IE3, NEMA Premium Efficient

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SIMOTICS GP/SD 1LE1/1PC1 standard motors

Overview



Increasing energy costs have resulted in greater emphasis on the power consumption of drive systems. It is extremely important to utilize the full potential for minimizing energy consumption here to secure competitiveness today and in the future. The environment will also profit from reduced energy consumption.

This is the reason that already today we are developing a new generation of low-voltage motors. Innovative rotors create the best requisites for motors with a high degree of efficiency. IE1 and IE2 motors with the same power have the same dimensions. The new motors for IE2, IE3 and IE4 offer considerable energy savings and protect our environment. We also consider environmental compatibility and sustainable use of resources during production. Potting compounds and coatings are, for example, solvent-free.

The modular mounting concept provides total flexibility. Each motor is based on a uniform concept for all markets worldwide. Our motors are manufactured according to the most advanced ecological standards.

The new 1LE1 motor family is therefore one of the most compact in the world, because it is manufactured using innovative technology. For an optimized design, a compound of highly conductive materials is used in the rotor (up to frame size 200). This results in minimum rotor losses and an excellent starting and switching response.

The design of the 1LE1 motors ensures maximum flexibility and minimum installation costs. Users benefit from integral lifting eyes, screw-on feet, reinforced bearing plates with optimum mechanical properties and easily accessible terminal boxes. Encoders, brakes and separately driven fans can also be added without any problems. Smaller inventories make stockkeeping easier, so motor suppliers can respond to customer requirements more quickly.

The 1LE1/1PC1 motor family comprises two main series:

 SIMOTICS GP for general purpose applications: Motors with an aluminum housing

SIMOTICS GP 1LE1/1PC1 motors with an aluminum housing are suitable for a wide range of standard drive tasks in the industrial environment. Thanks to their particular low weight, they are predestined for applications in pumps, fans and compressors. But they also reliably fulfill their tasks in conveyor systems and lifting gear.

Brief overview	
Power and voltage range:	0.09 45 kW for all commonly used voltages
Frame sizes and types of construction:	63 200 in all common types of construction
Rated speed:	750 3600 rpm
Number of poles:	2, 4, 6, 8
Efficiency classes:	IE1 (Standard Efficiency)
	• IE2 (High Efficiency)
	• IE3 (Premium Efficiency)
	• IE4 (Super Premium Efficiency)
	 NEE (NEMA Energy Efficient, acc. to NEMA MG, Table 12-11)
	 NPE (NEMA Premium Efficient, acc. to NEMA MG, Table 12-12)

 SIMOTICS SD for severe duty applications: Motors with cast-iron housing

SIMOTICS SD 1LE1 motors with a cast-iron housing are extremely rugged and are therefore the first choice for applications under harsh environmental conditions. They master dust or vibration in mills and mixers as well as the corrosive atmosphere in the petrochemical industry.

	,
Brief overview	
Power and voltage range:	0.09 200 kW for all commonly used voltages
Frame sizes and types of construction:	71 315 in all common types of construction
Rated speed:	750 3600 rpm
Number of poles:	2, 4, 6, 8
Efficiency classes:	IE1 (Standard Efficiency)
	• IE2 (High Efficiency)
	• IE3 (Premium Efficiency)
	• IE4 (Super Premium Efficiency)
	NEE (NEMA Energy Efficient, acc. to NEMA MG, Table 12-11)
	 NPE (NEMA Premium Efficient, acc. to NEMA MG, Table 12-12)

Overview (continued)

High efficiency energy-saving motors for a positive energy balance

Depending on requirements, energy-saving motors for a positive energy balance are available that are compliant with the legal requirements applicable in the European economic area in accordance with EU Directive 640/2009 as well as for the North American market in accordance with US federal law EISA (Energy Independence Security Act).

Motors with increased power and compact construction (1LE1)

Motors with increased power and compact construction can be used to advantage in confined spaces. For a slightly longer overall length, the power is at least as high as that of the next largest frame size. These compact motors are also optimized for efficiency. They are offered in IE2 and IE3 and therefore reduce operating costs.

Motors without fan cover and without external fan (1LE1 with order code F90)

Forced-air cooled motors with surface cooling without fan cover and without external fan are mainly used for driving fans.

Motors with reduced power without fan cover and without external fan (1PC1 motors on request)

Naturally cooled motors with surface cooling without fan cover and without external fan are suitable for the following operating conditions:

- Types of duty with adequate cooling times (e.g. temporary duty for positioning drives)
- Environmental conditions that demand compact installation space (e.g. in motors with a stopping function)

Requirements that make an external fan disadvantageous, e.g. simple cleaning in the food industry, textile industry.

Preferred motors

The most popular basic versions of motor series 1LE1 are available under special terms as so-called "Preferred motors".

The complete range is covered by Price List D 81.1 P Part 1 "Preferred motors". The price list also contains further information regarding the new delivery concept.

Benefits

There is considerable potential in the new 1LE1/1PC1 series of low-voltage motors. As a consistent further development of existing motors, the 1LE1/1PC1 motors offer numerous advantages.

Greater efficiency

Innovative rotor technology and manufacturing technology has been implemented for the IE3 and IE4 high efficiency motor variants.

The energy-efficient motors are therefore considerably more compact.

The SinaSave Webtool can be used to calculate the energy saving potential and life cycle costs of all motors. SinaSave can be downloaded free of charge from the following website: www.siemens.com/sinasave

The 1LE1 motors also impress customers with their extremely long life and their weight-optimized design has a positive effect on the stability of the equipment unit.

A wider range of applications

The motors are certified for worldwide use and satisfy high standards of quality (confirmed, for example, by CSA $^{1)}$, UL $^{2)}$, CQC $^{3)}$).

Improved design

The rugged housing in modern EMC design has an attractive appearance and enhances functionality. The rotatable, accessible terminal boxes, integral lifting eyes, screw-on feet and reinforced bearing plates ensure this.

Greater power

For the same frame size, the high-performance motors offer one complete rated power level more. We are also consistently implementing energy efficiency improvements here, too. The motors are offered (based on the categories of IEC 60034-30-1) in various efficiency classes.

More flexibility

The optimized design of the motors makes installation easier in general. Encoders, brakes and separately driven fans can be retrofitted easily. Terminal boxes and feet for flexible mounting can be selected. Smaller inventories make stockkeeping easier and motor suppliers can respond to customer requirements more quickly. Optimized manufacturing processes support fast availability. All motors up to 480 V can be operated either directly on the line or on a converter.

For general purpose applications: SIMOTICS GP motors with an aluminum housing

Particularly user friendly

The previously introduced, well-proven, obliquely partitioned terminal box is being implemented consistently throughout the entire motor series.

Special export line

For exporting to NAFTA, the Eagle Line is available. The motors are supplied with the electrical values stamped on the rating plate in accordance with EISA requirements.

¹⁾ Canadian Standard Association

²⁾ Underwriters Laboratories Inc.

SIMOTICS GP/SD 1LE1/1PC1 standard motors

Benefits (continued)

For severe duty applications: SIMOTICS SD motors with a cast-iron housing

The right motor for various challenges

The following lines are available for severe duty applications:

- Basic Line (1LE15): rugged, reliable motors for machine construction
- Performance Line (1LE16): Motors for the process industry with reinforced bearings and a more rugged coating – for requirements that extend beyond the Basic Line
- "Eagle Line": Motors for exporting to the NAFTA zone; they fulfill the requirements of UL and CSA and are supplied with the electrical values stamped on the rating plate in accordance with EISA requirements

Comparison: Basic Line versus Performance Line

Function	Basic Line	Performance Line
Bearing size	62 (63 from frame size 280 upwards)	63
Relubrication	Optional (standard from frame size 280 upwards)	Standard from frame size 160 upwards (optional for frame size 100 to 132)
Paint system	Standard paint finish, corrosivity category C2 1)	Special paint finish, corrosivity category C3 1)
Drainage	Drain plugs	T drains
Rating plate	Aluminum, plastic	Steel
Motor protection	Optional	PTC
Fan cover	Plastic	Steel
Warranty	12 months	36 months

Compact design

The size of a motor is often an important aspect in the case of machines. For this reason, the 1LE1 motors in IE2 and IE3 are not any longer than their predecessors in the 1LG series in IE2.

Another highlight: some of the IE3 motors fit in the same housing as the IE2 motors. The efficiency classes naturally do not differ with regard to shaft height, so that the mechanical interface to the equipment unit remains the same. This also supports a largely problem-free efficiency upgrade to IE3 – without the need to adapt the mechanical design of a machine.

Greater power

In severe duty applications, motors with increased power can also be the right solution if sufficient space is not available for a standard motor. Because these motors offer the same power rating in the next smallest frame size.

Application

As soon as the range of motors and options is complete, it will be possible to use the 1LE1/1PC1 motors from Siemens in all areas and sectors of industry due to their numerous options. They are suitable both for special environmental conditions such as those that predominate in the chemical or petrochemical industry as well as for most climatic requirements such as those of offshore applications.

Their large range of line voltages enables them to be used all over the world.

The wide field of implementation includes the following applications:

- Pumps
- Fans
- Compressors
- · Conveyor systems such as cranes, belts and lifting gear
- High-bay warehouses
- · Packaging machines
- Automation and drives
- Manufacturing industry
- General machine construction

Motors with a cast-iron housing are particularly suitable for the following severe duty applications:

- Petrochemical industry
- Pharmaceuticals
- Chemical industry
- Printing industry
- · Process industry

¹⁾ See also Chapter 1, pages 1/21 and 1/22

SIMOTICS GP/SD 1LE1/1PC1 standard motors

Technical specifications

Overview of technical specifications

This table lists the most important technical specifications. For more information and details, see Catalog Section 1 "Introduction".

Type of motor	SIMOTICS GP/SD 1LE1/1PC1 IEC Low-Voltage Motors
Connection types	Star/delta connection
N	The connection type to be used can be established from the Article No. supplements for the required motor.
Number of poles	2, 4, 6, 8
Frame sizes	63 M 315 L
Rated power Frequencies	0.09 200 kW (1LE1 motor series)/0.3 9 kW (1PC1 motor series) 50 Hz and 60 Hz
Versions	Self-ventilated 1LE1 energy-saving motors with:
versions	IE1 (Standard Efficiency) IE2 (High Efficiency) IE3 (Premium Efficiency) IE4 (Super Premium Efficiency) NEE (NEMA Energy Efficient, acc. to NEMA MG, Table 12-11) NPE (NEMA Premium Efficient, acc. to NEMA MG, Table 12-12)
	Self-ventilated 1LE1 motors with increased power and: • IE1 (Standard Efficiency) • IE2 (High Efficiency) • IE3 (Premium Efficiency)
	Forced-air cooled 1LE1 motors without external fan and fan cover with: • IE1 (Standard Efficiency) • IE2 (High Efficiency) • IE3 (Premium Efficiency) • IE4 (Super Premium Efficiency)
	Naturally cooled 1PC1 motors without external fan and fan cover with: • IE1 (Standard Efficiency) • IE2 (High Efficiency) • IE3 (Premium Efficiency) • IE4 (Super Premium Efficiency)
Marking	IEC 60034-30-1 IE1, IE2, IE3, IE4: 2, 4, 6, and 8-pole US Energy Independence Security Act EISA: 2, 4, 6 and 8-pole
Rated speed	750 3000 rpm
(synchronous speed)	
Rated torque	0.6 1703 Nm (1LE1 motor series)
Insulation of the stator winding in accordance with EN 60034-1 (IEC 60034-1)	Temperature class 155 (F), utilized acc. to temperature class 130 (B) (also for motors with increased power) DURIGNIT IR 2000 insulation system
Degree of protection according to EN 60034-5 (IEC 60034-5)	IP55 as standard
Cooling according to EN 60034-6 (IEC 60034-6)	 Self-ventilated (IC 411) (1LE1 motor series) frame size 80 M to 315 L Forced-air cooled (IC 418) (1LE1 motor series with order code F90), frame size 80 M to 200 L Naturally cooled (IC 410) (1PC1 motor series) frame size 100 L to 160 L
Permissible coolant temperature and installation altitude	-20 +40 °C as standard, installation altitude up to 1000 m above sea level. See "Coolant temperature and installation altitude" in Catalog Section 1 "Introduction".
Standard voltages	50 Hz: 230 V, 400 V, 500 V, 690 V The voltage to be used can be found in the "Selection and ordering data" for the required mater.
according to EN 60038 (IEC 60038) Type of construction according to EN 60034-7 (IEC 60034-7)	The voltage to be used can be found in the "Selection and ordering data" for the required motor. • Without flange: IM B3, IM B6, IM B7, IM B8, IM V5 without protective cover, IM V6, IM V5 with protective cover. With flange: IM B5, IM V1, IM V3, IM B35. • With flange and special flange (next largest flange): IM B14, IM V19, IM V18, IM B34.
Paint finish Suitability of paint finish for climate group according to IEC 60721, Part 2-1	Standard: Color RAL 7030 stone gray See "Paint finish" in Catalog Section 1 "Introduction".
Vibration severity grade according to EN 60034-14 (IEC 60034-14)	Grade A (normal – without special vibration requirements) Optionally: Grade B (with special vibration requirements) See "Balance and vibration severity" in Catalog Section 1 "Introduction".
Shaft extension according to DIN 748 (IEC 60072)	Balancing type: half-key balancing as standard See "Balance and vibration severity" in Catalog Section 1 "Introduction".
Sound pressure level according to EN ISO 1680 (tolerance +3 dB)	The sound pressure level is listed in the selection and ordering data for the required motor.
Weights	The weight is listed in the selection and ordering data for the required motor.
Modular mounting concept	Rotary pulse encoder, brake, separately driven fan or prepared for mountings
Consistent series concept	 Cast housing feet, screwed-on feet available as an option and retrofittable Terminal box obliquely partitioned and rotatable through 4 x 90° Bearings at DE and NDE are of identical design, reinforced bearings available as an option
Options	See "Article No. supplements and special versions"

More information

For further information, please get in touch with your local Siemens contact and use the DT Configurator.

Contacts: www.siemens.com/automation/partner

DT Configurator: www.siemens.com/dt-configurator

You can find out about certain technologies through Siemens contact partners worldwide.

Wherever possible, you will find a local contact for:

- Technical support
- Spare parts/repairs
- Service
- Training

- Marketing & Sales
- Technical consultation/engineering

You start by selecting a:

- country
- product or
- sector.

By further specifying the remaining criteria you will find exactly the right contact partner with his/her respective expertise.

SIMOTICS GP/SD 1LE1/1PC1 standard motors

Converter operation

Overview

Converter operation up to 500 V +10 % line voltage

See Chapter 1, page 1/32.

During installation, the EMC guidelines must be complied with

Note:

When motors are operated on SINAMICS converters additional losses occur which, depending on the admissible winding temperature, can make it necessary to reduce the torque. The admissible torque values can be obtained from the SIZER configuring tool. The lowest frequency specified there is 5 Hz. For stationary converter operation at lower frequencies, particularly in the case of frame sizes < 100, it is necessary to inquire at the Quotation Center.

Benefits

Motors operating with frequency converters offer the user numerous advantages.

The motors feature the future-oriented insulation system DURIGNIT IR 2000 (IR = Inverter Resistant). The DURIGNIT IR 2000 insulation system consists of high-quality enamel wires and insulating sheet materials in conjunction with temperature-resistant resin impregnation.

Application

The wide field of implementation includes the following applications:

- · Conveyor systems such as cranes, belts and lifting gear
- High-bay warehouses
- Packaging machines
- Automation and drives

Their large range of line voltages enables them to be used all over the world.

Technical specifications

General note

All the data listed in the catalog is applicable for a 50 Hz line supply. With converter operation, the torque reduction factors for constant torque and drives for fans, pumps and compressors must be configured using the "SIZER for Siemens Drives" engineering tool. Higher noise levels must be expected at frequencies other than 50 Hz for motors operating with converters due to the harmonic content of the supply.

Mechanical limit speeds

When the motor is operated above its rated frequency, it is important to note that the maximum speeds are limited by the limits for the roller bearings, critical rotor speed and rigidity of the rotating parts (see page 1/60).

Motor protection

A motor protection function can be implemented using the l^2t sensing capability implemented in the converter software.

If required, more precise motor protection can be afforded by direct temperature measurement using KTY84 sensors, PTC thermistors, or Pt1000 resistance thermometers in the motor winding. Some converters from Siemens determine the motor temperature using the resistance of the temperature sensor. They can be set to a required temperature for alarm and tripping.

Insulation

The insulation of 1LE motors is designed such that converter operation is possible at voltages up to 500 V $^{1)}.$ $\hat{\mathcal{U}}_{phase-to-phase} \leq$ 1500 V, $\hat{\mathcal{U}}_{phase-to-ground} \leq$ 1100 V, voltage rise times of $t_{s} >$ 0.1 μs .

All motors with voltage codes 22 and 34 must be operated on a converter under these conditions. For converter operation with the power ratings specified in the catalog, the motors are used according to temperature class 155 (F), i.e. in this case neither a service factor > 1 nor an increased coolant temperature is possible (order codes N01, N02 and N03 cannot be ordered).

¹⁾ See also IEC 60034-1 Edition 13.0

SIMOTICS GP/SD 1LE1/1PC1 standard motors

Article number code

Selection and ordering data

The article number consists of a combination of digits and letters and is divided into three hyphenated blocks to provide a better overview, e.g.:

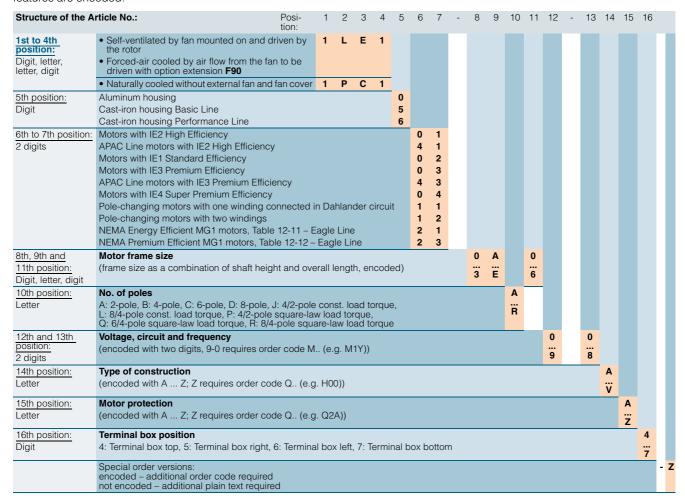
1LE1001-1DB22-2CB5-Z

The first block (positions 1 to 7) identifies the motor type. The second block (positions 8 to 12) defines the motor frame size and length, the number of poles and in some cases the frequency/voltage. In the third block (positions 13 to 16), the frequency/voltage, type of construction and further design features are encoded.

For deviations in the second and third block from the catalog codes either ${\bf Z}$ or ${\bf 90}$ should be used as appropriate.

Ordering data:

- Complete Article No. and order code(s) or plain text
- If a quotation has been requested, please specify the quotation number in addition to the Article No.
- When ordering a complete motor as a spare part, please specify the works serial No. for the previously supplied motor as well as the Article No.



Ordering example

Selection criteria	Requirement	Structure of the Article No.
Motor type 1LE1	Standard motor with IE3 High Efficiency, degree of protection IP55, aluminum housing	1LE1003-
Motor frame size/No. of poles/Speed	160 M/4-pole/1500 rpm	1LE1003-1DB2
Rated power	11 kW	
Voltage and frequency	230 VΔ/400 VY, 50 Hz	1LE1003-1DB22-2
Type of construction with special version	IM V5 with protective cover 1)	1LE1003-1DB22-2C■■-Z H00
Motor protection	1 or 3 PTC thermistors – for tripping (2 terminals)	1LE1003-1DB22-2CB■-Z H00
Terminal box position	Terminal box right (viewed from DE)	1LE1003-1DB22-2CB5-Z H00

Without protective cover as standard – the protective cover is defined with order code H00 and must be ordered in addition to the Article No. with -Z and this order code.

Motors with IE4 Super Premium Efficiency



Self-ventilated or forced-air cooled motors · Aluminum series 1LE1004

Selection and ordering data

	Operating values at rated power Aluminum series																	
D	D	Frame		_				cos-	1	T/	1/	T _B /	1	1	1LE1004	3	mussa	J
rated, 50 Hz/	rated, 60 Hz/	Frame size	n _{ra-} ted	/ _{ra-} ted	$\eta_{ m ra-}$ ted	$\eta_{ ext{ra-}}$ ted	$\eta_{ m ra-}$ ted	Prated.	/ _{ra-} ted	T_{LR}/T_{ra-}	I _{LR} / I _{ra-}	$T_{\rm ra-}$	L _{pfA} , 50 Hz	L _{WA} , 50 Hz	122.001		m _{IM B3}	J
P50	P60		50 Hz	50 Hz		50 Hz,	50 Hz,	50 Hz,	50 Hz,	ted	ted	ted	00112	00112	Article No.			
kW	kW	FS	rpm	Nm	4/4 %	3/4 %	2/4 %	4/4	400 V A	50 Hz	50 Hz	50 Hz	dB(A)	dB(A)			kg	kgm ²
								90 force		oled v	vithout	evter	, ,	. ,	cover (IC 418)		Ng	Kgiii
 Effic 	iency a	accordin	ıg to IÈ	C 6003	34-30: II	E4 Sup	er Pren	nium Eff	iciency	, servi	ce fact	or (SF) 1.15					
				<u> </u>			ss F), I	P55 deg	ree of p	rotect	ion, ut	ilizatio	n in ac	cordanc	e with thermal cla	ss 130 (i	temperatı	ıre class B)
		rpm at 5																
3	3.45	100 L	2920	9.8	89.1	89.8	89.4	0.86	5.7	3.7	9	4.9	62	74	1LE1004-1AA4			0.0054
4	4.55	112 M	2950	13	90	90.4	89.7	0.89	7.2	2.6	8.8	4.1	68	80	1LE1004-1BA2			0.012
5.5	6.3	132 S	2960	18	90.9	90.9	89.8	0.84	10.4	2.1	8.6	4.6	67	84	1LE1004-1CA0			0.024
7.5	8.6	132 S	2955	24	91.7	92.4	92.3	0.91	13	2.2	8.6	4.3	67	80	1LE1004-1CA1			0.031
11	12.6	160 M	2955	36	92.6	92.8	92	0.9	19.1	2.8	8.6	4.2	74	87	1LE1004-1DA2			0.061
15	17.3	160 M	2955	48	93.3	93.5	92.9	0.9	26	3.1	9	4.5	74	87	1LE1004-1DA3			0.068
18.5	21.3	160 L	2955	60	93.7	94.1	93.8	0.91	31.5	3.1	8.9	4.3	74	87	1LE1004-1DA4			0.074
22	24.5	180 M	2950	71	94	94.4	94.1	0.89	38	2.8	8.9	4.3	71	84	1LE1004-1EA2			0.091
30	33.5	200 L	2955	97	94.5	94.8	94.4	0.85	54	2.8	7.9	4	69	83	1LE1004-2AA4			0.13
37	41.5	200 L	2955	120	94.8	95.1	94.9	0.88	64	2.9	7.8	4	69	83	1LE1004-2AA5		214	0.20
_		rpm at 5		•			0.0											20/:
2.2	2.55	100 L	1465	14	89.5	89.6	88.3	0.79	4.5	3.3	8.5	4.7	59	71	1LE1004-1AB4			0.014
3	3.45	100 L	1460	20	90.4	91	90.5	0.81	5.9	3.5	8.8	4.2	59	71	1LE1004-1AB5			0.016
4	4.55	112 M	1465	26	91.1	91.6	91	0.81	7.8	3.1	8.3	4.3	63	75	1LE1004-1BB2			0.020
5.5	6.3	132 S	1470	36	91.9	92.5	92.3	0.83	10.4	2.6	8.3	3.5	56	68	1LE1004-1CB0			0.039
7.5	8.6	132 M	1470	49	92.6	93.1	92.7	0.81	14.4	3	7.7	4	56	68	1LE1004-1CB2			0.046
11	12.6	160 M	1475	71	93.3	93.5	92.9	0.82	21	2.9	8.1	4.1	63	76	1LE1004-1DB2			0.099
15	17.3	160 L	1480	97	93.9	94	93.3	0.8	29	3.7	7.8	4.3	63	76	1LE1004-1DB4			0.11
18.5	21.3	180 M	1470	120	94.2	94.7	94.5	0.81	35	2.7	7.9	3.6	59	72	1LE1004-1EB2			0.17
22	25.3	180 L	1475	142	94.5	95	94.8	0.81	41.5	2.9	7.7	3.8	59	72	1LE1004-1EB4			0.18
30	34.5	200 L	1475	194	94.9	95.2	94.9	0.81	56	3.2	7.3	3.6	60	73	1LE1004-2AB5		205	0.27
Voltag												Ver	sion				Orde	r code
_						k 90° rc	tatable	termina	l box									
		/400 VY			460 VY								ndard		3	2 2	-	
		/690 VY			460 V∆							Sta	ndard		3	3 4	-	
		ages ¹⁾ a		e infori	mation,	see froi	m page	2/85							9	0		
		structio		= - 2)									sion				Orde	r code
	ıt flange	Э		B3 ²⁾									ndard			Α	-	
With fl	0			B5 ²⁾)									onal cha	=	F	-	
With fl	0			B14 ²				,	0.17			Wit	n additi	onal cha	rge	K	_	
			structio	n and	more inf	ormatio	on, see	from pag	je 2/90									
	protec					0.00						Ver	sion				Orde	r code
_		100 L to	200 L:	Use o	the 4	k 90° rc	tatable	termina	ii box			۵.						
Withou				_4									ndard			A	_	
		or with 3				41		6"	20			vvit	n additi	onal cha	rge	В		
				a more	intorma	ation, s	ee trom	page 2/9	9 8									
		positio	n										sion					
	al box					,						Sta	ndard			4		
			positio	ns and	more ir	ntormat	ion, see	from pa	ge 2/10	U							0 :	1 ()
	al versi		,	. ,	"		146)								41 F40C			r code(s)
		oled mot			an/tan co	over (IC	418)								1LE1004			
For op	tions, s	ee from	page 2/	102											1LE1004 ■	-	-2+.	++

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.



Motors with IE4 Super Premium Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1504 Basic Line

Selection and ordering data

	Operating values at rated power Cast-iron series																
	P _{rated,}	Frame	n _{ra-}	T _{ra-}	$\eta_{\text{ra-}}$	η_{ra}	$\eta_{\text{ra-}}$	COS-	I _{ra-}	T_{LR}/T_{ra-}	/ _{LR} /	$T_{\rm B}/T_{\rm ra-}$	L _{pfA} ,	L _{WA} ,	1LE1504 – Basic Line	m _{IM B3}	J
50 Hz/ P50	P60	3120	ted 50 Hz	ted 50 Hz	ted 50 Hz,		ted 50 Hz,		ted 50 Hz,	ted	/ _{ra-} ted 50 Hz	ted	50 HZ	50 Hz	Article No.		
kW	kW	FS	rpm	Nm	4/4 %	3/4 %	2/4 %	4/4	400 V A	50 HZ	50 HZ	50 HZ	dB(A)	dB(A)		kg	kgm ²
• Cool	ing: Se	elf-ventil	ated (IC	411) o	r with o	rder co	de F90	forced-	air coc	led wi	thout	extern	al fan a	and fan	cover (IC 418)		
								um Effic 55 deare						ordanc	e with thermal class 130 (temperati	ure class B
		rpm at 5		<u> </u>	<u>. </u>		,,										
3	3.45	100 L	2920	9.8	89.1	89.8	89.4	0.86	5.7	3.7	9	4.9	62	74	1LE1504-1AA4	38	0.0054
4	4.55	112 M	2950	13	90	90.4	89.7	0.89	7.2	2.6	8.8	4.1	68	80	1LE1504-1BA2	45	0.012
5.5	6.3	132 S	2960	18	90.9	90.9	89.8	0.84	10.4	2.1	8.6	4.6	67	84	1LE1504-1CA0	62	0.024
7.5	8.6	132 S	2955	24	91.7	92.4	92.3	0.91	13	2.2	8.6	4.3	67	80	1LE1504-1CA1		0.031
11	12.6	160 M	2955	36	92.6	92.8	92	0.9	19.1	2.8	8.6	4.2	74	87	1LE1504-1DA2		0.061
15	17.3	160 M	2955	48	93.3	93.5	92.9	0.9	26	3.1	9	4.5	74	87	1LE1504-1DA3		0.068
18.5	21.3	160 L	2955	60	93.7	94.1	93.8	0.91	31.5	3.1	8.9	4.3	74	87	1LE1504-1DA4		0.074
22	24.5	180 M	2950	71	94	94.4	94.1	0.89	38	2.8	8.9	4.3	71	84	1LE1504-1EA2		0.091
30	33.5	200 L	2955	97	94.5	94.8	94.4	0.85	54	2.8	7.9	4	69	83	1LE1504-2AA4		0.13
37	41.5	200 L	2955	120	94.8	95.1	94.9	0.88	64	2.9	7.8	4	69	83	1LE1504-2AA5		0.20
45 55	51	225 M	2970 2978	145 176	95	95 95.2	94.4	0.85	80 95	3.1 2.5	8.8	4.1 3.2	73	86 86	1LE1504-2BA2 - 1LE1504-2CA2 - 1LE150		0.26
75	62 84	250 M			95.3		94.5	0.89	127	2.5	7.5	3.5	73 73	87	1LE1504-2CA2		0.48
90	101	280 S 280 M	2980 2978	240 289	95.6 95.8	95.6 95.9	95.4	0.89	152	2.7	8.4	3.5	77	91	1LE1504-2DA0 - 1LE1504-2DA2 - 1LE1504-2DA2		0.94 1.0
110	123	315 S	2985	352	96	96	95.4	0.89	186	2.6	8.8	3.4	77	91	1LE1504-3AA0		1.4
132	148	315 M	2988	422	96.2	96.2	95.6	0.89	220	3.1	10.5	4	77	91	1LE1504-3AA2		1.9
160	180	315 L	2988	511	96.3	96.3	95.8	0.92	260	3.2	10.3	3.9	78	91	1LE1504-3AA4		2.1
200	224	315 L	2986	640	96.5	96.5	96.1	0.92	325	3.5	10.0	3.9	78	93	1LE1504-3AA5		2.4
Voltag			2000	0.0	00.0	00.0	00.1	0.02	020	0.0		Vers					r code
		/400 VY	60 F	Hz ¹⁾ 46	:0 VY								dard		2 2	- Orde	Code
		/690 VY		tz ¹⁾ 46									dard			_	
		ages and				from pa	age 2/8	8							3 4 9 0		
		struction					J . , .					Vers	ion			Orde	r code
	t flange			33 ³⁾								Stan	dard		A	-	
With fla	ange		IM E	35 ³⁾								With	additio	nal char	rge F	_	
With fla	ange		IM E	35 ³⁾								With	additio	nal char	rge K	_	
For oth	er type	s of cons	struction	and mo	ore info	rmation,	see fr	om page	2/94						•		
Motor	protect	tion										Vers	ion			Orde	r code
Withou	t											Stan	dard		A	-	
PTC th	ermisto	or with 3 t	emperat	ture ser	nsors							With	additio	onal char	rge B	-	
For oth	er moto	or protec	tion and	more ir	nformati	on, see	from p	age 2/99)								
Termin	nal box	position	1									Vers					
	al box a											Stan	dard		4		
			position	s and m	nore info	ormation	n, see f	rom pag	e 2/101								
	al versi																r code(s)
		oled mot			fan cov	er (IC 4	18)								1LE1504 ■-■■■■		
For op	tions, s	ee from p	page 2/1	09											1LE1504 ■-■■■■	-Z+.	++

Note: IE4 motors (2-pole) in frame size 315 do not comply with the vibration values stipulated in IEC 60034-14 when rigidly installed (see also page 1/56).

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE4 Super Premium Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1504 Basic Line

Selection and ordering data (continued)

Operating values at rated power Cast-iron series																			
P _{rated,} 50 Hz/ P50	P _{rated,} 60 Hz/ P60	Frame size	n _{ra-} ted 50 Hz	T _{ra-} ted 50 Hz	Different IE class 60 Hz/P60	ted 50 Hz,				50 Hz,		I _{LR} / I _{ra-} ted	T _B / T _{ra-} ted		L _{WA} , 50 Hz	1LE1504 – Basi	ic Line	m _{IM B3}	J
1-14/	1-34/	50		N.I		4/4	3/4	2/4	4/4		50 Hz	50 Hz	50 Hz		-ID(A)	Article No.		l	12
kW	kW	FS		Nm	\ or with c	%	%	%	and air	A	el mitt	out o	vtorn	. ,	dB(A)	201/0r (IC 419)		kg	kgm ²
• Effic	iency a	ccordin	g to lÉ	C 600	34-30: IE4	l Supe	r Prer	nium l	Efficier	icy, se	rvice	factor	(SF)	1.15		cover (IC 418) e with thermal cla	ss 130 (1	emperati	ıre class B
					om at 60 H		_/ ,		<u> </u>	74.77							, , , ,		
2.2	2.55	100 L	1465	14		89.5	89.6	88.3	0.79	4.5	3.3	8.5	4.7	59	71	1LE1504-1AB4		41	0.014
3	3.45	100 L	1460	20		90.4	91	90.5	0.81	5.9	3.5	8.8	4.2	59	71	1LE1504-1AB5	-	50	0.016
4	4.55	112 M	1465	26		91.1	91.6	91	0.81	7.8	3.1	8.3	4.3	63	75	1LE1504-1BB2	-	58	0.020
5.5	6.3	132 S	1470	36		91.9	92.5	92.3	0.83	10.4	2.6	8.3	3.5	56	68	1LE1504-1CB0	-	77	0.039
7.5	8.6	132 M	1470	49		92.6	93.1	92.7	0.81	14.4	3	7.7	4	56	68	1LE1504-1CB2	-	80	0.046
11	12.6	160 M	1475	71		93.3	93.5	92.9	0.82	21	2.9	8.1	4.1	63	76	1LE1504-1DB2	-	127	0.099
15	17.3	160 L	1480	97		93.9	94	93.3	0.8	29	3.7	7.8	4.3	63	76	1LE1504-1DB4		138	0.11
18.5	21.3	180 M	1470	120		94.2	94.7	94.5	0.81	35	2.7	7.9	3.6	59	72	1LE1504-1EB2	-	187	0.17
22	25.3	180 L	1475	142		94.5	95	94.8	0.81	41.5	2.9	7.7	3.8	59	72	1LE1504-1EB4		192	0.18
30	34.5	200 L	1475	194		94.9	95.2	94.9	0.81	56	3.2	7.3	3.6	60	73	1LE1504-2AB5	-	258	0.27
37	42.5	225 S	1485	238		95.2	95.5	95.2	0.84	67	3.2	8.4	3.2	69	83	1LE1504-2BB0	-	345	0.52
45	52	225 M	1485	289	IE3	95.4	95.7	95.4	0.84	81	3.4	8	3.3	69	83	1LE1504-2BB2	-	415	0.66
55	63	250 M	1486	353		95.7	95.8	95.4	0.86	96	3	8.2	3.3	68	82	1LE1504-2CB2	-	490	1.1
75	86	280 S	1490	481		96	96.1	95.6	0.85	133	3.4	9.2	3.8	69	83	1LE1504-2DB0	-	670	1.7
90	104	280 M	1488	578		96.1	96.3	96.1	0.86	157	3.2	9	3.4	70	84	1LE1504-2DB2		730	2.0
110	127	315 M ⁴	1491	705		96.3	96.4	95.9	0.86	192	3.2	8.6	3.3	73	87	1LE1504-3AB0		910	2.7
132	152	315 M	1491	845		96.4	96.6	96.2	0.87	225	3.3	8.7	3.3	73	87	1LE1504-3AB2		990	3.1
160	184	315 L		1025		96.6	96.7	96.5	0.86	280	3.6	9	3.2	76	90	1LE1504-3AB4			3.7
200	230	315 L	1490	1282		96.7	96.9	96.6	0.86	345	3.8	9.2	3.4	76	90	1LE1504-3AB5		1300	4.4
Voltag	es ²⁾												Versi	on				Orde	r code
50 Hz	230 VA	/400 VY			460 VY								Stan	dard			2 2	-	
50 Hz	400 VΔ	/690 VY	60	Hz ¹⁾	460 V∆								Stan	dard			2 2 3 4 9 0	_	
For oth	ner volta	ages and	more	inform	ation, see	from p	age 2	/88									9 0		
• •		struction		0)									Versi					Orde	r code
	ıt flange	9		B3 ³⁾										dard			Α	-	
With fl	0			B5 ³⁾											nal char	0	F	-	
With fl	•			B5 ³⁾									With	additio	nal char	ge	K	-	
			structio	n and	more info	rmatio	n, see	from p	page 2/	94									
	protec	tion											Versi					Orde	r code
Withou														dard			Α	-	
		or with 3 t					,		0.100				With	additic	nal char	ge	В	-	
				d mor	e informat	ion, se	e from	page	2/99				.,						
		position	1										Versi						
	al box								_	/40 1			Stan	dard			4		
			positio	ns and	d more info	ormati	on, see	e from	page 2	7101								0 :	1 ()
	al versi																		r code(s)
Force	d-air co	oled moto	ors w/c	ext. f	an/fan cov	er (IC	418)									1LE1504	-	-Z F90 +	++

1LE1504- - - -

For options, see from page 2/109

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

⁴⁾ As 315 M version (not the same as 315 S according to EN 50347).



Motors with IE4 Super Premium Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1604 Performance Line

Selection and ordering data

															Cast-iron series		
	,	Frame	n _{ra-}	T_{ra}	$\eta_{\text{ra-}}$	$\eta_{ra ext{-}}$	$\eta_{\text{ra-}}$	COS-	I _{ra-}	T_{LR}	/ _{LR} /	$T_{\rm B}$	$L_{pfA,}$	$L_{WA,}$	1LE1604 – Performance Line	$m_{ m IM~B3}$	J
50 Hz/ P50	60 Hz/ P60	size	ted 50 Hz	ted 50 Hz	ted 50 Hz,	ted 50 Hz,	ted	Prated, 50 Hz,	ted 50 Hz,	/ _{ra-} ted	I _{ra-} ted	I _{ra-} ted	50 Hz	50 Hz			
F30	F00		30112	JU 1 1Z	4/4	3/4	2/4	4/4	400 V		50 Hz				Article No.		
kW	kW	FS	rpm	Nm	%	%	%		Α				` '	dB(A)		kg	kgm ²
• Cool	ling: Se	elf-ventil	ated (IC	411) 0	r with o	rder co	de F90	forcec	l-air co	oled w	ithout	exter	nal fan	and fan	cover (IC 418)		
• Insu	lation:	ccordin Thermal	class 1	55 (tem	-30: I⊑4 iperatui	re class	Fremi F), IP	um ⊑m 55 degr	ciency, ee of p	rotecti	e raci	or (Sr ilizatio	ງ ເ.ເວ on in ac	cordanc	e with thermal class 130 (te	mperatu	re class B)
		rpm at 5															
3	3.45	100 L	2920	9.8	89.1	89.8	89.4	0.86	5.7	3.7	9	4.9	62	74	1LE1604-1AA4	38	0.0054
4	4.55	112 M	2950	13	90	90.4	89.7	0.89	7.2	2.6	8.8	4.1	68	80	1LE1604-1BA2	45	0.012
5.5	6.3	132 S	2960	18	90.9	90.9	89.8	0.84	10.4	2.1	8.6	4.6	67	84	1LE1604-1CA0	62	0.024
7.5	8.6	132 S	2955	24	91.7	92.4	92.3	0.91	13	2.2	8.6	4.3	67	80	1LE1604-1CA1	74	0.031
11	12.6	160 M	2955	36	92.6	92.8	92	0.9	19.1	2.8	8.6	4.2	74	87	1LE1604-1DA2	113	0.061
15	17.3	160 M	2955	48	93.3	93.5	92.9	0.9	26	3.1	9	4.5	74	87	1LE1604-1DA3	130	0.068
18.5	21.3	160 L	2955	60	93.7	94.1	93.8	0.91	31.5	3.1	8.9	4.3	74	87	1LE1604-1DA4		0.074
22	24.5	180 M	2950	71	94	94.4	94.1	0.89	38	2.8	8.9	4.3	71	84	1LE1604-1EA2	175	0.091
30	33.5	200 L	2955	97	94.5	94.8	94.4	0.85	54	2.8	7.9	4	69	83	1LE1604-2AA4	222	0.13
37	41.5	200 L	2955	120	94.8	95.1	94.9	0.88	64	2.9	7.8	4	69	83	1LE1604-2AA5		0.20
45	51	225 M	2970	145	95	95	94.4	0.85	80	3.1	8.8	4.1	73	86	1LE1604-2BA2		0.26
55	62	250 M	2978	176	95.3	95.2	94.5	0.88	95	2.5	7.5	3.2	73	86	1LE1604-2CA2		0.48
75	84	280 S	2980	240	95.6	95.6	95	0.89	127	2.7	8.4	3.5	73	87	1LE1604-2DA0		0.94
90	101	280 M	2978	289	95.8	95.9	95.4	0.89	152	2.7	8.4	3.5	77	91	1LE1604-2DA2		1.0
110	123	315 S	2985	352	96	96	95.3	0.89	186	2.6	8.8	3.4	77	91	1LE1604-3AA0		1.4
132	148	315 M	2988	422	96.2	96.2	95.6	0.9	220	3.1			77	91	1LE1604-3AA2		1.9
160	180	315 L	2988	511	96.3	96.3	95.8	0.92	260	3.2	10.3	3.9	78	91	1LE1604-3AA4		2.1
200	224	315 L	2986	640	96.5	96.5	96.1	0.92	325	3.5	10	3.9	78	93	1LE1604-3AA5	1180	2.4
Voltag				4)									sion			Order	code
		/400 VY		Hz ¹⁾ 46									ndard		2 2 3 4 9 0	-	
		/690 VY		Hz ¹⁾ 46				_				Sta	ndard		3 4	_	
		ages and		tormation	on, see	from pa	ige 2/8	8							9 0		
		structio		20 3)									sion .			Order	code
	ıt flange	9		33 ³⁾ 35 ³⁾									ndard		A	-	
With fla	•			35 ³⁾										onal cha	•	_	
With fla	0	6							- 0/04			VVIII	n additi	onal cha	arge	_	
		s of cons	struction	and mo	ore infor	mation,	see fro	om pag	e 2/94			1/0*	sion			Order	codo
	protect		omnors	uro oca	noro								sion		В	Order	code
		or with 3 to or protec				on 000	from n	200 210	IQ.			Sta	iidard		В		
		position		more if	normati	on, see	ποιπιρ	aye 2/S	3			Vor	sion				
	al box	•	•										ndard		4		
		inal box	nosition	s and m	nore info	ormation	n see f	rom na	ne 2/10	1		Sta	iiuaiu		4		
	al versi		POSITION	o anu II	IOI G II II C	mation	1, 300 1	ισιιι μαί	gC 2/ 10							Order	code(s)
		oled mote	ors w/o e	ext fan	fan cov	er (IC 4	18)								1LE1604 ■-■■■■		` '
		ee from p			1011 00V	0. (10 4	10)								1LE1604		
, or op	110110, 31	oo nom p	Jugo 2/1														

Note: IE4 motors (2-pole) in frame size 315 do not comply with the vibration values stipulated in IEC 60034-14 when rigidly installed (see also page 1/56).

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE4 Super Premium Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1604 Performance Line

Selection and ordering data (continued)

			Opera	ating v	alues at ra	ated p	ower									Cast-iron series		
		Frame	n _{ra-}	$T_{\rm ra-}$	Different		$\eta_{\text{ra-}}$	$\eta_{\text{ra-}}$	COS-	I _{ra-}	T_{LR}	/ _{LR} /	$T_{\rm B}/$	$L_{pfA,}$		1LE1604 -	m _{IM B3}	J
50 Hz/ P50	60 Hz/ P60	size	ted	ted	IE class 60 Hz/P60		ted	ted	Prated,		I _{ra-}	I _{ra-}	I _{ra-} ted	50 Hz	50 Hz	Performance Line		
P50	P60		50 HZ	50 HZ	60 HZ/P60	50 HZ, 4/4	3/4	2/4	50 HZ, 4/4			ted 50 Hz				Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)) dB(A)		kg	kgm ²
• Coo	ling: Se	elf-ventila			or with o	rder c	ode F	90 for	ced-air		d with	nout e	xterna	. ,	,	cover (IC 418)	<u> </u>	9
 Effic 	iency a	according	g to lÉ	C 600	34-30: IE4	Supe	r Pren	nium I	Efficier	icy, se	ervice	factor	(SF)	1.15		e with thermal class 130 (t	omporati	ıra alaaa B)
				<u> </u>	om at 60 h		ъ г), і	F33 u	egree (л рго	ectioi	i, utiliz	zation	III acc	Jordanice	e with thermal class 130 (t	епірегац	ile class b)
2.2	2.55	100 L	1465		Jili at 00 i		89.6	88.3	0.79	4.5	3.3	8.5	4.7	59	71	1LE1604-1AB4	41	0.014
3	3.45	100 L	1460			90.4			0.81	5.9	3.5	8.8	4.2	59	71	1LE1604-1AB5		0.016
4	4.55	112 M	1465			91.1	91.6	91	0.81	7.8	3.1	8.3	4.3	63	75	1LE1604-1BB2		0.020
5.5	6.3	132 S	1470	36		91.9	92.5	92.3	0.83	10.4	2.6	8.3	3.5	56	68	1LE1604-1CB0 -	77	0.039
7.5	8.6	132 M	1470	49		92.6	93.1	92.7	0.81	14.4	3	7.7	4	56	68	1LE1604-1CB2	80	0.046
11	12.6	160 M	1475	71		93.3	93.5	92.9	0.82	21	2.9	8.1	4.1	63	76	1LE1604-1DB2	127	0.099
15	17.3	160 L	1480	97		93.9	94	93.3	0.8	29	3.7	7.8	4.3	63	76	1LE1604-1DB4	138	0.11
18.5	21.3	180 M	1470	120		94.2	94.7	94.5	0.81	35	2.7	7.9	3.6	59	72	1LE1604-1EB2 -	187	0.17
22	25.3	180 L	1475	142		94.5	95	94.8	0.81	41.5	2.9	7.7	3.8	59	72	1LE1604-1EB4	192	0.18
30	34.5	200 L	1475	194		94.9	95.2	94.9	0.81	56	3.2	7.3	3.6	60	73	1LE1604-2AB5	258	0.27
37	42.5	225 S	1485	238		95.2	95.5	95.2	0.84	67	3.2	8.4	3.2	69	83	1LE1604-2BB0 -	345	0.52
45	52	225 M	1485	289	IE3	95.4	95.7	95.4	0.84	81	3.4	8	3.3	69	83	1LE1604-2BB2	415	0.66
55	63	250 M	1486	353		95.7	95.8	95.4	0.86	96	3	8.2	3.3	68	82	1LE1604-2CB2	490	1.1
75	86	280 S	1490			96	96.1	95.6	0.85	133	3.4	9.2	3.8	69	83	1LE1604-2DB0		1.7
90	104	280 M	1488			96.1	96.3	96.1	0.86	157	3.2	9	3.4	70	84	1LE1604-2DB2		2.0
110	127	315 M ⁴⁾		705		96.3	96.4	95.9	0.86	192	3.2	8.6	3.3	73	87	1LE1604-3AB0 -		2.7
132	152	315 M	1491	845		96.4	96.6	96.2	0.87	225	3.3	8.7	3.3	73	87	1LE1604-3AB2		3.1
160	184	315 L	1490	1025		96.6	96.7	96.5	0.86	280	3.6	9	3.2	76	90	1LE1604-3AB4		3.7
200	230	315 L	1490	1282		96.7	96.9	96.6	0.86	345	3.8	9.2	3.4	76	90	1LE1604-3AB5	1300	4.4
Voltag				41									Versi				Orde	r code
		/400 VY			460 VY								Stan			2 2	-	
		/690 VY			460 V∆								Stan	dard		3 4 9 0	-	
				nform	ation, see	from p	age 2	/88								9 0		
		struction		Do 3)									Versi				Orde	r code
	ıt flange	9		B3 ³⁾									Stan			A	_	
With fl	0			B5 ³⁾											nal char	O .	_	
With fla	0	o of		B5 ³⁾	mane laf	una e ti :		from		0.4			vvitn	additio	nal char	ge K	_	
			iructio	n and	more info	rmatioi	ı, see	irom p	age 2/	94			Versi	on			Ordo	r oodo
	protec	tion or with 3 to	ompor	aturo 1	encore								Stan			В	Orde	r code
					sensors e informati	ion eo	a from	nago	2/00				Jian	uaiu				
		position		u mon	- miorridli	ion, se	e nom	page	2/33				Versi	on				
	al box	•											Stan					
			nositio	ns and	d more info	ormatic	n see	from	nage 2	/101			Jian	uaiu		4		
	al versi		positio	iio alii		Jiiiall), 3CC	HOIII	page 2	, 101							Orde	r code(s)
•			ors w/o	ext f	an/fan cov	er (IC	418)									1LE1604		(-)
		ee from p			an, ian 60v	0, (10	110)									1LE1604		
, or op	110110, 3	oo nom p	age 2/	100													- · · · · · ·	

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and

Parallel supply lines are required in the case of connection to \leq 240 V. For frame size 315 with connection to \leq 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

⁴⁾ As 315 M version (not the same as 315 S according to EN 50347).



Motors with IE3 Premium Efficiency

Self-ventilated motors · Aluminum series 1LE1003

Selection and ordering data

			Opera	otina :	aluga at ra	atod no	owor									Aluminum parios		
		Fue			alues at ra					,	T /	, ,	T /	,	,	Aluminum series 1LE1003		,
P _{rated,} 50 Hz/ P50		Frame size	ted	I _{ra-} ted 50 Hz	Different IE class 60 Hz/P60	ted	$\eta_{\text{ra-}}$ ted 50 Hz,	$\eta_{\text{ra-}}$ ted 50 Hz,	COS- Prated, 50 Hz,	I _{ra} - ted 50 Hz,	T_{LR}/T_{ra-} ted	I _{LR} / I _{ra-} ted	$T_{\rm B}/T_{\rm ra-}$ ted	L _{pfA} , 50 Hz	L _{WA} , 50 Hz	1221003	m _{IM B3}	J
	1)					4/4	3/4	2/4	4/4	400 V	50 Hz	50 Hz	50 Hz			Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)	dB(A)		kg	kgm ²
														al fan a	and fan	cover (IC 418)		
• Effic • Insul	ency a ation:	iccordin Therma	ig to it I class	: 155 (034-30: IE temperatı	ವ Prer ure cla	nium i iss F).	ETTICIE IP55 d	ncy, se learee (rvice to of prot	actor ectior	(SF) I 1. utili	. 15 zatior	in acc	ordano	ce with thermal class 130	(temperat	ure class
					pm at 60		,,		- 3			,						
0.75	0.86	80 M				80.7	82.2	81.9	0.86	1.56	2.6	6.2	3	60	71	1LE1003-0DA2	1 1	0.001
1.1	1.27	80 M	2885	3.6		82.7	83.9	83.1	0.85	2.25	3	7.1	3.3	60	71	1LE1003-0DA3	1 2	0.001
1.5	1.75	90 S	2910	4.9		84.2	84.6	83.2	0.86	3	2.7	8.1	4.2	65	77	1LE1003-0EA0	1 5	0.002
2.2	2.55	90 L	2910	7.2		85.9	86.8	86.1	0.88	4.2	2.6	8.3	4	65	77	1LE1003-0EA4	1 9	0.003
3	3.45	100 L	2920	9.8	IE2	87.1	88	87.5	0.88	5.6	2.8	8	4.3	67	79	1LE1003-1AA4	2 6	0.005
4	4.55	112 M	2945	13	IE2	88.1	89.1	88.7	0.9	7.3	1.8	8.2	3.5	69	81	1LE1003-1BA2	3 4	0.012
5.5	6.3	132 S	2950	17.8		89.2	90	89.7	0.9	9.9	1.8	7.4	3.6	68	80	1LE1003-1CA0	4 3	0.024
7.5	8.6	132 S	2950	24.5		90.1	91	91	0.92	13.1	1.9	8.3	3.9	68	80	1LE1003-1CA1	5 7	0.031
11	12.6	160 M	2955	35.5		91.2	91	89.5	0.89	19.6	2.4	7.9	3.8	70	82	1LE1003-1DA2	75	0.053
15	17.3	160 M	2960	48.5		91.9	92.1	91.2	0.87	27	2.7	8.7	4.3	70	82	1LE1003-1DA3	84	0.061
18.5	21.3	160 L	2955	60		92.4	92.8	92.4	0.9	32	2.8	9	4.2	70	82	1LE1003-1DA4	9 4	0.068
22	24.5	180 M	2950	71		92.7	93.2	92.9	0.89	38.5	2.3	7.5	3.5	67	80	1LE1003-1EA2	1 22	0.08
30	33.5	200 L	2955	97		93.3	93.5	92.9	0.87	53	2.5	7	3.3	67	80	1LE1003-2AA4	1 73	0.134
37	41.5	200 L	2955	120		93.7	94.2	94	0.88	65	2.5	7.1	3.2	67	80	1LE1003-2AA5	1 94	0.158
Voltag	es												Vers	ion			Orc	ler code
50 Hz :	230 VΔ/	400 VY	6	0 Hz ¹⁾	460 VY								Star	ndard		2 2	_	
50 Hz 4	400 VΔ/	690 VY	6	0 Hz ¹⁾	460 VΔ								Star	ndard		2 2 3 4	-	
50 Hz :	500 VY												With	out add	ditional	charge 2 7	-	
50 Hz :	500 VΔ												With	out add	ditional		-	
For oth	er volta	iges ¹⁾ a	ınd mo	re info	rmation, s	ee froi	m page	e 2/85								9 0		
Types	of cons	structio											Vers	ion			Orc	ler code
Withou	t flange)		и вз ^з									Star	ndard		Α	-	
With fla	ange			и В5 ³									With	additio	onal cha	arge F	-	
With fla	ange		IN	Л B14	3)								With	additio	onal cha	arge K	-	
For oth	er type	s of con	struction	on and	d more info	ormatio	on, see	from	page 2/	90								
Motor	protect	tion											Vers	ion			Orc	ler code
Withou	t												Star	ndard		A	_	
					ture sens	,				100 to 2	200)		With	additio	onal cha	arge	_	
				nd mo	re informa	tion, s	ee fron	n page	2/98									
Termir	al box	positio	n										Vers					
	al box a	•											Star	ndard			4	
For oth	er term	inal box	position	ons ar	nd more in	format	ion, se	e from	page 2	2/100								
Specia	l versi	ons																ler code(
For ont	ions se	ee from	page 2	2/102												1LE1003 ■-■■■	■ -Z	++4

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

For converter operation of shaft heights 80 and 90, ordering with PTC thermistors and their connection to the converter is recommended.

³⁾ Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

Motors with IE3 Premium Efficiency



Self-ventilated motors · Aluminum series 1LE1003

Selection and ordering data (continued)

																A l		
_	_	F								,	T .	, ,	T /	,	,			,
		Frame size			Different IE class	$\eta_{ra ext{-}}$										ILE 1003	m _{IM B3}	J
50 Hz/ P50	60 Hz/ P60	3120	ted 50 Hz	ted 50 Hz	60 Hz/P60		ted 50 Hz	ted 50 Hz	Prated,		I _{ra-}	l _{ra-} ted	/ _{ra-} ted	50 Hz	50 Hz			
1 30	P60 1)		50112	50112	00 1 12/1 00	4/4	3/4	2/4	4/4	400 V			50 Hz			Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)	dB(A)		kg	kgm ²
Cool	ing: Se	lf-ventil	ated (IC 411) or with	order	code l	90 fo	rced-ai	r coole	ed wit	hout e	extern	al fan	and fan	cover (IC 418)		
• Effic	iency a	ccordin	g to li	EC 600	34-30: IE	3 Prei	nium I	Efficie	ncy, se	ervice	actor	(SF)	1.15	. i		ce with thermal class 130	(h a wa wa a wa (uwa alaaa
							iss r),	IP55 C	iegree	oi proi	ectioi	ı, uılı	zalioi	ı ın ac	cordand	ce with thermal class 130	(tempera	lure class
					pm at 60		01.1	70.0	0.70	1.00	0.1	F 0	0.1	F0	0.4	41 E4000 0DD0		0.0001
0.55 0.75	0.63	80 M 80 M	1440 1450	3.6 4.9		80.8 82.5	81.1	79.3 79.9	0.78	1.26	2.1	5.9 7.1	3.1	53 53	64 64	1LE1003-0DB2		0.0021
															-			
1.1	1.27	90 S	1440	7.3		84.1	84.7	83.4	0.78	2.4	2.9	6.9	3.6	56	68 68	1LE1003-0EB0		0.0036
1.5	1.75	90 L	1445	10	IFO	85.3	85.9	84.9	0.8	3.15	2.7	7.2	3.6	56		1LE1003-0EB4		0.0049
2.2	2.55	100 L	1465	14.3	IE2	86.7	87.3	86.4	0.83	4.4	2.1	7.6	3.6	60	72	1LE1003-1AB4		0.014
4	3.45	100 L	1460	20		87.7	88.4	88.2	0.83	5.9	2.3	7.3	3.7	60	72 70	1LE1003-1AB5		0.014
	4.55	112 M	1460	26	IFO	88.6	89.2	88.6	0.82	7.9	2.4	7.1	3.7	58	-	1LE1003-1BB2		0.017
5.5	6.3	132 S	1470	36	IE2	89.6	90.1	89.5	0.84	10.5	2.1	7.2	3.4	64	76	1LE1003-1CB0		0.046
7.5	8.6	132 M	1470	49	IE2	90.4	91.1	90.8	0.84	14.3	2.4	7.4	3.5	64	76	1LE1003-1CB2		0.046
11	12.6	160 M	1475	71		91.4	91.9	91.4	0.84	20.5	2.2	6.8	3.2	65	77	1LE1003-1DB2		0.083
15	17.3	160 L	1475	97		92.1		91.5	0.82	28.5	2.5	8.5	3.8	65	77	1LE1003-1DB4		0.099
18.5	21.3	180 M		120		92.6	93.1	92.9	0.82	35	2.5	7.2	3.3	66	73	1LE1003-1EB2		0.13
22	25.3	180 L	1470	143	150	93	93.7	93.6	0.83	41	2.3	6.8	3.3	68	75	1LE1003-1EB4		0.14
30	34.5	200 L	1470	195	IE2	93.6	94	93.7	0.84	55	2.6	7.3	3.1	65	72	1LE1003-2AB5	189	0.22
Voltag	es												Vers	ion			Orc	der code
50 Hz	230 VΔ/	400 VY			460 VY								Stan	ndard		2 2	_	
	400 VΔ/	690 VY	60) Hz ¹⁾	460 V∆								Stan	ndard		3 4	-	
50 Hz	500 VY												With	out ad	ditional		_	
	500 V∆												With	out ad	ditional	O .	_	
For oth	er volta	iges ¹⁾ a	nd mo	re info	rmation, s	ee fro	m pag	e 2/85								9 0		
Types	of cons	structio	n										Vers	ion			Orc	der code
Withou	it flange	:	IN	1 B3 ³⁾									Stan	ndard		A	-	
With fla	ange		IN	1 B5 ³⁾									With	addition	onal cha	arge F	-	
With fla	ange		IN	лВ14 ³	3)								With	additio	onal cha	arge K	_	
For oth	er type	s of con	struction	on and	I more info	ormatio	on, see	from	page 2	/90								
Motor	protect	tion											Vers	ion			Orc	der code
Withou	it												Stan	ndard		A	-	
PTC th	ermisto	r with 1	or 3 te	mpera	ture senso	ors (fra	ame siz	zes 80	, 90 or	100 to	200)		With	additio	onal cha	arge B	_	
					e informa	•					,							
		position											Vers	ion				
	al box a	•											Stan	ndard			4	
			positio	ons an	d more int	format	ion, se	e from	page	2/100								
	al versio						, , , ,		,								Orc	der code(s

1LE1003- ■-■■■■-Z . . . +. . . +. . . +. .

For options, see from page 2/102

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

²⁾ For converter operation of shaft heights 80 and 90, ordering with PTC thermistors and their connection to the converter is recommended.

³⁾ Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.



Motors with IE3 Premium Efficiency

Self-ventilated motors · Aluminum series 1LE1003

Selection and ordering data (continued)

			Oper	ating v	alues at r	ated p	ower									Aluminum serie	S		
P _{rated} .	P _{rated} .	Frame	n _{ra-}	T _{ra-}	Different	η_{ra}	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{B}/$	$L_{pfA,}$	L _{WA} .	1LE1003		m _{IM B3}	J
50 Hz/	60 Hz	size	ted	ted	IE class	ted	ted	ted	$\varphi_{\text{rated},}$	ted	T_{ra}	I _{ra-}	$T_{\rm ra-}$	50 Hz	50 Hz			50	
P50	/P60 1)		50 Hz	50 Hz	60 Hz/P60	50 Hz, 4/4	50 Hz, 3/4	50 Hz, 2/4	50 Hz, 4/4	50 Hz, 400 V		ted 50 Hz	ted 50 Hz			Article No.			
kW	kW	FS	rpm	Nm		%	%	%	7/-7	Α	00112	00112	00112		dB(A)	Article No.		kg	kgm ²
					1) or with				rced-ai		d with	nout e	xtern	. ,	. ,	cover (IC 418)		ng	Rgiii
• Effic	iency a	ccordi	ng to I	EC 60	034-30: IE	3 Pre	mium	Efficie	ency, se	rvice f	actor	(SF)	1.15			e with thermal clas			
							ass F)	, IP55 I	aegree	or prot	ection	ı, utılı	zatior	ı ın ac	cordanc	e with thermal clas	ss 130 (t	emperat	ure class B)
0.37	0.43	rpm at : 80 M	940	3.8	rpm at 60	73.5	73.1	69.4	0.66	1.1	2.3	4.2	2.7	42	53	1LE1003-0DC2		10	0.0025
0.55	0.43	80 M	935	5.6		77.2	77	73.9	0.67	1.53	2.5	4.5	2.8	42	53	1LE1003-0DC2			0.0023
0.75	0.86	90 S	945	7.6		78.9	80	78.8	0.7	1.96	2.2	4.6	2.6	43	55	1LE1003-0EC0			0.004
1.1	1.27	90 L	940	11	IE1	81	82	80.5	0.69	2.85	2.3	4.6	2.7	43	55	1LE1003-0EC4			0.0048
1.5	1.75	100 M		14.8	IE2	82.5	83.1	81.5	0.73	3.6	1.9	5.2	2.8	59	71	1LE1003-1AC4			0.011
2.2	2.55	112 M	970	22	IE2	84.3	85	83.9	0.75	5	2.2	5.6	2.8	65	74	1LE1003-1BC2			0.017
3	3.45	132 S	975	30	IE2	85.6	86.9	86.6	0.77	6.6	1.6	5.3	2.4	63	75	1LE1003-1CC0			0.029
4	4.55	132 M	975	39	IE2	86.8	88	87.8	0.77	8.6	1.7	5.6	2.5	63	75	1LE1003-1CC2	-	52	0.037
5.5	6.3	132 M	975	54	IE2	88	89.1	88.8	0.77	11.7	1.8	5.7	2.6	63	75	1LE1003-1CC3	-	64	0.046
7.5	8.6	160 M	980	73	IE2	89.1	90.1	89.7	0.76	16	1.9	4.9	2.3	67	79	1LE1003-1DC2	-	93	0.098
11	12.6	160 L	975	108	IE2	90.3	91.2	90.8	0.77	23	1.9	5	2.3	67	79	1LE1003-1DC4		115	0.12
15	18	180 L	975	147	IE2	91.2	92	91.9	0.8	29.5	2.3	5.9	2.8	61	68	1LE1003-1EC4		130	0.19
18.5	22	200 L	978	181	IE2	91.7	92.5	92.4	0.79	37	2.5	5.6	2.6	64	71	1LE1003-2AC4		166	0.28
22	26.5	200 L	978	215	IE2	92.2	93.1	93.2	0.79	43.5	2.5	5.6	2.6	61	68	1LE1003-2AC5		179	0.32
					m at 60 H														
2.2	2.55		725	29		81.9	82.9	81.8	0.63	6.2	1.4	3.6	1.8	64	77	1LE1003-1CD0			0.038
3	3.45	132 M	725	40		83.5	84.2	82.7	0.61	8.5	1.5	3.8	2	64	77	1LE1003-1CD2			0.048
4	4.55	160 M		52		84.8	85.6	84.5	0.66	10.3	1.6	3.6	1.8	65	78	1LE1003-1DD2			0.065
5.5	6.3	160 M	730	72		86.2	86.9	85.7	0.66	14	1.6	3.8	1.9	65	78	1LE1003-1DD3			0.083
7.5 11	8.6 13.2	160 L 180 L	728 725	98 145		87.3 88.6	88.2 89.7	87.7 89.6	0.65	19.1 24	1.6	3.8 5.1	1.9	65 61	78 74	1LE1003-1DD4 1LE1003-1ED4			0.116 0.267
15	18	200 L	730	196		89.6	90.1	89.4	0.74	33.5	3	6.8	3.7	57	70	1LE1003-1ED4			0.420
		200 L	730	130		03.0	30.1	03.4	0.75	00.0	3	0.0		-	70	TEE 1003-2AD3			
Voltag		/400 VY	6	:∩ ⊔ - 1) 460 VY								Vers	dard			2 2	Ord	er code
		/400 V 1 /690 VY	_) 460 VΔ									idard		2			
	500 VY	7030 V I		00 1 12	400 VA										ditional c	charge 2	7		
	500 VΛ														ditional c			_	
		ages 1) a	and mo	ore info	ormation,	see fro	m pac	ie 2/85	5							charge 4	0 0		
		structio			,		1- 4-5						Vers	ion				Ord	er code
Withou	ıt flange	Э	I	м вз ^з	3)								Stan	dard			A	-	
With fla	ange		- 1	М В5 ³	3)								With	additio	nal cha	rge	F	-	
With fl	ange		- 1	M B14	3)								With	additio	nal cha	rge	K	_	
For oth	ner type	s of cor	nstruct	ion and	d more inf	ormati	on, se	e from	page 2	/90									
Motor	protec	tion											Vers					Ord	er code
Withou														dard			A	-	
					ature sens	•				100 to	200)		With	additio	onal chai	rge	В	_	
				nd mo	re informa	ition, s	ee fro	m pag	e 2/98										
		positio	n										Vers						
	al box a						e.	,		0/466			Stan	dard			4		
			c posit	ions ar	nd more in	torma	tion, se	ee fron	n page :	2/100								0	1. ()
	al versi			0/100												41 E4000			er code(s)
For op	tions, s	ee from	page	2/109												1LE1003	-	-2	++

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

²⁾ For converter operation of shaft heights 80 and 90, ordering with PTC thermistors and their connection to the converter is recommended.

³⁾ Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

Motors with IE3 Premium Efficiency



Self-ventilated motors · Aluminum series 1LE1003 with increased power

Selection and ordering data

			Oper	ating v	alues at r	ated p	ower									Aluminum series		
		Frame		$T_{\rm ra-}$	Different	$\eta_{\text{ra-}}$	$\eta_{\text{ra-}}$	$\eta_{\text{ra-}}$	COS-	I _{ra-}		/ _{LR} /	$T_{\rm B}/$	$L_{pfA,}$	$L_{WA,}$	1LE1003	m _{IM B3}	₃ J
50 Hz/ P50	60 Hz/ P60	size	ted 50 Hz	ted 50 Hz	IE class 60 Hz/P60		ted 50 Hz	ted 50 Hz	Prated, 50 Hz	ted 50 Hz,	I _{ra-} ted	I _{ra-} ted	/ _{ra-} ted	50 Hz	50 Hz			
. 00			00112	00112	00 1 12/1 00	4/4	3/4	2/4	4/4		50 Hz					Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)	dB(A)		kg	kgm ²
• Cool	ing: Se	lf-ventil	ated (IC 411) or with 034-30: IE	order	code l	F90 fo	rced-ai	r coole	d with	nout e	xtern	al fan	and fan	cover (IC 418)		
• Insu	lation:	Thermal	l class	155 (t	temperati	ire cla	iss F),	IP55 c	legree	of prot	ection	(ອເ) ເ າ, utili	zatior	n in acc	cordano	ce with thermal class 130 (empera	ature class B)
2-pole	: 3000 r	pm at 5	0 Hz,	3600 r	pm at 60	Hz ¹⁾												
11	12.6	132 M	2955	36		91.2	91.9	91.8	0.86	20	2.4	8.8	4.5	68	80	1LE1003-1CA6	57	0.031
22	25.3	160 L	2950	71		92.7	93.4	93.3	0.91	37.5	2.8	8.7	4	70	82	1LE1003-1DA6	105	0.077
30	33.5	180 L	2950	97		93.3	93.9	93.9	0.88	53	2.6	8.6	3.9	67	80	1LE1003-1EA6	140	0.094
45	51	200 L				94	94.3	94	0.87	79	2.5	7.1	3.2	77	84	1LE1003-2AA6	194	0.16
4-pole	: 1500 r	pm at 5	0 Hz,	1800 r	pm at 60	Hz ¹⁾												
11	12.6	132	1470			91.4	91.9	91.5	8.0	21.5	2.6	7.7	3.6	64	76	1LE1003-1CB6	81	0.049
18.5	21.3	160 L			IE2		94.2	94.1	0.79	59	2.8	7.8	3.7	68	75	1LE1003-1DB6	110	0.101
30	34.5	180 L				93.9	94.3	94.2	0.81	70	3.1	8.1	3.5	65	72	1LE1003-1EB6	154	0.173
37	42.5	200 L				92.6	92.4	91.1	0.76	38	2.8	8.3	4	65	74	1LE1003-2AB6	205	0.275
6-pole	: 1000 r	pm at 5	0 Hz,	1200 r	pm at 60	Hz 1)												
18.5	22	180 L	975	181		91.7	92.3	91.9	0.77	38	2.6	6.9	3.3	68	80	1LE1003-1EC6	150	0.247
30	36	200 L	978	293	IE2	92.9	93.7	93.7	0.79	59	2.8	6.5	2.8	61	68	1LE1003-2AC6	220	0.434
Voltag	es												Versi	ion			Or	der code
50 Hz	230 VΔ/-	400 VY	-		⁾ 460 VY								Stan	dard		2 2	-	
50 Hz	400 V∆/	690 VY	6	0 Hz ¹	⁾ 460 V∆								Stan	dard		3 4	-	
50 Hz	500 VY												With	out add	ditional d	O O	-	
50 Hz													With	out add	ditional d		_	
For oth	er volta	ges 1) a	nd mo	re info	rmation, s	ee fro	m pag	e 2/85								9 0		
		tructio											Versi				Or	der code
	t flange			И ВЗ ²									Stan	dard		Α	_	
With fla				И В5 ²									With	additio	nal cha	arge F	_	
			structi	on and	d more info	ormatio	on, see	from	page 2	/90								
	protect	ion											Versi				Or	der code
Withou														dard		A	-	
					sensors								With	additio	nal cha	arge B	-	
				nd mo	re informa	tion, s	ee fror	n page	2/98									
		positio	n										Versi					
	al box a												Stan	dard			1	
			positi	ons an	d more in	format	ion, se	e from	page 2	2/100								
•	al version																	rder code(s)
For op	tions, se	e from p	page 2	2/102												1LE1003 ■-■■■	-Z	.+++

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.



Motors with IE3 Premium Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1503 Basic Line

Selection and ordering data

			Opera	atina v	alues at ra	ated no	ower									Cast-iron series			
P	P	Frame		$T_{\rm ra-}$	Different			n	cos-	l	T _{LR} /	I _{LR} /	$T_{B}/$	1-40	L _{WA} .	1LE1503 – Basic	Line	m _{IM B3}	J
rated, 50 Hz/			ted	ra- ted	IE class	ted	$\eta_{ ext{ra-}}$ ted	$\eta_{ ext{ra-}}$ ted	φ_{rated}	I _{ra-} ted	$T_{\rm ra}$	I _{ra-}	$T_{\rm ra}$	L _{pfA} , 50 Hz	50 Hz			WIM B3	U
	P60 1)		50 Hz		60 Hz/P60	50 Hz	, 50 Hz,	50 Hz,	, 50 Hz,	50 Hz,	ted	ted	ted						
	•					4/4	3/4	2/4	4/4		50 Hz	50 Hz	50 Hz			Article No.			2
	kW	FS	rpm	Nm		%	%	%		Α				\ /	dB(A)			kg	kgm ²
 Cool 	ing: Se	elf-venti	lated (I	C 411) or with ()34-30: IE	order (code F	90 for	rced-ai	r cool	ed wit	thout	exter	nal fan	and fai	n cover (IC 418)			
• Insul	ation:	Therma	l class	155 (t	emperati	ire cla	ss F),	IP55 d	legree	of pro	tectio	n, uti	lizatio	on in ac	ccordan	ce with thermal cla	ss 130	(tempera	ture class E
2-pole:	3000	rpm at s	50 Hz, 3	3600 r	pm at 60	Hz ¹⁾													
	0.43	71 M	2850	1.2			73.3	69.7	0.76	0.95	3.5	5.8	3.5	52	63	1LE1503-0CA2	-	13	0.00045
0.55	0.63	71 M	2850	1.8		77.8	77.5	74.5	0.76	1.34	3.7	6.1	3.7	57	68	1LE1503-0CA3	-	15	0.00056
0.75	0.86	80 M	2850	2.5		80.7	82.2	81.9	0.86	1.56	2.6	6.2	3	60	71	1LE1503-0DA2	-	18	0.0011
1.1	1.27	80 M	2885	3.6		82.7	83.9	83.1	0.85	2.25	3	7.1	3.3	60	71	1LE1503-0DA3	-	21	0.0013
1.5	1.75	90 S	2910	4.9		84.2	84.6	83.2	0.86	3	2.7	8.1	4.2	65	77	1LE1503-0EA0	-	26	0.0021
2.2	2.55	90 L	2910	7.2		85.9	86.8	86.1	0.88	4.2	2.6	8.3	4	65	77	1LE1503-0EA4		32	0.0031
3	3.45	100 L	2920	9.8	IE2	87.1	88	87.5	0.88	5.6	2.8	8	4.3	67	79	1LE1503-1AA4		36	0.0054
4	4.55	112 M	2945	13	IE2	88.1	89.1	88.7	0.9	7.3	1.8	8.2	3.5	69	81	1LE1503-1BA2		45	0.012
5.5	6.3	132 S	2950	17.8		89.2	90	89.7	0.9	9.9	1.8	7.4	3.6	68	80	1LE1503-1CA0		58	0.024
7.5	8.6	132 S	2950	24.5		90.1	91	91	0.92	13.1	1.9	8.3	3.9	68	80	1LE1503-1CA1		73	0.031
11	12.6	160 M	2955	35.5		91.2	91	89.5	0.89	19.6	2.4	7.9	3.8	70	82	1LE1503-1DA2	•	100	0.053
15	17.3	160 M	2960	48.5		91.9	92.1	91.2	0.87	27	2.7	8.7	4.3	70	82	1LE1503-1DA3		110	0.061
18.5	21.3	160 L	2955	60		92.4	92.8	92.4	0.9	32	2.8	9	4.2	70	82	1LE1503-1DA4	-	127	0.068
22	24.5	180 M	2950	71		92.7	93.2	92.9	0.89	38.5	2.3	7.5	3.5	67	80	1LE1503-1EA2	-	160	0.08
30	33.5	200 L	2955	97		93.3	93.5	92.9	0.87	53	2.5	7	3.3	67	80	1LE1503-2AA4	-	225	0.134
37	41.5	200 L	2955	120		93.7	94.2	94	0.88	65	2.5	7.1	3.2	67	80	1LE1503-2AA5		250	0.158
45	51	225 M	2960	145		94	94.5	94.4	0.89	78	2.4	6.9	3.3	73	87	1LE1503-2BA2■			0.26
	62	250 M	2975	177		94.3	94.5	93.9	0.89	95	2.3	6.7	3.1	73	87	1LE1503-2CA2			0.46
	84	280 S	2975	241	IE2	94.7	94.8	94.1	0.89	128	2.4	6.8	3	74	88	1LE1503-2DA0		510	0.77
	101	280 M	2975	289	IE2	95	95.1	94.6	0.9	152	2.4	7.2	3.1	74	88	1LE1503-2DA2			0.94
	123	315 S	2982	352		95.2	95.4	94.9	0.91	183	2.4	7.1	3.1	75	89	1LE1503-3AA0			1.4
	148	315 M	2982	423		95.4		95.2	0.91	220	2.5	7.2	3.1	75	89	1LE1503-3AA2		880	1.6
	180	315 L	2982	512	IE2	95.6	95.7	95.2	0.92	265	2.8	7.8	3.3	77	91	1LE1503-3AA4			1.9
	224	315 L	2982	640		95.8	95.9	95.5	0.92	330	2.5	7.2	3	77	91	1LE1503-3AA5	-	1150	2.3
Voltage	es ²⁾												Ver	sion				Orde	er code
		/400 VY			460 VY								Sta	ndard		2	2	-	
		/690 VY	60) Hz ¹⁾	460 VΔ								Sta	ındard		3	4	-	
50 Hz 5															dditional		7	-	
50 Hz 5		1)											Wit	hout ac	dditional		0		
				re into	rmation, s	ee fror	n page	2/88								9	0		
		structio		• Do 3)										sion				Orde	er code
Without	_	9		1 B3 ³⁾										ındard			A	_	
With fla	_	o of		1 B5 ³⁾		www - +!		from	non- 0	10.4			Wit	n addit	tional ch	arge	F	_	
			ISTRUCTIO	on and	I more info	ormatic	011, SEE	rrom	page 2/	194			1/0	oion				Oral	or oods
Motor	-	uon												sion Indard			Δ.	Orde	er code
	L	r with 2	tempe	raturo	eaneore										tional ch	arge	A	_	
Without	ormieto		rember	aluie		tion or	oo from	naga	2/00				VVIL	ii audii	lional CH	arge	В		
PTC the			ation or	d mar				1 11/1/16	2/33										
PTC the	er moto	or protec		nd mor	e informa	tion, se	JE ITOIT	, page					1/0-	cion					
PTC the For othe Termin	er moto	or protec		nd mor	e informa	tion, se	e iron	, page						sion					
PTC the For othe Termin Termina	er moto nal box al box a	or protec positio at top	n						noco (2/101				sion I ndard					
PTC the For othe Termin Termina For othe	er motonal box al box a er term	or protect position at top ninal box	n		d more in				page 2	2/101							4	Orde	er code(e)
PTC the For other Termina For other Special	er moto nal box al box a er term	position pos	n c positio	ons an		formati	on, se		page 2	2/101						1LE1503 ■	4		er code(s)

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE3 Premium Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1503 Basic Line

Selection and ordering data (continued)

Content Cont	Selec	uon a	iiu oiu			(contin													
Service Serv				Opera	ating v	alues at ra	ated po	ower									Cast-iron series		
Second S	P _{rated}	Prated,		n _{ra-}	$T_{\rm ra-}$		$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{\text{ra-}}$				/ _{LR} /		$L_{pfA,}$	$L_{WA,}$	1LE1503 – Basic Line	m _{IM B3}	J
We ke Fs rpm Nm % % A color gent soles on the properties of the properti			size													50 Hz			
Coloning Self-presentation of Coloning Self-presentation coloning of Coloning Self-presentation coloning to EC 50034-30. IES Premium Efficiency, service factor (SF) 1.15	P50	P60 1)		50 Hz	50 Hz	60 Hz/P60											Auticle No		
Coolings: Self-wentilated (C ±11) or with norder code F30 forced-air cooled without external fan and fan cover (IC ±18) - Efficiancy according to EK2 60043-30: E32 Premise Efficiancy acrowled factor (F51), ±15 Insulation: Thermal class 150 (temperature class F1, IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization is accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization is accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization is accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization is accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization is accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization is accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization is accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization is accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization is accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization is accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization is accordance with thermal class 130 (temperature class F1, IP55 degree of protection, utilization is accordance with thermal class 130 (temperature class F1, IP55 degree of protection and more information, see from page 2/10 and page 14 and pa	1-14/	LAM	FC	K10.100	Nimo					4/4		50112	. 50112	50112		4D(A)	Afticle No.	l co	Large 2
** Efficiency according to BIC** 60034-30: LB3 Premium: Efficiency, service factor (FF)1.15** **Insulation: Insulation: Insula						\ or with				rood o		ad wit	bout	ovtor	. ,	. ,	2 00V0r (IC 419)	kg	kgm
Insulation: Thermal class 150 (temperature class 7), tiefs degree of protection, utilization in accordance with thermal class 130 (temperature class 130 0.25 0.25 0.29 71 M 1319 5 1.7 73.5 73.7 70.4 0.72 0.68 2.5 4.2 6.4 4.55 1.1 1	• Effic	iing: Se ciency a	ccordin	iated (na to le	EC 600) or with 034-30: IE	3 Prer	coae i nium	rgu 10 Efficie	rcea-a ency, se	ervice	ea wii factor	(SF)	exteri 1.15	nai ian	and lar	1 cover (IC 416)		
0.29	• Insu	lation:	Therma	l class	: 155 (1	temperati	ure cla	ss F),	IP55 c	degree	of pro	tectio	n, uti	lizatic	n in ac	ccordan	ce with thermal class 130	(temperat	ure class B
0.37 0.43 71 M 1410 26	4-pole	e: 1500 i	rpm at 5	50 Hz,	1800 r	pm at 60	Hz 1)												
0.55 0.03 0 M 1440 3 6	0.25	0.29	71 M	1395	1.7		73.5	73.7	70.4	0.72	0.68	2.5	4.2	2.6	44	55	1LE1503-0CB2	13	0.00095
0.75 0.86 0.9 M 1450 4.9 0.25 0.23 79.9 0.75 1.75 2.7 7.1 39 53 6.4 11.61503-0.083	0.37	0.43	71 M	1410	2.6		77.3	76.8	73.2	0.7	0.99	3.1	4.8	3.1	56	67	1LE1503-0CB3	16	0.0014
1.1 1.27 90.\$ 1.440 7.3 84.1 84.7 83.4 0.78 2.4 2.9 6.9 3.6 56 68 1LE1503-0EB01	0.55	0.63	80 M	1440	3.6		80.8	81.1	79.3	0.78	1.26	2.1	5.9	3.1	53	64	1LE1503-0DB2	18	0.0021
1.5 1.75 90 L 1445 10 85.3 85.9 84.9 0.8 3.15 2.7 7.2 3.6 56 68 1LE1503-1BB4 - ■■ 31 0.0049 2.2 2.55 100 L 1465 14.3 1E2 86.7 87.3 86.4 0.83 4.4 2.1 7.6 3.6 60 72 1LE1503-1BB4 - ■■ 40 0.014 3 3.45 100 L 1460 20 88.6 89.2 88.6 0.82 7.9 2.4 7.1 3.7 56 7.0 1LE1503-1BB2 - ■■ 40 0.014 4 4.55 112 M 1460 26 88.6 89.2 88.6 0.82 7.9 2.4 7.1 3.7 56 7.0 1LE1503-1BB2 - ■■ 46 0.017 5.5 6.3 132 S 1470 36 1E2 89.6 90.1 89.5 0.84 10.5 2 1.7 2 3.4 64 76 1LE1503-1BB2 - ■■ 46 0.017 7.5 8.6 132 M 1470 49 1E2 90.4 91.1 90.8 0.84 14.3 2.4 7.4 3.5 64 76 1LE1503-1BB2 - ■■ 80 0.046 11 12.6 160 M 1475 17 1 91.4 91.9 91.4 0.84 205 2.5 88 32 65 77 1LE1503-1BB2 - ■■ 10 0.083 15 17.3 160 L 1470 97 92.1 92.3 91.5 0.82 28.5 2.5 8.5 3.8 65 77 1LE1503-1BB2 - ■■ 10 0.083 15 17.3 160 L 1470 143 93 93.7 93.6 0.83 41 2.5 2.5 88 32 65 77 1LE1503-1BB2 - ■■ 10 0.033 13 3.45 200 L 1470 143 93 93.7 93.6 0.83 41 2.5 2.6 83 32 68 75 1LE1503-1BB2 - ■■ 10 0.14 30 34.5 200 L 1470 143 93 93.9 94.5 94. 0.86 66 2.5 64 2.7 65 78 1LE1503-1BB2 - ■■ 10 0.14 30 34.5 200 L 1470 143 93 93.9 94.5 94. 0.86 66 2.5 64 2.7 65 78 1LE1503-1BB2 - ■■ 170 0.14 30 34.5 200 L 1470 185 1E2 93.6 94. 95.1 0.86 80 2.6 64 2.7 65 78 1LE1503-1BB2 - ■■ 170 0.14 30 34.5 200 L 1470 185 1E2 93.6 94. 95.1 0.86 80 2.6 64 2.7 65 78 1LE1503-2BB2 - ■■ 170 0.14 30 34.5 200 L 1470 185 1E2 94.6 95.1 95.0 0.87 186 0.82 2.6 68 2.9 66 79 1LE1503-2BB2 - ■■ 170 0.14 30 34.5 187 187 187 187 187 187 187 187 187 187	0.75	0.86	80 M	1450	4.9		82.5	82.3	79.9	0.75	1.75	2.7	7.1	3.9	53	64	1LE1503-0DB3	22	0.0029
2.2 5.5 100 L 1465 14.3 E2 86 7 87.3 86.4 0.83 4.4 2.1 7.6 3.6 60 72 1LE1503-1AB4 -	1.1	1.27	90 S	1440	7.3		84.1	84.7	83.4	0.78	2.4	2.9	6.9	3.6	56	68	1LE1503-0EB0	25	0.0036
3 3.45 100 L 1460 20 87, 88.4 88.2 0.83 5.9 2.3 7, 3 3, 7 60 72 1LE1503-1AB5 - ■ 4 6 0.014 4 4.55 112M 1460 26 86.6 89.2 86.0 0.22 7, 9 2.4 7, 1 3, 7 80 70 1LE1503-1AB5 - ■ 4 6 0.017 55 6.3 132 S 1470 36 1E2 89.6 90.1 89.5 0.84 10.5 2.1 7, 2 3.4 64 76 1LE1503-1CB0 - ■ 74 0.046 7.5 8.6 132 M 1470 49 1E2 90.4 91.1 90.8 0.84 14.3 2.4 7.4 3.5 64 76 1LE1503-1CB0 - ■ 8 0 0.046 11 12.6 160 M 1475 71 91.4 91.9 91.4 0.84 205 2.5 88 3.6 65 77 1LE1503-1CB0 - ■ 10.003 15 17.3 160 L 1475 97 92.1 92.3 91.5 0.82 28.5 2.5 8.5 3.8 65 77 1LE1503-1CB2 - ■ 10.003 15. 17.3 160 L 1476 143 93 93.7 93.6 0.83 41 2.5 2.5 8.5 3.8 65 77 1LE1503-1CB2 - ■ 10.003 15. 17.3 160 L 1470 143 93 93.7 93.6 0.83 41 2.5 2.5 8.5 3.8 65 77 1LE1503-1CB2 - ■ 10.003 15. 17.3 180 L 1470 143 93 93.7 93.6 0.83 41 2.5 2.5 8.5 3.8 65 77 1LE1503-1CB2 - ■ 10.003 15. 17.3 180 L 1470 143 93 93.7 93.6 0.83 41 2.5 2.5 8.5 3.8 65 77 1LE1503-1CB2 - ■ 10.003 15. 17.3 180 L 1470 143 93 93.7 93.6 0.83 41 2.5 2.5 8.5 3.8 65 77 1LE1503-1CB2 - ■ 10.003 15. 17.3 180 L 1470 195 1E2 93.9 94.5 94.4 0.86 66 2.5 6.4 2.7 65 73 1LE1503-1CB2 - ■ 10.004 15. 22.5 25 1478 239 1E2 93.9 94.5 94.4 0.86 66 2.5 6.4 2.7 65 78 1LE1503-1CB2 - ■ 10.004 15. 22.5 25 M 1478 239 1E2 94.2 94.9 95.1 0.86 80 2.6 6.4 2.7 65 78 1LE1503-2CB2 - ■ 20.004 15. 22.5 25 M 1478 291 1E2 94.5 94.9 95.1 0.86 80 2.6 6.4 2.7 65 78 1LE1503-2CB2 - ■ 20.004 15. 22.5 25 M 1478 291 1E2 94.5 95.5 95.3 0.87 195 2.6 6.4 2.7 65 78 1LE1503-2CB2 - ■ 20.004 15. 22.5 25 M 1478 291 1E2 94.5 95.5 95.3 0.87 195 2.6 6.4 2.7 65 78 1LE1503-2CB2 - ■ 20.004 15. 22.5 25 M 1478 291 1E2 94.5 95.5 95.3 0.87 195 2.6 6.4 2.7 65 78 1LE1503-2CB2 - ■ 20.004 15. 22.5 315 M 1490 1025 95.8 95.1 95.0 0.87 195 2.6 6.4 2.7 65 78 1LE1503-2CB2 - ■ 20.004 15. 22.5 315 M 1490 1025 95.8 95.1 95.0 0.87 195 2.6 6.4 2.7 65 78 1LE1503-2CB2 - ■ 20.004 15. 22.5 315 M 1490 1025 95.8 95.1 95.0 0.87 195 2.6 6.4 2.7 65 78 1LE1503-2CB2 - ■ 20.004 15. 22.5 315 M 1490 1025 95.8 95.0 95.0 95.0 95.0 95.0 95.0 95.0 95.0	1.5	1.75	90 L	1445	10		85.3	85.9	84.9	8.0	3.15	2.7	7.2	3.6	56	68	1LE1503-0EB4	31	0.0049
## 4.55 112 M 1460 26 88.6 89.2 88.6 89.2 88.6 89.2 88.6 89.2 88.6 89.2 88.6 89.2 88.6 89.2 88.6 89.2 88.6 89.2 88.6 89.2 88.6 10.5 21.7 72. 34.6 47.6 1 1 1 1 1 1 1 1 1	2.2	2.55	100 L	1465	14.3	IE2	86.7	87.3	86.4	0.83	4.4	2.1	7.6	3.6	60	72	1LE1503-1AB4	40	0.014
Second Second Processing	3	3.45	100 L	1460	20		87.7	88.4	88.2	0.83	5.9	2.3	7.3	3.7	60	72	1LE1503-1AB5	40	0.014
7.5 8.6 132 M 1470 49 E2 90.4 91.1 90.8 0.84 14.3 2.4 7.4 3.5 64 7.6 1LE1503-1CB2	4	4.55	112 M	1460	26		88.6	89.2	88.6	0.82	7.9	2.4	7.1	3.7	58	70	1LE1503-1BB2	46	0.017
11	5.5	6.3	132 S	1470	36	IE2	89.6	90.1	89.5	0.84	10.5	2.1	7.2	3.4	64	76	1LE1503-1CB0 -	74	0.046
15 17.3 160 L 1475 97 92.1 92.3 91.5 0.82 28.5 2.5 8.5 3.8 65 77 1LE1503-1BB4 ■■ 127 0.099 18.5 21.3 180 M 1470 120 92.6 93.1 92.9 0.82 35 2.5 7.2 3.3 66 73 1LE1503-1BB2 ■■ 165 0.13 22 25.3 180 L 1470 193 162 93.6 94 93.7 0.84 55 2.6 7.3 3.1 65 72 1LE1503-1BB2 ■■ 170 0.14 30 34.5 200 L 1470 195 162 93.6 94 93.7 0.84 55 2.6 7.3 3.1 65 72 1LE1503-2BB2 ■■ 285 0.42 37 42.5 225 S 1478 239 162 93.9 94.5 94.4 0.86 66 2.6 6.4 2.7 65 78 1LE1503-2BB2 ■■ 285 0.42 37 42.5 225 M 1478 291 162 94.6 95.1 95.0 0.87 96 2.5 6.4 2.7 65 78 1LE1503-2BB2 ■■ 285 0.42 37 52 225 M 1478 291 162 94.6 95.1 95.0 0.87 96 2.5 6.4 2.7 65 78 1LE1503-2BB2 ■■ 285 0.42 38 250 M 1482 354 162 94.6 95.1 95.0 0.87 96 2.5 6.8 2.9 66 79 1LE1503-2BB2 ■■ 285 0.42 39 104 280 M 1485 579 162 95.2 95.5 95.3 0.87 197 2.6 7.2 3 70 84 1LE1503-2BB2 ■■ 285 0.42 31 10 127 315 S 1488 706 95.4 95.8 95.5 0.87 191 2.6 6.8 2.9 70 84 1LE1503-2BB2 ■■ 670 1.7 31 10 127 315 S 1488 706 95.6 95.9 95.9 95.9 0.87 20 2.8 7.2 3 70 84 1LE1503-2BB2 ■■ 670 1.7 31 10 127 315 S 1488 1284 162 96 96.3 96.1 0.87 275 2.9 7.3 3.1 73 87 1LE1503-3ABB ■■ 760 2.9 31 160 184 315 L 1490 1025 95.8 96.1 96.1 0.87 275 2.9 7.3 3.1 73 87 1LE1503-3ABB ■■ 760 2.9 31 160 184 315 L 1490 1025 95.8 96.1 96.1 0.87 275 2.9 7.3 3.1 73 87 1LE1503-3ABB ■■ 760 2.9 31 160 184 315 L 1498 1284 162 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3ABB ■■ 760 2.9 31 160 184 315 L 1498 1284 162 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3ABB ■■ 760 2.9 31 160 184 315 L 1498 1284 162 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3ABB ■■ 760 2.9 31 160 184 315 L 1498 1284 162 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3ABB ■■ 760 2.9 31 160 184 315 L 1498 1284 162 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3ABB ■■ 760 2.9 31 164 315 L 1498 1284 162 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3ABB ■■ 760 2.9 31 164 315 L 1498 1284 162 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3ABB ■■ 760 2.9 31 164 315 L 1498 1284 1284 1284 1284 1284 1284 1284 128	7.5	8.6	132 M	1470	49	IE2	90.4	91.1	90.8	0.84	14.3	2.4	7.4	3.5	64	76	1LE1503-1CB2	80	0.046
15 17.3 160 L 1475 97 92.1 92.3 91.5 0.82 28.5 2.5 8.5 3.8 65 77 1LE1503-1BB4 ■■ 127 0.099 18.5 21.3 180 M 1470 120 92.6 93.1 92.9 0.82 35 2.5 7.2 3.3 66 73 1LE1503-1BB2 ■■ 165 0.13 22 25.3 180 L 1470 193 162 93.6 94 93.7 0.84 55 2.6 7.3 3.1 65 72 1LE1503-1BB2 ■■ 170 0.14 30 34.5 200 L 1470 195 162 93.6 94 93.7 0.84 55 2.6 7.3 3.1 65 72 1LE1503-2BB2 ■■ 285 0.42 37 42.5 225 S 1478 239 162 93.9 94.5 94.4 0.86 66 2.6 6.4 2.7 65 78 1LE1503-2BB2 ■■ 285 0.42 37 42.5 225 M 1478 291 162 94.6 95.1 95.0 0.87 96 2.5 6.4 2.7 65 78 1LE1503-2BB2 ■■ 285 0.42 37 52 225 M 1478 291 162 94.6 95.1 95.0 0.87 96 2.5 6.4 2.7 65 78 1LE1503-2BB2 ■■ 285 0.42 38 250 M 1482 354 162 94.6 95.1 95.0 0.87 96 2.5 6.8 2.9 66 79 1LE1503-2BB2 ■■ 285 0.42 39 104 280 M 1485 579 162 95.2 95.5 95.3 0.87 197 2.6 7.2 3 70 84 1LE1503-2BB2 ■■ 285 0.42 31 10 127 315 S 1488 706 95.4 95.8 95.5 0.87 191 2.6 6.8 2.9 70 84 1LE1503-2BB2 ■■ 670 1.7 31 10 127 315 S 1488 706 95.6 95.9 95.9 95.9 0.87 20 2.8 7.2 3 70 84 1LE1503-2BB2 ■■ 670 1.7 31 10 127 315 S 1488 1284 162 96 96.3 96.1 0.87 275 2.9 7.3 3.1 73 87 1LE1503-3ABB ■■ 760 2.9 31 160 184 315 L 1490 1025 95.8 96.1 96.1 0.87 275 2.9 7.3 3.1 73 87 1LE1503-3ABB ■■ 760 2.9 31 160 184 315 L 1490 1025 95.8 96.1 96.1 0.87 275 2.9 7.3 3.1 73 87 1LE1503-3ABB ■■ 760 2.9 31 160 184 315 L 1498 1284 162 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3ABB ■■ 760 2.9 31 160 184 315 L 1498 1284 162 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3ABB ■■ 760 2.9 31 160 184 315 L 1498 1284 162 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3ABB ■■ 760 2.9 31 160 184 315 L 1498 1284 162 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3ABB ■■ 760 2.9 31 160 184 315 L 1498 1284 162 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3ABB ■■ 760 2.9 31 164 315 L 1498 1284 162 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3ABB ■■ 760 2.9 31 164 315 L 1498 1284 162 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3ABB ■■ 760 2.9 31 164 315 L 1498 1284 1284 1284 1284 1284 1284 1284 128	11	12.6	160 M	1475	71		91.4	91.9	91.4	0.84	20.5	2.2	6.8	3.2	65	77	1LE1503-1DB2	109	0.083
22 25.3 180 L 1470 143 93 93.7 93.6 0.83 41 2.3 6.8 3.3 68 75 1LE1503-2B04 1 170 0.14 30 34.5 200 L 1470 195 E 2 93.6 94 93.7 0.84 55 2.6 7.3 3.1 65 72 LE1503-2B04 1 240 0.22 37 42.5 225 M 1478 239 E 2 93.9 94.5 94.4 0.86 66 2.5 6.4 2.7 65 78 LE1503-2B04 1 240 0.22 45 52 225 M 1478 239 E 2 94.6 95.1 95 0.87 96 2.5 6.8 2.9 66 79 LE1503-2B04 1 240 0.85 75 86 280 S 1485 482 E 2 95 95.3 95 0.87 157 2.6 7.2 3 70 84 LE1503-2B04 1 570 1.4 90 104 280 M 1485 579 E 2 95.2 95.5 95.3 0.87 157 2.6 7.2 3 70 84 LE1503-2B04 1 570 1.4 110 127 315 S 1488 706 95.4 95.8 95.9 0.87 191 2.6 6.8 2.9 70 84 LE1503-2B04 1 570 1.7 110 127 315 S 1485 1480 1490 846 95.6 95.9 95.9 0.87 230 2.8 7.3 3.7 387 LE1503-3AB4 1 570 1 570 2.9 160 184 315 L 1489 1284 E 2 96 95.8 96.1 96.1 0.87 275 2.9 7.3 3.1 73 87 LE1503-3AB4 1 570 1 570 2.9 160 184 315 L 1480 1025 95.8 96.1 96.1 0.87 275 2.9 7.3 3.1 73 87 LE1503-3AB4 1 570 1 570 2.9 160 182 0.9 160 184 315 L 1480 1025 95.8 96.1 96.1 0.87 275 2.9 7.3 3.1 73 87 LE1503-3AB4 1 570 1 570 2.9 160 182 0.9 160 184 315 L 1480 1025 95.8 96.1 96.1 0.87 275 2.9 7.3 3.1 73 87 LE1503-3AB4 1 570 1 570 2.9 160 182 0.9 160 184 315 L 1480 1025 95.8 96.1 96.1 0.87 275 2.9 7.3 3.1 73 87 LE1503-3AB4 1 570 1 570 2.9 160 184 315 L 1480 1025 95.8 96.1 96.1 0.87 275 2.9 7.3 3.1 73 87 LE1503-3AB4 1 570 1 570 2.9 1 570 1 57	15	17.3	160 L	1475	97		92.1	92.3	91.5	0.82	28.5	2.5	8.5	3.8	65	77	1LE1503-1DB4	127	0.099
30	18.5	21.3	180 M	1470	120		92.6	93.1	92.9	0.82	35	2.5	7.2	3.3	66	73	1LE1503-1EB2 -	165	0.13
30	22	25.3	180 L	1470	143		93	93.7	93.6	0.83	41	2.3	6.8	3.3	68	75	1LE1503-1EB4	170	0.14
37	30					IE2													
45 52 25 M 1478 291 IE2 94.2 94.9 95.1 0.86 80 2.6 6.4 2.7 65 78 1LE1503-2BB2 - 1	37							94.5		0.86					65	78			
Standard																			
75																			
90 104 280 M 1485 579 IE2 95.2 95.5 95.3 0.87 157 2.6 7.2 3 70 84 1LE1503-2DB2 - ■ 670 1.7 110 127 315 S 1488 706 95.4 95.8 95.5 0.87 191 2.6 6.8 2.9 70 84 1LE1503-3AB2 - ■ 760 2.2 132 152 315 M 1490 846 95.6 95.9 95.9 0.87 230 2.8 7.3 3 73 87 1LE1503-3AB2 - ■ 960 2.9 160 184 315 L 1490 1025 95.8 96.1 96.1 0.87 275 2.9 7.3 3.1 73 87 1LE1503-3AB2 - ■ 990 3.1 200 230 315 L 1488 1284 IE2 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3AB5 - ■ 900 3.1 200 230 315 L 1488 1284 IE2 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3AB5 - ■ 900 3.1 200 240 Va/690 VY 60 Hz 1 460 VY 50 Hz 1 460 VA 50 Hz 1 4																			
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160 184 315 L 1490 1025 95.8 96.1 96.1 0.87 275 2.9 7.3 3.1 73 87 1LE1503-3AB4 ■ ■ 990 3.1 200 230 315 L 1488 1284 IE2 96 96.3 96.1 0.88 340 3.2 7.4 3 73 87 1LE1503-3AB5 ■ ■ 1190 3.7 Voltages ²)																-			
1190 3.7 3.																-			
Voltages 2) 50 Hz 230 VΔ/400 VY 60 Hz 1) 460 VY 50 Hz 400 VΔ/690 VY 60 Hz 1) 460 VΔ Standard 50 Hz 500 VY 50 Hz 500 VY 50 Hz 500 VΔ For other voltages 1) and more information, see from page 2/88 Version Version Version Version Vithout additional charge With additional charge With additional charge For other types of construction and more information, see from page 2/94 Motor protection Without Standard Version With additional charge For other types of construction and more information, see from page 2/94 Motor protection Without Standard Version Order code Order code Order code Terminal box position Version Standard A - Creder code Order code Order code Order code Terminal box position Terminal box positions and more information, see from page 2/101 Special versions Order code(s) For other terminal box positions and more information, see from page 2/101 Special versions Order code(s)																			
50 Hz 230 VA/400 VY 60 Hz 1) 460 VY 50 Hz 1) 460 VA Standard 3 4 50 Hz 500 VY 60 Hz 1) 460 VA Standard 3 4 50 Hz 500 VY 60 Hz 1) 460 VA Without additional charge 4 0 For other voltages 1) and more information, see from page 2/88 Types of construction Version With glange IM B3 3) With additional charge 5 For other types of construction and more information, see from page 2/94 Motor protection Version Without Standard 4					.20.		-	00.0	00.1	0.00	0.0	0.2				0,			-
50 Hz 400 VΔ/690 VY 60 Hz 1) 460 VΔ 50 Hz 500 VY 50 Hz 500 VΔ Without additional charge 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_		400 \/	C	0 1 1= 1	100 \/												Orde	code
For other voltages ¹⁾ and more information, see from page 2/88 Types of construction Without flange IM B3 ³⁾ With flange IM B5 ³⁾ With additional charge For other types of construction and more information, see from page 2/94 Motor protection Without Standard With additional charge For other motor protection and more information, see from page 2/99 Terminal box position Terminal box position Version Standard A - - - - - - - - - - - -																	2 2	_	
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Types of construction Without flange IM B3 3) With flange IM B5 3) With additional charge For other types of construction and more information, see from page 2/94 Motor protection Without Standard Version Without Standard A PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 2/99 Terminal box position Version Version Standard A - Order code Order code Order code Standard A - Order code Order code Order code Terminal box position Terminal box positions and more information, see from page 2/101 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) ILE1503 Forein			1) -		!				- 0/00					VVIL	nout at	adilionai		_	
Without flange IM B3 ³⁾ With flange IM B5 ³⁾ With flange IM B5 ³⁾ With additional charge For other types of construction and more information, see from page 2/94 Motor protection Without Standard With additional charge For other motor protection and more information, see from page 2/99 Terminal box position Version Terminal box position Version Standard A - Creminal box position Version Standard Version Standard Version Standard A - Order code Order code(s) Forced-air cooled motors w/o ext. fan/fan cover (IC 418)					re into	rmation, s	see iroi	n pag	e 2/88					\/	_!		9 0		
With flange IM B5 3) With additional charge For other types of construction and more information, see from page 2/94 Motor protection Version Without Standard A PTC thermistor with 3 temperature sensors With additional charge B For other motor protection and more information, see from page 2/99 Terminal box position Version Terminal box at top Standard 4 For other terminal box positions and more information, see from page 2/101 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) With additional charge					4 Do 3)												Orde	code
For other types of construction and more information, see from page 2/94 Motor protection Without PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 2/99 Terminal box position Terminal box at top For other terminal box positions and more information, see from page 2/101 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) Order code Standard 4 For other terminal box positions and more information, see from page 2/101 Special versions ILE1503 Foreign page 2/94 Order code Order code(s)																	A -	_	
Motor protection Version Order code Without Standard A - PTC thermistor with 3 temperature sensors With additional charge B - For other motor protection and more information, see from page 2/99 Terminal box position Version Terminal box at top Standard 4 For other terminal box positions and more information, see from page 2/101 Order code(s) Special versions Order code(s) Forced-air cooled motors w/o ext. fan/fan cover (IC 418) 1LE1503		_	o of				- HD0 - 1		fue	200-0	1/0.4			vvit	n addit	ional ch	arge	_	
Without PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 2/99 Terminal box position Version Terminal box at top For other terminal box positions and more information, see from page 2/101 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) Standard 4 Corder code(s) Forced-air cooled motors w/o ext. fan/fan cover (IC 418)				struction	on and	more info	ormatic	on, see	rom	page 2	194) (_!				
PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 2/99 Terminal box position Terminal box at top For other terminal box positions and more information, see from page 2/101 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) With additional charge Standard 4 Order code(s)		•	ion															Orde	r code
For other motor protection and more information, see from page 2/99 Terminal box position Terminal box at top Standard For other terminal box positions and more information, see from page 2/101 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) Order code(s) 1LE1503 F90+++																		_	
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Terminal box at top For other terminal box positions and more information, see from page 2/101 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) Standard Order code(s) LE1503 F90+++					nd moi	e informa	tion, se	ee fror	n page	e 2/99				١.,					
For other terminal box positions and more information, see from page 2/101 Special versions Order code(s) Forced-air cooled motors w/o ext. fan/fan cover (IC 418) 1LE1503 Forced-air cooled motors w/o ext. fan/fan cover (IC 418)			•	n															
Special versions Order code(s) Forced-air cooled motors w/o ext. fan/fan cover (IC 418) 1LE1503 Forced-air cooled motors w/o ext. fan/fan cover (IC 418)														Sta	ndard		4		
Forced-air cooled motors w/o ext. fan/fan cover (IC 418)				position	ons an	d more in	tormat	ion, se	e from	page	2/101								
																			. ,
For options, see from page 2/109 1LE1503 -Z+++						an/fan co	ver (IC	418)											
	For op	otions, se	ee from	page 2	2/109												1LE1503	-Z+.	++

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

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Motors with IE3 Premium Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1503 Basic Line

Selection and ordering data (continued)

			One	ratina	values at	rated r	oower									Cast-iron series			
P	P.,,	Frame		$T_{\rm ra-}$	Differen		$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T _{LR} /	I _{LR} /	$T_{\rm B}/$	L_{pfA}	L_{WA}	1LE1503 – Basid		m _{IM B3}	J
50 Hz/ Î	60 Hz/	size	ted	ted	IE class	ted	ted	ted	φ_{rated}	, ted	I _{ra-}	I _{ra-}	T_{ra}		50 Hz			IIVI B3	Ü
P50	P60 1)		50 Hz	50 Hz	60 Hz/P60) 50 Hz, 4/4	, 50 Hz, 3/4	50 Hz, 2/4	50 Hz, 4/4			ted : 50 Hz	ted			A 1 N			
kW	kW	FS	rnm	Nm		%	%	%	4/4	400 V	30 1 12	. 50112	. 50 1 12		dB(A)	Article No.		ka	kgm ²
) or with				rced-a		od wi	thout	evter	. ,	. ,	n cover (IC 418)		kg	kgiii
Effic	iency a	ccordir	ng to l	EC 60	Ó34-30: II	E3 Prei	mium	Efficie	ency, se	ervice	facto	r (SF)	1.15						
							ass F),	IP55 c	degree	of pro	tectic	n, uti	lizatic	n in ac	ccordan	ce with thermal cla	ass 130 ((tempera	ature class
					rpm at 60														
).18	0.21	71 M	885	1.9		63.9	64.8	60.8	0.69	0.59	2.3	2.8	2.3	39	50	1LE1503-0CC2			0.001
).25	0.29	71 M	885	2.7		68.6	69.5	66.2	0.69	0.76	2.6	3.2	2.6	46	57	1LE1503-0CC3			0.0015
).37).55	0.43	80 M 80 M	940 935	3.8 5.6		73.5 77.2	73.1 77	69.4 73.9	0.66	1.1	2.3	4.2	2.7	42 42	53 53	1LE1503-0DC2 1LE1503-0DC3			0.0025
).55).75	0.86	90 S	935	7.6		78.9	80	78.8	0.07	1.96	2.2	4.6	2.6	43	55	1LE1503-0EC0			0.0031
1.1	1.27	90 L	940	11	IE1	81	82	80.5	0.69	2.85	2.3	4.6	2.7	43	55	1LE1503-0EC4			0.004
1.5	1.75	100 L	970	14.8	IE2	82.5	83.1	81.5	0.73	3.6	1.9	5.2	2.8	59	71	1LE1503-0204			0.0040
2.2	2.55	112 M	970	22	IE2	84.3	85	83.9	0.75	5	2.2	5.6	2.8	65	74	1LE1503-1BC2			0.017
3	3.45	132 S	975	30	IE2	85.6	86.9	86.6	0.77	6.6	1.6	5.3	2.4	63	75	1LE1503-1CC0			0.029
4	4.55	132 M	975	39	IE2	86.8	88	87.8	0.77	8.6	1.7	5.6	2.5	63	75	1LE1503-1CC2		70	0.037
5.5	6.3	132 M	975	54	IE2	88	89.1	88.8	0.77	11.7	1.8	5.7	2.6	63	75	1LE1503-1CC3		83	0.046
7.5	8.6	160 M	980	73	IE2	89.1	90.1	89.7	0.76	16	1.9	4.9	2.3	67	79	1LE1503-1DC2	-	122	0.098
11	12.6	160 L	975	108	IE2	90.3	91.2	90.8	0.77	23	1.9	5	2.3	67	79	1LE1503-1DC4	-	147	0.12
15	18	180 L	975	147	IE2	91.2	92	91.9	0.8	29.5	2.3	5.9	2.8	61	68	1LE1503-1EC4	-	180	0.19
18.5	22	200 L	978	181	IE2	91.7	92.5	92.4	0.79	37	2.5	5.6	2.6	64	71	1LE1503-2AC4	-	215	0.28
22	26.5	200 L	978	215	IE2	92.2	93.1	93.2	0.79	43.5	2.5	5.6	2.6	61	68	1LE1503-2AC5		230	0.32
30	36	225 M	982	292	IE2	92.9	93.6	93.5	0.83	56	2.6	6.6	3	64	77	1LE1503-2BC2		325	0.67
37	44.5	250 M	985	359	IE2	93.3	94	94	0.85	67	2.7	7	2.9	62	75	1LE1503-2CC2		405	1
15	54	280 S	988	435	IE2	93.7	94.3	94.2	0.85	82	3	6.8	2.8	60	74	1LE1503-2DC0		510	1.4
55	66	280 M	988	532	IE2	94.1	94.6	94.4	0.85	99	3.2	7.2	3	60	74	1LE1503-2DC2			1.6
75	90	315 S	990	723		94.6	94.9	94.4	0.84	136	2.6	7.5	3.1	63	78	1LE1503-3AC0			2.6
90	108	315 M	991	867	IE2	94.9	95.2	94.9	0.85	161	2.5	6.7	2.8	63	78	1LE1503-3AC2			3.1
110	132	315 L	991	1060		95.1	95.5	95.3	0.84	199	2.8	7.2	3	63	78	1LE1503-3AC4		990	3.9
132	158	315 L	991	1272		95.4	95.9	95.8	0.84	240	2.7	7.2	3	67	82	1LE1503-3AC5			4.4
160	192	315 L	991	1542	IEZ	95.6	95.8	95.4	0.83	290	3.3	7.7	3.5	67	82	1LE1503-3AC6		1160	4.6
/oltag		(400 : " :		1)									rsion				Ord	ler code
		/400 VY) 460 VY									ındard		2	2 2	-	
		/690 VY	6	U Hz '	⁾ 460 V∆									indard	-1 -11x1	I charge	3 4	-	
	500 VY																	_	
	500 V∆	ngos 1) -	and	oro inf-	rmotics	000 fr-	m no	0.000					VVII	nout a	uditiona	I charge	0	_	
		ages '/ a structio		ne inic	rmation,	see iro	ın pag	e 2/88					1/5	roion			0	Ord	lor oods
7 1	of cons It flange			И ВЗ ^З)									sion Indard			^	Ord	ler code
With fla	_	7		и вз ⁻ И В5 ³											tional ch	arge	F	_	
		s of con			, d more in	formati	on sec	from	nage 9	0/04			VVII	.ii auul	uonai U	iai ge			
	protect		ou dell	on and	a more ill	ioiiiialli	OII, 500	HOIT	page 2	134			Ver	sion				Ord	ler code
Vithou		UII												andard			A	- 010	ici code
		r with 2	tempo	raturo	sensors										tional ch	arge	В	_	
					re inform	ation s	ee from	n nag	2/90				VVII	.ii auul	uonai U	iai ge			
		positio		na IIIO	i di ililoli III	ation, S	ice iioi	n pay	2 2133				\/o	sion					
	al box	-												sion andard			4		
			nociti	one or	nd more in	nformat	tion or	o from	nago	2/101			Jla	iiiuaiu			4		
	al versi		. positi	ons al	id more ii	noma	uon, se	e 11011	page	2/101								Ord	ler code(s)
•			toro	lo ovt	fon/fon a	over (IC	7 /10\									11 E1E02			
JI CEC	ı-aii coc	DIEG 1110	LOIS W/	o ext.	fan/fan c	over (IC	418)									1LE1503	-	-2 F90	/+++

For options, see from page 2/109

1LE1503- - . . . - Z . . . + . . . + . . . +

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE3 Premium Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1603 Performance Line

Selection and ordering data

			Opera	atina v	alues at ra	ated po	ower									Cast-iron series		
P	P	Frame		$T_{\rm ra-}$	Different			n	cos-	1	T. 5/	1.0/	$T_{\rm B}/$	1	1,,,,	1LE1603 -	mu a po	J
rated, 50 Hz/	rated, 60 Hz/	Frame size	ted	ra- ted	IE class	//ra- ted	$\eta_{ ext{ra-}}$	$\eta_{ ext{ra-}}$ ted	φ_{rated}	I _{ra-}	T_{LR}/T_{ra}	/ _{LR} / / _{ra-}	$T_{\rm ra-}$	L _{pfA} , 50 Hz	L _{WA} , 50 Hz	Performance Line	m _{IM B3}	U
P50	P60								50 Hz,	50 Hz,		ted	ted	30112	30112			
	1)					4/4	3/4	2/4	4/4	400 V	50 Hz	50 Hz	50 Hz			Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)	dB(A)		kg	kgm ²
• Cool	ing: Se	lf-venti	lated (I	C 411	or with c	order o	ode F	90 fo	rced-ai	r coole	d wit	hout	exter	nal fan	and far	n cover (IC 418)		
• Effic	iency a	ccordir	ig to IE	C 600	34-30: IE3	3 Pren	nium E	Efficie	ncy, se	rvice	actor	(SF)	1.15 lizatio	n in a	cordan	ce with thermal class 130	temperat	ura clase F
					emperatu pm at 60 l		33 I <i>J</i> ,	II	egree	oi pio	ectio	ii, uui	ızatıc	iii iii ac	Cordan	ce with thermal class 150	temperat	ure ciass i
2 poic 3	3.45	100 L	2920	9.8	IE2	87.1	88	87.5	0.88	5.6	2.8	8	4.3	67	79	1LE1603-1AA4	36	0.0054
4	4.55	112 M	2945	13	IE2	88.1	89.1	88.7	0.9	7.3	1.8	8.2	3.5	69	81	1LE1603-1BA2		0.012
5.5	6.3	132 S	2950	17.8		89.2	90	89.7	0.9	9.9	1.8	7.4	3.6	68	80	1LE1603-1CA0		0.024
7.5	8.6	132 S	2950	24.5		90.1	91	91	0.92	13.1	1.9	8.3	3.9	68	80	1LE1603-1CA1 -		0.031
11	12.6	160 M	2955	35.5			91	89.5	0.89	19.6	2.4	7.9	3.8	70	82	1LE1603-1DA2		0.053
15	17.3	160 M	2960	48.5		91.9	92.1	91.2	0.87	27	2.7	8.7	4.3	70	82	1LE1603-1DA3		0.061
18.5	21.3	160 L	2955	60		92.4	92.8	92.4	0.9	32	2.8	9	4.2	70	82	1LE1603-1DA4		0.068
22	24.5	180 M	2950	71		92.7	93.2	92.9	0.89	38.5	2.3	7.5	3.5	67	80	1LE1603-1EA2	160	0.08
30	33.5	200 L	2955	97		93.3	93.5	92.9	0.87	53	2.5	7	3.3	67	80	1LE1603-2AA4	225	0.134
37	41.5	200 L	2955	120		93.7	94.2	94	0.88	65	2.5	7.1	3.2	67	80	1LE1603-2AA5	250	0.158
45	51	225 M	2960	145		94	94.5	94.4	0.89	78	2.4	6.9	3.3	73	87	1LE1603-2BA2 -	315	0.26
55	62	250 M	2975	177		94.3	94.5	93.9	0.89	95	2.3	6.7	3.1	73	87	1LE1603-2CA2	385	0.46
75	84	280 S	2975	241	IE2	94.7	94.8	94.1	0.89	128	2.4	6.8	3	74	88	1LE1603-2DA0 -	510	0.77
90	101	280 M	2975	289	IE2	95	95.1	94.6	0.9	152	2.4	7.2	3.1	74	88	1LE1603-2DA2 -	590	0.94
110	123	315 S	2982	352		95.2	95.4	94.9	0.91	183	2.4	7.1	3.1	75	89	1LE1603-3AA0 -	750	1.4
132	148	315 M	2982	423		95.4	95.5	95.2	0.91	220	2.5	7.2	3.1	75	89	1LE1603-3AA2	880	1.6
160	180	315 L	2982	512	IE2	95.6	95.7	95.2	0.92	265	2.8	7.8	3.3	77	91	1LE1603-3AA4	980	1.9
200	224	315 L	2982	640		95.8	95.9	95.5	0.92	330	2.5	7.2	3	77	91	1LE1603-3AA5	1150	2.3
Voltag	es ²⁾												Ver	sion			Orde	r code
		400 VY	60) Hz ¹⁾	460 VY								Sta	ndard		2 2	-	
	400 VΔ/		60) Hz ¹⁾	460 VΔ								Sta	ındard		2 2 3 4 charge 2 7 charge 4 0 9 0	_	
50 Hz	500 VY												Wit	hout ac	dditional	charge 2 7	_	
50 Hz	500 VΔ														dditional	charge 4 0	_	
For oth	er volta	iges ¹⁾ a	ınd moı	re info	rmation, se	ee fror	n page	e 2/88								9 0		
Types	of cons	structio	n										Ver	sion			Orde	r code
Withou	it flange	:	IN	1 B3 ³⁾									Sta	ndard		A	-	
With fla	ange		IN	1 B5 ³⁾									Wit	h addit	ional ch	arge F	_	
For oth	er type	s of con	structio	n and	more info	rmatio	n, see	from	page 2	/94								
	protect						Line						Ver	sion			Orde	r code
PTC th	ermisto	r with 3	temper	ature	sensors								Sta	ndard		В	-	
For oth	er moto	or protec	ction an	nd mor	e informat	ion, se	ee from	n page	2/99									
Termir	nal box	positio	n										Ver	sion				
Termin	al box a	at top											Sta	ndard		4		
For oth	er term	inal box	positio	ons an	d more inf	ormati	on, se	e from	page 2	2/101								
	al versi																Orde	r code(s)
Forced	l-air cod	oled mot	ors w/c	ext. f	an/fan cov	er (IC	418)									1LE1603	-Z F90+	++

1LE1603- ■-■■■■-Z . . . +. . . +. . . +. . .

For options, see from page 2/109

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Motors with IE3 Premium Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1603 Performance Line

Selection and ordering data (continued)

			Once	tina :	olugo ot =	otod =	owor									Coat iron parios		
_	_	F		_	alues at ra					,	T ,	, ,	T /	,	,	Cast-iron series 1LE1603 –		,
P _{rated,} 50 Hz/ P50	P _{rated} , 60 Hz/ P60 1)	Frame size	ted	T _{ra-} ted 50 Hz	Different IE class 60 Hz/P60	ted	$\eta_{\text{ra-}}$ ted 50 Hz,	$\eta_{\text{ra-}}$ ted 50 Hz,	COS- Prated, 50 Hz,		T_{LR}/T_{ra} ted	I _{LR} / I _{ra-} ted	$T_{\rm B}/T_{\rm ra-}$ ted	L _{pfA} , 50 Hz	L _{WA} , 50 Hz	Performance Line	m _{IM B3}	J
	1)					4/4	3/4	2/4	4/4	400 V	50 Hz	50 Hz	50 Hz			Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α					dB(A)		kg	kgm ²
Cool	ing: Se	lf-venti	lated (IC 411) or with	order	code l	F90 fo	rced-ai	r cool	ed wit	hout	exteri	nal fan	and far	n cover (IC 418)		
Effic	iency a	iccordir Therma	ng to IE	EC 600	034-30: IE	3 Prer	nium se F)	Efficie	ncy, se	of pro	factor tectio	' (SF) 'n util	1.15 lizatio	n in ac	cordan	ce with thermal class 130) (temper:	iture clas
					pm at 60		133 I <i>)</i> ,	11 33 0	acgi cc	oi pio	iectio	ii, uu	ızatıc	iii iii ac	cordan	ce with thermal class 150	(tempera	iture cias
	2.55	100 L		14.3		86.7	87.3	86.4	0.83	4.4	2.1	7.6	3.6	60	72	1LE1603-1AB4	4 0	0.014
	3.45	100 L	1460	20		87.7	88.4	88.2	0.83	5.9	2.3	7.3	3.7	60	72	1LE1603-1AB5		0.014
	4.55	112 M	1460	26		88.6	89.2	88.6	0.82	7.9	2.4	7.1	3.7	58	70	1LE1603-1BB2		0.017
	6.3	132 S	1470	36	IE2	89.6	90.1	89.5	0.84	10.5	2.1	7.2	3.4	64	76	1LE1603-1CB0 -		0.046
. 5	8.6	132 M	1470	49	IE2	90.4	91.1	90.8	0.84	14.3	2.4	7.4	3.5	64	76	1LE1603-1CB2	80	0.046
	12.6	160 M	1475	71		91.4	91.9	91.4	0.84	20.5	2.2	6.8	3.2	65	77	1LE1603-1DB2		0.083
	17.3	160 L	1475	97		92.1	92.3	91.5	0.82	28.5	2.5	8.5	3.8	65	77	1LE1603-1DB4		0.099
8.5	21.3	180 M	1470	120		92.6	93.1	92.9	0.82	35	2.5	7.2	3.3	66	73	1LE1603-1EB2 -		0.13
	25.3	180 L	1470	143		93	93.7	93.6	0.83	41	2.3	6.8	3.3	68	75	1LE1603-1EB4 -		0.14
	34.5	200 L	1470	195	IE2	93.6	94	93.7	0.84	55	2.6	7.3	3.1	65	72	1LE1603-2AB5		0.22
	42.5	225 S	1478	239	IE2	93.9	94.5	94.4	0.86	66	2.5	6.4	2.7	65	78	1LE1603-2BB0 -		0.42
	52	225 M	1478	291	IE2	94.2	94.9	95.1	0.86	80	2.6	6.4	2.7	65	78	1LE1603-2BB2		0.47
	63	250 M	1482	354	IE2	94.6	95.1	95	0.87	96	2.5	6.8	2.9	66	79	1LE1603-2CB2		0.85
	86	280 S	1485	482	IE2	95	95.3	95	0.86	133	2.5	6.9	3	69	83	1LE1603-2DB0 -		1.4
	104	280 M	1485	579	IE2	95.2	95.5	95.3	0.87	157	2.6	7.2	3	70	84	1LE1603-2DB2		1.7
	127	315 S	1488	706		95.4	95.8	95.5	0.87	191	2.6	6.8	2.9	70	84	1LE1603-3AB0 -		2.2
32	152	315 M	1490	846		95.6	95.9	95.9	0.87	230	2.8	7.3	3	73	87	1LE1603-3AB2	960	2.9
160	184	315 L	1490	1025		95.8	96.1	96.1	0.87	275	2.9	7.3	3.1	73	87	1LE1603-3AB4	990	3.1
200	230	315 L	1488	1284	IE2	96	96.3	96.1	0.88	340	3.2	7.4	3	73	87	1LE1603-3AB5	1190	3.7
/oltage	es 2)												Ver	sion			Ord	er code
		/400 VY	60) Hz ¹⁾	⁾ 460 VY									ndard		2 2	_	0. 0000
		690 VY	-		⁾ 460 VΛ									ndard		3 4	_	
	500 VY	300 11			.00 74										ditional		_	
	500 V1 500 VΔ														ditional		_	
		ages 1) a	and mo	re info	rmation, s	see from	m pag	e 2/88					VVIL	out at	. and on idi	9 0	Ī	
		structio		.5 11110	ation, c		pag	2 2,00					Ver	sion				er code
••	t flange			и ВЗ ^З)									ndard		Δ		0. 0000
With fla	_			л В5 ³											ional ch	arge	_	
		s of con			d more info	ormatic	n see	from	nage 2	/94			V V I LI	i addit	ioriai on	argo	Ī.,	
	protec		.5.1 4011	on and			Line	, 110111	page 2	, , ,			Ver	sion				er code
			tempe	rature	sensors		21110							ndard		Δ	_ Oid	0. 0000
					re informa	tion s	ee fron	n nage	2/99				Jia	. raai u				
		positio		101	o inionina		00 1101	page	2/00				Ver	sion				
	al box	•												ndard			4	
			noeitia	nne an	d more in	formet	ion so	e from	nage '	2/101			Sia	iiuaiu				
	ıl versi		Positio	JI IO CIII	a more in	ionnat	1011, 30	o iioii	, page ,	2,101							Ord	er code(s
•			tore w/	o ovt 4	fan/fan co	vor (IC	110)									1LE1603 ■-■■■		,
-orcea	-air co) ied 11101	iors w/	J ext. 1	iaii/iaii co	ver (IC	410)									ILE 1003	- 2 F90	+++

For options, see from page 2/109

1LE1603-....

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

²⁾ Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE3 Premium Efficiency



Order code(s)

1LE1603- ■-■■■■-Z F90+. . . + . . . + .

1LE1603- ■-■■■■-Z . . . +. . . +. . . +. . .

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1603 Performance Line

Selection and ordering data (continued) Operating values at rated power **Cast-iron series** Different $\eta_{\rm ra-}$ 1LE1603 P_{rated}, P_{rated}, Frame T_{LR} $m_{\rm IM~B3}$ $n_{\rm ra-}$ $T_{\rm ra-}$ $\eta_{\rm ra-}$ $\eta_{\text{ra-}}$ cos- I_{ra} I_{LR}/ I_{ra-} $T_{\rm B}/$ L_{nfA} L_{WA} J IE class ted size Performance Line 50 Hz/ 60 Hz/ ted $\varphi_{\text{rated, ted}}$ $T_{\rm ra-}$ T_{ra} ted ted P50 P60 1) 50 Hz 50 Hz 60 Hz/P60 50 Hz, 50 Hz, 50 Hz, 50 Hz, 50 Hz. ted ted ted 3/4 400 V 50 Hz 50 Hz 50 Hz 4/4 2/4 4/4 Article No. % % dB(A) dB(A) kgm² kW kW FS % Α rpm Nm kg Cooling: Self-ventilated (IC 411) or with order code F90 forced-air cooled without external fan and fan cover (IC 418) Efficiency according to IEC 60034-30: IE3 Premium Efficiency, service factor (SF) 1.15 Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) e: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz ¹ 1.5 1.75 100 L 970 14.8 IE2 82.5 83.1 81.5 0.73 3.6 1.9 5.2 2.8 59 71 1LE1603-1AC4 - 36 0.011 2.2 970 22 85 83.9 74 1LE1603-1BC2 - 53 0.017 2.55 112 M IE2 84.3 0.75 5 2.2 5.6 2.8 65 75 1LE1603-1CC0 - 61 3 3.45 132 S 975 30 IE2 85.6 86.9 86.6 0.77 6.6 1.6 5.3 2.4 63 0.029 1LE1603-1CC2 - 70 2.5 75 4 975 IF2 86.8 87.8 0.77 8.6 17 5.6 63 0.0374.55 132 M 39 88 5.5 6.3 132 M 975 54 IE2 88 89.1 88.8 0.77 11.7 1.8 5.7 2.6 63 75 1LE1603-1CC3 - 83 0.046 7.5 160 M 980 73 IF2 89.1 90.1 89.7 2.3 79 1LE1603-1DC2 - 122 0.098 8.6 0.76 16 1.9 4.9 67 160 L 975 IF2 90.3 91.2 90.8 0.77 23 19 79 1LE1603-1DC4 - 147 11 12.6 108 5 23 67 0.12 15 18 180 L 975 147 IE2 91.2 92 91.9 0.8 29.5 2.3 5.9 2.8 61 68 1LE1603-1EC4 - 180 0.19 18.5 181 IE2 92.5 92.4 0.79 37 2.5 5.6 2.6 71 1LE1603-2AC4 - 215 0.28 22 200 L 978 91.7 64 1LE1603-2AC5 - 230 22 26.5 200 L 978 215 IF2 922 93.1 93.2 0.79 43.5 2.5 5.6 26 61 68 0.32 30 225 M 982 292 IE2 92.9 93.6 93.5 0.83 56 2.6 6.6 3 64 77 1LE1603-2BC2 - 325 0.67 36 37 250 M 985 93.3 94 2.7 2.9 75 1LE1603-2CC2 - 405 44.5 359 IE2 94 0.85 67 62 45 54 280 S 988 435 IF2 93.7 94.3 94.2 0.85 82 3 6.8 2.8 60 74 1LE1603-2DC0 - 510 1 4 55 66 280 M 988 532 IE2 94.6 94.4 0.85 99 3.2 7.2 60 74 1LE1603-2DC2 - 560 1.6 94.1 3 75 94.9 78 1LE1603-3AC0 - 750 90 315 S 990 723 94.6 94.4 0.84 136 2.6 7.5 3.1 63 2.6 1LE1603-3AC2 - 890 95.2 3.1 90 108 315 M 991 867 IE2 94.9 94.9 0.85 161 2.5 6.7 2.8 63 78 991 110 132 315 L 1060 IE2 95.1 95.5 95.3 0.84 199 2.8 7.2 3 63 78 1LE1603-3AC4 - 990 3.9 132 158 315 L 991 1272 IE2 95.4 95.9 95.8 0.84 240 2.7 7.2 3 67 82 1LE1603-3AC5 - 1110 4.4 7 7 3.5 1LE1603-3AC6 - 1160 160 192 315 L 991 1542 IF2 956 958 95.4 0.83 290 82 46 3.3 67 Voltages 2) Version Order code 60 Hz 1) 460 VY 50 Hz 230 VΔ/400 VY Standard 2 3 2 4 2 4 7 60 Hz ¹⁾ 460 VΔ 50 Hz 400 VΔ/690 VY Standard 50 Hz 500 VY Without additional charge Without additional charge 0 50 Hz 500 VΔ For other voltages 1) and more information, see from page 2/88 9 0 Types of construction Version Order code IM B3 3) Standard Without flange IM B5 3) With additional charge With flange For other types of construction and more information, see from page 2/94 Order code Motor protection Version PTC thermistor with 3 temperature sensors Standard For other motor protection and more information, see from page 2/99 Terminal box position Version Terminal box at top Standard For other terminal box positions and more information, see from page 2/101

Special versions

For options, see from page 2/109

Forced-air cooled motors w/o ext. fan/fan cover (IC 418)

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

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Motors with IE3 Premium Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1603 Performance Line

Selection and ordering data (continued)

			Oner	ating v	/alues at r	ated n	ower									Cast-iron series		
D	D	Frame		$T_{\rm ra-}$	Different			n	cos-	1	T _{I B} /	1/	$T_{\rm B}/$	1	1,,,,	1LE1603 -	muino	J
50 Hz/	60 Hz/	Frame size	n _{ra-} ted	ted	IE class	ted	$\eta_{ ext{ra-}}$ ted	$\eta_{ ext{ra-}}$ ted	φ_{rated}		T_{ra}	I _{LR} / I _{ra-}	$T_{\rm ra-}$	L _{pfA} , 50 Hz	L _{WA} , 50 Hz	Performance Line	m _{IM B3}	U
P50	P60 1)		50 Hz	50 Hz	60 Hz/P60	50 Hz, 4/4	50 Hz, 3/4	50 Hz, 2/4	50 Hz, 4/4	50 Hz, 400 V	ted 50 Hz	ted 50 Hz	ted 50 Hz			Article No.		
kW	kW	FS	rpm	Nm		%	%	%	,, .	Α				dB(A)	dB(A)		kg	kgm ²
Cool	ing: Se	lf-ventil) or with	order	code F	90 fo	rced-ai	r coole	ed wit	hout	exteri	, ,	, ,	cover (IC 418)	, and the second	, in the second
 Effic 	iency a	ccordin	ig to li	EC 600	034-30: IE	3 Prer	nium E	Efficie	ncy, se	ervice	factor	(SF)	1.15			ce with thermal class 130	tomporat	uro elece l
					n at 60 Hz	-	ss г <i>)</i> ,	irəə t	iegree	oi pio	lectio	n, uu	ızalıc	III III ac	Coruani	ce with thermal class 130	temperat	ure class i
2.2	2.55	132 S	725	29	11 41 00 112		82.9	81.8	0.63	6.2	1.4	3.6	1.8	64	77	1LE1603-1CD0	66	0.038
3	3.45	132 M	725	40		83.5	84.2	82.7	0.61	8.5	1.5	3.8	2	64	77	1LE1603-1CD2		0.048
4	4.55	160 M	730	52		84.8	85.6	84.5	0.66	10.3	1.6	3.6	1.8	65	78	1LE1603-1DD2		0.065
5.5	6.3	160 M	730	72		86.2	86.9	85.7	0.66	14	1.6	3.8	1.9	65	78	1LE1603-1DD3	110	0.083
7.5	8.6	160 L	728	98		87.3	88.2	87.7	0.65	19.1	1.6	3.8	1.9	65	78	1LE1603-1DD4	135	0.116
11	13.2	180 L	725	145		88.6	89.7	89.6	0.74	24	2.1	5.1	2.4	61	74	1LE1603-1ED4 -	190	0.267
15	18	200 L	730	196		89.6	90.1	89.4	0.73	33.5	3	6.8	3.7	57	70	1LE1603-2AD5	255	0.420
18.5	22	225 S	732	241		90.1	90.6	90	0.75	39.5	2.5	5.9	3	56	70	1LE1603-2BD0 -	270	0.50
22	26.5	225 M	732	287		90.6	91.4	91.2	0.77	45.5	2.6	5.9	2.9	56	70	1LE1603-2BD2		0.55
30	36	250 M	735	390		91.3	91.8	91.5	0.79	60	2.6	6.1	3	60	74	1LE1603-2CD2		0.86
37	44.5	280 S	736	480		91.8	92.5	92.4	0.78	75	2.3	5.4	2.4	63	77	1LE1603-2DD0		1.1
45	54	280 M	738	582	IE2	92.2	92.8	92.6	0.8	88	2.5	5.9	2.5	65	79	1LE1603-2DD2		1.6
55	66	315 S	740	710		92.5	92.9	92.6	0.81	106	2.3	6	2.7	66	81	1LE1603-3AD0		2.0
75	90	315 M	738	970		93.1	93.5	93.3	0.81	144	2.3	5.9	2.7	69 71	84 85	1LE1603-3AD2		2.5
90 110	108 132	315 L 315 L	740 740	1161 1419		93.4	94.2	94.3	0.83	168 205	2.7	5.8 6.7	2.5	74	88	1LE1603-3AD4		3.1
132	158	315 L	740	1703		94	94.4		0.81	250	2.9	7.2	3.3	76	90	1LE1603-3AD6		4.6
Voltage		313 L	740	1700		34	34.4	34.1	0.01	200	2.3	1.2		sion	30	TEE 1003-3AD011-		r code
		400 VY	6	0 Hz ¹) 460 VY									ndard		2 2	- Orde	i code
		690 VY	-		¹ 460 VΛ									ndard		3 4	_	
50 Hz (000 1	Ü	0112	400 VA										dditional		_	
50 Hz (ditional		_	
		ages 1) a	nd mo	ore info	rmation, s	ee fror	n pag	e 2/88								9 0		
Types	of cons	structio	n				1 0						Ver	sion			Orde	r code
Withou	t flange)	11	и вз ^з)								Sta	ndard		A	-	
With fla	ange		IN	И В5 ³)								Wit	h addit	ional ch	arge F	-	
For oth	er type	s of con	structi	on and	d more info	ormatic	n, see	from	page 2	/94						•		
Motor	protect	tion											Ver	sion			Orde	r code
PTC th	ermisto	r with 3	tempe	rature	sensors								Sta	ndard		В	-	
				nd mo	re informa	tion, se	ee fron	n page	2/99									
		positio	n											sion				
	al box a												Sta	ndard		4		
			positi	ons an	d more int	format	ion, se	e from	page :	2/101								
•	ıl versi			,			445									41 54000		r code(s)
					fan/fan co	ver (IC	418)									1LE1603 ■-■■■		
For opt	tions, se	ee from p	page 2	2/109												1LE1603 ■-■■■■	-2+.	+ +

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

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Motors with IE3 Premium Efficiency



Self-ventilated motors · Cast-iron series 1LE1503 Basic Line with increased power

Selection and ordering data

			Opera	ating v	alues at ra	ated p	ower									Cast-iron series		
P _{rated}	Prated	Frame		T _{ra-}	Different		η_{ra}	$\eta_{ra ext{-}}$	cos-	I _{ra-}	$T_{\rm LR}$	/ _{I R} /	$T_{\rm B}/$	L_{pfA}	L _{WA} .	1LE1503 - Basic Line	m _{IM B3}	J
50 Hz/	60 Hz/	size	ted	ted	IE class	ted	ted	ted	φ_{rated}	, ted	$T_{\rm ra}$	I _{ra-}	$T_{\rm ra-}$	50 Hz	,		50	
P50	P60		50 Hz	50 Hz	60 Hz/P60	50 Hz, 4/4	50 Hz, 3/4	50 Hz, 2/4	50 Hz, 4/4	50 Hz, 400 V		ted : 50 Hz	ted			Autiala Na		
kW	kW	FS	rpm	Nm		%	%	%	4/4	400 V	30 1 12	. 50 1 12	. 50 1 12		dB(A)	Article No.	kg	kgm ²
) or with				rced-a		ed wit	thout	exter	٠,	٠,	n cover (IC 418)	Ng	Ngiii
• Effic	iency a	accordi	ng to I	EC 60	034-30: II	3 Pre	mium	Efficie	ncy, se	ervice	factor	(SF)	1.15		and idi	ce with thermal class 13		
							ass F),	IP55 c	degree	of pro	tectio	n, uti	lizatio	n in ac	cordan	ce with thermal class 13) (tempera	ture class B)
					rpm at 60		04.0	04.0	0.00	00	0.4	0.0	4.5	00	0.0	41 54500 4040	- 00	0.004
11 22	12.6	132 M		36 71		91.2	91.9	91.8	0.86	20 37.5	2.4	8.8	4.5	68 70	80 82	1LE1503-1CA6		0.031
30	25.3	160 L	2950 2950	97		93.3	93.4	93.3	0.91	53	2.6		3.9	67	80	1LE1503-1DA6		
45	33.5 51	180 L 200 L	2950	146		93.3	93.9	93.9	0.88	79	2.5	8.6 7.1	3.9	77	84	1LE1503-1EA6 - 1LE1503-2AA6 - 1LE150		0.094
55	62	200 L 225 M	2965	177		94.3	94.6	94.4	0.88	96	2.8	8	3.7	76	89	1LE1503-2BA6		0.16
75	84	250 M	2970	241		94.7	94.9	94.5	0.00	127	2.2	6.8	2.9	78	92	1LE1503-2CA6		0.56
110	123	280 M	2975	353		95.2	95.4	95.1	0.91	183	2.5	7.7	3.2	78	92	1LE1503-2DA6 -		1.1
					rpm at 60		55.7	55.1	0.01	100	2.0	, . ,	٥.٤	, ,	J.L	.121000 1070	_ 550	1.1
11	12.6			71	pm at oo	91.4	91.9	91.5	0.8	21.5	2.6	7.7	3.6	64	76	1LE1503-1CB6	97	0.049
18.5	21.3	160 L	1475	120		92.6	92.4	91.1	0.76	38	2.8	8.3	4	65	74	1LE1503-1DB6		0.101
30	34.5	180 L	1470	195	IE2	93.6	94.2	94.1	0.79	59	2.8	7.8	3.7	68	75	1LE1503-1EB6		0.173
37	42.5	200 L	1475	240		93.9	94.3	94.2	0.81	70	3.1	8.1	3.5	65	72	1LE1503-2AB6		0.275
55	63	225 M	1478	355	IE2	94.6	95.3	95.5	0.86	98	2.8	6.5	2.7	70	83	1LE1503-2BB6		0.65
75	86	250 M	1486	482		95	95.2	94.8	0.85	134	3	7.9	3.4	70	83	1LE1503-2CB6 -	510	1.1
110	127	280 M	1486	707	IE2	95.4	95.5	95	0.85	196	3	8.3	3.4	73	87	1LE1503-2DB6	710	1.8
6-pole	: 1000	rpm at	50 Hz,	1200 ı	rpm at 60	Hz ¹⁾												
18.5	22	180 L	975	181		91.7	92.3	91.9	0.77	38	2.6	6.9	3.3	68	80	1LE1503-1EC6■-■■■	185	0.247
30	36	200 L	978	293	IE2	92.9	93.7	93.7	0.79	59	2.8	6.5	2.8	61	68	1LE1503-2AC6	264	0.434
37	44.5	225 M	982	360	IE2	93.3	93.9	93.7	0.81	71	3	7.1	3.2	65	79	1LE1503-2BC6	395	0.84
45	54	250 M	986	436	IE2	93.7	94.3	94.2	0.84	83	2.8	7	2.9	68	81	1LE1503-2CC6	480	1.3
75	90	280 M	988	725		94.6	95	94.8	0.83	138	3.7	8.6	3.3	68	81	1LE1503-2DC6	630	1.9
Voltag	es ²⁾												Ver	sion			Orde	er code
50 Hz	230 VΔ	/400 VY) 460 VY								Sta	ndard		2 2 3 4	-	
50 Hz	400 V∆	/690 VY	6	60 Hz ¹	⁾ 460 V∆								Sta	ndard		3 4	-	
50 Hz	500 VY												Wit	hout ac	Iditional	charge 2 7 charge 4 0	-	
	500 V∆												Wit	hout ac	Iditional	charge 4 0	-	
				ore info	rmation,	see fro	m pag	e 2/88								9 0		
		structio		3	١									sion			Orde	er code
	it flange	9		M B3 ³										ndard		A	-	
With fla	_			M B5 ³ M B14											onal cha	ŭ .	_	
With fla	0	on of ac-				orm of	on oc	from	noce C	2/0.4			vvit	ı addıtı	ional cha	arge K	_	
			istructi	on and	d more inf	ormati	on, see	HOIN	page 2	./94			\/o	cion			Ordo	or code
Withou	protec	uon												sion ndard				er code
		or with 3	tempe	rature	sensors										ional cha			
					re informa	ation s	ee from	n nag	2/99				4 VIL	i addill	onal one	argo		
		position		. 10 1110	i o ii ii oi i i i	acioii, 8	,56 1101	., payt	5 2100				Ver	sion				
	al box	-												ndard			4	
			k positi	ions ar	nd more ir	forma	tion, se	ee from	page	2/101			5.0					
	al versi		. poolii	ziio ai			5, 00		- pago	_,							Orde	er code(s)
-		ee from	page :	2/109												1LE1503 ■-■■■		. ,
- J	, 0		1 9 - 1	,														

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



Motors with IE3 Premium Efficiency

Self-ventilated motors · Cast-iron series 1LE1603 Performance Line with increased power

Selection and ordering data

			Opera	ating v	alues at r	ated p	ower									Cast-iron series		
P _{rated} ,	P _{rated} ,	Frame	n _{ra-}	$T_{\rm ra-}$	Different		$\eta_{ra ext{-}}$	$\eta_{\text{ra-}}$	COS-	I _{ra-}	T_{LR}	I _{LR} /	$T_{\rm B}/$	$L_{pfA,}$	L _{WA} ,	1LE1603 -	m _{IM B3}	J
50 Hz/	60 Hz/	size	ted	ted	IE class		ted	ted	Prated,		T _{ra-}	I _{ra-}	T _{ra-}	50 Hz	50 Hz	Performance Line		
P50	P60		50 Hz	50 Hz	60 Hz/P60	50 Hz, 4/4	50 Hz, 3/4	50 Hz, 2/4	50 Hz, 4/4	50 Hz, 400 V		ted 50 Hz	ted 50 Hz			Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α					dB(A)	ATTIOIC IVO.	kg	kgm ²
• Cool	ling: Se	elf-vent) or with				rced-a		ed wit	hout	exter	. ,	. ,	cover (IC 418)	g	- ig
 Effic 	iency a	accordi	ng to lÌ	EC 600	Ó34-30: IE	3 Pre	mium	Efficie	ncy, se	ervice	factor	(SF)	1.15			ce with thermal class 130 ((1 a man a mat	uva alaaa Di
					pm at 60		155 F),	IP99 (aegree	oi pro	lectio	n, uu	ızalıc	III III ac	Cordani	ce with thermal class 130 (temperati	ure class b
2-pole	12.6	132 M		36	pili at ou	91.2	91.9	91.8	0.86	20	2.4	8.8	4.5	68	80	1LE1603-1CA6	80	0.031
22	25.3	160 L	2950	71		92.7	93.4	93.3	0.91	37.5	2.8	8.7	4	70	82	1LE1603-1DA6		0.077
30	33.5	180 L	2950	97		93.3	93.9	93.9	0.88	53	2.6	8.6	3.9	67	80	1LE1603-1EA6		0.094
45	51	200 L	2950	146		94	94.3	94	0.87	79	2.5	7.1	3.2	77	84	1LE1603-2AA6 -		0.16
55	62	225 M	2965	177		94.3	94.6	94.4	0.88	96	2.8	8	3.7	76	89	1LE1603-2BA6	370	0.31
75	84	250 M	2970	241		94.7	94.9	94.5	0.9	127	2.2	6.8	2.9	78	92	1LE1603-2CA6 -	455	0.56
110	123	280 M	2975	353		95.2	95.4	95.1	0.91	183	2.5	7.7	3.2	78	92	1LE1603-2DA6	660	1.1
4-pole	: 1500	rpm at	50 Hz,	1800 r	pm at 60	Hz ¹⁾												
11	12.6	132 M	1470	71		91.4	91.9	91.5	8.0	21.5	2.6	7.7	3.6	64	76	1LE1603-1CB6	97	0.049
18.5	21.3	160 L	1475	120		92.6	92.4	91.1	0.76	38	2.8	8.3	4	65	74	1LE1603-1DB6	126	0.101
30	34.5	180 L	1470	195	IE2	93.6	94.2	94.1	0.79	59	2.8	7.8	3.7	68	75	1LE1603-1EB6		0.173
37	42.5	200 L	1475	240		93.9	94.3	94.2	0.81	70	3.1	8.1	3.5	65	72	1LE1603-2AB6		0.275
55	63	225 M	1478	355	IE2	94.6	95.3	95.5	0.86	98	2.8	6.5	2.7	70	83	1LE1603-2BB6		0.65
75	86	250 M	1486	482		95	95.2	94.8	0.85	134	3	7.9	3.4	70	83	1LE1603-2CB6		1.1
110	127	280 M		707	IE2	95.4	95.5	95	0.85	196	3	8.3	3.4	73	87	1LE1603-2DB6	710	1.8
•		•			pm at 60		00.0	04.0	0.77	00	0.0	0.0	0.0	00	0.0	41 54000 4500	405	0.047
18.5 30	22 36	180 L 200 L	975 978	181 293	IE2	91.7 92.9	92.3 93.7	91.9	0.77	38 59	2.6	6.9	3.3 2.8	68 61	80 68	1LE1603-1EC6 - 1LE1603-2AC6 - 1LE160		0.247
37	44.5	200 L 225 M	982	360	IE2	93.3	93.7	93.7	0.79	71	3	7.1	3.2	65	79	1LE1603-2BC6		0.434
45	54	250 M	986	436	IE2	93.7	94.3	94.2	0.84	83	2.8	7.1	2.9	68	81	1LE1603-2CC6		1.3
75	90	280 M		725	ILZ	94.6	95	94.8	0.83	138	3.7	8.6	3.3	68	81	1LE1603-2DC6		1.9
Voltag			000	. 20		0 1.0		0 1.0	0.00		0	0.0		sion	· ·			code
•		/400 VY	61	1 Hz 1) 460 VY									ndard		2 2	- Order	code
		/690 VY			¹ 460 VΛ									ndard		2 2 3 4	_	
	500 VY		0.	0112	100 14										Iditional		_	
	500 VΔ														Iditional	-	_	
For oth	ner volta	ages 1)	and mo	re info	rmation,	see fro	m pag	e 2/88								9 0		
Types	of con	structio	on										Ver	sion			Order	code
Withou	ıt flange	Э	IN	л ВЗ ^З)								Sta	ndard		A	-	
With fla	ange		IN	л В5 ³)								Witl	h additi	ional cha	arge F	-	
With fla	ange		IN	ЛВ14	3)								Witl	h additi	ional cha	arge K	-	
For oth	ner type	es of cor	nstruction	on and	d more inf	ormati	on, see	e from	page 2	2/94								
	protec													sion			Order	code
					sensors								Sta	ndard		В	-	
				nd mo	re informa	ation, s	ee fror	n page	e 2/99									
		positio	n											sion				
	al box a					,				0/40:			Sta	ndard		4		
			x position	ons an	d more in	itormat	ion, se	e trom	page	2/101							Curd	, aada/-\
-	al versi		page (2/100												11 E1602		r code(s)
ror op	tions, s	ee from	page 2	2/109												1LE1603 ■-■■■■	I-Z+	.++

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

²⁾ Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE2 High Efficiency



Self-ventilated or forced-air cooled motors · Aluminum series 1LE1001

Selection and ordering data

Operating values at rated power Aluminum series																		
Pustad	Pustad	Frame		_	Different		η_{ra}	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T _{LR} /	/ _{I R} /	$T_{B}/$	$L_{pfA,}$	L _{WA} .	1LE1001	m _{IM B3}	J
	60 Hz/		ted.	ted,	IE class		ted,	ted,	φ_{rated}		$T_{\rm ra-}$	$I_{\rm ra-}$	$T_{\rm ra-}$	-ріА, 50 Hz			WIN B3	Ü
P50	P60		50 Hz		60 Hz/P60	50 Hz,	50 Hz,	50 Hz,	50 Hz,	50 Hz,	ted,	ted,	ted,					
	1)					4/4	3/4	2/4	4/4		50 Hz	50 Hz	50 Hz			Article No.		2
kW	kW	FS	rpm	Nm		%	%	%		Α						▲ New	kg	kgm ²
• Cool	ing: Se	elf-venti	lated (IC 41	I) or with 034-30: II	order	code	F90 fo	rced-ai	r cool	ed wit	hout	exter	nal fan	and fa	n cover (IC 418)		
• Insul	ation:	Therma	l class	: 155 (temperal	ure cla	ass F),	IP55 c	degree	of pro	tectio	n, util	lizatio	n in ac	corda	nce with thermal class 130	tempera	ture class E
2-pole	3000	rpm at 5	50 Hz,	3600	rpm at 60	Hz ¹⁾												
0.18	0.21	63 M	2835	2.5	IE1	72.1	72.6	69.9	0.86	1.75	2.1	5.2	2.3	64	71	▲ 1LE1001-0BA2 ■-■■■■	4	0.00022
0.25	0.29	63 M	2840	3.7	IE1	75.0	75.7	73.4	0.86	2.45	2.5	5.7	2.5	64	71	▲ 1LE1001-0BA3■-■■■■	5	0.00026
0.37	0.43	71 M	2770	1.3		69.5	70.5	67.9	0.81	0.95	2.5	4.1	2.5	58	69	▲ 1LE1001-0CA2■-■■■■	6	0.00035
0.55	0.63	71 M	2780	1.9		74.1	75.2	72.9	0.80	1.34	2.6	4.6	2.6	58	69	▲ 1LE1001-0CA3■-■■■■	7	0.00045
0.75	0.86	80 M	2805	2.6		77.4	80	80.1	0.84	1.67	1.9	4.9	2.3	60	71	1LE1001-0DA2	9	0.0008
1.1	1.27	80 M	2835	3.7		79.6	81.3	80.9	0.83	2.4	2.7	6	3.1	60	71	1LE1001-0DA3	11	0.0011
1.5	1.75	90 S	2885	4.9		81.3	81.7	79.8	0.84	3.15	2.7	6.9	3.6	65	77	1LE1001-0EA0	13	0.0017
2.2	2.55	90 L	2890	7.3		83.2	83.7	82	0.85	4.5	2.5	7.1	3.7	65	77	1LE1001-0EA4	15	0.0021
3	3.45	100 L	2905	9.9		84.6	85.5	84.6	0.84	6.1	2.3	7	3.3	67	79	1LE1001-1AA4	21	0.0044
4	4.55	112 M	2945	13		85.8	86.2	85.1	0.85	7.9	2.1	8	3.6	69	81	1LE1001-1BA2	27	0.0092
5.5	6.3	132 S	2950	18		87	88	87.6	0.87	10.5	1.8	6.6	2.9	68	80	1LE1001-1CA0	39	0.02
7.5	8.6	132 S	2950	24		88.1	88.5	87.6	0.87	14.1	2.2	7.5	3.1	68	80	1LE1001-1CA1		0.024
11	12.6	160 M	2955	36		89.4	89.3	88	0.87	20.5	2.1	7.4	3.2	70	82	1LE1001-1DA2		0.045
15	17.3	160 M	2955	48		90.3	90.7	90	0.88	27	2.4	7.6	3.4	70	82	1LE1001-1DA3	75	0.053
18.5	21.3	160 L	2955	60		90.9	91.3	90.6	0.88	33.5	2.9	7.9	3.6	70	82	1LE1001-1DA4	84	0.061
22	24.5	180 M	2940	71		91.3	91.8	91.3	0.87	40	2.7	7.4	3.6	77	84	1LE1001-1EA2	123	0.069
30	33.5	200 L	2960	97		92	92.3	91.8	0.87	54	2.5	6.9	3.3	78	85	1LE1001-2AA4		0.13
37	41.5	200 L	2960	119		92.5	93	92.7	0.88	66	2.7	7.4	3.5	78	85	1LE1001-2AA5	178	0.15
Voltage	es												Ver	sion			Ord	er code
50 Hz :	230 VA	400 VY) 460 VY								Sta	ındard		2 2 3 4	-	
50 Hz	400 V∆/	690 VY	6	0 Hz ¹	⁾ 460 V∆												-	
50 Hz 500 VY										Without additional charge 2 7 Without additional charge 4 0				-				
50 Hz		43											Wit	hout ac	dditiona		_	
				re info	ormation,	see fro	om pag	e 2/85								9 0		
Types	of con	structio			,								Ver	sion			Ord	er code
Withou	_)		и вз ^з										ındard		A	-	
With fla	ange			и В5 ³									Wit	h addit	ional cl	harge F	-	
With fla	0			И В14									Wit	h addit	ional cl	harge K	-	
For other types of construction and more information, see from page 2/90																		
Motor protection												Ver	sion			Ord	er code	
Withou	Without															-		
PTC th	ermisto	r with 1	or 3 te	mpera	ature sens	sors (fr	ame si	zes 63	to 90 c	or 100 t	to 200)	Wit	With additional charge				
For oth	er moto	or protec	ction a	nd mo	re informa	ation, s	see from	m page	e 2/98									
Termin	al box	positio	n										Ver	sion				
Termin	al box a	at top											Sta	ındard		4		
For oth	er term	inal box	positi	ons ar	nd more ir	nforma	tion, se	ee from	page :	2/100								
Specia	ıl versi	ons															Ord	er code(s)
Forced	l-air cod	oled mo	tors w/	o ext.	fan/fan co	over (IC	C 418)									1LE1001 ■-■■■	-Z F90	+++

1LE1001-....■-■■■■-Z ...+...+...+...

For options, see from page 2/102

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

For converter operation of shaft heights 63 and 90, ordering with PTC thermistors and their connection to the converter is recommended.

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.



Motors with IE2 High Efficiency

Self-ventilated or forced-air cooled motors · Aluminum series 1LE1001

			Opera	ating v	alues at ra	ated po	ower									Aluminum series		
P _{rated} ,	P _{rated} ,	Frame	n _{ra-}		Different	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{B}/$	L_{pfA}	L _{WA} ,	1LE1001	m _{IM B3}	J
50 Hz/	60 Hz/	size	ted,	,	IE class	ted,	ted,	ted,	Prated.	ted,	T _{ra-}	I _{ra-}	T _{ra-}		50 Hz			
P50	P60 1)		50 Hz	50 Hz	50 Hz/P50, 60 Hz/P60		50 Hz, 3/4	50 Hz, 2/4	50 Hz, 4/4	50 Hz, 400 V		ted, : 50 Hz	ted, 50 Hz					
																Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)) dB(A)	▲ New	kg	kgm ²
• Coo	ling: Se	elf-venti	lated (IC 411	or with	order (code F	90 for	ced-aiı	coole	d wit	hout	exterr	nal fan	and fa	n cover (IC 418)		
• Insu	lation:	Therma	ig to it I class	: 155 (u34-30: i⊏ temperati	иre cla	ss F),	ency, : IP55 d	egree (of prot	r (Sr) ectio	າ ເ.ເວ n, util	izatio	n in ac	cordar	nce with thermal class 130 (tempera	ture class B)
					rpm at 60													
0.12	0.14	63 M	1385	3.8	IE1	70.0	70.7	67.7	0.79	1.44	2.1	3.7	2.2	59	66	▲ 1LE1001-0BB2■-■■■	5	0.00037
0.18	0.21	63 M	1385	5.2	IE1	72.1	72.0	67.0	0.76	1.85	2.1	3.6	2.3	59	66	▲ 1LE1001-0BB3■-■■■■	5	0.00045
0.25	0.29	71 M	1395	1.7		68.5	68.4	64.2	0.69	0.76	2.4	3.7	2.5	50	61	▲ 1LE1001-0CB2■-■■■	6	0.00076
0.37	0.43	71 M	1380	2.6		72.7	73.2	69.9	0.72	1.02	2.3	3.8	2.4	50	61	▲ 1LE1001-0CB3■-■■■		0.00095
0.55	0.63	80 M	1440	3.6		77.1	76.8	73.7	0.74	1.39	2.2	5.3	3.1	53	64	1LE1001-0DB2		0.0017
0.75	0.86	80 M	1440	5		79.6	79.9	77.5	0.76	1.79	2.2	5.6	3.1	53	64	1LE1001-0DB3		0.0021
1.1	1.27	90 S	1425	7.4		81.4	81.8	80	0.78	2.5	2.3	5.6	2.9	56	68	1LE1001-0EB0		0.0028
2.2	1.75	90 L	1435	10		82.8	83.5	82.2 84.2	0.79	3.3	2.6	6.4	3.4	56 60	68 72	1LE1001-0EB4		0.0036
3	2.55 3.45	100 L 100 L	1455 1455	20		84.3 85.5	85.1 86.4	85.6	0.81	4.65 6.2	2.1	6.9	3.3	60	72	1LE1001-1AB4		0.0086
4	4.55	112 M	1460	26		86.6	87.3	86.4	0.82	8.2	2.5	7.1	3.1	58	70	1LE1001-1BB2		0.011
5.5	6.3	132 S	1465	36		87.7	88.4	87.6	0.8	11.3	2.3	6.9	2.9	64	76	1LE1001-1CB0 -		0.014
7.5	8.6	132 M	1465	49		88.7	89.8	89.8	0.83	14.7	2.3	6.9	2.9	64	76	1LE1001-1CB2		0.027
11	12.6	160 M	1470	71		89.8	91	90.9	0.85	21	2.1	6.7	2.8	65	77	1LE1001-1DB2		0.065
15	17.3	160 L	1475	97		90.6	91.2	90.8	0.85	28	2.3	7.3	3	65	77		83	0.083
18.5	21.3	180 M	1465	121		91.2	92	91.9	0.84	35	2.5	7.2	3.4	61	74	1LE1001-1EB2 -		0.12
22	25.3	180 L	1465	143		91.6	92.2	91.9	0.84	41.5	2.6	7.3	3.5	69	76	1LE1001-1EB4		0.13
30	34.5	200 L	1470	195		92.3	92.9	92.6	0.84	56	2.5	6.7	3.3	70	77	1LE1001-2AB5	173	0.2
Voltag	es												Ver	sion			Ord	er code
_		/400 VY	60	0 Hz ¹) 460 VY								Sta	ndard		2 2	-	
50 Hz	400 VΔ	/690 VY	60	0 Hz ¹	⁾ 460 VΔ								Sta	ndard		2 2 3 4	_	
50 Hz	500 VY												With	nout ac	dditiona		_	
50 Hz	500 VΔ												With	nout ac	dditiona	ll charge 2 7	-	
For oth	ner volta	ages ¹⁾ a	and mo	re info	rmation, s	see fror	n page	e 2/85								9 0		
Types	of con	structio											Ver	sion			Ord	er code
Withou	ıt flange	Э		л ВЗ ³									Sta	ndard		A	-	
With fl	ange			л В5 ³									With	n addit	ional ch	narge F	-	
With fl	0			ЛВ14									With	n addit	ional ch	narge K	-	
			struction	on and	d more info	ormatic	n, see	from p	page 2/	90								
	protec	tion												sion			Ord	er code
Withou														ndard		A	-	
				•	ature sens	•				r 100 t	0 200)	With	n addit	ional ch	narge	_	
				nd mo	re informa	tion, se	ee from	page	2/98				١,,	-1				
		positio	n											sion				
	al box		nooiti	ane or	nd more in	formati	on oc	o from	naga (2/100			Sta	ndard		4		
			. positio	ons ar	nd more in	iomati	on, se	e irom	page 2	2/100							Ord	er code(s)
-	al versi		tore w/	o ext	fan/fan co	ver (IC	/18\									1LE1001 ■-■■■■		٠,,
		ee from			ianijian co	vei (10	+10)									1LE1001		
ι οι ορ	110115, 5	ee nom	paye 2	102												TEE 1001	-41	

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

For converter operation of shaft heights 63 and 90, ordering with PTC thermistors and their connection to the converter is recommended.

³⁾ Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

Motors with IE2 High Efficiency



Self-ventilated or forced-air cooled motors · Aluminum series 1LE1001

Selection and ordering data (continued)

			0	-	volue - · ·	rote -l										Alexanian con a suita a		
_	_	_		0	values at					,	.	, ,	T /	,	,	Aluminum series		,
P _{rated} ,	P _{rated} ,	Frame			Different	$\eta_{\text{ra-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	COS-	I _{ra-}	/ _{LR} /	/LR/	IB/	L_{pfA}		1LE1001	m _{IM B3}	J
	60 Hz/	SIZE	ted,	ted,	IE class : 60 Hz/P60		ted, 50 Hz,	ted,	Prated, 50 Hz,	ted, 50 Hz,	T _{ra} -	I _{ra-} ted,	T _{ra-} ted,	50 Hz	50 Hz			
	P60 1)		00112	00112	. 00 1 12/1 00	4/4	3/4	2/4	4/4				2 50 Hz	2		Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)) dB(A)	▲ New	kg	kgm ²
• Cool	ing: Se	lf-venti	lated	(IC 41	1) or with	order	code l	90 for	ced-air	coole	d wit	hout	exter	nal fan	and fa	n cover (IC 418)		
• Effic	iency a	iccordir Therma	ig to I	EC 60)034-30: I (tempera	E2 Hig	h Effic	iency, :	service	facto	r (SF) ection	1.15 n. util	lizatio	n in ac	cordan	nce with thermal class 130	(temper	ature class F
					rpm at 60		u33 i j,	11 55 d	cgree c	or prot	COLIO	i, atii	ızatıc	m m ac	Joordan	ice with thermal class for	(temper	ature ciuss i
	0.43	80 M	925	3.8	i pini at ot	67.6	67.9	64.4	0.69	1.14	2.1	4	2.4	42	53	1LE1001-0DC2	9	0.0017
	0.63	80 M	935	5.6		73.1	73.8	70.8	0.66	1.65	2.5	4.4	2.9	42	53	1LE1001-0DC3		0.0025
	0.86	90 S	935	7.7		75.9	76.8	74.5	0.7	2.05	2	4.1	2.5	43	55	1LE1001-0EC0		0.003
	1.27	90 L	935	11	IE1	78.1	79.3	77.7	0.7	2.9	2.2	4.4	2.6	43	55	1LE1001-0EC4		0.004
	1.75	100 L	970	15		79.8	80.5	79	0.73	3.7	2	5.4	2.8	59	71	1LE1001-1AC4		0.011
	2.55	112 M	965	22		81.8	82.7	81.7	0.75	5.2	2	5	2.8	62	74	1LE1001-1BC2		0.014
3	3.45	132 S	970	30		83.3	83.4	81	0.72	7.2	1.6	5	2.5	63	75	1LE1001-1CC0	38	0.024
4	4.55	132 M	970	39		84.6	85.5	84.3	0.75	9.1	1.6	5	2.3	63	75	1LE1001-1CC2	43	0.029
5.5	6.3	132 M	970	54		86	87.1	86.4	0.76	12.1	1.9	5.6	2.6	63	75	1LE1001-1CC3	52	0.037
7.5	8.6	160 M	975	73		87.2	87.9	87.2	0.74	16.8	1.9	4.7	2.2	67	79	1LE1001-1DC2	77	0.075
11	12.6	160 L	975	108		88.7	89.7	89.3	0.76	23.5	1.9	4.8	2.2	67	79	1LE1001-1DC4	93	0.098
15	18	180 L	975	147		89.7	90.1	89.5	0.78	31	2.5	6	3.1	57	70	1LE1001-1EC4	121	0.17
18.5	22	200 L	978	181	IE1	90.4	91.4	91.3	0.82	36	2.4	5.8	2.6	63	76	1LE1001-2AC4	151	0.25
22	26.5	200 L	978	215	IE1	90.9	91.7	91.4	0.82	42.5	2.5	6.2	2.6	63	76	1LE1001-2AC5	173	0.3
Voltage	es												Ver	sion			Orc	ler code
50 Hz 2	230 VΔ/	400 VY			¹⁾ 460 VY								Sta	ndard		2 2	-	
50 Hz 4	400 VΔ/	690 VY	6	60 Hz	¹⁾ 460 V∆								Sta	ndard		2 2 3 4	-	
50 Hz 5	500 VY												Wit	hout ac	dditiona	I charge 2 7	-	
50 Hz 5													Wit	hout ac	dditiona	I charge 4 0	_	
For oth	er volta	iges ¹⁾ a	ınd m	ore inf	ormation,	see fro	m pag	e 2/85								9 0		
••		structio												sion			Orc	ler code
Withou	_)		M B3										ndard		A	_	
With fla	•			M B5											ional ch	_	-	
With fla	0			M B14									Wit	h addit	ional ch	narge K		
			struct	ion an	nd more in	formati	on, see	from p	page 2/	90								
Motor		tion												sion			Orc	ler code
Withou	-		_											ndard		A	_	
					ature sen	,		,		00 to 2	200)		Wit	h addit	ional ch	narge B	_	
				ind mo	ore inform	ation, s	see fron	n page	2/98				١.,					
		positio	n											sion				
	al box a					,		,	_	1400			Sta	ndard			4	
			posit	ions a	nd more i	ntorma	tion, se	e trom	page 2	/100								
Specia				, .			2 440)									41 = 4004		ler code(s)
Forced	-air cod	oled mot	ors w	o ext.	fan/fan c	over (I	(418 ز									1LE1001 ■-■■■	-Z F90) +++

1LE1001- ■-■■■■-Z . . . +. . . +. . . +. . .

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

For converter operation of shaft heights 63 and 90, ordering with PTC thermistors and their connection to the converter is recommended.

³⁾ Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.



Motors with IE2 High Efficiency

Self-ventilated or forced-air cooled motors · Aluminum series 1LE1001

			Oper	ating	values at	rated p	ower									Aluminum series		
		Frame size	n _{ra-}	T _{ra-}	Different	$\eta_{ra ext{-}}$	$\eta_{\text{ra-}}$	η_{ra}	COS-	I _{ra-}	T_{LR}/T	/ _{LR} /	$T_{\rm B}/T_{\rm B}$	L _{pfA} ,	L _{WA} ,	1LE1001	m _{IM B3}	J
50 Hz/ P50	P60	3126			IE class 60 Hz/P60		ted, 50 Hz,	ted, 50 Hz,	Prated, 50 Hz,		I _{ra-} ted.	I _{ra-} ted,	I _{ra-} ted,	50 Hz	50 Hz			
	1)					4/4	3/4	2/4	4/4				50 Hz			Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)) dB(A)		kg	kgm ²
• Cool	ling: Se	lf-venti	lated	(IC 41	1) or with	orde	code	F90 foi	ced-air	coole	d wit	hout	exteri	nal fan	and fa	n cover (IC 418)		
• Insu	lation:	iccordir Therma	ig to i	s 155	(tempera	ture c	ass F).	iency, IP55 d	service legree d	e racto of prot	r (SF) ectio	n, util	izatio	n in ac	cordan	nce with thermal class 130	(temper	ature class B)
					m at 60 F													
0.75	0.86	100 L		10		66.2	65.7	61.6	0.61	2.7	1.5	3.2	2.1	60	72	1LE1001-1AD4	21	0.0086
1.1	1.27	100 L	695	15		70.8	72.3	69.6	0.65	3.45	1.4	3.2	1.9	60	72	1LE1001-1AD5	25	0.011
1.5	1.75	112 M		20		74.1	73.9	71.2	0.63		1.6	4	2.4	63	75	1LE1001-1BD2		0.017
2.2	2.55	132 S		29		77.6	78.2	76.6	0.62	6.6	1.4	3.5	2	63	75	1LE1001-1CD0■-■■■	46	0.034
3	3.45	132 M		40	IE1	80	80.7	79.2	0.62	8.7	1.4	3.7	2	63	75	1LE1001-1CD2	-	0.037
4	4.55	160 M		52		81.9	82.6	81.4	0.67	10.5	1.6	3.7	1.9	63	75	1LE1001-1DD2		0.065
5.5	6.3	160 M	730	72		83.8	84.2	83	0.67	14.1	1.7	3.9	2	63	75	1LE1001-1DD3		0.083
7.5	8.6	160 L		99		85.3	86.4	86	0.7	18.1	1.6	3.8	1.9	63	75	1LE1001-1DD4		0.098
11	13.2	180 L	720	146	IE1	86.9	88	87.6	0.7	26	2.3	4.9	2.6	72	80	1LE1001-1ED4		0.195
15	18	200 L	718	199		88	89.5	89.9	0.76	32.5	2.4	5.4	2.8	58	65	1LE1001-2AD5	172	0.344
Voltag					4)								Ver	sion			Or	der code
		400 VY	-		1) 460 VY									ndard		2 2	-	
		690 VY	6	30 Hz	¹⁾ 460 V∆									ndard		3 4	-	
	500 VY															2 2 3 4 I charge 2 7	-	
	500 V∆	1)											Wit	nout ac	dditiona		_	
		0		ore inf	formation,	see fr	om pag	e 2/85					١.,			9 0		
	ot con: It flange	structio		M B3	2)									sion			Ori	der code
With fla	0)		M B5										ndard	طم اممان	narge F	_	
With fla	0			м вэ М В14											ional ch	3 -	_	
	0	o of oor			+ / nd more in	format	ion oo	o from	0000 2/	00			VVIL	i addii	ional ch	large	_	
					iu iliole ili	IIUIIIIai	1011. SE		Daye 2/									
	21		isti uct	ion ai									Vor	eion				der code
Motor	protec		istruct	ionai										sion ndard		Δ		der code
Motor Withou	protec t	tion			3 sensors				.				Sta	ndard		A narge		der code
Motor Withou PTC th	protec ut nermisto	tion or with 3	tempe	erature	e sensors ore inform			m page	2/98				Sta	ndard	ional ch	A narge B	Or -	
Motor Withou PTC th	protect ut nermisto ner moto	tion or with 3 or protec	tempe	erature	e sensors ore inform			m page	2/98				Sta	ndard		A narge B		
Motor Withou PTC th For oth Termin	protect ut nermisto ner moto	r with 3 or protect positio	tempe	erature				n page	2/98				Sta With Ver	ndard n addit		A B	Or -	
Motor Withou PTC th For oth Termin	protective mermistoner motornal box all box a	or with 3 protect position at top	tempe ction a	erature and me		ation,	see froi	1 0					Sta With Ver	ndard n addit sion		A B	Or -	
Motor Withou PTC th For oth Termin For oth	protective mermistoner motornal box all box a	or with 3 protect position at top inal box	tempe ction a	erature and me	ore inform	ation,	see froi	1 0					Sta With Ver	ndard n addit sion		narge B	Or. –	
Motor Withou PTC th For oth Termin For oth	protect ut nermisto ner moto nal box al box a ner term al version	or with 3 or protect position at top inal boxons	tempe etion a n	erature and mo	ore inform	nation, informa	see from	1 0					Sta With Ver	ndard n addit sion		narge B	Or	der code(s)

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.

Motors with IE2 High Efficiency



Self-ventilated motors · Aluminum series 1LE1001 with increased power

Selection and ordering data

			Opera	ating v	alues at ra	ated p	ower									Aluminum series			
P _{rated} , 50 Hz/ P50		Frame size	ted,	T _{ra-} ted, 50 Hz	Different IE class 60 Hz/P60	ted, 50 Hz,			COS- Prated, 50 Hz,	50 Hz,		I _{LR} / I _{ra-} ted,	$T_{\rm B}/T_{\rm ra-}$ ted,		L _{WA} , 50 Hz	1LE1001		m _{IM B3}	J
	•					4/4	3/4	2/4	4/4	400 V	50 Hz	50 Hz	50 Hz			Article No.		l _.	. 2
kW	kW	FS	rpm	Nm		%	%	%		Α				\ /	dB(A)	(10.440)		kg	kgm ²
• Cool	ing: Se iency a	elf-venti occordir	lated (na to li	IC 411 EC 600) or with 034-30: IE	order 2 Hial	code I h Effic	F90 to iency.	rced-ai service	r coole e facto	ed Wit or (SF	hout) 1.15	exter	nai fan	and fai	n cover (IC 418)			
• Insu	lation:	Therma	ıl class	: 155 (i	temperati	ure cla	ass F),	IP55 c	legree	of pro	tectio	n, uti	lizatio	on in ac	ccordan	nce with thermal class	130 (temperat	ture class B)
2-pole	: 0000 r	rpm at 5	50 Hz,	3600 r	pm at 60	Hz ¹⁾													
1.5	1.75	80 M	2830	5.1		81.3	83.4	83.6	0.85	3.15	2.6	6.1	2.8	60	71	1LE1001-0DA6 ■-	$\overline{\Pi}$	11	0.0013
3	3.45	90 L	2895	9.9		84.6	85.5	84.5	0.86	6	3.4	7.9	3.6	65	77	1LE1001-0EA6 ■-	$\overline{\Pi}$	15	0.0031
4	4.55	100 L	2905	13		85.8	86.9	86.5	0.86	7.8	2.5	7.6	3.5	67	79	1LE1001-1AA6 -			0.0054
5.5	6.3	112 M		18		87	87.8	87.4	0.88	10.4	2.3	8.5	3.8	69	81	1LE1001-1BA6 ■-			0.012
11	12.6	132 M		36		89.4	90.1	89.9	0.89	20	2.3	7.9	3.2	68	80	1LE1001-1CA6 -			0.031
22	25.3	160 L	2955	71		91.3	91.8	91.4	0.89	39	3.1	8.4	3.7	70	82	1LE1001-1DA6 -			0.068
30	33.5	180 L	2940	97		92	92.6	92.3	0.89	53	2.3	7.8	3.4	76	83	1LE1001-1EA6 ■-			0.094
45	51	200 L	2950	146		92.9	93.2	92.9	0.87	81	2.5	7.1	3.2	77	84	1LE1001-2AA6 -		194	0.176
					pm at 60														
1.1	1.27	80 M	1440	7.3		81.4	82.1	80.7	0.78	2.5	2.4	6.1	3	53	64	1LE1001-0DB6■-			0.0029
2.2	2.55	90 L	1425	15	IE1	84.3	85.6	85	0.81	4.65	2.8	6.1	3.1	56	68	1LE1001-0EB6 ■-			0.0049
4	4.55	100 L	1460	26		86.6	88	87.5	8.0	8.3	2.2	7.5	3.5	60	72	1LE1001-1AB6■-			0.014
5.5	6.3	112 M		36		87.7	88.2	87.2	0.81	11.2	2.5	7.1	3.2	58	70	1LE1001-1BB6 -		34	0.017
11		132 M		72		89.8	90.9	90.9	0.84	21	2.6	7.7	3.1	64	76	1LE1001-1CB6 -		-	0.046
18.5	21.3	160 L	1475	120		91.2	91.8	91.3	0.85	34.5	2.5	7.7	3.3	65	77	1LE1001-1DB6			0.099
30	34.5	180 L	1465	196		92.3	93	92.9	0.81	58	2.5	7.3	3.3	70	77	1LE1001-1EB6 -			0.159
37	42.5	200 L	1470	240		92.7	93.5	93.6	0.84	69	2.4	7	3	68	75	1LE1001-2AB6■-		189	0.246
Voltag														sion				Orde	er code
		400 VY	-		460 VY									indard		2 2		-	
		690 VY	60	0 Hz ¹	⁾ 460 VΔ									ındard			1	-	
50 Hz																I charge 2	7	-	
50 Hz		41											Wit	hout a	dditiona	I charge 4)	-	
				re info	rmation, s	see fro	m pag	e 2/85								9 ()		
		structio		0										rsion				Orde	er code
	t flange	:		И ВЗ ²										indard			A	_	
With fla	0			И В5 ² .											tional ch	0	F	_	
With fla	0			Л В14									Wit	h addit	tional ch	narge	K	_	
			estruction	on and	I more info	ormati	on, see	e from	page 2	/90									
	protect	tion												sion				Orde	er code
Withou		.,,	6 .			,,			00	100:	000)			indard			A	-	
					ture sens					100 to	200)		VVit	n addit	tional ch	narge	В	_	
				nd moi	re informa	ition, s	ee fror	n page	2/98										
		positio	n											sion					
	al box a					£				2/100			Sta	ındard			4		
			position	ons an	d more in	iormat	ion, se	e trom	page 2	2/100								0	1. ()
Specia	al versio	ons																Orde	er code(s)

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.



Motors with IE2 High Efficiency

Self-ventilated motors · Aluminum series 1LE1001 with increased power

			Oper	ating v	alues at ra	ated po	ower									Aluminum series		
		Frame size	ted,	T _{ra-} ted, 50 Hz	Different IE class 60 Hz/P60	ted,	$\eta_{\rm ra-}$ ted, 50 Hz, 3/4	$\eta_{\rm ra-}$ ted, 50 Hz, 2/4	COS- Prated, 50 Hz, 4/4		ted,	l _{LR} / l _{ra-} ted, 50 Hz	T _B / T _{ra-} ted, 50 Hz		L _{WA} , 50 Hz	1LE1001 Article No.	m _{IM B3}	J
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)) dB(A)		kg	kgm ²
EfficInsu	iency a lation:	ccordin Therma	ig to I I class	EC 600 s 155 (t	ύ34-30: ΙΕ temperatι	2 High ure cla	code f n Effici ss F),	90 for ency, IP55 d	ced-ai service egree	r coole e facto of prot	ed wit or (SF) tection	hout) 1.15 n, util	exteri izatio	nal fan on in ac	and fa	n cover (IC 418) nce with thermal class 130 (tempera	
6-pole		•	965	22 r	pm at 60 IE1		00.0	00.7	0.76	5.1	17	4.0	0.5	59	71	1LE1001-1AC6	20	0.014
3	2.55 3.45	100 L 112 M		30	IEI	81.8	83.3 84	82.7 82.7	0.76	7	2.1	4.9 5.4	2.5	62	74	1LE1001-1AC6		0.014
7.5	8.6			74		87.2	88.1	87.1	0.74	16.6	2.1	5.6	2.6	63	75	1LE1001-1CC6		0.017
15			975	147	IE1	89.7	90.4	89.7	0.75	32	2	5.0	2.4	67	79	1LE1001-1CC6		0.046
18.5	22	180 L	975	181	ILI	90.4	90.4	90.5	0.73	38.5	2.3	6	2.4	67	80	1LE1001-1EC6		0.12
30		200 L		294			92.5	92.4		61	2.6	6.3	2.7	68	75	1LE1001-2AC6		0.200
					n at 60 Hz		52.0	JZ.4	0.11	01	2.0	0.0	<i>L.1</i>	00	70	TEE TOOT EAGO	132	0.001
15	18	180 L		199	IE1	88	89.2	89	0.73	33.5	2.2	4.9	2.5	67	75	1LE1001-1ED6	151	0.263
18.5	22	200 L		245	IE1	88.6		90.2		38.5	2.6	5.8	3	65	72	1LE1001-2AD6 -		0.416
Voltag	es												Ver	sion			Ord	er code
50 Hz 50 Hz 50 Hz	400 VΔ/ 500 VY 500 VΔ	(400 VY) (690 VY) (ges ¹⁾ a	6	0 Hz ¹	⁾ 460 VY ⁾ 460 VΔ ermation, s	see fror	m pag	e 2/85					Sta Wit			2 2 3 4 I charge 2 7 I charge 4 0 9 0	- - - -	
Types	of cons	structio											Ver	sion			Ord	er code
With fla	ange		11 11	M B3 ² M B5 ² M B14 on and)	ormatic	on, see	from p	page 2,	/90			Wit		tional ch	J	- - -	
Motor	protect	tion											Ver	sion			Ord	er code
For oth	ermisto er moto	or protec	tion a		sensors re informa	tion, se	ee fron	n page	2/98					indard h addit	tional ch	narge B	- -	
Termin	nal box	positio	n										Ver	sion				
	al box a er term		positi	ons an	d more in	formati	ion, se	e from	page 2	2/100			Sta	ındard		4		
Specia	al versio	ons															Ord	er code(s)
For op	tions, se	ee from	page	2/102												1LE1001 ■-■■■	-Z+	

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.

Motors with IE2 High Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1501 Basic Line

Selection and ordering data

			Opera	ating va	lues at	rated p	ower								Cast-iron series		
P _{rated}	Prated	Frame	n _{ra-}	T _{ra-}	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{B}/$	L_{pfA}	L _{WA} .	1LE1501 - Basic Line	m _{IM B3}	J
50 Hz/ P50	60 Hz/	size	ted, 50 Hz	ted,	ted, 50 Hz,	ted,	ted,	φ _{rated} , 50 Hz,	ted, 50 Hz,	$T_{\rm ra-}$	I _{ra-} ted,	T _{ra-} ted,	50 Hz			50	
-30	P60 1)		30 1 12	30112	4/4	3/4	2/4	4/4	400 V			50 Hz			Article No.		
κW	kW	FS	rpm	Nm	%	%	%		Α				dB(A)	dB(A)		kg	kgm ²
Coo	ling: Se	elf-ventil	ated (IC	411)	or with	order	ode F	00 force	d-air c	ooled y	withou	<u>exter</u>	nal fan	and far	n cover (IC 418)		
Insu	ciency a	iccordin Therma	g to IE	C 6003 155 (te	4-30: IL mperat	:2 High ure cla	i Επίσιε ss F). II	ncy, sei P55 dea	rvice ta ree of i	ictor (S protect	SF) 1.1: tion. ut	b ilizatio	on in ac	cordan	ce with thermal class 130	(temperat	ure class
-pole	e: 3000	rpm at 5	0 Hz. 3	600 rpi	m at 60	Hz ¹⁾	,,										
.37	0.43	71 M	2770	1.3	69.5	70.5	67.9	0.81	0.95	2.5	4.1	2.5	58	69	1LE1501-0CA2	11	0.0003
.55	0.63	71 M	2780	1.9	74.1	75.2	72.9	0.8	1.34	2.6	4.6	2.6	58	69	1LE1501-0CA3	13	0.0004
.75	0.86	80 M	2805	2.6	77.4	80	80.1	0.84	1.67	1.9	4.9	2.3	60	71	1LE1501-0DA2	16	0.0008
.1	1.27	80 M	2835	3.7	79.6	81.3	80.9	0.83	2.4	2.7	6	3.1	60	71	1LE1501-0DA3	18	0.0011
.5	1.75	90 S	2885	4.9	81.3	81.7	79.8	0.84	3.15	2.7	6.9	3.6	65	77	1LE1501-0EA0	23	0.0017
.2	2.55	90 L	2890	7.3	83.2	83.7	82	0.85	4.5	2.5	7.1	3.7	65	77	1LE1501-0EA4	25	0.0021
}	3.45	100 L	2905	9.9	84.6	85.5	84.6	0.84	6.1	2.3	7	3.3	67	79	1LE1501-1AA4	32	0.0044
	4.55	112 M	2945	13	85.8	86.2	85.1	0.85	7.9	2.1	8	3.6	69	81	1LE1501-1BA2		0.0092
.5	6.3	132 S	2950	18	87	88	87.6	0.87	10.5	1.8	6.6	2.9	68	80	1LE1501-1CA0		0.02
.5	8.6	132 S	2950	24	88.1	88.5	87.6	0.87	14.1	2.2	7.5	3.1	68	80	1LE1501-1CA1		0.024
1	12.6	160 M	2955	36	89.4	89.3	88	0.87	20.5	2.1	7.4	3.2	70	82	1LE1501-1DA2	96	0.045
5	17.3	160 M	2955	48	90.3	90.7	90	0.88	27	2.4	7.6	3.4	70	82	1LE1501-1DA3		0.053
8.5	21.3	160 L	2955	60	90.9	91.3	90.6	0.88	33.5	2.9	7.9	3.6	70	82	1LE1501-1DA4		0.061
2	24.5	180 M	2940	71	91.3	91.8	91.3	0.87	40	2.7	7.4	3.6	77	84	1LE1501-1EA2		0.069
0	33.5	200 L	2960	97	92	92.3	91.8	0.87	54	2.5	6.9	3.3	78	85	1LE1501-2AA4		0.13
7	41.5	200 L	2960	119	92.5	93	92.7	0.88	66	2.7	7.4	3.5	78	85	1LE1501-2AA5		0.15
5	51	225 M	2965	145	92.9	93.1	92.5	0.88	79	2.7	7.8	3.7	76	89	1LE1501-2BA2		0.23
5	62	250 M	2970	177	93.2	93.3	92.4	0.88	97	2.3	6.8	3.1	76	89	1LE1501-2CA2		0.4
5	84	280 S	2978	240	93.8	93.6	92.4	0.86	134	2.5	7.2	3.2	76	89		490	0.71
0	101	280 M	2975	289	94.1	94.2	93.5	0.88	157	2.5	7.1	3.1	76 77	89 91	1LE1501-2DA2		0.83
10	123	315 S	2982	352	94.3	94.2	93.3	0.9	187	2.4	7.3	3.1		91	1LE1501-3AA0		1.3
32 60	148 180	315 M 315 L	2982 2982	423 512	94.6 94.8	94.7	94.1	0.91	220 265	2.4	7	3.1	77 80	95	1LE1501-3AA4		1.6 1.8
00	224	315 L	2982	640	95	95.2	94.8	0.92	330	2.5	7.3	3	80	95	1LE1501-3AA5		2.2
		313 L	2302	040	30	30.2	34.0	0.32	550	2.0	7.0	-		30	ILL ISUI-SAAS		
	jes ²⁾	/400 VY	60	Hz ¹⁾ 4	IEO V/V								sion Indard		2 2	Orde	r code
		690 VY		Hz ¹⁾ 4									indard		3 4	_	
	500 VY	1000 V I	00	112 7	700 VA									Iditional		_	
	500 VΔ													Iditional		_	
		ages ¹⁾ a	nd more	e inforn	nation,	see fror	n page	2/88							9 0		
		structio										Ver	sion			Orde	r code
Vithou	ut flange	9	IM	B3 ³⁾								Sta	ndard		A	-	
Vith fl	ange			B5 ³⁾								Wit	h addit	ional ch	arge F	-	
Vith fl	ange		IM	B14 ³⁾								Wit	h addit	ional ch	arge K	-	
or oth	ner type	s of con	struction	n and r	nore inf	ormatic	n, see	from pag	ge 2/94						•		
lotor	protec	tion											sion			Orde	r code
/itho													ındard		Α	-	
		or with 3										Wit	h addit	ional ch	arge B	-	
		or protec		d more	informa	ation, se	ee from	page 2/	99								
		positio	n										sion				
	nal box a					,			01:	24		Sta	ındard		4		
		inal box	position	ns and	more ir	ntormati	on, see	trom pa	age 2/10	J1						0.1	
	al versi		,		16	// ~	440)								41 54504		r code(s)
Orca	a-air co	oled mot	ors w/o	ext. fai	n/tan co	over (IC	418)								1LE1501 ■-■■■■	-Z F90+	++

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to \leq 240 V. For frame size 315 with connection to \leq 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



Motors with IE2 High Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1501 Basic Line

			Opera	ting val	luge at	rated no	N/Ar								Cast-iron series		
D	D	Eromo		_				000	,	т ,	, ,	т /	,	,	1LE1501 – Basic Line	m	,
Prated, 50 Hz/	Prated, 60 Hz/	Frame size	n _{ra-} ted,	I _{ra-} ted,	$\eta_{ra ext{-}}$ ted,	$\eta_{ m ra-}$ ted,	$\eta_{ ext{ra-}}$ ted,	COS- φ_{rated} ,	I _{ra-}	T_{LR}/T_{ra-}	I _{LR} / I _{ra-}	$T_{\rm B}/T_{\rm ra-}$	L _{pfA} , 50 Hz	L _{WA,} 50 Hz	TLL 1301 - Dasic Line	m _{IM B3}	J
P50	P60 1)		50 Hz	50 Hz	50 Hz,			50 Hz,	50 Hz,	ted,	ted,	ted,	50 T IZ	30112			
					4/4	3/4	2/4	4/4	400 V	50 Hz	50 Hz	50 Hz			Article No.		0
kW	kW	FS	rpm	Nm	%	%	%		А				, ,) dB(A)		kg	kgm ²
• Coo	ling: Se	elf-ventil accordin	ated (IC	C 411) (or with	order o	ode F9	0 force	d-air co	oled v	withou	t exter	nal far	n and fai	n cover (IC 418)		
• Insu	lation:	Thermal	class	155 (ter	nperat	ure clas	s F), IP	55 deg	ree of p	rotect	tion, u	tilizatio	on in a	ccordan	ce with thermal class 130	(temperat	ure class B)
4-pole	: 1500	rpm at 5	0 Hz, 1	800 rpr	n at 60	Hz ¹⁾											
0.25	0.29	71 M	1395	1.7	68.5	68.4	64.2	0.69	0.76	2.4	3.7	2.5	50	61	1LE1501-0CB2	12	0.00076
0.37	0.43	71 M	1380	2.6	72.7	73.2	69.9	0.72	1.02	2.3	3.8	2.4	50	61	1LE1501-0CB3	13	0.00095
0.55	0.63	80 M	1440	3.6	77.1	76.8	73.7	0.74	1.39	2.2	5.3	3.1	53	64	1LE1501-0DB2	17	0.0017
0.75	0.86	80 M	1440	5	79.6	79.9	77.5	0.76	1.79	2.2	5.6	3.1	53	64	1LE1501-0DB3	18	0.0021
1.1	1.27	90 S	1425	7.4	81.4	81.8	80	0.78	2.5	2.3	5.6	2.9	56	68	1LE1501-0EB0	23	0.0028
1.5	1.75	90 L	1435	10	82.8	83.5	82.2	0.79	3.3	2.6	6.4	3.4	56	68	1LE1501-0EB4	25	0.0036
2.2	2.55	100 L	1455	14	84.3	85.1	84.2	0.81	4.65	2.1	6.9	3.3	60	72	1LE1501-1AB4	3 2	0.0086
3	3.45	100 L	1455	20	85.5	86.4	85.6	0.82	6.2	2	6.9	3.1	60	72	1LE1501-1AB5	37	0.011
4	4.55	112 M	1460	26	86.6	87.3	86.4	0.81	8.2	2.5	7.1	3.2	58	70	1LE1501-1BB2	4 6	0.014
5.5	6.3	132 S	1465	36	87.7	88.4	87.6	0.8	11.3	2.3	6.9	2.9	64	76	1LE1501-1CB0	6 1	0.027
7.5	8.6	132 M	1465	49	88.7	89.8	89.8	0.83	14.7	2.3	6.9	2.9	64	76	1LE1501-1CB2	1 75	0.034
11	12.6	160 M	1470	71	89.8	91	90.9	0.85	21	2.1	6.7	2.8	65	77	1LE1501-1DB2	■ 96	0.065
15	17.3	160 L	1475	97	90.6	91.2	90.8	0.85	28	2.3	7.3	3	65	77	1LE1501-1DB4	104	0.083
18.5	21.3	180 M	1465	121	91.2	92	91.9	0.84	35	2.5	7.2	3.4	61	74	1LE1501-1EB2	1 60	0.12
22	25.3	180 L	1465	143	91.6	92.2	91.9	0.84	41.5	2.6	7.3	3.5	69	76	1LE1501-1EB4	170	0.13
30	34.5	200 L	1470	195	92.3	92.9	92.6	0.84	56	2.5	6.7	3.3	70	77	1LE1501-2AB5	230	0.2
37	42.5	225 S	1470	240	92.7	93.5	93.5	0.88	65	2.3	6.6	2.9	66	79	1LE1501-2BB0	280	0.42
45	52	225 M	1475	291	93.1	93.8	93.7	0.87	80	2.5	6.9	3.1	66	79	1LE1501-2BB2	305	0.46
55	63	250 M	1480	355	93.5	93.9	93.5	0.85	100	2.7	6.8	3	66	79		385	0.75
75	86	280 S	1485	482	94	94.2	93.8	0.87	132	2.5	6.8	3	71	85	1LE1501-2DB0 -		1.3
90	104	280 M	1486	578	94.2	94.3	93.6	0.87	159	2.6	7.3	3.1	71	85	1LE1501-2DB2		1.4
110	127	315 S	1490	705	94.5	94.6	94	0.86	195	2.7	7.4	3	72	86	1LE1501-3AB0		2
132	152	315 M	1490	846	94.7	94.9	94.6	0.87	230	2.7	7.1	2.9	75	89	1LE1501-3AB2		2.3
160	184	315 L	1490	1025	94.9	95	94.5	0.87	280	2.8	7.2	3.1	76	91	1LE1501-3AB4		2.8
200	230	315 L	1490	1282	95.1	95.3	94.7	0.87	350	3.1	7.5	3.2	77	92	1LE1501-3AB5	1140	3.5
Voltag	es ²⁾											Ve	rsion			Orde	r code
50 Hz	230 VA	/400 VY		Hz ¹⁾ 4								Sta	andard		2 2	-	
50 Hz	400 VΔ	/690 VY	60	Hz ¹⁾ 4	60 V∆							Sta	andard		2 2 3 4 charge 2 7 charge 4 0	-	
	500 VY											Wi	thout a	dditional	charge 2 7	-	
	500 V∆	43										Wi	thout a	dditional			
		ages 1) a		e inform	nation, s	see from	n page :	2/88							9 0		
		structio		- 2)									rsion			Orde	r code
	ıt flange	9		B3 ³⁾									andard		A	-	
With fl	_			B5 ³⁾										tional ch	Ü	-	
With fl	_			B14 ³⁾								Wi	th addi	tional ch	arge K		
		s of con	structio	n and m	nore inf	ormatio	n, see fi	om pag	je 2/94								
	protec	tion											rsion			Orde	r code
Withou													andard		A	-	
		or with 3 t					,					Wi	th addi	tional ch	arge B	-	
		or protec		d more	ıntorma	tion, se	e from p	page 2/9	99								
		positio	1										rsion				
	al box											Sta	andard			4	
		ninal box	positio	ns and	more in	tormation	on, see	trom pa	ge 2/10)1							
	al versi																r code(s)
		oled mot			n/fan co	ver (IC	418)								1LE1501 ■-■■■		
For op	tions, s	ee from p	page 2/	109											1LE1501 ■-■■■	■-Z+.	++

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to \leq 240 V. For frame size 315 with connection to \leq 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE2 High Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1501 Basic Line

Selection and ordering data (continued)

Selec	uon a	iiu oic		_	a (contil													
			Oper	rating v	values at r		ower									Cast-iron series		
	, P _{rated,}			$T_{\rm ra-}$	Different	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T_{LR}	/ _{LR} /	$T_{\rm B}/$	$L_{pfA,}$	$L_{WA,}$	1LE1501 – Basic Line	m _{IM B3}	J
50 Hz/	60 Hz/	size	ted,	ted,	IE class		ted,	ted,			I _{ra-}	I _{ra-}	I _{ra-}	50 Hz	50 Hz			
P50	P60 1)		50 Hz	50 Hz	60 Hz/P60	50 Hz, 4/4	50 Hz, 3/4	50 Hz, 2/4	50 Hz, 4/4	50 Hz, 400 V		ted, : 50 Hz	ted, 50 Hz	,		Article No.		
kW	kW	FS	rpm	Nm		%	%	%	-1/-1	Α	00112	. 00112	00112) dB(A)	Alticle No.	kg	kgm ²
					1) or with				reed-a		od wi	thout	ovtor	. ,		n cover (IC 418)	Ng	Kgiii
• Effic	illig. Se	ccordir	าต to	(IC 41 IEC 60	034-30: II	E2 Hia	h Effic	ciency	. servic	e fact	or (SF) 1.15	exter	iiai iaii	i aliu lai	il cover (IC 416)		
• Insu	ılation:	Therma	ıl clas	s 155	(temperat	ture cl	ass F)	, IP55	degree	of pro	tectic	'n, uti	lizatic	on in ac	ccordan	ce with thermal class 130	(temperat	ure class E
6-pole	: 1000	rpm at 5	50 Hz,	1200	rpm at 60) Hz ¹⁾												
0.18	0.21	71 M	875	2		56.6	56.9	52.7	0.68	0.68	2.2	2.5	2.3	46	57	1LE1501-0CC2 -	12	0.0008
0.25	0.29	71 M	870	2.7		61.6	62.7	59.2	0.7	0.84	2.3	2.6	2.3	46	57	1LE1501-0CC3	13	0.001
0.37	0.43	80 M	925	3.8		67.6	67.9	64.4	0.69	1.14	2.1	4	2.4	42	53	1LE1501-0DC2	17	0.0017
0.55	0.63	80 M	935	5.6		73.1	73.8	70.8	0.66	1.65	2.5	4.4	2.9	42	53	1LE1501-0DC3	19	0.0025
0.75	0.86	90 S	935	7.7		75.9	76.8	74.5	0.7	2.05	2	4.1	2.5	43	55	1LE1501-0EC0	23	0.003
1.1	1.27	90 L	935	11	IE1	78.1	79.3	77.7	0.7	2.9	2.2	4.4	2.6	43	55	1LE1501-0EC4	26	0.004
1.5	1.75	100 L	970	15		79.8	80.5	79	0.73	3.7	2	5.4	2.8	59	71	1LE1501-1AC4	36	0.011
2.2	2.55	112 M	965	22		81.8	82.7	81.7	0.75	5.2	2	5	2.8	62	74	1LE1501-1BC2		0.014
3	3.45	132 S	970	30		83.3	83.4	81	0.72	7.2	1.6	5	2.5	63	75	1LE1501-1CC0		0.024
4	4.55	132 M		39		84.6	85.5	84.3	0.75	9.1	1.6	5	2.3	63	75	1LE1501-1CC2		0.029
5.5	6.3	132 M		54		86	87.1	86.4	0.76	12.1	1.9	5.6	2.6	63	75	1LE1501-1CC3		0.037
7.5	8.6	160 M		73		87.2	87.9	87.2	0.74	16.8	1.9	4.7	2.2	67	79	1LE1501-1DC2		0.075
11	12.6	160 L	975	108		88.7	89.7	89.3	0.76	23.5	1.9	4.8	2.2	67	79	1LE1501-1DC4		0.078
15	18	180 L	975	147		89.7	90.1	89.5	0.78	31	2.5	6	3.1	57	70	1LE1501-1EC4		0.17
18.5	22	200 L	978	181	IE1	90.4	91.4	91.3	0.82	36	2.4	5.8	2.6	63	76	1LE1501-2AC4		0.25
22	26.5	200 L	978	215	IE1	90.9	91.7	91.4	0.82	42.5	2.5	6.2	2.6	63	76	1LE1501-2AC5		0.23
30	36	225 M	980	292	IE1	91.7	92.5	92.3	0.83	57	2.5	5.6	2.7	65	78	1LE1501-2BC2		0.58
37	44.5	250 M	982	360	IE1	92.2	93.1	93.1	0.83	70	2.8	6	2.5	62	77	1LE1501-2CC2		0.86
45	54	280 S	985	436	IE1	92.7	93.4	93.2	0.84	83	2.7	6.3	2.6	65	79	1LE1501-2DC0		1.1
55	66	280 M	985	533	IE1	93.1	93.9	94	0.86	99	2.5	6.4	2.6	65	79	1LE1501-2DC2		1.4
75	90	315 S	988	725	IE1	93.7	94	93.6	0.84	138	2.5	6.7	2.8	65	79	1LE1501-3AC0 -		2.1
90	108	315 M	988	870	IE1	94	94.3	93.6	0.84	165	2.6	6.9	2.8	65	79	1LE1501-3AC2		2.5
110	132	315 M	988	1063		94.3	94.6	94.5	0.86	196	2.7	7	2.8	68	82	1LE1501-3AC4		3.6
132	158	315 L	988	1276		94.6	94.0	94.5	0.86	235	3	7.5	2.9	69	84	1LE1501-3AC5		4
160	192	315 L		1546							3.1	7.7	3.3	69	84			
		313 L	988	1546		94.8	94.7	94.4	0.86	285	3.1	1.1			04	1LE1501-3AC6		4.7
Voltag					4)									rsion			Orde	er code
50 Hz	230 VΔ/	/400 VY			¹⁾ 460 VY								Sta	andard		2 2	-	
	400 VΔ/	/690 VY	(60 Hz	¹⁾ 460 V∆								Sta	andard		3 4	-	
	500 VY															I charge 2 7	-	
	500 VΔ												Wit	hout ac	dditional	I charge 4 0	-	
For ot	ner volta	ages ¹⁾ a	and m	ore inf	ormation,	see fro	om pag	ge 2/88	3							9 0		
Types	of con	structio	n										Ver	rsion			Orde	er code
Withou	ut flange	9	- 1	M B3 ⁽	3)								Sta	andard		Α	-	
With fl	ange		- 1	M B5 ³	3)								Wit	h addit	tional ch	arge F	-	
With fl	ange		- 1	M B14	l ³⁾								Wit	h addit	tional ch	arge K	-	
For ot	ner type	s of con	struct	tion an	d more in	format	ion, se	e from	page 2	2/94						•		
Motor	protect	tion											Ver	rsion			Orde	er code
Withou	ut												Sta	andard		A	-	
PTC th	nermisto	r with 3	temp	erature	e sensors								Wit	h addit	tional ch	arge B	-	
For ot	ner moto	or protec	ction a	and mo	ore inform	ation, s	see fro	m pag	e 2/99									
	nal box												Ver	rsion				
	nal box a	•												andard			4	
			posit	ions a	nd more ii	nforma	tion. s	ee fron	n page	2/101								
	al versi		J- 5011		2		, 0		- 290	-,							Orde	er code(s)
			tors w	/o ext	fan/fan co	over (II	C 418)									1LE1501 ■-■■■		` '
- 01001		oo from			.an, rain of	(11	- 110)									11 51501	7 .	

1LE1501- ■-■■■■-Z . . . +. . . +. . . +. . .

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



Motors with IE2 High Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1501 Basic Line

			One	ratina v	` /alues at r	atad n	ower									Cast-iron series		
D	P	Frame						n	000-	,	T/	1/	T-1	1	1	1LE1501 – Basic Line	muuna	J
rated, 50 Hz/	, Frated, 60 Hz/	Frame size	ted,	/ _{ra-} ted,	Different IE class	//ra- ted	$\eta_{ m ra-}$ ted,	$\eta_{ ext{ra-}}$ ted,	COS- Prated,	I _{ra-}	T_{LR}/T_{ra}	I _{LR} / I _{ra-}	I _B / T _{ra-}	L _{pfA} , 50 Hz	L _{WA} , 50 Hz	TEETOT Baoto Ento	m _{IM B3}	J
P50	P60 1)				60 Hz/P60				50 Hz,			ted,	ted,	30 1 12	30112			
	1)					4/4	3/4	2/4	4/4	400 V	50 Hz	z 50 Hz	50 Hz	2		Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)	dB(A)		kg	kgm ²
• Coo	ling: Se	elf-venti	lated	(IC 41	1) or with	order	code	F90 fo	rced-ai	r cool	ed wit	thout	exteri	nal fan	and far	n cover (IC 418)		
• Insu	ciency a	accordii Therma	ng to I Il clas	EC 60 s 155 (034-30: IE	=2 HIG ure cla	n Eπic ass F).	iency, IP55 c	service learee	e facto	r (SF tectio) 1.15 m. util	izatio	n in ac	cordan	ce with thermal class 130	(temperat	ure class B)
					m at 60 H		,,					,						,
0.09	0.11	71 M	630	1.4	4)	40.1	40.6	35.8	0.67	0.5	1.7	1.6	1.7	59	63	1LE1501-0CD2	12	0.00077
0.12	0.14	71 M	640	1.8		40.1	39.6	34.7	0.66	0.65	1.8	1.8	1.8	48	59	1LE1501-0CD3		0.00100
0.18	0.21	80 M	690	2.5		45.9	43.6	37.8	0.6	0.93	1.7	2.2	2.1	51	62	1LE1501-0DD2		0.00175
0.25	0.29	80 M	705	3.4		50.6	48.1	41.9	0.55	1.3	2	2.5	2.5	51	62	1LE1501-0DD3		0.00246
0.37	0.43	90 S	675	5.2		56.1	55.6	49.6	0.71	1.34	1.4	2.6	1.7	53	65	1LE1501-0ED0	23	0.00225
0.55	0.63	90 L	665	7.9		61.7	63.4	59.8	0.74	1.74	1.5	2.7	1.7	53	65	1LE1501-0ED4 -		0.00305
0.75	0.86	100 L	705	10		66.2	65.7	61.6	0.61	2.7	1.5	3.2	2.1	60	72	1LE1501-1AD4		0.0086
1.1	1.27	100 L	695	15		70.8	72.3	69.6	0.65	3.45	1.4	3.2	1.9	60	72	1LE1501-1AD5		0.011
1.5	1.75	112 M	725	20		74.1	73.9	71.2	0.63	4.65	1.6	4	2.4	63	75	1LE1501-1BD2		0.017
2.2	2.55	132 S	725	29		77.6	78.2	76.6	0.62	6.6	1.4	3.5	2	63	75	1LE1501-1CD0 -	64	0.034
3	3.45	132 M	720	40	IE1	80	80.7	79.2	0.62	8.7	1.4	3.7	2	63	75	1LE1501-1CD2		0.037
4	4.55	160 M	730	52		81.9	82.6	81.4	0.67	10.5	1.6	3.7	1.9	63	75	1LE1501-1DD2		0.065
5.5	6.3	160 M	730	72		83.8	84.2	83	0.67	14.1	1.7	3.9	2	63	75	1LE1501-1DD3		0.083
7.5	8.6	160 L	725	99		85.3	86.4	86	0.7	18.1	1.6	3.8	1.9	63	75	1LE1501-1DD4		0.098
11	13.2	180 L	720	146	IE1	86.9	88	87.6	0.7	26	2.3	4.9	2.6	72	80	1LE1501-1ED4 -	155	0.195
15	18	200 L	718	199		88	89.5	89.9	0.76	32.5	2.4	5.4	2.8	58	65	1LE1501-2AD5	220	0.344
18.5	22	225 S	730	242	IE1	89	89.9	89.5	0.78	38.5	2.2	5.4	2.7	59	72	1LE1501-2BD0 -	250	0.43
22	26.5	225 M	730	288		90.3	91.3	91.1	0.8	44	2.3	5.5	2.7	58	71	1LE1501-2BD2		0.5
30	36	250 M	732	391		91.3	92.2	92	0.8	59	2.4	5.6	2.7	60	73	1LE1501-2CD2	370	0.86
37	44.5	280 S	736	480		91.9	92.5	92.1	0.78	75	2.3	5.4	2.4	63	77	1LE1501-2DD0 -	460	1.1
45	54	280 M	738	582		92.4	92.8	92.4	0.79	89	2.5	5.7	2.5	66	80	1LE1501-2DD2	510	1.4
55	66	315 S	740	710		92.9	93.3	92.9	0.8	107	2.2	5.8	2.6	69	83	1LE1501-3AD0 -	640	2
75	90	315 M	738	970		93.5	94.4	94.5	0.81	143	2.3	5.9	2.7	69	84	1LE1501-3AD2	720	2.5
90	108	315 L	740	1161		93.5	94.3	94.4	0.83	167	2.2	5.8	2.5	69	84	1LE1501-3AD4	860	3.1
110	132	315 L	740	1419		94.2	95	95.1	0.82	205	2.7	6.7	2.9	74	88	1LE1501-3AD5	980	3.9
Voltag	1es ²⁾												Ver	sion			Orde	r code
_		/400 VY	6	50 Hz ¹	¹⁾ 460 VY									ndard		2 2	_	1 0000
		/690 VY			¹⁾ 460 VΔ									ndard		2 2 3 4	_	
	500 VY														dditional	charge 2 7	_	
	500 VΔ														dditional	9	_	
For oth	ner volta	ages 1)	and m	ore info	ormation,	see fro	m pag	e 2/88								9 0		
		structio					1 0						Ver	sion			Orde	r code
	ut flange			м вз ³	3)									ndard		A	-	
With fl	ange			M B5 ³									Wit	h addit	ional ch	arge F	_	
With fl	ange		- 1	M B14	3)								Wit	h addit	ional ch	arge K	_	
	•	s of cor	nstruct	ion an	d more inf	ormati	on, see	e from	page 2	/94						•		
	protec												Ver	sion			Orde	r code
Withou													Sta	ndard		A	-	
PTC th	nermisto	or with 3	temp	erature	sensors								Wit	h addit	ional ch	arge B	_	
For oth	ner moto	or prote	ction a	and mo	re informa	ation, s	ee fror	n page	2/99									
Termi	nal box	positio	n										Ver	sion				
Termin	nal box	at top											Sta	ndard			l .	
For oth	ner term	ninal box	c posit	ions ar	nd more in	nforma	tion, se	e from	page 2	2/101								
Specia	al versi	ons															Orde	r code(s)
-			tors w	o ext.	fan/fan co	over (IC	2 418)									1LE1501 ■-■■■		. ,
For op	tions, s	ee from	page	2/109												1LE1501 ■-■■■	-Z+.	++

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

⁴⁾ No IE class for 50 and 60 Hz because the motor is outside the validity for the efficiency classes according to IEC 60034-30-1:2014.

Motors with IE2 High Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1601 Performance Line

Selection and ordering data

			Opera	iting va	lues at	rated p	ower								Cast-iron serie	s		
P _{rated} .	P _{rated} .	Frame	n _{ra-}	T_{ra}	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{B}/$	L_{pfA}	L _{WA} .	1LE1601 -		m _{IM B3}	J
50 Hz/	60 Hz/	size	ted,	ted,	ted,	ted,	ted,	φ_{rated}	ted,	T_{ra-}	I _{ra-}	$T_{\rm ra-}$	50 Hz	50 Hz	Performance Li	ne		
P50	P60 1)		50 Hz	50 Hz	50 Hz, 4/4	50 Hz, 3/4	50 Hz, 2/4	50 Hz, 4/4	50 Hz, 400 V	ted, 50 Hz	ted, 50 Hz	ted, 50 Hz			Article No.			
kW	kW	FS	rpm	Nm	%	%	%	7/7	Α	00112	00112	00112	dB(A)	dB(A)	Article No.		kg	kgm ²
		_	11		, -	, -		0 force		ooled v	withou	t evter			cover (IC 418)			
• Effic	iency a	ccordin	g to IE	6003	4-30: IE	2 High	Efficie	ncy, sei	vice fa	ctor (S	SF) 1.1	5	!		cover (IC 418)	1 100	/*	t ola a a D)
		nerma rpm at 5					ss F), II	255 deg	ree of p	orotect	tion, u	IIIIZatio	on in ac	ccordan	ce with thermal c	lass 130	(temper	rature class B)
2-pole	3.45	100 L	2905	9.9	84.6	85.5	84.6	0.84	6.1	2.3	7	3.3	67	79	1LE1601-1AA4		32	0.0044
4	4.55	112 M	2945	13	85.8	86.2	85.1	0.85	7.9	2.1	8	3.6	69	81	1LE1601-1BA2			0.0092
5.5	6.3	132 S	2950	18	87	88	87.6	0.87	10.5	1.8	6.6	2.9	68	80	1LE1601-1CA0			0.0002
7.5	8.6	132 S	2950	24	88.1	88.5	87.6	0.87	14.1	2.2	7.5	3.1	68	80	1LE1601-1CA1			0.024
11	12.6	160 M	2955	36	89.4	89.3	88	0.87	20.5	2.1	7.4	3.2	70	82	1LE1601-1DA2			0.045
15	17.3	160 M	2955	48	90.3	90.7	90	0.88	27	2.4	7.6	3.4	70	82	1LE1601-1DA3			0.053
18.5	21.3	160 L	2955	60	90.9	91.3	90.6	0.88	33.5	2.9	7.9	3.6	70	82	1LE1601-1DA4			0.061
22	24.5	180 M	2940	71	91.3	91.8	91.3	0.87	40	2.7	7.4	3.6	77	84	1LE1601-1EA2			0.069
30	33.5	200 L	2960	97	92	92.3	91.8	0.87	54	2.5	6.9	3.3	78	85	1LE1601-2AA4			0.13
37	41.5	200 L	2960	119	92.5	93	92.7	0.88	66	2.7	7.4	3.5	78	85	1LE1601-2AA5			0.15
45	51	225 M	2965	145	92.9	93.1	92.5	0.88	79	2.7	7.8	3.7	76	89	1LE1601-2BA2		295	0.23
55	62	250 M	2970	177	93.2	93.3	92.4	0.88	97	2.3	6.8	3.1	76	89	1LE1601-2CA2		360	0.4
75	84	280 S	2978	240	93.8	93.6	92.4	0.86	134	2.5	7.2	3.2	76	89	1LE1601-2DA0		490	0.71
90	101	280 M	2975	289	94.1	94.2	93.5	0.88	157	2.5	7.1	3.1	76	89	1LE1601-2DA2		530	0.83
110	123	315 S	2982	352	94.3	94.2	93.3	0.9	187	2.4	7.3	3	77	91	1LE1601-3AA0		720	1.3
132	148	315 M	2982	423	94.6	94.7	94.1	0.91	220	2.4	7.2	3.1	77	91	1LE1601-3AA2		880	1.6
160	180	315 L	2982	512	94.8	94.9	94.3	0.92	265	2.3	7	3.1	80	95	1LE1601-3AA4		930	1.8
200	224	315 L	2982	640	95	95.2	94.8	0.92	330	2.5	7.3	3	80	95	1LE1601-3AA5		1130	2.2
Voltag	es ²⁾											Ver	sion				Ord	der code
		400 VY	60	Hz ¹⁾ 4	60 VY							Sta	ndard			2 2	-	
50 Hz	400 VΔ/	690 VY	60	Hz ¹⁾ 4	460 VΔ							Sta	andard			3 4 2 7 4 0 9 0	_	
50 Hz	500 VY											Wit	hout ac	dditional	charge	2 7	_	
50 Hz												Wit	hout ac	dditional	charge	4 0	-	
For oth	er volta	ıges ¹⁾ a	nd more	e inforn	nation, :	see fror	n page	2/88								9 0		
		structio										Ver	rsion				Ore	der code
	t flange	:		B3 ³⁾									andard			Α	-	
With fla	0			B5 ³⁾										ional cha	0	F	-	
With fla	0			B14 ³⁾								Wit	h addit	ional cha	arge	K	_	
		s of con	struction	n and n	nore inf	ormatic	n, see t	rom pag	ge 2/94									
	protect												rsion				Or	der code
		r with 3					,		20			Sta	andard			В	_	
		or protec		more	informa	ation, se	ee trom	page 2/	99			\ /						
		positio	1										rsion					
	al box a		nos!#!		ma a r = 1	form - "	on	from: -	~~ O/40	14		Sta	indard			2		
	ier term al versi	inal box	position	is and	more in	normati	on, see	irom pa	.ge 2/10) I							0**	dor codo(a)
•			oro w/s	ovt for	olfon or	vor (IC	410)								1LE1601			der code(s)
Loicec	i-aii coc	oled mot	OIS M/0	ext. fai	n/ian cc	iver (IC	410)								ILE 1001		-2 -9	U+++

1LE1601-....

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



Motors with IE2 High Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1601 Performance Line

			Opera	ating val	ues at i	ated po	wer								Cast-iron series		
Prated	Prated	Frame	n _{ra-}	T _{ra-}	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{B}/$	L_{pfA}	L _{WA} ,	1LE1601 -	m _{IM B3}	J
50 Hz/	60 Hz/		ted,	ted,	ted,	ted,	ted,	φ_{rated}		$T_{\rm ra}$	I _{ra-}	$T_{\rm ra}$	50 Hz		Performance Line	IIVI DO	
P50	P60 1)		50 Hz	50 Hz	50 Hz, 4/4	50 Hz, 3/4	50 Hz, 2/4	50 Hz, 4/4	50 Hz, 400 V	ted,	ted, 50 Hz	ted, 50 Hz			At: -1 - N1 -		
kW	1-34/	- 0		NI				4/4		30 112	30 112	30 112	-ID(A)	-ID(A)	Article No.	l	12
	kW	FS If word!	rpm	Nm	%	%	%) favor	A	olod u	uidle out	- cyder	(/	dB(A)		kg	kgm ²
• Effic	ing: se iencv a	ccording	ated (IC	C 60034	ır witn 1-30: IE	oraer c 2 Hiah	Efficier	icv. ser	u-air cc vice fa	ctor (S	F) 1.1	exter 5	nai ian	and lan	cover (IC 418)		
• Insu	lation:	Thermal	class '	155 (ter	nperatı	ıre clas	s F), IP	55 degi	ree of p	rotect	ion, ut	ilizatic	on in ac	cordan	ce with thermal class 130	(temperat	ure class B)
		rpm at 50															
2.2	2.55	100 L	1455	14	84.3	85.1	84.2	0.81	4.65	2.1	6.9	3.3	60	72	1LE1601-1AB4		0.0086
3	3.45	100 L	1455	20	85.5	86.4	85.6	0.82	6.2	2	6.9	3.1	60	72	1LE1601-1AB5		0.011
4	4.55	112 M	1460	26	86.6	87.3	86.4	0.81	8.2	2.5	7.1	3.2	58	70	1LE1601-1BB2		0.014
5.5	6.3	132 S	1465	36	87.7	88.4	87.6	8.0	11.3	2.3	6.9	2.9	64	76	1LE1601-1CB0		0.027
7.5	8.6	132 M	1465	49	88.7	89.8	89.8	0.83	14.7	2.3	6.9	2.9	64	76	1LE1601-1CB2 -		0.034
11	12.6	160 M	1470	71	89.8	91	90.9	0.85	21	2.1	6.7	2.8	65	77	1LE1601-1DB2		0.065
15	17.3	160 L	1475	97	90.6	91.2	90.8	0.85	28	2.3	7.3	3	65	77	1LE1601-1DB4		0.083
18.5	21.3	180 M	1465	121	91.2	92	91.9	0.84	35	2.5	7.2	3.4	61	74	1LE1601-1EB2		0.12
22	25.3	180 L	1465	143	91.6	92.2	91.9	0.84	41.5	2.6	7.3	3.5	69	76	1LE1601-1EB4		0.13
30	34.5	200 L	1470	195	92.3	92.9	92.6	0.84	56	2.5	6.7	3.3	70	77	1LE1601-2AB5		0.2
37	42.5	225 S	1470	240	92.7	93.5	93.5	0.88	65	2.3	6.6	2.9	66	79	1LE1601-2BB0		0.42
45	52	225 M	1475	291	93.1	93.8	93.7	0.87	80	2.5	6.9	3.1	66	79	1LE1601-2BB2		0.46
55	63	250 M	1480	355	93.5	93.9	93.5	0.85	100	2.7	6.8	3	66	79	1LE1601-2CB2		0.75
75	86	280 S	1485	482	94	94.2	93.8	0.87	132	2.5	6.8	3	71	85	1LE1601-2DB0		1.3
90	104	280 M	1486	578	94.2	94.3	93.6	0.87	159	2.6	7.3	3.1	71	85	1LE1601-2DB2		1.4
110	127	315 S	1490	705	94.5	94.6	94	0.86	195	2.7	7.4	3	72	86	1LE1601-3AB0 -		2
132	152	315 M	1490	846	94.7	94.9	94.6	0.87	230	2.7	7.1	2.9	75	89	1LE1601-3AB2		2.3
160	184	315 L	1490	1025	94.9	95	94.5	0.87	280	2.8	7.2	3.1	76	91	1LE1601-3AB4		2.8
200	230	315 L	1490	1282	95.1	95.3	94.7	0.87	350	3.1	7.5	3.2	77	92	1LE1601-3AB5	1140	3.5
Voltag	es ²⁾											Ver	rsion			Orde	r code
50 Hz	230 Va/	400 VY		Hz ¹⁾ 4								Sta	andard		2 2 3 4	-	
	400 V∆/	690 VY	60	Hz ¹⁾ 4	60 V∆							Sta	ndard		3 4	-	
50 Hz	500 VY											Wit	hout ac	ditional	charge 2 7 charge 4 0 9 0	-	
50 Hz												Wit	hout ac	ditional	charge 4 0	-	
		iges ¹⁾ ar		e inform	ation, s	ee from	page 2	2/88							9 0		
Types	of cons	struction										Ver	sion			Orde	r code
	t flange	:		B3 ³⁾								Sta	ndard		A	-	
With fla	_			B5 ³⁾								Wit	h addit	ional cha	<u> </u>	-	
With fla	_			B14 ³⁾								Wit	h addit	ional cha	arge K	-	
		s of cons	structio	n and m	ore info	ormation	n, see fr	om pag	je 2/94								
	protect												rsion			Orde	r code
		r with 3 t										Sta	ndard		В	-	
		or protect		d more	nforma	tion, se	e from p	age 2/9	99								
		position	1										rsion				
	al box a	,										Sta	ndard			1	
For oth	er term	inal box	positio	ns and i	more in	formatio	n, see t	rom pa	ge 2/10	1							
Specia	al versio	ons														Orde	r code(s)
Forced	l-air cod	oled moto	ors w/o	ext. far	/fan co	ver (IC	418)								1LE1601 ■-■■■		
For op	tions, se	ee from p	age 2/	109											1LE1601 ■-■■■	-Z+.	++

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE2 High Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1601 Performance Line

Selection and ordering data (continued)

			Oper	- ating v	alues at r	ated n	ower									Cast-iron series		
P	P	Frame		$T_{\rm ra-}$	Different			n	COS-	I _{ra-}	T _{LR} /	/ _{I R} /	T_{B}	1	L _{WA} .	1LE1601 -	m _{IM B3}	J
rated, 50 Hz/	rated, 60 Hz/	size	ted,	ra- ted,	II -1	rra- ted.	$\eta_{ ext{ra-}}$ ted,	$\eta_{ m ra-}$ ted,	φ_{rated}		$T_{\rm ra-}$	I _{ra-}	$T_{\rm ra}$	L _{pfA} , 50 Hz	50 Hz	Performance Line	WIM B3	U
P50	P60 1)				60 Hz/P60	,		50 Hz,			ted,	ted,	ted,					
	1)					4/4	3/4	2/4	4/4	400 V	50 Hz	50 Hz	50 Hz			Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α				٠,) dB(A)		kg	kgm ²
• Cool	ing: Se	lf-venti	lated	(IC 411	l) or with	order	code	F90 fo	rced-a	ir cool	ed wit	hout	exteri	nal fan	and far	n cover (IC 418)		
• Insul	lency a	Therma	ig to i	s 155 (temperat	ı∠ ⊓ıgı ure cla	n ⊑ilic ass F),	IP55 c	servic degree	of pro	tectio	າ ເ.ເວ n, util	izatio	n in ac	cordan	ice with thermal class 130	temperat	ure class B
					rpm at 60		•					Ĺ						
1.5	1.75	100 L		15		79.8	80.5	79	0.73	3.7	2	5.4	2.8	59	71	1LE1601-1AC4	36	0.011
2.2	2.55	112 M	965	22		81.8	82.7	81.7	0.75	5.2	2	5	2.8	62	74	1LE1601-1BC2	41	0.014
3	3.45	132 S	970	30		83.3	83.4	81	0.72	7.2	1.6	5	2.5	63	75	1LE1601-1CC0	56	0.024
4	4.55	132 M	970	39		84.6	85.5	84.3	0.75	9.1	1.6	5	2.3	63	75	1LE1601-1CC2	61	0.029
5.5	6.3	132 M	970	54		86	87.1	86.4	0.76	12.1	1.9	5.6	2.6	63	75	1LE1601-1CC3		0.037
7.5	8.6	160 M	975	73		87.2	87.9	87.2	0.74	16.8	1.9	4.7	2.2	67	79	1LE1601-1DC2		0.075
11	12.6	160 L	975	108		88.7	89.7	89.3	0.76	23.5	1.9	4.8	2.2	67	79	1LE1601-1DC4		0.098
15	18	180 L	975	147		89.7	90.1	89.5	0.78	31	2.5	6	3.1	57	70	1LE1601-1EC4		0.17
18.5	22	200 L	978	181	IE1	90.4	91.4	91.3	0.82	36	2.4	5.8	2.6	63	76	1LE1601-2AC4	200	0.25
22	26.5	200 L	978	215	IE1	90.9	91.7	91.4 92.3	0.82	42.5	2.5	6.2	2.6	63	76	1LE1601-2AC5		0.3
30 37	36 44.5	225 M 250 M	980 982	292 360	IE1	91.7 92.2	92.5 93.1	92.3	0.83	57 70	2.5	5.6 6	2.7	65 62	78 77	1LE1601-2BC2 - 1LE1601-2CC2 - 1LE1601-2CC2		0.58
45	54	280 S	985	436	IE1	92.2	93.1	93.1	0.84	83	2.7	6.3	2.5	65	79	1LE1601-2DC0		1.1
55	66	280 M	985	533	IE1	93.1	93.9	94	0.86	99	2.5	6.4	2.6	65	79	1LE1601-2DC2		1.4
75	90	315 S	988	725	IE1	93.7	94	93.6	0.84	138	2.5	6.7	2.8	65	79	1LE1601-3AC0 -		2.1
90	108	315 M		870	IE1	94	94.3	93.6	0.84	165	2.6	6.9	2.8	65	79	1LE1601-3AC2 -		2.5
110	132	315 L	988	1063	IE1	94.3	94.6	94.5	0.86	196	2.7	7	2.8	68	82	1LE1601-3AC4		3.6
132	158	315 L	988	1276		94.6	94.9	94.7	0.86	235	3	7.5	2.9	69	84	1LE1601-3AC5	990	4
160	192	315 L	988	1546		94.8	94.7	94.4	0.86	285	3.1	7.7	3.3	69	84	1LE1601-3AC6	1160	4.7
Voltage	es ²⁾												Ver	sion			Orde	er code
50 Hz :	230 VΔ,	400 VY	6	60 Hz ¹) 460 VY								Sta	ndard		2 2	_	
50 Hz	400 VΔ/	690 VY	6	60 Hz ¹) 460 V∆								Sta	ndard		2 2 3 4	-	
50 Hz	500 VY												With	nout ac	dditional	I charge 2 7	-	
50 Hz													With	nout ac	dditional	I charge 4 0	_	
For oth	er volta	iges 1) a	and mo	ore info	ormation,	see fro	m pag	e 2/88								9 0		
		structio			· ·								Ver				Orde	er code
	t flange	:		M B3 ³										ndard		A	_	
With fla	0			M B5 ³											ional ch	ŭ .	-	
With fla	0	o of ac-		M B14		orm of	on oc	from	noce C	2/0.4			vviti	n addit	ional ch	arge	-	
Motor			istruct	ion and	d more inf	omati	on, see	HOIT	page 2	194			Vers	nion			Ordo	or code
	•		tempo	raturo	sensors									ndard		В	Orde	er code
					re informa	ation s	ee from	n naga	2/99				Sid	iiuaiu			-	
		positio			10 1111011116		,50 1101	., payt	5 2100				Ver	sion				
	al box	•	••											ndard				
			posit	ions ar	nd more in	forma	tion. se	e from	page	2/101								
Specia			,						,								Orde	er code(s)
Forced	l-air cod	oled mo	tors w	o ext.	fan/fan co	ver (IC	2 418)									1LE1601■-■■■■	-Z F90+	++
_				01100		,	,											

1LE1601- ■-■■■■-Z . . .+. . .+. . .+. . .

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



Motors with IE2 High Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1601 Performance Line

			Oper	ating v	alues at r	ated p	ower									Cast-iron series			
P _{rated} ,	P _{rated} ,	Frame	n _{ra-}	T_{ra}	Different	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{\rm B}/$	L_{pfA}	L _{WA} ,	1LE1601 -	m_{IM}	I B3	J
50 Hz/	60 Hz/	size	ted,	ted,	IE class	ted,	ted,	ted,	$\varphi_{\rm rated}$, ted,	$T_{\rm ra-}$	I _{ra-}	T_{ra}	50 Hz		Performance Line			
P50	P60 1)		50 Hz	50 Hz	60 Hz/P60	50 Hz, 4/4	50 Hz, 3/4	50 Hz, 2/4	50 Hz, 4/4			ted, 50 Hz	ted,			Artiala Na			
kW		гс.	×10.100	Nima			%		4/4		30 1 12	JU 1 12	30 1 12		4D(A)	Article No.	l.o.		Lama2
	kW	FS	rpm		مافانید بر ما	%		% 		A	l!	bout	ovto.		dB(A)	cover (IC 418)	kg		kgm ²
• Effic	ing: Se iencv a	en-venu iccordir	iated i	EC 60	034-30: IE	oraer 2 Hial	code i 1 Effic	iencv.	servic	r cooi e facto	ea wi or (SF	inout) 1.15	exter	nai ian	and lan	i cover (IC 416)			
• Insu	lation:	Therma	I clas	s 155 (temperati	ure cla	ıss F),	IP55 d	legree	of pro	teċtio	n, uti	lizatio	n in ac	cordan	ce with thermal class 13) (temp	peratu	re class B)
					n at 60 Hz	z ¹⁾													
0.75	0.86	100 L	705	10		66.2	65.7	61.6	0.61	2.7	1.5	3.2	2.1	60	72	1LE1601-1AD4 -			0.0086
1.1	1.27	100 L	695	15		70.8	72.3	69.6	0.65	3.45	1.4	3.2	1.9	60	72	1LE1601-1AD5			0.011
1.5	1.75	112 M	725	20		74.1	73.9	71.2	0.63	4.65	1.6	4	2.4	63	75	1LE1601-1BD2			0.017
2.2	2.55	132 S	725	29		77.6	78.2	76.6	0.62	6.6	1.4	3.5	2	63	75	1LE1601-1CD0			0.034
3	3.45	132 M	720	40	IE1	80	80.7	79.2	0.62	8.7	1.4	3.7	2	63	75	1LE1601-1CD2			0.037
4	4.55	160 M	730	52		81.9	82.6	81.4	0.67	10.5	1.6	3.7	1.9	63	75	1LE1601-1DD2			0.065
5.5	6.3	160 M	730	72		83.8	84.2	83	0.67	14.1	1.7	3.9	2	63	75	1LE1601-1DD3			0.083
7.5	8.6	160 L	725	99		85.3	86.4	86	0.7	18.1	1.6	3.8	1.9	63	75	1LE1601-1DD4			0.098
11	13.2	180 L	720	146	IE1	86.9	88	87.6	0.7	26	2.3	4.9	2.6	72	80	1LE1601-1ED4			0.195
15	18	200 L	718	199		88	89.5	89.9	0.76	32.5	2.4	5.4	2.8	58	65	1LE1601-2AD5			0.344
18.5	22	225 S	730	242	IE1	89	89.9	89.5	0.78	38.5	2.2	5.4	2.7	59	72	1LE1601-2BD0			0.43
22	26.5	225 M	730	288		90.3	91.3	91.1	0.8	44	2.3	5.5	2.7	58	71	1LE1601-2BD2			0.5
30	36	250 M	732	391		91.3	92.2	92	0.8	59	2.4	5.6	2.7	60	73	1LE1601-2CD2			0.86
37	44.5	280 S	736	480		91.9	92.5	92.1	0.78	75	2.3	5.4	2.4	63	77	1LE1601-2DD0			1.1
45	54	280 M	738	582		92.4	92.8	92.4	0.79	89	2.5	5.7	2.5	66	80	1LE1601-2DD2			1.4
55	66	315 S	740	710		92.9	93.3	92.9	0.8	107	2.2	5.8	2.6	69	83	1LE1601-3AD0			2
75	90	315 M	738	970		93.5	94.4	94.5	0.81	143	2.3	5.9	2.7	69	84	1LE1601-3AD2			2.5
90	108	315 L	740	1161		93.5	94.3	94.4	0.83	167	2.2	5.8	2.5	69	84	1LE1601-3AD4			3.1
110	132	315 L	740	1419		94.2	95	95.1	0.82	205	2.7	6.7	2.9	74	88	1LE1601-3AD5	980		3.9
Voltag														sion				Order	code
50 Hz	230 VΔ/	/400 VY) 460 VY								Sta	ındard		2 2		-	
		/690 VY	6	60 Hz ¹	⁾ 460 V∆								Sta	ındard		3 4		_	
50 Hz															dditional	J. Contract of the contract of		-	
50 Hz		45											Wit	hout ac	dditional			-	
				ore info	rmation, s	see fro	m pag	e 2/88								9 0			
		structio			,									sion				Order	code
	it flange	9		M B3 ³										ındard		A		-	
With fla	0			M B5 ³											ional cha	J		-	
With fla	0			M B14									Wit	h addit	ional cha	arge K		-	
			struct	ion and	d more info	ormatio	on, see	from	page 2	/94			, ,						
	protec													sion				Order	code
					sensors		,		0/00				Sta	ındard		E		-	
				ind mo	re informa	tion, s	ee fron	n page	2/99) (-1					
		positio	n											rsion			4		
	al box a		11	000	ol macus.	form	ion -	o fr		0/101			Sta	ındard			4		
			posit	ions ar	nd more in	iormat	ion, se	e irom	page	∠/101								0 1	1 ()
Specia			toro	la aut	fan/fan	(!C	110									11 51601			code(s)
					fan/fan co	ver (IC	418)									1LE1601			
roi op	tions, se	ee from	page	2/109												1LE1601 ■-■■■	-2	+	+ +

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

⁴⁾ No IE class for 50 and 60 Hz because the motor is outside the validity for the efficiency classes according to IEC 60034-30-1:2014.

Motors with IE2 High Efficiency



Self-ventilated motors · Cast-iron series 1LE1501 Basic Line with increased power

Selection and ordering data

			Opera	atina va	alues at ra	ited po	ower									Cast-iron series			
Prated	Prated	Frame		T _{ra-}	Different		$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{\rm B}/$	L_{pfA}	L _{WA} ,	1LE1501 - Basic L	ine	m _{IM B3}	J
50 Hz/	60 Hz/	size	ted,	ted,	IE class	ted,	ted,	ted,	φ_{rated}		$T_{\rm ra-}$	I _{ra-}	$T_{\rm ra-}$	50 Hz				IIVI DO	
P50	P60 1)		50 Hz	50 Hz	60 Hz/P60	50 Hz,			50 Hz,	50 Hz,		ted,	ted,						
	•					4/4	3/4	2/4	4/4		50 Hz	50 Hz	50 Hz			Article No.			. 2
kW	kW	FS	rpm	Nm		%	%	%		Α				. ,	dB(A)			kg	kgm ²
• Cool	ing: Se	elf-venti	lated (IC 411) or with ()34-30: IE	order ∘	code l	F90 for	rced-ai	r cool	ed wit	thout	exter	nal fan	and far	n cover (IC 418)			
• Insul	ation:	Therma	l class	155 (t	emperati	ire cla	iss F),	IP55 d	legree	of pro	tectio	n, util	izatio	n in ac	cordan	ce with thermal clas	s 130 (temperatu	ıre class B
2-pole	: 3000 ı	rpm at s	50 Hz,	3600 r	pm at 60	Hz ¹⁾													
4	4.55	100 L				85.8	86.9	86.5	0.86	7.8	2.5	7.6	3.5	67	79	1LE1501-1AA6		45	0.0054
5.5	6.3	112 M	2945	18		87	87.8	87.4	0.88	10.4	2.3	8.5	3.8	69	81	1LE1501-1BA6 -		53	0.012
11	12.6	132 M	2950	36		89.4	90.1	89.9	0.89	20	2.3	7.9	3.2	68	80	1LE1501-1CA6		80	0.031
22	25.3	160 L	2955	71		91.3	91.8	91.4	0.89	39	3.1	8.4	3.7	70	82	1LE1501-1DA6 -		126	0.068
30	33.5	180 L	2940	97		92	92.6	92.3	0.89	53	2.3	7.8	3.4	76	83	1LE1501-1EA6 -		180	0.094
45	51	200 L	2950	146		92.9	93.2	92.9	0.87	81	2.5	7.1	3.2	77	84	1LE1501-2AA6		245	0.176
55	62	225 M	2960	177		93.2	93.6	93.2	0.88	97	2.5	7	3.3	76	89	1LE1501-2BA6 -		320	0.26
75	84	250 M	2970	241		93.8	93.6	92.6	0.84	137	2.2	7	3.3	75	89	1LE1501-2CA6		390	0.46
110	123	280 M		353		94.3	94.5	94.1	0.9	187	2.9	8.5	3.6	80	91	1LE1501-2DA6■-		650	1.2
4-pole	1500 ı	rpm at 5	50 Hz,	1800 r	pm at 60	Hz ¹⁾													
4	4.55	100 L	1460	26		86.6	88	87.5	8.0	8.3	2.2	7.5	3.5	60	72	1LE1501-1AB6		46	0.014
5.5	6.3	112 M	1460	36		87.7	88.2	87.2	0.81	11.2	2.5	7.1	3.2	58	70	1LE1501-1BB6■-		58	0.017
11	12.6	132 M	1465	72		89.8	90.9	90.9	0.84	21	2.6	7.7	3.1	64	76	1LE1501-1CB6 -		80	0.046
18.5	21.3	160 L	1475	120		91.2	91.8	91.3	0.85	34.5	2.5	7.7	3.3	65	77	1LE1501-1DB6=-		116	0.099
30	34.5	180 L	1465	196		92.3	93	92.9	0.81	58	2.5	7.3	3.3	70	77	1LE1501-1EB6 -		185	0.159
37	42.5	200 L	1470	240		92.7	93.5	93.6	0.84	69	2.4	7	3	68	75	1LE1501-2AB6 -		240	0.246
55	63	225 M	1475	356		93.5	94.2	94.1	0.84	101	2.5	5.8	2.7	69	82	1LE1501-2BB6=-		320	0.47
75	86	250 M	1480	484		94	94.5	94.3	0.86	134	2.3	6.2	2.8	74	87	1LE1501-2CB6 -		440	0.85
110	127	280 M	1485	707		94.5	94.9	94.8	0.87	193	2.5	6.9	3	73	87	1LE1501-2DB6		680	1.7
Voltage	es ²⁾												Ver	rsion				Order	code
50 Hz :	230 VΔ/	/400 VY	6	0 Hz ¹⁾	460 VY								Sta	andard		2	2	-	
50 Hz	400 VΔ/	/690 VY	6	0 Hz ¹⁾	460 VΔ								Sta	andard		3	4	_	
50 Hz	500 VY												Wit	hout ac	dditional	charge 2	7	_	
50 Hz	500 VΔ												Wit	hout ac	dditional	charge 4	0	_	
For oth	er volta	ages 1) a	and mo	re info	rmation, s	ee froi	m pag	e 2/88								9	0		
Types	of cons	structio	n										Ver	rsion				Order	code
Withou	t flange	9	II	и вз ^{з)}									Sta	andard			Α	-	
With fla	nge		11	и B5 ³⁾									Wit	h addit	ional ch	arge	F	_	
With fla	nge		11	и В14 ³	3)								Wit	h addit	ional ch	arge	K	_	
For oth	er type	s of cor	structi	on and	more info	ormatio	on, see	from	page 2	/94									
Motor	protect	tion											Ver	rsion				Order	code
Withou	t												Sta	andard			Α	-	
PTC th	ermisto	or with 3	tempe	rature	sensors								Wit	h addit	ional ch	arge	В	_	
For oth	er moto	or protec	ction a	nd mor	e informa	tion, s	ee fron	n page	2/99										
Termin	al box	positio	n										Ver	rsion					
													Sta	ndard			4		
Termin	al box a	at top																	
Termin			positi	ons an	d more int	format	ion, se	e from	page :	2/101									
Termin	er term	ninal box	positi	ons an	d more int	format	ion, se	e from	page :	2/101								Order	code(s)

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



Motors with IE2 High Efficiency

Self-ventilated motors · Cast-iron series 1LE1501 Basic Line with increased power

			Oper	ating v	alues at ra	ated po	ower									Cast-iron series			
P _{rated} ,	P _{rated} ,	Frame	n _{ra-}	T_{ra-}	Different	$\eta_{\text{ra-}}$	$\eta_{ra ext{-}}$	$\eta_{\text{ra-}}$	COS-	I _{ra-}	T_{LR}	I _{LR} /	$T_{\rm B}/$	L_{pfA}	L _{WA} ,	1LE1501 – Basic Lii	ne i	$\eta_{IM\;B3}$	J
	60 Hz/	size	ted,	ted,	IE class		ted,	ted,	Prated,		I _{ra-}	I _{ra-}	T _{ra-}	50 Hz	50 Hz				
P50	P60 1)		50 HZ	50 HZ	60 Hz/P60	50 HZ, 4/4	50 HZ, 3/4	50 HZ, 2/4	50 HZ, 4/4			ted, 50 Hz	ted, 50 Hz			Article No.			
kW	kW	FS	mar	Nm		%	%	%		Α				dB(A)	dB(A)	7 11 11 01 0 1 1 0 1		κα	kgm ²
• Cool	ing: Se	If-venti	- 11) or with	order	code F		ced-ai		ed wit	hout	exteri	. ,	. ,	n cover (IC 418)		.9	
• Effic	iency a	ccordir	ng to l	EC 600	34-30: IE	2 High	n Effici	ency,	service	e facto	r (SF	1.15	izatio	n in ac	oordan	ce with thermal class	120 /+/	mnorat	uro olace B)
				<u> </u>	pm at 60		iss г <i>)</i> ,	irəə t	egree	oi pro	lectio	n, um	ızalıo	III III ac	cordan	ce with thermal class	130 (16	inperac	ure class b)
2.2	2.55	100 L		22	IE1	81.8	83.3	82.7	0.76	5.1	1.7	4.9	2.5	59	71	1LE1501-1AC6		19	0.014
3	3.45	112 M		30		83.3	84	82.7	0.74	7	2.1	5.4	2.7	62	74	1LE1501-1BC6			0.017
7.5	8.6	132 M	970	74		87.2	88.1	87.1	0.75	16.6	2	5.6	2.6	63	75	1LE1501-1CC6	8	33	0.046
15	17.3	160 L	975	147	IE1	89.7	90.4	89.7	0.75	32	2	5.2	2.4	67	79	1LE1501-1DC6■-■		147	0.12
18.5	22	180 L	975	181		90.4	90.9	90.5	0.77	38.5	2.3	6	2.9	67	80	1LE1501-1EC6■-■		165	0.206
30	34.5	200 L	975	294		91.7	92.5	92.4	0.77	61	2.6	6.3	2.7	68	75	1LE1501-2AC6■-■	2	240	0.381
37	44.5	225 M	978	361	IE1	92.2	93	92.9	0.83	70	2.5	6.3	2.9	64	77	1LE1501-2BC6■-■		325	0.67
45	54	250 M		436	IE1	92.7	93.4	93.4	0.84	83	2.4	6.6	2.7	67	81	1LE1501-2CC6■-■			1
75	90	280 M		726		93.7	94.3	94.4	0.85	136	3.2	7	2.9	66	80	1LE1501-2DC6■-		570	1.8
					n at 60 Hz														
15	18		720	199	IE1	88	89.2	89	0.73	33.5	2.2	4.9	2.5	67	75	1LE1501-1ED6			0.263
18.5	22	200 L	720	245	IE1	88.6	89.9	90.2	0.78	38.5	2.6	5.8	3	65	72	1LE1501-2AD6			0.416
30	36 44.5	225 M 250 M		391 484		90.8	92 92.6	92.1 92.7	0.76	63 70	2.8	6.1 5.5	3.2 2.6	62 63	76 77	1LE1501-2BD6 - 1 1LE1501-2CD6 - 1			0.67
37 55	66	250 M		714		91.6	93.4	92.7	0.83	107	2.3	5.5	2.6	70	81	1LE1501-2CD6			1.6
Voltag		200 IVI	730	7 14		32.3	95.4	90	0.0	107	2.5	5.9	-		01	TEE 1301-2000			
		400 VY	6	о u = 1)	460 VY									sion Indard		2 2		Orde	r code
		690 VY	_		460 V1									ndard		2 2 3 4		_	
50 Hz		000 11	Č	0112	100 14										dditional			_	
50 Hz															dditional	J		_	
For oth	er volta	iges ¹⁾ a	and mo	ore info	rmation, s	ee fro	m page	e 2/88								9 0			
Types	of cons	structio	n				1 0						Ver	sion				Orde	r code
Withou	ıt flange	:		И ВЗ ^З									Sta	ndard			Α	-	
With fla	ange		II	M B5 ³)								Wit	h addit	tional ch	arge	F	-	
With fla	ange		11	M B14	3)								Wit	h addit	tional ch	arge	K	-	
For oth	er type	s of con	structi	on and	I more info	ormatio	on, see	from	page 2	/94									
	protect	tion												sion				Orde	r code
Withou														ndard			Α	-	
					ture sens		,		0.100				Wit	h addit	tional ch	arge	В	-	
				nd moi	re informa	tion, s	ee tron	n page	2/99				١,,	_!					
		positio	n											sion					
	al box a		, pop!#:	000.00	d more in	formet	ion co	o from	page (0/101			Sta	ndard			4		
	ier term al versio		positi	ons an	d more in	iormat	ion, se	e irom	page 2	2/101								Ordo	r code(s)
•		ee from	nage	2/100												1LE1501 ■-■			` '
i oi op	tions, st	JO HOITI	page .	2/103												1221301		⊆T.	

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE2 High Efficiency



Self-ventilated motors · Cast-iron series 1LE1601 Performance Line with increased power

Selection and ordering data

			Opera	ating va	alues at ra	ited po	ower									Cast-iron series		
P _{rated} ,	P _{rated} ,		n _{ra-}	T_{ra-}	Different		$\eta_{\text{ra-}}$	$\eta_{\text{ra-}}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{\rm B}/$	$L_{pfA,}$	$L_{WA,}$	1LE1601 -	m _{IM B3}	J
50 Hz/	60 Hz/	size	ted,	ted,	IE class		ted,	ted,	Prated.		T _{ra-}	I _{ra-}	T _{ra-}	50 Hz	50 Hz	Performance Line		
P50	P60 1)		50 HZ	50 HZ	60 Hz/P60	50 HZ, 4/4	50 HZ, 3/4	50 HZ, 2/4	50 HZ, 4/4		tea, 50 Hz	ted, 50 Hz	ted, 50 Hz			Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)	dB(A)	7111010 140.	kg	kgm ²
) or with	, -	, -		rced-ai		ed wit	thout	exter	. ()	,	n cover (IC 418)	ng .	ng
 Effic 	iency a	ccordi	ng to l	EC 600	34-30: IE	2 Higl	h Effic	iency,	servic	e facto	or (SF) 1.15				ice with thermal class 130	(tamparat	ura alaaa P)
					pm at 60		155 г),	IP55 C	iegree	oi pro	lectio	n, uu	ıızauı	JII III a	ccordan	ice with thermal class 150	(temperat	ure class b)
2-pole 4	4.55	100 L			piii at oo	85.8	86.9	86.5	0.86	7.8	2.5	7.6	3.5	67	79	1LE1601-1AA6	45	0.0054
5.5	6.3	112 M				87	87.8	87.4	0.88	10.4	2.3	8.5	3.8	69	81	1LE1601-1BA6		0.012
11	12.6	132 M		36		89.4	90.1	89.9	0.89	20	2.3	7.9	3.2	68	80	1LE1601-1CA6		0.031
22	25.3	160 L	2955	71		91.3	91.8	91.4	0.89	39	3.1	8.4	3.7	70	82	1LE1601-1DA6		0.068
30	33.5	180 L	2940	97		92	92.6	92.3	0.89	53	2.3	7.8	3.4	76	83	1LE1601-1EA6	180	0.094
45	51	200 L	2950	146		92.9	93.2	92.9	0.87	81	2.5	7.1	3.2	77	84	1LE1601-2AA6	245	0.176
55	62	225 M	2960	177		93.2	93.6	93.2	0.88	97	2.5	7	3.3	76	89	1LE1601-2BA6	320	0.26
75	84	250 M	2970	241		93.8	93.6	92.6	0.84	137	2.2	7	3.3	75	89	1LE1601-2CA6	390	0.46
110	123	280 M	2978	353		94.3	94.5	94.1	0.9	187	2.9	8.5	3.6	80	91	1LE1601-2DA6	650	1.2
4-pole	: 1500	rpm at	50 Hz,	1800 r	pm at 60	Hz ¹⁾												
4	4.55	100 L				86.6	88	87.5	8.0	8.3	2.2	7.5	3.5	60	72	1LE1601-1AB6	46	0.014
5.5	6.3	112 M				87.7	88.2	87.2	0.81		2.5	7.1	3.2	58	70		58	0.017
11	12.6	132 M		72		89.8	90.9	90.9	0.84	21	2.6	7.7	3.1	64	76	1LE1601-1CB6		0.046
18.5	21.3	160 L	1475	120		91.2	91.8	91.3	0.85	34.5	2.5	7.7	3.3	65	77	1LE1601-1DB6	-	0.099
30	34.5	180 L	1465	196		92.3	93	92.9	0.81	58	2.5	7.3	3.3	70	77		185	0.159
37	42.5	200 L		240		92.7	93.5	93.6	0.84	69	2.4	7	3	68	75	1LE1601-2AB6		0.246
55	63	225 M		356		93.5	94.2	94.1	0.84	101	2.5	5.8	2.7	69	82	1LE1601-2BB6		0.47
75 110	86 127	250 M 280 M		484 707		94 94.5	94.5	94.3	0.86	134	2.3	6.2	2.8	74 73	87 87	1LE1601-2CB6		0.85 1.7
		280 W	1485	707		94.5	94.9	94.8	0.87	193	2.5	6.9			87	1LE1601-2DB6		
Voltag				1\										rsion			Orde	r code
	230 VΔ/				460 VY									andard		2 2 3 4	-	
	400 VΔ/	690 VY	6	0 Hz '	460 V∆									andard		3 4	-	
	500 VY															I charge 2 7	_	
	500 V∆	nana 1) .	and ma	vro info	rmation, s	oo fro	m noo	~ 2/00					VVI	inout a	udillona	I charge 4 0 9 0	_	
	of con			ne ii iio	imalion, s	ee IIO	iii pag	e 2/00					Vo	rsion		9 0	Ordo	r code
	it flange			и вз ³⁾										andard		Δ	- Orde	Code
With fla	0	,		и вз ³⁾											tional ch	narge F	_	
With fla	_			и Вз и В14 ³											tional ch	5.	_	
	0	s of cor			I more info	ormatio	on, see	e from	page 2	/94			•••	iii aaai	tional of	largo		
	protect			2.7 0.10			,		9-2				Ve	rsion				r code
	•		tempe	rature	sensors									andard		В	-	
					e informa	tion, s	ee fror	n page	2/99									
	nal box							, ,					Ve	rsion				
	al box a	•											Sta	andard				
			x positi	ons an	d more int	format	tion, se	e from	page	2/101								
	al versi																Orde	r code(s)
_																		

1LE1601-....■-■■■■-Z ...+...+...+...

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

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Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



Motors with IE2 High Efficiency

Self-ventilated motors · Cast-iron series 1LE1601 Performance Line with increased power

Planted Plan				Oper	ating v	alues at ra	ated po	wer									Cast-iron series		
No. Solid				n _{ra-}					$\eta_{\text{ra-}}$		I _{ra-}					,		m _{IM B3}	J
No. KW KW FS rpm Nm % % % % A dB(A) dB(A) dB(A) dB(A) dB(A)			size								ted,				50 Hz	50 Hz	Periormance Line		
Co-c Co-c	P30	1)		30 HZ	30 HZ	60 HZ/F60											Article No.		
Cooling: Self-ventilated (IC 411) or with order code F90 forced-air cooled without external fan and fan cover (IC 418)	kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)	dB(A)		ka	kgm ²
Efficiency according to IEC 60034-30: IE2 High Efficiency, service factor (SF) 1.15 Insulation: Thermal class 130 (temperature class F), 1956 degree of protection, utilization in accordance with thermal class 130 (temperature class F) G-pole: 1000 pm at 50 Hz, 1200 pm at 60 Hz 19 22, 2.55 100 L, 965 30 83.3 84 82.7 0.76 5.1 1.7 4.9 2.5 5.9 71 1	• Cool	ing: Se	lf-venti	lated ((IC 411) or with	order	code F	90 fo	rced-ai	r cool	ed wit	hout	exteri	(/	(/	n cover (IC 418)		9
Continue	 Effic 	ieńcv a	ccordir	na to I	EC 600	34-30: IE	2 Hiat	Effici	encv.	service	e facto	r (SF	1.15					tompore	tura alaaa P)
2.2								ээ г <i>)</i> ,	1F35 C	legiee	oi pio	lectio	ii, uu	iizatio	iii iii ac	cordan	ce with thermal class 130	tempera	iture ciass b
3 3.45 112 M 965 30								83.3	82 7	0.76	5.1	17	49	2.5	59	71	11 F1601-1AC6	49	0.014
7.5 8.6 132 M 970 74 87.2 88.1 87.1 0.75 16.6 2 5.6 2.6 63 75 1LE1601-1CC6 1 83 0.046 15 17.3 160 L 975 147 E1 89.7 90.4 89.7 0.75 32 2 5.2 2.4 67 79 1LE1601-1DC6 1 167 0.12 18.5 22 180 L 975 181 90.4 90.9 90.5 0.77 83.5 2.3 6 2.9 67 80 1LE1601-1DC6 1 165 0.206 30 34.5 200 L 975 294 91.7 92.5 92.4 0.77 61 2.6 6.3 2.9 64 77 1LE1601-2DC6 1 240 0.381 37 44.5 225 M 978 361 E1 92.2 93 92.9 0.83 70 2.5 6.3 2.9 64 77 1LE1601-2DC6 1 240 0.381 37 44.5 225 M 978 361 E1 92.2 93 92.9 0.83 70 2.5 6.3 2.9 64 77 1LE1601-2DC6 1 240 0.381 37 44.5 180 L 720 199 E1 88 89.2 89 0.73 33.5 2.2 4.9 2.9 66 80 1LE1601-2DC6 1 240 0.381 18.5 22 200 L 720 245 E1 88.6 89.9 90.2 0.78 38.5 2.6 5.8 3 65 72 1LE1601-2DC6 1 250 0.416 30 36 225 M 732 391 90.8 92 92.1 0.76 63 2.8 61 3.2 62 76 1LE1601-2DC6 1 250 0.416 30 36 225 M 736 714 92.9 93.4 93 0.8 107 2.5 5.9 2.5 70 81 1LE1601-2DC6 1 250 0.416 50 Hz 230 VA/400 VY 60 Hz 1/460 VX						12.1													
15											16.6								
30 34.5 200 L 975 294 91.7 92.5 92.4 0.77 61 2.6 6.3 2.7 68 75 1LE1601-2AC6 - 10 240 0.381 37 44.5 225 M 978 361 IE1 92.7 93.4 93.4 0.84 83 2.9 6.6 2.7 67 181 1LE1601-2BC6 - 10 325 0.67 45 54 250 M 985 436 IE1 92.7 93.4 93.4 0.84 83 2.4 6.6 2.7 67 81 1LE1601-2BC6 - 10 325 0.67 45 59 280 M 986 726 93.7 94.3 94.4 0.85 136 3.2 7 2.9 66 80 1LE1601-2BC6 - 10 325 0.67 45 54 250 M 985 436 IE1 92.7 93.4 93.4 93.4 0.85 136 3.2 7 2.9 66 80 1LE1601-2BC6 - 10 325 0.67 45 54 250 M 985 436 IE1 92.7 93.4 93.4 93.4 0.85 136 3.2 7 2.9 66 80 1LE1601-2BC6 - 10 325 0.67 45 54 250 M 985 436 IE1 88.6 89.9 90.2 0.78 38.5 2.6 5.8 3 65 72 1LE1601-2BC6 - 10 250 0.416 45 59 012 720 245 IE1 88.6 89.9 90.2 0.78 38.5 2.6 5.8 3 65 72 1LE1601-2BD6 - 10 250 0.416 46 30 36 225 M 732 391 90.8 92 92.1 0.76 63 2.8 6.1 3.2 62 76 1LE1601-2BD6 - 10 250 0.416 47 37 44.5 250 M 730 484 91.6 92.6 92.7 0.83 70 2.3 5.5 2.6 63 77 1LE1601-2BD6 - 10 250 0.416 48 56 280 M 736 714 92.9 93.4 93 0.8 107 2.5 5.9 2.5 70 81 1LE1601-2BD6 - 10 250 0.416 49 14.5 230 Vλ/400 VY 60 Hz 1/460 VY					147	IE1													
37	18.5	22	180 L	975	181		90.4	90.9	90.5	0.77	38.5	2.3	6	2.9	67	80	1LE1601-1EC6	165	0.206
45 54 250 M 985 436 E1 92.7 93.4 93.4 0.84 83 2.4 6.6 2.7 67 81 1 1 1 1 1 1 1 1	30	34.5			294		91.7			0.77			6.3		68	75			
75 90 280 M 986 726 93.7 94.3 94.4 0.85 136 3.2 7 2.9 66 80 1 1 1 1 1 1 1 1 1	37	44.5	225 M	978	361	IE1	92.2	93	92.9	0.83	70	2.5	6.3	2.9	64	77	1LE1601-2BC6	325	0.67
Sepole: 750 rpm at 50 Hz, 900 rpm at 60 Hz 10 15	45	54	250 M	985	436	IE1	92.7	93.4	93.4	0.84	83	2.4	6.6	2.7	67	81	1LE1601-2CC6	410	1
18								94.3	94.4	0.85	136	3.2	7	2.9	66	80	1LE1601-2DC6	570	1.8
18.5 22 200 L 720 245 E1 88.6 89.9 90.2 0.78 38.5 2.6 5.8 3 65 72	8-pole	: 750 rp	om at 50	Hz, 9	00 rpn	n at 60 Hz	. 1)												
30 36 225 M 732 391 90.8 92 92.1 0.76 63 2.8 6.1 3.2 62 76 1LE1601-2BD6 - 325 0.67 37 44.5 250 M 730 484 91.6 92.6 92.7 0.83 70 2.3 5.5 2.6 63 77 1LE1601-2CD6 - 325 0.67 55 66 280 M 736 714 92.9 93.4 93 0.8 107 2.5 5.9 2.5 70 81 1LE1601-2CD6 - 325 0.67 55 Hz 230 VΔ/400 VY 60 Hz 1 460 VY Standard 2 2 2 50 Hz 250 VΔ Standard 3 4 50 Hz 500 VY Without additional charge 4 0 Without additional charge 1 M B3 3) Wersion Standard 4 With flange 1 M B5 3) With additional charge 5 With additional charge 1 M B14 3) With flange 1 M B14 3) With additional charge 5 With additional charge 7 With additional charge 8 With additional charge 8 With additional charge 9 With additional charge 1 M B14 3) With additional charge 1 M B14 3 M M M M M M M M M M M M M M M M M M	15	18	180 L	720	199	IE1	88	89.2	89	0.73	33.5	2.2	4.9	2.5	67	75	1LE1601-1ED6	190	0.263
37	18.5	22	200 L	720	245	IE1	88.6	89.9	90.2	0.78	38.5	2.6	5.8	3	65	72	1LE1601-2AD6 -	250	0.416
Second For Standard	30	36	225 M	732	391		90.8	92	92.1	0.76		2.8	6.1	3.2	62		1LE1601-2BD6	325	0.67
Voltages 2) 50 Hz 230 VΔ/400 VY 60 Hz 1) 460 VY 50 Hz 400 VΔ/690 VY 60 Hz 1) 460 VΔ Standard 50 Hz 500 VY 50 Hz 500 VΔ For other voltages 1) and more information, see from page 2/88 Without flange IM B3 3) With flange IM B14 3) With flange IM B14 3) For other types of construction and more information, see from page 2/94 Motor protection PTC thermistor with 1 or 3 temperature sensors For other motor protection and more information, see from page 2/99 Terminal box position Terminal box positions and more information, see from page 2/101 Special versions Order code																			1
50 Hz 230 VΔ/400 VY 60 Hz 1) 460 VY 50 Hz 10 460 VY 50 Hz 10 460 VX 50 Hz 400 VΔ/690 VY 60 Hz 10 460 VΔ 50 Hz 500 VY 60 Hz 10 460 VΔ 50 Hz 500 VX Without additional charge 2 7 50 Hz 500 VΔ Without additional charge 4 0 50 Hz 500 VΔ Without additional charge 4 0 50 Hz 500 VΔ Without flage 10 Hz 500 VΔ With flage 10 Hz 500 VΔ Vα Flore for the types of construction and more information, see from page 2/94 With flage 10 Hz 500 Vα Flore from flage 10 Hz 500 Vα Flore flag			280 M	736	714		92.9	93.4	93	8.0	107	2.5	5.9	2.5	70	81	1LE1601-2DD6	550	1.6
50 Hz 400 Vλ/690 VY 60 Hz 1) 460 VΔ 50 Hz 500 VY Without additional charge 50 Hz 500 VΔ Without additional charge Without additional charge 4 0 0 For other voltages 1) and more information, see from page 2/88 Types of construction Without flange IM B3 3) With flange IM B5 3) With flange IM B14 3) With additional charge With flange With additional charge With additional charge With additional charge With additional charge With additional charge With additional charge With additional charge With additional charge For other types of construction and more information, see from page 2/94 Motor protection PTC thermistor with 1 or 3 temperature sensors Standard Terminal box position Version Terminal box position Version Standard For other terminal box positions and more information, see from page 2/101 Special versions Order code(s)	Voltag	es ²⁾												Ver	sion			Ord	er code
For other voltages 1) and more information, see from page 2/88 Types of construction Without flange IM B3 3) With flange IM B5 3) With additional charge With flange IM B14 3) For other types of construction and more information, see from page 2/94 Motor protection PTC thermistor with 1 or 3 temperature sensors For other motor protection and more information, see from page 2/99 Terminal box position Terminal box position Version Standard B - Creminal box position Version Standard Order code Order code Order code Order code(s)				-										Sta	ndard		2 2	-	
For other voltages 1) and more information, see from page 2/88 Types of construction Without flange IM B3 3) With flange IM B5 3) With additional charge With flange IM B14 3) For other types of construction and more information, see from page 2/94 Motor protection PTC thermistor with 1 or 3 temperature sensors For other motor protection and more information, see from page 2/99 Terminal box position Terminal box position Version Standard B - Creminal box position Version Standard Order code Order code Order code Order code(s)			690 VY	6	60 Hz ¹	⁰ 460 V∆								Sta	ndard		3 4	-	
For other voltages 1) and more information, see from page 2/88 Types of construction Without flange IM B3 3) With flange IM B5 3) With additional charge With flange IM B14 3) For other types of construction and more information, see from page 2/94 Motor protection PTC thermistor with 1 or 3 temperature sensors For other motor protection and more information, see from page 2/99 Terminal box position Terminal box position Version Standard B - Creminal box position Version Standard Order code Order code Order code Order code(s)																	charge 2 7	-	
Types of construction Without flange IM B3 3) With flange IM B5 3) With additional charge With flange IM B14 3) For other types of construction and more information, see from page 2/94 Motor protection PTC thermistor with 1 or 3 temperature sensors For other motor protection and more information, see from page 2/99 Terminal box position Terminal box position Terminal box positions and more information, see from page 2/101 Special versions Order code Order code Order code Standard A Order code Standard 4 For other terminal box positions and more information, see from page 2/101 Order code(s)			1)											Wit	hout ac	ditional		-	
Without flange IM B3 ³⁾ With flange IM B5 ³⁾ With flange IM B5 ³⁾ With additional charge F With flange IM B14 ³⁾ With additional charge K For other types of construction and more information, see from page 2/94 Motor protection PTC thermistor with 1 or 3 temperature sensors For other motor protection and more information, see from page 2/99 Terminal box position Terminal box at top For other terminal box positions and more information, see from page 2/101 Special versions Standard A - With additional charge K - Order code Order code Standard A - With additional charge Version Standard Order code Order code Order code(s)					ore info	rmation, s	ee fror	n page	e 2/88								9 0		
With flange IM B5 3) With additional charge With flange IM B14 3) With additional charge With flange IM B14 3) With additional charge Wit					M DO 3													Ord	er code
With flange IM B14 ³⁾ For other types of construction and more information, see from page 2/94 Motor protection PTC thermistor with 1 or 3 temperature sensors For other motor protection and more information, see from page 2/99 Terminal box position Terminal box at top For other terminal box positions and more information, see from page 2/101 Special versions With additional charge - Corder code PTC thermistor with 1 or 3 temperature sensors Standard B - Corder code Order code(s)		0)		-											ional -l	A	_	
For other types of construction and more information, see from page 2/94 Motor protection PTC thermistor with 1 or 3 temperature sensors For other motor protection and more information, see from page 2/99 Terminal box position Terminal box at top For other terminal box positions and more information, see from page 2/101 Special versions Order code(s)		0															U	_	
Motor protection Version Order code PTC thermistor with 1 or 3 temperature sensors Standard B For other motor protection and more information, see from page 2/99 Terminal box position Version Terminal box at top Standard 4 For other terminal box positions and more information, see from page 2/101 Order code(s)		0	o of occ				ormotic	n coo	from	naga a	/Q.4			VVII	ii addit	ionai ch	arge		
PTC thermistor with 1 or 3 temperature sensors For other motor protection and more information, see from page 2/99 Terminal box position Terminal box at top For other terminal box positions and more information, see from page 2/101 Special versions Standard 4 Order code(s)				ISTUCT	ion and	i more into	mallo	л, see	HOIN	page 2,	/94			Vor	eion				er codo
For other motor protection and more information, see from page 2/99 Terminal box position Terminal box at top Standard For other terminal box positions and more information, see from page 2/101 Special versions Order code(s)		•		or 3 to	mners	ture sens	ore										R		er code
Terminal box position Terminal box at top For other terminal box positions and more information, see from page 2/101 Special versions Version Standard 4 Corder code(s)								e fron	nage	2/99				Sia	iiuaiu				
Terminal box at top Standard For other terminal box positions and more information, see from page 2/101 Special versions Order code(s)						- morrida		.5 .1011	. page	, 2,00				Ver	sion				
For other terminal box positions and more information, see from page 2/101 Special versions Order code(s)			•																
Special versions Order code(s)				positi	ions an	d more int	formati	on, se	e from	page 2	2/101								
				,						,								Ord	er code(s)
	-			page	2/109												1LE1601 ■-■■■■		. ,

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

²⁾ Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE1 Standard Efficiency



Self-ventilated or forced-air cooled motors · Aluminum series 1LE1002

Selection and ordering data

			Opera	iting va	lues at r	ated po	wer								Aluminum series		
P _{rated} .	P _{rated} .	Frame	n _{ra-}	$T_{\rm ra-}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	COS-	I _{ra-}	T_{LR}	I _{LR} /	$T_{B}/$	$L_{pfA,}$	L _{WA} ,	1LE1002	m _{IM B3}	J
50 Hz/	60 Hz/	size	ted,	ted,	ted,	ted,	ted,	φ_{rated}	ted,	I _{ra-}	I _{ra-}	$T_{\rm ra-}^-$	50 Hz				
P50	P60 1)		50 Hz	50 Hz	50 Hz, 4/4	50 Hz, 3/4	50 Hz, 2/4	50 Hz, 4/4	50 Hz, 400 V		ted, 50 Hz	ted,			Article No.		
kW	kW	FS	rnm	Nm	%	%	%	7,7	Α	00112	00112	00112	4D(A)	4D(1)	Article No. ▲ New	ka	kgm ²
			rpm					forced		lod w	ithout	ovtor	(/	(/	in cover (IC 418)	kg	куп
		ccording											nai ian	and ia	in cover (IC 416)		
Insul	lation: 🛚	Thermal	class 1	55 (ten	nperatu	re class	F), IP5	5 degre	e of pr	otecti	on, uti	lizatio	n in ac	corda	nce with thermal class 13) (temper	ature class I
2-pole	: 3000 r	rpm at 50) Hz, 36	00 rpn	n at 60 I	1z ¹⁾											
0.18	0.21	63 M	2835	2.5	72.1	72.6	69.9	0.86	1.75		5.2	2.3	64	71	▲ 1LE1002-0BA2 ■-■■■		0.00018
0.25	0.29	63 M	2840	3.7	75.0	75.7	73.4	0.86	2.45	2.5	5.7	2.5	64	71	▲ 1LE1002-0BA3■-■■■	4	0.00022
0.37	0.43	71 M	2755	1.3	63.9	64.5	61.1	0.79	1.06	2.2	3.4	2.2	62	73		5	0.00029
0.55	0.63	71 M	2750	1.9	69.0	69.9	66.5	0.79	1.46	2.2	3.7	2.2	62	73		6	0.00041
0.75	0.86	80 M	2835	2.5	72.1	72.6	69.9	0.86	1.75	2.1	5.2	2.3	64	71	1LE1002-0DA2		0.00079
1.1	1.27	80 M	2840	3.7	75.0	75.7	73.4	0.86	2.45	2.5	5.7	2.5	64	71	1LE1002-0DA3		0.0010
1.5	1.75	90 S	2835	5.1	77.2	78.2	76.8	0.85	3.3	2.6	5.5	2.9	71	78	1LE1002-0EA0		0.0014
2.2	2.55	90 L	2855	7.4	79.7	80.9	81.3	0.85	4.7	2.8	6.5	3.2	71	78	1LE1002-0EA4		0.0018
3	3.45	100 L	2835	10	81.5	83.2	82.8	0.87	6.1	3.2	6.4	3.5	67	79	1LE1002-1AA4		0.0034
4	4.55	112 M	2935	13	83.1	83.0	80.8	0.85	8.2	3.3	8.3	4.2	69	81	1LE1002-1BA2		0.0067
5.5	6.3	132 S	2910	18	84.7	85.9	85.7	0.88	10.7	1.8	5.7	2.6	68	80	1LE1002-1CA0		0.013
7.5	8.6	132 S	2925	24	86.0	86.7	86.1	0.88	14.3	2.2	6.8	3.1	68	80	1LE1002-1CA1		0.016
11	12.6	160 M	2925	36	87.6	88.0	87.1	0.86	21.0	2.0	5.7	2.7	70	82	1LE1002-1DA2		0.030
15	17.3	160 M	2935	49	88.7	88.9	87.7	0.85	28.5	2.4	6.8	3.2	70	82	1LE1002-1DA3		0.036
18.5	21.3	160 L	2935	60	89.3	89.7	89.3	0.87	34.5	2.7	7.6	3.4	70	82	1LE1002-1DA4		0.044
22	24.5	180 M	2945	71	89.9	90.6	90.4	0.87	40.5	2.5	7.7	3.5	72	85	1LE1002-1EA2		0.069
30	33.5	200 L	2960	97	90.7	90.9	90.2	0.79	60	2.5	7.3	3.6	72	85	1LE1002-2AA4		0.124
37	41.5	200 L	2955	120	91.2	91.6	91.2	0.88	67	2.7	8.2	3.5	72	85	1LE1002-2AA5	169	0.15
Voltag													sion			Or	der code
50 Hz	230 VΔ/	400 VY		Hz ¹⁾ 46								Sta	ndard		2 2	-	
50 Hz	400 V∆/	690 VY	60 I	Hz ¹⁾ 46	60 VΔ							Sta	ndard		3 4	-	
50 Hz												Witl	hout ac	ditiona	2 2 3 4 4 1 charge 2 7 4 0 9 0	-	
50 Hz		43										Witl	hout ac	ditiona	al charge 4 0	_	
		ıges ¹⁾ ar		inform	ation, se	ee from	page 2/	85							9 0		
		struction		٥)									sion			Or	der code
	t flange	:		B3 ²⁾									ndard		Α	-	
With fla	•			B5 ²⁾										ional ch	ŭ	-	
With fla	ange		IM E	B14 ²⁾								Witl	h additi	ional ch	narge K	_	
		s of cons	truction	and m	ore info	rmation,	see fro	m page	2/90								
	protect	tion											sion			Or	der code
Withou	t												ndard		Į.	-	
		r with 1 c	or 3 tem	peratur	e sensc	rs (fram) to 20	0)	Witl	h addit	ional ch	narge	_	
								0.100									
For oth	er moto	or protect	ion and	more i	nformat	ion, see	from pa	ige 2/98									
For oth	er moto	position	ion and	more i	nformat	ion, see	from pa	ige 2/98					sion				
For oth Termin	er moto nal box al box a	protect position at top	ion and										sion ndard			4	
For oth Termin Termin For oth	nal box al box al box a er term	position position at top inal box	ion and)						4	
For oth Terminater Terminater For oth	er moto nal box al box a	position position at top inal box	ion and)						4	der code(s)

1LE1002-....■-■■■■-Z ...+...+...+...

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.



SIMOTICS GP 1LE1 standard motors

Self-ventilated or forced-air cooled motors · Aluminum series 1LE1002

Selection and ordering data

			Opera	ting va	lues at	rated po	ower								Aluminum series			
50 Hz/	60 Hz/	Frame size	ted,	T _{ra-} ted,	$\eta_{\text{ra-}}$ ted,	$\eta_{\text{ra-}}$ ted,	$\eta_{\text{ra-}}$ ted,	COS- φrated,	I _{ra-} ted,	T_{LR}/T_{ra}	I _{LR} / I _{ra-}	$T_{\rm B}/T_{\rm ra}$	L _{pfA} , 50 Hz	L _{WA,} 50 Hz	1LE1002	m	M B3	J
P50	P60 1)		50 Hz	50 HZ	50 Hz, 4/4	50 Hz, 3/4	50 Hz, 2/4	50 Hz, 4/4	50 Hz, 400 V	ted, 50 Hz	ted, 50 Hz	ted, 50 Hz			Article No.			
kW	kW	FS	rpm	Nm	%	%	%		Α				dB(A)	dB(A)	▲ New	k	a	kgm ²
													rnal fan	and fa	an cover (IC 418)			<u> </u>
• Effic	iency a	ccordin	g to IE	C 6003	4-30: IE	1 Stan	dard Ef	ficiency	, servic	e facto	or (SF) 1.1 ilizati	on in a	ccorda	nce with thermal class 1	30 (te	nnerati	ıra clase R)
		rpm at 5					,, ii	JJ degi	ee oi p	TOLECLI	ion, ui	.IIIZati	on m ac	ccordai	nce with thermal class i	00 (tei	nperatt	ire class b)
0.12	0.14	63 M	1385	3.8	70.0	70.7	67.7	0.79	1.44	2.1	3.7	2.2	59	66	▲ 1LE1002-0BB2■-■■	4		0.00029
0.18	0.21	63 M	1385	5.2	72.1	72.0	67.0	0.76	1.85	2.1	3.6	2.3	59	66	▲ 1LE1002-0BB3■-■■			0.00037
0.25	0.29	71 M	1365	1.8	61.5	61.4	56.1	0.73	0.80	1.8	3.0	2.0	54	65	▲ 1LE1002-0CB2■-■■	5		0.00052
0.37	0.43	71 M	1350	2.7	66.0	67.7	65.0	0.75	1.08	2.0	3.2	2.0	54	65	▲ 1LE1002-0CB3■-■■	6		0.00077
0.55	0.63	80 M	1385	3.8	70.0	70.7	67.7	0.79	1.44	2.1	3.7	2.2	59	66	1LE1002-0DB2	9		0.0014
0.75	0.86	80 M	1385	5.2	72.1	72.0	67.0	0.76	1.85	2.1	3.6	2.3	59	66	1LE1002-0DB3■-■■	1	1	0.0017
1.1	1.27	90 S	1405	7.5	75.0	75.9	73.6	0.81	2.5	2.1	4.5	2.3	61	68	1LE1002-0EB0 ■-■■	1:	2	0.0024
1.5	1.75	90 L	1410	10	77.2	77.8	75.1	0.80	3.35	2.4	4.7	2.6	61	68	1LE1002-0EB4 ■-■■	1:	5	0.0033
2.2	2.55	100 L	1425	15	79.7	80.5	78.5	0.81	4.9	2.2	5.1	2.3	60	72	1LE1002-1AB4■-■■	18	3	0.0059
3	3.45	100 L	1425	20	81.5	83.0	82.3	0.85	6.3	2.4	5.4	2.6	60	72	1LE1002-1AB5■-■■	2	2	0.0078
4	4.55	112 M	1435	27	83.1	84.3	83.7	0.83	8.4	2.5	6.1	2.9	58	70	1LE1002-1BB2■-■■	2	7	0.010
5.5	6.3	132 S	1450	36	84.7	85.7	84.9	0.82	11.2	2.3	5.7	2.7	64	76	1LE1002-1CB0■-■■	3	3	0.019
7.5	8.6	132 M	1450	49	86.0	86.9	86.3	0.82	15.2	2.6	6.6	3.1	64	76	1LE1002-1CB2■-■■	4	4	0.024
11	12.6	160 M	1460	72	87.6	87.9	86.7	0.81	22.5	2.7	6.9	3.3	65	77	1LE1002-1DB2■-■■	6	2	0.044
15	17.3	160 L	1460	98	88.7	89.1	88.0	0.82	30.0	3.0	7.5	3.6	65	77	1LE1002-1DB4■-■■	1 7;	3	0.056
18.5	21.3	180 M	1468	120	89.3	90.2	90.2	0.85	35	2.2	7.3	3.1	63	76	1LE1002-1EB2 ■-■■	1:	31	0.13
22	25.3	180 L	1465	143	89.9	90.8	90.7	0.83	42.5	2.7	8	3.6	63	76	1LE1002-1EB4■-■■	1:	32	0.13
30	34.5	200 L	1472	195	90.7	91.5	91.4	0.83	58	2.3	6.9	3.1	64	78	1LE1002-2AB5■-■■	10	69	0.2
Voltag	es											Ve	rsion				Order	code
50 Hz	230 VΔ/	/400 VY	60	Hz ¹⁾ 4	60 VY							St	andard		2 2		_	
50 Hz	400 VΔ/	/690 VY	60	Hz ¹⁾ 4	60 V∆							Sta	andard		3 4		-	
50 Hz	500 VY											Wi	thout a	dditiona	3 4 al charge 2 7		-	
50 Hz	500 V∆											Wi	thout a	dditiona	al charge 4 0		_	
For oth	er volta	ages ¹⁾ a	nd more	e inforn	nation, s	see fron	n page	2/85							9 0			
Types	of con	structio	n									Ve	rsion				Order	code
Withou	ıt flange	9	IM	B3 ²⁾								St	andard		4		_	
With fla	ange			B5 ²⁾								Wi	th addi	tional cl	harge F		-	
With fla	ange		IM	B14 ²⁾								Wi	th addi	tional cl	harge k		_	
For oth	er type	s of cons	struction	n and r	nore inf	ormatio	n, see f	rom pag	je 2/90									
Motor	protect	tion										Ve	rsion				Order	code
Withou	ıt											St	andard			Α	-	
		r with 1		•		•				0 to 20	00)	Wi	th addi	tional cl	harge	В	-	
		or protec		d more	informa	ition, se	e from	page 2/9	98									
		position	1										rsion					
	al box a											St	andard			4		
		inal box	position	ns and	more in	formation	on, see	from pa	ge 2/10	0								
-	al versi																	code(s)
		oled mot			n/fan co	ver (IC	418)								1LE1002 ■-■■			++
For op	tions, se	ee from p	page 2/	102											1LE1002 ■-■■	- Z	+.	++

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.

Motors with IE1 Standard Efficiency



Self-ventilated or forced-air cooled motors · Aluminum series 1LE1002

Selection and ordering data

0.00	, o u	iiu oru			alues at	t ratad r	20Mor								Aluminum series		
D	D	Erame						COS-	,	T/	1.5/	$T_{\rm B}$ /	1	1	1LE1002	m	J
rated, 50 Hz/	, rated, 60 Hz/	Frame size	n _{ra-} ted,	I _{ra-} ted,	$\eta_{ m ra-}$ ted,	$\eta_{ m ra-}$ ted,	$\eta_{ ext{ra-}}$ ted,	φ_{rated}	/ _{ra-} ted,	I _{LR} / T _{ra-}	I _{LR} / I _{ra-}	$T_{\rm ra-}$	L _{pfA} , 50 Hz	L _{WA} , 50 Hz		m _{IM B3}	U
P50	P60 1)		50 Hz		50 Hz,	50 Hz,	50 Hz,	50 Hz,	50 Hz,	ted,	ted,	ted,	00112	00112			
	1)				4/4	3/4	2/4	4/4	400 V	50 Hz	50 Hz	50 Hz			Article No.		
kW	kW	FS	rpm	Nm	%	%	%		Α				dB(A)) dB(A)	▲ New	kg	kgm ²
													nal fan	and fa	n cover (IC 418)		
• Effic	ciency a	ccordin	g to IE	C 6003	34-30: II	E1 Star	ndard E	fficienc	y, servi	ce fac	tor (SF) 1.1 tilizatio	n in ac	corda	nce with thermal class 130) (tempera	tura clase
		rpm at 5					135 F), II	roo deg	ree or p	protec	tion, u	ınızanı	JII III ac	Coruai	ice with thermal class 130	(tellipera	iture ciass
0.09	0.11	63 M	915	3.9	57.9		51.1	0.70	1.23	1.6	2.7	1.8	56	64	▲ 1LE1002-0BC2■-■■■	1	0.00037
		71 M	800	2.2	45.5	56.9	38.3	0.70	0.84	1.0	2.0	2.0	51	62			
0.18	0.21					44.4									▲ 1LE1002-0CC2		0.00055
0.25	0.29	71 M	860	2.8	52.1	52.8	48.4	0.71	0.98	2.0	2.2	2.0	51	62	▲ 1LE1002-0CC3 ■-■■■		0.00080
0.37	0.43	80 M	915	3.9	57.9	56.9	51.1	0.70	1.23	1.6	2.7	1.8	56	64	1LE1002-0DC2		0.0014
0.55	0.63	80 M	900	5.8	65.8	66.6	62.6	0.72	1.68	1.7	2.7	1.9	56	64	1LE1002-0DC3		0.0017
0.75	0.86	90 S	940	7.6	70.0	70.0	66.0	0.67	2.30	2.0	3.8	2.2	59	70	1LE1002-0EC0		0.0033
1.1	1.27	90 L	925	11	72.9	73.8	71.2	0.69	3.15	2.2	3.8	2.4	59	70	1LE1002-0EC4		0.004
1.5	1.75	100 L	940	15	75.2	76.0	72.4	0.74	3.9	2.0	4.0	2.2	59	71	1LE1002-1AC4		0.0065
2.2	2.55	112 M	940	22	77.7	78.5	76.3	0.72	5.7	2.6	4.6	2.7	57	69	1LE1002-1BC2		0.0092
3	3.45	132 S	955	30	79.7	80.2	77.7	0.74	7.3	2.0	4.6	2.6	63	75	1LE1002-1CC0		0.017
4	4.55	132 M	955	40	81.4	82.6	81.9	0.76	9.3	2.3	5.2	2.6	63	75	1LE1002-1CC2	■ 39	0.021
5.5	6.3	132 M	955	55	83.1	84.0	83.0	0.75	12.7	2.7	5.7	3.0	63	75	1LE1002-1CC3	4 8	0.027
7.5	8.6	160 M	970	74	84.7	85.4	85.0	0.73	17.5	2.1	5.5	2.9	67	79	1LE1002-1DC2	1 72	0.056
11	12.6	160 L	965	109	86.4	86.4	85.4	0.77	24	1.9	5.9	2.7	67	79	1LE1002-1DC4	9 2	0.078
15	18	180 L	975	147	87.7	88.5	87.9	0.77	32	2.3	6.1	3	56	69	1LE1002-1EC4	1 19	0.17
18.5	22	200 L	980	214	89.2	90	89.6	0.79	45	2.8	6.8	2.9	59	72	1LE1002-2AC4	149	0.25
22	26.5	200 L	980	214	89.2	90	89.6	0.79	45	2.8	6.8	2.9	59	72	1LE1002-2AC5	1 66	0.3
8-pole	e: 750 rr	om at 50	Hz. 90			z ¹⁾											
0.09	0.11	71 M	925	11	72.9	73.8	71.2	0.69	3.15	2.2	3.8	2.4	59	70	▲ 1LE1002-0CD2 ■-■■■	6	0.00080
0.12	0.14	71 M	925	11	72.9	73.8	71.2	0.69	3.15	2.2	3.8	2.4	59	70	▲ 1LE1002-0CD3■-■■■		0.00080
0.75	0.86	100 L	705	10	61.2	58.1	50.5	0.62	2.85	1.9	3	2.2	60	72	1LE1002-1AD4		0.0056
1.1	1.27	100 L	690	15	66.5	66.0	61.8	0.61	3.90	2.0	3.2	2.3	60	72	1LE1002-1AD5		0.0078
1.5	1.75	112 M	700	20	70.2	71.1	68.7	0.66	4.65	1.9	3.5	2.1	63	75	1LE1002-1BD2 -		0.0076
2.2	2.55	132 S	715	29	74.2	74.1	71.4	0.66	6.5	1.7	3.9	2.4	63	75	1LE1002-1CD0		0.0094
3	3.45	132 M	715	40	77.0	77.4	75.2	0.68	8.3	1.8	3.9	2.4	63	75	1LE1002-1CD2		0.019
4	4.55	160 M	713	53	79.2	79.3	76.3	0.67	10.9	1.6	4.1	2.2	63	75	1LE1002-1CD2		0.024
						81.9							63	75			
5.5	6.3	160 M	720	73	81.4		80.3	0.68	14.3	1.6	4	2.2			1LE1002-1DD3		0.056
7.5	8.6	160 L	715	100	83.1	83.7	82.4	0.69	18.9	1.7	3.8	2.2	63	75	1LE1002-1DD4		0.077
11	13.2	180 L	720	146	85	86.2	86	0.7	26.5	1.9	5	2.5	65	78	1LE1002-1ED4		0.2
15	18	200 L	718	199	86.2	87.9	88.4	0.75	33.5	2.5	5.5	2.9	55	69	1LE1002-2AD5		0.3
Voltag				1\									rsion			Ord	er code
	230 VΔ/				460 VY								andard		2 2	_	
	400 VΔ/	690 VY	60	Hz ')	460 V∆								andard		3 4	-	
	500 VY														Il charge 2 7	-	
	500 V∆	41										Wit	hout ac	dditiona	Il charge 4 0	_	
For oth	her volta	ages ¹⁾ a	nd mor	e infori	mation,	see from	m page	2/85							9 0		
		structio											rsion			Ord	er code
Withou	ut flange)		B3 ²⁾								Sta	andard		A	-	
With fl	ange			B5 ²⁾								Wit	h addit	ional cl	narge F	-	
With fl	ange		IM	B14 ²)							Wit	h addit	ional cl	narge K	-	
For oth	her type	s of cons	structio	n and	more in	formatio	on, see	from pag	ge 2/90								
Motor	protect	tion										Ver	rsion			Orde	er code
Withou	ut											Sta	andard		A	_	
VVILLIOU		r with 1	or 3 ten	nperati	ure sens	sors (fra	ame size	es 63 to	90 or 10	00 to 2	200)	Wit	h addit	ional cl	narge B	_	
	nermisto					,					,				ŭ		
PTC th			tion an	d more	; ()			120 -1									
PTC the	her moto	or protec		d more	HIIOHII	ation, si						\/er	rsion				
PTC th For oth Termi	her moto	or protec position		d more	HIIOITI	ation, s							rsion andard			4	
PTC th For oth Termi Termin	her moto nal box nal box a	or protec position at top	1					from no	age 2/1/	20			rsion andard			4	
PTC the For other Terminal Terminal For other the PTC	her moto nal box nal box a her term	position position at top ninal box	1					from pa	age 2/10	00						4	or oodo(a)
PTC the For othe Terminal Terminal For othe Species	her moto nal box nal box a her term al versi	protection position position position position position position protection protection protection protection protection position protection pro	n positio	ns and	l more i	nformat	ion, see	from pa	age 2/10	00					11 51002		er code(s)
PTC the For other Termin For other Species Force	nal box nal box nal box a her term al version d-air coo	position position at top ninal box	positio ors w/o	ns and	l more i	nformat	ion, see	from pa	age 2/10	00					1LE1002■-■■■ 1LE1002■-■■■	■-Z F90	+++.

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.



Motors with IE1 Standard Efficiency

Self-ventilated motors · Aluminum series 1LE1002 with increased power

Selection and ordering data

			Opera	ting va	lues at	rated p	ower								Aluminum series		
		Frame	n _{ra-}	$T_{\rm ra-}$	$\eta_{\text{ra-}}$	$\eta_{\text{ra-}}$	$\eta_{\text{ra-}}$	COS-	I _{ra-}	T_{LR}	/ _{LR} /	$T_{\rm B}$	$L_{pfA,}$	$L_{WA,}$	1LE1002	$m_{ m IM~B3}$	J
50 Hz/ P50	60 Hz/ P60	size	ted, 50 Hz	ted, 50 Hz	ted, 50 Hz,	ted, 50 Hz,	ted, 50 Hz,	Prated, 50 Hz,	ted, 50 Hz,	T _{ra-} ted,	I _{ra-} ted,	T _{ra-} ted,	50 Hz	50 Hz			
F30	1)		30 112	30112	4/4	3/4	2/4	4/4	400 V		50 Hz				Article No.		
kW	kW	FS	rpm	Nm	%	%	%		Α				dB(A)	dB(A)	▲ New	kg	kgm ²
											vithout	exter	nal fan	and fa	an cover (IC 418)		
EfficInsu	ıency a lation:	ccording Thermal	g to IEC class 1	; 60034 55 (ter	I-30: IE nperatı	1 Stan ure clas	dard Ei ss F), II	ficiency P55 deq	y, (SF) 1 ree of p	.1 rotect	ion, ut	ilizatio	n in ac	corda	nce with thermal class 130	temperatu	ure class B)
		pm at 50					,,										
0.37	0.43	63 M	2835	2.5	72.1	72.6	69.9	0.86	1.75	2.1	5.2	2.3	64	71	▲ 1LE1002-0BA6 ■-■■■	5	0.00018
0.75	0.86	71 M	2755	1.3	63.9	64.5	61.1	0.79	1.06	2.2	3.4	2.2	62	73	▲ 1LE1002-0CA6■-■■■	5	0.00029
4	4.55	100 L	2850	13	83.1	83.9	83	0.85	8.2	4.5	7	4.1	67	79	1LE1002-1AA6	25	0.0044
5.5	6.3	112 M	2935	18	84.7	84.7	82.7	0.86	10.9	2.9	7.5	3.8	69	81	1LE1002-1BA6	31	0.0085
11	12.6	132 M	2920	36	87.6	88.3	87.8	0.9	20	2.8	7.5	3.7	68	80	1LE1002-1CA6	53	0.022
22	24.5	160 L	2935	72	89.9	90.2	89.5	0.9	39	2.6	7.5	3.4	70	82	1LE1002-1DA6	85	0.049
4-pole	: 1500 r	pm at 50	0 Hz, 18	00 rpn	n at 60	Hz ¹⁾											
0.25	0.29	63 M	1385	3.8	70.0	70.7	67.7	0.79	1.44	2.1	3.7	2.2	59	66	▲ 1LE1002-0BB6■-■■■■	5	0.00029
0.55	0.63	71 M	1350	2.7	66.0	67.7	65.0	0.75	1.08	2.0	3.2	2.0	54	65	▲ 1LE1002-0CB6■-■■■■	7	0.00077
4	4.55	100 L	1435	27	83.1	83.8	82.3	0.81	8.6	2.9	5.8	3.1	60	72	1LE1002-1AB6		0.010
5.5	6.3	112 M	1420	37	84.7	85.9	85.3	0.81	11.6	3	5.8	3.1	58	70	1LE1002-1BB6		0.012
11	12.6	132 M	1450	72	87.6	88.2	87.6	0.84	21.5	2.5	7.2	3	64	76	1LE1002-1CB6		0.033
18.5	21.3	160 L	1460	121	89.3	89.8	89.2	0.85	35	2.7	7.2	3.2	65	77	1LE1002-1DB6	85	0.068
		pm at 50															
2.2	2.55	100 L	930	23	77.7	79.5	78.1	0.78	5.2	2	4	2.2	59	71	1LE1002-1AC6		0.0084
3	3.45	112 M	945	30	79.7	79.5	76.3	0.72	7.5	2.9	4.6	3	57	69	1LE1002-1BC6		0.013
7.5	8.6	132 M	950	75	84.7	85.3	84.1	0.74	17.3	2.4	5.3	3	63	75	1LE1002-1CC6	-	0.032
15	17.3	160 L	965	148	87.7	87.9	86.5	0.75	33	2.9	6	3.4	67	79	1LE1002-1DC6	109	0.094
Voltag				. 1) .									sion			Order	code
	230 VΔ/			Hz ¹⁾ 4									ındard		2 2	_	
	400 VΔ/	690 VY	60 I	Hz ¹⁾ 4	50 VΔ								ındard		3 4	-	
50 Hz															al charge 2 7 al charge 4 0	_	
		ges ¹⁾ ar		inform	otion o	oo fran		OIOE				VVII	nout at	JUILIONE	al charge 4 0 9 0	_	
		struction		IIIIOIIII	ation, s	see Iron	page	2/65				Vor	sion		9 0	Ordo	code
	t flange			B3 ²⁾									ındard		Λ.	Order	code
With fla	_			B5 ²⁾										ional cl	harge		
With fla	0			B14 ²⁾										tional cl		_	
	0	s of cons			ore info	ormatio	n see f	rom nac	ne 2/90			VVIL	ii addii	ionai ci	rial ge		
	protect		oti dotioi i	and n	1010 11110	Jiiiatio	11, 000 1	τοιτι ρας	30 2/00			Ver	sion				code
Withou	•												ndard		A	_	0000
		r with 1 c	or 3 tem	peratu	e sens	ors (fra	me size	es 63 to	90 or 10	00 to 20	00)			ional cl		_	
		or protect		'		`					,	. ,			. 5		
		position				, 50		,				Ver	sion				
	al box a	•											ndard				
		inal box	position	s and i	more in	formation	on, see	from pa	age 2/10	0							
	al version															Order	code(s)
•		ee from p	age 2/1	102											1LE1002■-■■■■	-Z+.	++
	., .	- 1															

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.

Motors with IE1 Standard Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1502 Basic Line

Selection and ordering data

OCICO	lion a	na ora			.1										0			
_	_	F		_		rated p			,	T /	, ,	T /	,	,	Cast-iron series 1LE1502 – Basic Line			,
Prated, 50 Hz/ P50	Prated, 60 Hz/ P60 1)	Frame size	n _{ra-} ted, 50 Hz	T _{ra-} ted, 50 Hz	$\eta_{\text{ra-}}$ ted, 50 Hz, 4/4	η _{ra-} ted, 50 Hz, 3/4	η _{ra-} ted, 50 Hz, 2/4	COS- Prated, 50 Hz, 4/4	I _{ra-} ted, 50 Hz, 400 V		/ _{LR} / / _{ra-} ted, 50 Hz	T _B / T _{ra-} ted, 50 Hz	L _{pfA} , 50 Hz	L _{WA} , 50 Hz	Article No.	m	M B3	J
kW	kW	FS	rpm	Nm	%	%	%		Α				dB(A)	dB(A)		kg		kgm ²
• Cool	ing: Se	elf-ventil	ated (IC	C 411)	or with	order	code F	00 force	d-air c	ooled	withou	ıt exte			n cover (IC 418)	Ü		J. Company
EfficInsu	iency a	ccordin	ig to IE	C 6003 155 (te	4-30: II mperat	E1 Stan	dard E	fficienc P55 dea	y, servi	ce fac	tor (SF	F) 1.1 tilizati	ion in a	ccorda	nce with thermal class 13	0 (te	nnerat	ure class F
		rpm at 5					00 i j, i	oo aog	100 01	910100	,	····			noo wan aromar olaco re	U (10.	прогас	aro oraco E
3	3.45	100 L	2835	10	81.5	83.2	82.8	0.87	6.1	3.2	6.4	3.5	66	80	1LE1502-1AA4	3 1		0.0034
4	4.55	112 M	2935	13	83.1	83.0	80.8	0.85	8.2	3.3	8.3	4.2	70	83	1LE1502-1BA2	3 6		0.0067
5.5	6.3	132 S	2910	18	84.7	85.9	85.7	0.88	10.7	1.8	5.7	2.6	68	82	1LE1502-1CA0 -	53		0.013
7.5	8.6	132 S	2925	24	86.0	86.7	86.1	0.88	14.3	2.2	6.8	3.1	68	82	1LE1502-1CA1 -	5 8		0.016
11	12.6	160 M	2925	36	87.6	88.0	87.1	0.86	21.0	2.0	5.7	2.7	73	86	1LE1502-1DA2 -	8 7		0.030
15	18	160 M	2935	49	88.7	88.9	87.7	0.85	28.5	2.4	6.8	3.2	73	86	1LE1502-1DA3	95		0.036
18.5	22	160 L	2935	60	89.3	89.7	89.3	0.87	34.5	2.7	7.6	3.4	73	86	1LE1502-1DA4			0.044
22	24.5	180 M	2945	71	89.9	90.6	90.4	0.87	40.5	2.5	7.7	3.5	72	85	1LE1502-1EA2			0.069
30	33.5	200 L	2960	97	90.7	90.9	90.2	0.79	60	2.5	7.3	3.6	72	85	1LE1502-2AA4			0.124
37	41.5	200 L	2955	120	91.2	91.6	91.2	0.88	67	2.7	8.2	3.5	72	85	1LE1502-2AA5			0.15
45	51	225 M	2960	145	91.7	92	91.6	0.88	80	2.3	6.7	3	73	86	1LE1502-2BA2			0.22
55 75	62 84	250 M 280 S	2970 2975	177 241	92.1 92.7	92.3 92.5	91.4	0.88	98 136	2.2	6.7	2.9	77 78	91 92	1LE1502-2CA2 - 1LE1502-2DA0 - 1LE1502-2DA0			0.4
90	101	280 S 280 M	2975	289	92.7	92.5	91.3	0.86	159	2.5	7.1	3.1	78 76	89	1LE1502-2DA0 - 1LE1502-2DA2 - 1LE150			0.72
110	123	315 S	2973	352	93.3	92.9	92.4	0.86	198	2.3	7.1	3.3	80	94	1LE1502-3AA0			1.2
132	148	315 M	2982	423	93.5	93.2	92.5	0.89	230	2.3	7.6	3	80	94	1LE1502-3AA2			1.4
160	180	315 L	2982	512	93.8	93.6	93.1	0.91	270	2.3	7.4	2.9	80	94	1LE1502-3AA4			1.6
200	224	315 L	2982	640	94	93.9	93.5	0.92	335	2.2	7.1	2.8	80	94	1LE1502-3AA5			2.1
Voltag	es ²⁾											Ve	ersion				Order	code
		/400 VY	60	Hz ¹⁾ 4	160 VY								tandard	1	2 2		_	COUC
		/690 VY		Hz ¹⁾ ⁴								_	tandard				_	
50 Hz	500 VY											W	ithout a	dditiona	3 4 al charge 2 7 al charge 4 0		_	
50 Hz	500 V∆											W	ithout a	dditiona	al charge 4 0		_	
For oth	er volta	ages ¹⁾ a	nd more	e inforr	nation,	see from	n page	2/88							9 0			
Types	of con	structio	n									Ve	ersion				Order	code
Withou	t flange	9		B3 ³⁾								St	tandard	i	A		-	
With fla	ange			B5 ³⁾								W	ith add	itional cl	harge F		-	
With fla	ange		IM	B14 ³⁾								W	ith add	itional cl	harge K		-	
	21	s of con	structio	n and r	nore inf	formatio	n, see	from pag	ge 2/94									
	protect	tion											ersion				Order	code
Withou												_	tandard		A		-	
		or with 3					,	_	100			W	ith add	itional cl	harge		-	
		or protec		a more	informa	ation, se	ee from	page 2/	99			١,	!					
		position	П										ersion			4		
	al box a		position	no ond	more is	oformet	on occ	from a	200 2/1	0.1		51	tandard	,		4		
	er term al versi	inal box	positioi	ns and	more if	normat	on, see	пош ра	age 2/11	UT							Order	code(s)
•		olis oled mot	ore w/o	avt fo	n/fan o	over (IC	/12)								1LE1502 ■-■■■	.7		
UICEC	1-a11 000	JIGU IIIUL	.UIS W/U	ext. la	ii/iaii CC	JVEI (IC	410)								ILL 1302	-2	1 30 +	· · · · · · · · · · · ·

1LE1502- ■-■■■■-Z . . . +. . . +. . . +. . .

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



Motors with IE1 Standard Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1502 Basic Line

Selection and ordering data

			Opera	ting val	ues at	rated p	ower								Cast-iron series		
P _{rated} .	P _{rated} .	Frame	n _{ra-}	T _{ra-}	$\eta_{ra ext{-}}$	$\eta_{\rm ra-}$	$\eta_{ m ra}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{\rm B}/$	$L_{pfA,}$	L _{WA} .	1LE1502 - Basic Line	m _{IM B3}	J
50 Hz/	60 Hz/	size	ted,	ted,	ted,	ted,	ted,	φ_{rated}	ted,	T_{ra-}	I _{ra-}	T_{ra-}	50 Hz	50 Hz			
P50	P60 1)		50 Hz	50 Hz	50 Hz, 4/4	50 Hz, 3/4	50 Hz, 2/4	50 Hz, 4/4	50 Hz, 400 V	ted, 50 Hz	ted, 50 Hz	ted, 50 Hz			Article No.		
kW	kW	FS	rpm	Nm	%	%	%	., .	Α				dR(A)	dB(A)	Allicie IVO.	kg	kam²
						, -		0 forced		oled v	/ithou	exte	- ()	- ()	cover (IC 418)	ng .	Ngili
 Effic 	iency a	ccording	to IÈC	60034	-30: IE	1 Stand	lard Ef	ficiency	, servic	e fact	or (SF	1.1					
				<u> </u>			s F), IP	55 degr	ee of p	rotect	ion, u	ilizati	on in a	ccordan	ce with thermal class 130	(temper	ature class B)
_		rpm at 50					70.1	0.01	4.0	0.0	E 1	0.7	60	70	11 F1500 1 A D 4	20	0.0050
3	2.55 3.45	100 L 100 L	1425 1425	15 20	79.7 81.5	80.3 82.6	78.1 81.5	0.81	4.9 6.3	2.3	5.1 5.4	2.7	60 60	72 72	1LE1502-1AB4	33	0.0059 0.0078
4	4.55	112 M	1435	27	83.1	84.3	83.7	0.83	8.4	2.5	6.1	2.0	57	70	1LE1502-1BB2		0.0076
5.5	56.3	132 S	1450	36	84.7	85.3	84.2	0.82	11.4	2.3	5.7	2.7	64	76		56	0.010
7.5	8.6	132 M	1450	49	86.0	86.5	85.4	0.82	15.4	2.6	6.6	3.1	64	76	1LE1502-1CB2		0.013
11	12.6	160 M	1460	72	87.6	87.9	86.7	0.81	22.5	2.7	6.9	3.3	70	82	1LE1502-1DB2		0.044
15	17.3	160 L	1460	98	88.7	89.1	88.0	0.82	30.0	3.0	7.5	3.6	70	82	1LE1502-1DB4		0.056
18.5	21.3	180 M	1468	120	89.3	90.2	90.2	0.85	35	2.2	7.3	3.1	63	76	1LE1502-1EB2 -		0.13
22	25.3	180 L	1465	143	89.9	90.8	90.7	0.83	42.5	2.7	8	3.6	63	76	1LE1502-1EB4		0.13
30	34.5	200 L	1472	195	90.7	91.5	91.4	0.83	58	2.3	6.9	3.1	64	78	1LE1502-2AB5	220	0.2
37	42.5	225 S	1475	240	91.2	91.6	91.1	0.85	69	2.3	7	3.2	69	83	1LE1502-2BB0	260	0.37
45	52	225 M	1475	291	91.7	92.1	91.7	0.86	82	2.6	7.2	3.2	69	82	1LE1502-2BB2	290	0.45
55	63	250 M	1475	356	92.1	92.5	92.1	0.85	101	2.4	6.1	2.6	69	83	1LE1502-2CB2	370	0.69
75	86	280 S	1485	482	92.7	92.9	92.2	0.85	137	2.3	7	2.8	75	89	1LE1502-2DB0	500	1.2
90	104	280 M	1482	580	93	93.4	93.1	0.87	161	2.2	6.5	2.8	73	87	1LE1502-2DB2	560	1.4
110	127	315 S	1488	706	93.3	93.4	92.8	0.84	205	2.3	6.5	2.7	76	90	1LE1502-3AB0		1.9
132	152	315 M	1488	847	93.5	93.7	93.3	0.85	240	2.5	6.8	2.7	76	91	1LE1502-3AB2		2.2
160	184	315 L	1486	1028	93.8	93.9	93.5	0.86	285	2.7	7.2	2.7	76	90	1LE1502-3AB4		2.9
200	230	315 L	1486	1285	94	94.2	94	0.87	355	2.5	6.9	2.7	76	91	1LE1502-3AB5	1140	3.5
Voltag				41								Ve	rsion			Ord	er code
		/400 VY		Hz ¹⁾ 46									andard		2 2	-	
		/690 VY	60 H	Hz ¹⁾ 46	60 VΔ								andard		charge 2 7 charge 4 0 9 0	-	
	500 VY													dditional	charge 2 7	_	
	500 V∆	1)				,		2/00				VVI	thout a	dditional	charge 4 0	_	
		ages ¹⁾ ar		intorm	ation, s	ee trom	page 2	2/88				\/-	!		9 0	0	
	it flange	struction		33 ³⁾									rsion andard		Δ.	Ordi	er code
With fla	_	7		35 ³⁾										ı tional ch	arge F	_	
With fla	•			314 ³⁾										tional ch	5 -	_	
	0	s of cons			ore info	rmation	n see fr	om pag	e 2/94			**1	iii aaai	tional on	argo		
	protect		4511011	24 111	2.0 11110		., 555 11	pag	,_,			Ve	rsion				er code
Withou	•												andard	l	A	-	
PTC th	ermisto	or with 3 to	empera	ture sei	nsors									tional ch	arge B	_	
		or protect				tion, se	e from p	page 2/9	9								
Termin	nal box	position										Ve	rsion				
Termin	al box a	at top										St	andard		4		
For oth	ner term	inal box	position	s and r	nore inf	ormatic	n, see	from pag	ge 2/10	1							
Specia	al versi	ons														Ord	er code(s)
Forced	d-air cod	oled moto	ors w/o	ext. fan	/fan co	ver (IC	418)								1LE1502 ■-■■■■		
	tions s	ee from p	age 2/1	09											1LE1502 ■-■■■■	I-Z+	++

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE1 Standard Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1502 Basic Line

Selection and ordering data

		na ora		ating va	alues at	rated r	ower								Cast-iron series		
Prated	Prated	Frame	n _{ra-}	T_{ra}	$\eta_{ra ext{-}}$	$\eta_{\rm ra}$	$\eta_{ m ra-}$	COS-	I _{ra-}	T _{LR} /	I _{LR} /	$T_{B}/$	L_{pfA}	L _{WA} .	1LE1502 – Basic Line	m _{IM B3}	J
	60 Hz/		ted,	ted,	ted,	ted,	ted,	φ_{rated} ,		$T_{\rm ra}$	I _{ra-}	$T_{\rm ra-}$	50 Hz	50 Hz		IIVI BO	
P50	P60 1)		50 Hz	50 Hz	50 Hz, 4/4	50 Hz, 3/4	50 Hz, 2/4	50 Hz, 4/4	50 Hz, 400 V		ted, 50 Hz	ted,			A 1' 1 A1		
	-				,			4/4		30 HZ	30 HZ	30 HZ	ID(A)	ID(A)	Article No.		. 2
kW	kW	FS	rpm	Nm	%	%	%	00 faura	A		tale			dB(A)		kg	kgm ²
• Cool	ing: Se iencv a	eit-ventii iccordin	ated (II a to IE	C 60034	or with 1-30: IE	orger c 1 Stan	code Ft dard E	o torce	a-air c /. servi	ce fac	พเtทอเ tor (SF	it exte =) 1.1	rnai tai	n and ta	n cover (IC 418)		
• Insu	lation:	Thermal	class	155 (ter	nperat	ure clas	ss F), II	P55 deg	ree of	protec	tion, u	tilizati	on in a	ccorda	nce with thermal class 130	(tempera	iture class l
6-pole	: 1000	rpm at 5	0 Hz, 1	200 rpr		Hz ¹⁾											
1.5	1.75	100 L	940	15	75.2	75.6	72.3	0.74	3.9	2	4	2.2	59	71	1LE1502-1AC4		0.0065
2.2	2.55	112 M	940	22	77.7	78.5	76.3	0.72	5.7	2.6	4.6	2.7	59	71	1LE1502-1BC2	-	0.0092
3	3.45	132 S	955	30	79.7	79.9	77.1	0.74	7.3	2	4.6	2.6	65	78	1LE1502-1CC0		0.017
4	4.55	132 M	955	40	81.4	82.6	81.9	0.76	9.3	2.3	5.2	2.6	65	78	1LE1502-1CC2		0.021
5.5	6.3	132 M	955	55	83.1	84.0	83.0	0.75	12.7	2.7	5.7	3.0	65	78	1LE1502-1CC3		0.027
7.5	8.6	160 M	970	74	84.7	85.4	85.0	0.73	17.5	2.1	5.5	2.9	67	79	1LE1502-1DC2		0.056
11	12.6	160 L	965	109	86.4	86.8	85.9	0.77	24	1.9	5.9	2.7	67	79	1LE1502-1DC4		0.078
15	18	180 L	975	147	87.7	88.5	87.9	0.77	32	2.3	6.1	3	56	69	1LE1502-1EC4		0.17
18.5	22	200 L	978	181	88.6	89.8	89.8	0.79	38	2.5	6.3	2.6	59	72	1LE1502-2AC4		0.25
22	26.5	200 L	980	214	89.2	90	89.6	0.79	45	2.8	6.8	2.9	59	72	1LE1502-2AC5		0.3
30	36	225 M	978	293	90.2	91	90.7	0.82	59	2.7	6	2.5	65	77	1LE1502-2BC2		0.49
37	44.5	250 M	980	361	90.8	91.5	91.3	0.82	72	2.7	6	2.4	63	77	1LE1502-2CC2		0.76
45 55	54	280 S 280 M	986	436	91.4	92 92.5	91.6 92.6	0.84	85	2.6	7	2.6	63	77 77	1LE1502-2DC0		1.1
55 75	66		986	533	91.9			0.85	102	2.6	6.7	2.6	63	77	1LE1502-2DC2		1.3
90	90 108	315 S 315 M	988 988	725 870	92.6 92.9	92.8	92.1 92.8	0.83	141 168	2.5	7.1 7.3	2.7	62 61	77	1LE1502-3AC0 - 1LE1502-3AC2 - 1LE1502-3AC2		2.1
110	132	315 M	988	1063	92.9	93.2	92.8	0.86	198	2.6	6.8	2.8	61	78			3.2
132	158	315 L	988	1276	93.5	93.6	93.4	0.86	235	3	7.5	2.8	61	78	1LE1502-3AC4 - 1LE1502-3AC5 - 1LE150		3.∠ 4
160	192	315 L	988	1546	93.8	93.7	93.4	0.86	285	3.1	7.7	3	64	79	1LE1502-3AC6 -		4.7
		313 L	900	1546	93.0	93.9	93.0	0.00	200	3.1	1.1			79	TLE 1502-3AC6		
Voltag				1) .									ersion			Orde	er code
		/400 VY		Hz ¹⁾ 4									andard		2 2	-	
		/690 VY	60	Hz ¹⁾ 4	60 VΔ								andard		3 4 Il charge 2 7	_	
	500 VY														l charge 2 7	_	
	500 V∆	1)				,		0/00				VV	ithout a	dditiona	ll charge 4 0 9 0	-	
		ages 1) ar		e intorm	nation, s	see tron	n page	2/88				١.,			9 0	0.1	
		struction		B3 ³⁾									ersion			Orae	er code
	t flange	9		B5 ³⁾									andard		A	_	
With fla	0			B14 ³⁾										itional cl	o .	_	
With fla	0								0/0.4			VV	ith addi	itional ch	narge	_	
		s of cons	structio	n and n	iore inii	Jimalio	n, see i	тотт рас	je 2/94			1/6	raian			Orde	v 00 d0
Withou	protect	uon											ersion andard			Orde	er code
		r with 2+	omnor	oturo co	neero										narge B	_	
		or with 3 to or protect				tion or	o from	page 2/	00			VV	iiii audi	itional cl	large	_	
		position		u more	SITTOILL	uon, se	e nom	page 2/	3 3			1/0	ersion				
		•	•										andard		Α.		
	al box a		positio	ne and	moro in	formati	on coo	from no	an 2/1/	11		31	anuaro		4		
		inal box	hosilio	ns and i	more in	iomali	on, see	пошра	ige 2/11	JI						Orde	or anda(a)
•	al versi	ons oled moto	oro w/o	ovt for	/for or	vor (IC	/10\								1LE1502 ■-■■■■		er code(s)
_ 01000	1-a11 000	JIEU 111010	JI S W/O	ext. iai	man co	vei (iC	410)								11 = 1 = 0	-2 F90	T

1LE1502- ■-■■■■-Z . . . +. . . +. . . +. . .

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



Motors with IE1 Standard Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1502 Basic Line

Selection and ordering data

			Oper	ating va	alues at	rated r	ower								Cast-iron series		
Р	P	Frame		_				cos-	1	T _{LR} /	1.0/	T _B /	1	Luca	1LE1502 – Basic Line	mu a po	J
rated, 50 Hz/	Frated, 60 Hz/	size	n _{ra-} ted,	I _{ra-} ted,	$\eta_{ m ra-}$ ted,	$\eta_{ m ra-}$ ted,	$\eta_{ m ra-}$ ted,	φ_{rated}	I _{ra-} ted,	$T_{\rm ra-}$	I _{LR} / I _{ra-}	$T_{\rm ra}$	L _{pfA} ,	L _{WA} , 50 Hz	ILLIOU Basic Emic	m _{IM B3}	J
P50	P60			50 Hz	50 Hz,	50 Hz,	50 Hz,	50 Hz,	50 Hz,	ted,	ted,	ted,	30112	30 1 12			
	1)				4/4	3/4	2/4	4/4	400 V	50 Hz	50 Hz	50 Hz			Article No.		
kW	kW	FS	rpm	Nm	%	%	%		Α				dB(A)) dB(A)		kg	kgm ²
													ernal fa	n and fa	in cover (IC 418)		
• Effic	elency a	ccordin Thermal	g to IE class	:C 6003 155 (te	4-30: II mperat	=1 Stan jure cla	idard E ss F). I	fficienc P55 dea	y, servi ree of r	ce fact	tor (Si tion, u	-) 1.1 tilizat	ion in a	accorda	nce with thermal class 130) (temper:	ature class B)
		om at 50					,, .									(, , , , , , , , , , , , , , , , , , ,
0.75	0.86	100 L	705	10	61.2	58.1	50.5	0.62	2.85	1.9	3	2.2	64	72 ⁴⁾	1LE1502-1AD4	28	0.0056
1.1	1.27	100 L	690	15	66.5	66.0	61.8	0.61	3.90	2.0	3.2	2.3	64	72 ⁴⁾	1LE1502-1AD5		0.0078
1.5	1.75	112 M	700	20	70.2	71.1	68.7	0.66	4.65	1.9	3.5	2.1	67	78 ⁴⁾	1LE1502-1BD2 -		0.0094
2.2	2.55	132 S	715	29	74.2	74.1	71.4	0.66	6.5	1.7	3.9	2.4	63	75		60	0.019
3	3.45	132 M	715	40	77	77.4	75.2	0.68	8.3	1.8	3.9	2.2	63	75	1LE1502-1CD2	62	0.024
4	4.55	160 M	720	53	79.2	79.3	76.3	0.67	10.9	1.6	4.1	2.3	63	75	1LE1502-1DD2	89	0.044
5.5	6.3	160 M	720	73	81.4	81.9	80.3	0.68	14.3	1.6	4	2.2	63	75	1LE1502-1DD3	96	0.056
7.5	8.6	160 L	715	100	83.1	83.7	82.4	0.69	18.9	1.7	3.8	2.2	63	75	1LE1502-1DD4	120	0.077
11	13.2	180 L	720	146	85	86.2	86	0.7	26.5	1.9	5	2.5	65	78	1LE1502-1ED4 -	160	0.20
15	18	200 L	718	199	86.2	87.9	88.4	0.75	33.5	2.5	5.5	2.9	55	69	1LE1502-2AD5	220	0.3
18.5	22	225 S	730	242	86.9	87.8	87.4	0.78	39.5	2.2	5.5	2.7	59	72	1LE1502-2BD0 -	250	0.43
22	26.5	225 M	730	288	87.4	88.3	88.1	0.79	46	2.3	5.5	2.7	60	73	1LE1502-2BD2	270	0.5
30	36	250 M	732	391	88.3	89.2	89.2	0.81	61	2.3	5.5	2.6	54	68	1LE1502-2CD2	370	0.84
37	44.5	280 S	735	481	88.8	89.7	89.7	0.81	74	2.1	5	2.1	54	68	1LE1502-2DD0	460	1.22
45	54	280 M	735	585	89.2	90.3	90.4	0.81	90	2.1	5.3	2.1	58	71	1LE1502-2DD2	500	1.42
55	66	315 S	740	710	89.7	90.1	89.7	0.8	111	2.1	5.7	2.6	69	83	1LE1502-3AD0	640	2
75	90	315 M	738	970	90.3	90.7	90.5	0.81	148	2.3	5.9	2.7	69	84	1LE1502-3AD2	720	2.5
90	108	315 L	738	1165	90.7	91.2	91.2	0.84	171	2.2	5.9	2.6	68	83	1LE1502-3AD4		3.1
110	132	315 L	740	1419	91.1	91.6	91.5	0.82	215	2.7	6.7	2.9	73	87	1LE1502-3AD5		3.9
132	158	315 L	740	1703	91.5	91.9	91.6	0.81	255	2.9	7.2	3.3	75	89	1LE1502-3AD6	1080	4.5
Voltag	jes ²⁾											Ve	ersion			Orde	er code
50 Hz	230 VΔ/	/400 VY) Hz ¹⁾ 4								S	tandar	d	2 2	-	
50 Hz	400 VΔ/	/690 VY	60) Hz ¹⁾ 4	160 V∆							S	tandar	d	3 4	-	
	500 VY											W	ithout a	additiona	2 2 3 4 al charge 2 7 al charge 4 0 9 0	-	
	500 V∆	43										W	ithout a	additiona	al charge 4 0	_	
		ages 1) ai		re inforn	nation,	see fror	n page	2/88							9 0		
		structio		2\									ersion			Orde	er code
	ut flange	9		1 B3 ³⁾								_	tandar		A	-	
With fl	•			1 B5 ³⁾										litional cl	_	-	
With fl	0			1 B14 ³⁾				,	0/0			W	rith add	litional cl	harge K	_	
		s of cons	structio	on and r	nore in	rormatic	on, see	rrom pag	ge 2/94							0.1	
	protect	uon											ersion			Orde	er code
Withou		r with 0 t	tomac	rotura s	0000**							_	tandare		horae	_	
		or with 3 to				ation of	oo from	page 9/	00			VV	nın add	litional cl	harge B	_	
		or protec		id more	HIIOHIN	auun, Se	se iroin	page 2/	3 3			\/.	ersion				
	n ai box nal box a	position	•										ersion tandar	Ч		1	
		inal box	nocitio	ne end	more is	oformet	ion occ	from no	000 0/40	11		3	tanudr	u			
	al versi		positio	nis and	more II	normati	on, see	пош ра	ige Z/ IC	1						Ord	er code(s)
		ons oled mot	ore w/	avt for	n/fan o	over (IC	/12\								1LE1502 ■-■■■		` '
		ee from p			n/iali C	JVEI (IC	+10)								1LE1502		
1-01 0μ	tions, se	ee nom þ	Jaye 2	/109											ILE 1302	-2+	

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

⁴⁾ The noise limit values specified as permissible in IEC 60034-9 under load can be exceeded.

Motors with IE1 Standard Efficiency

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Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1502 Basic Line with increased power

Selection and ordering data

		iia oia		ting va	lues at	rated p	ower								Cast-iron series			
P _{rated,} 50 Hz/ P50	60 Hz/ P60	Frame size	n _{ra-} ted, 50 Hz	T _{ra-} ted, 50 Hz	$\eta_{\text{ra-}}$ ted, 50 Hz,	η _{ra-} ted, 50 Hz,	η _{ra-} ted, 50 Hz,	COS- \$\Phi_{\text{rated}}\$, 50 Hz,	I _{ra-} ted, 50 Hz,	T _{LR} / T _{ra-} ted,	I _{LR} / I _{ra-} ted,	$T_{\rm B}/T_{\rm ra-}$ ted,	L _{pfA,} 50 Hz	L _{WA} , 50 Hz	1LE1502 – Basic Line	r	m _{IM B3}	J
	1)				4/4	3/4	2/4	4/4	400 V	50 Hz	50 Hz	50 Hz			Article No.			. 2
kW	kW	FS	rpm	Nm	%	%	%		А				(/	dB(A)	(10.110)	k	(g	kgm ²
Cool Effic	ıng: Se iencv a	elf-ventil iccordin	ated (IC a to IEC	411) c 60034	or with I-30: IE	order c 1 Stand	ode F9) forced iciency.	-aır co servic	oled v e fact	vithou or (SF	t exte	rnal fai	n and fa	n cover (IC 418)			
							s F), IP	55 degr	ee of p	rotect	ion, u	tilizati	ion in a	ccorda	nce with thermal class 1	55 (t	tempera	ture class F
2-pole	: 3000 i	rpm at 5	0 Hz, 36	00 rpn	n at 60	Hz ¹⁾												
4	4.6	100 L	2850	13	83.1	83.9	83	0.85	8.2	4.5	7	4.1	67	79	1LE1502-1AA6			0.0044
5.5	6.3	112 M	2935	18	84.7	84.7	82.7	0.86	10.9	2.9	7.5	3.8	69	81	1LE1502-1BA6■-■■	4		0.0085
11	12.6	132 M	2920	36	87.6	88.3	87.8	0.9	20	2.8	7.5	3.7	68	80	1LE1502-1CA6			0.022
22	24.5	160 L	2935	72	89.9	90.2	89.5	0.9	39	2.6	7.5	3.4	70	82	1LE1502-1DA6			0.049
30	33.5	180 L	2940	97	90.7	91.5	91.5	0.89	54	2.4	8.1	3.5	72	85	1LE1502-1EA6			0.094
45	51	200 L	2955	145	91.7	92.3	92.4	0.85	83	2.5	8.1	3.6	71	85	1LE1502-2AA6			0.176
55	62	225 M	2960	177	92.1	92.4	92	0.88	98	2.5	7.3	3.2	76	89	1LE1502-2BA6			0.27
75	84	250 M	2970	241	92.7	92.8	92.1	0.87	134	2.4	7.3	3.1	76	89	1LE1502-2CA6			0.48
110	123	280 M	2975	353	93.3	93.5	93.1	0.9	189	2.4	7.3	3.1	77	90	1LE1502-2DA6■-■■	6	520	1
	4.6	rpm at 5					00.0	0.01	8.6	2.0	E 0	2.1	60	72	11 E1E00 1 A DC		20	0.01
4		100 L 112 M	1435 1420	27 37	83.1 84.7	83.8 85.9	82.3 85.3	0.81	11.6	2.9	5.8 5.8	3.1	58	70	1LE1502-1AB6 - 1LE1502-1BB6 - 1			0.01
5.5 11	6.3 12.6	132 M	1450	72	87.6	88.2	87.6	0.81	21.5	2.5	7.2	3.1	64	76				0.012
18.5	21.3	160 L	1460	121	89.3	89.8	89.2	0.85	35	2.5	7.2	3.2	65	77	1LE1502-1CB6 - 1LE1502-1DB6 - 1LE150			0.033
30	34.5	180 L	1465	196	90.7	91.7	91.9	0.79	60	2.6	7.2	3.4	64	77	1LE1502-1EB6			0.066
37	42.5	200 L	1470	240	91.2	91.7	92.1	0.79	71	2.4	6.8	2.9	64	78	1LE1502-1EB6			0.139
55	63	225 M	1475	356	92.1	92.8	92.6	0.86	100	2.5	6.7	2.6	70	83	1LE1502-2BB6 -			0.240
75	86	250 M	1482	483	92.7	93.1	92.6	0.84	139	2.5	7.4	3	73	87	1LE1502-2CB6 -			0.49
110	127	280 M	1486	707	93.3	93.5	93	0.85	200	2.6	8	3.3	75	89	1LE1502-2DB6 -			1.7
Voltag		200 141	1400	707	50.0	50.0	30	0.00	200	2.0	-			00	TEE 1002 EDDO			
		(400 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	00.1	−lz ¹⁾ 4ı	20.10/								ersion				Order	code
		/400 VY /690 VY		72 7 41 72 ¹⁾ 41								_	tandard		2 2 3 4		-	
50 Hz		1090 V I	1 00	72 7 41	OU VΔ							_	tandard		l charge 2 7		_	
50 Hz															Il charge 4 0		_	
		ages ¹⁾ ai	nd moro	inform	ation o	oo from	naga (0/00				VV	iliioul a	uuiliona	ll charge 2 7 ll charge 4 0 9 0			
		struction		IIIIOIII	ation, a	see non	i page z	_/00				Ve	ersion		3 0			code
• • •	t flange			33 ³⁾									tandard		Δ		- Order	code
With fla	U	•		35 ³⁾										itional ch	narge			
With fla	0			314 ³⁾										itional cl	5 -			
	0	s of cons			ore info	ormation	n see fr	om nade	2/94			٧٧	itii addi	ilional ci	large			
Motor			oti detion	anan	iore irric	Jimatioi	1, 300 11	om page	5 2/54			Ve	ersion					code
Withou	•												tandard			Δ	_	code
		r with 3 t	empera	ture se	nsors									itional ch	narge	3	_	
		or protec				tion se	e from r	age 2/9	9			٧٧	iii aaaa	andriai Ci	largo			
		position		171010	morrina		o nom p	,agc 2/3				Ve	ersion					
	al box	-											tandard			4		
		inal box	position	s and i	more in	formatio	n, see t	rom pac	ne 2/10	1		٠,	uul C			H		
	al versi			2 0/10/1			, 500	pag	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,								Order	code(s)
		oled mot	ors w/o e	ext fan	/fan co	ver (IC	418)								1LE1502 ■-■■	T		(-)
. 0.000			0.0 11,0	J	,	. 51 (15	0)											

1LE1502- ■-■■■■-Z + . . . + . . . + . . .

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



Motors with IE1 Standard Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1502 Basic Line with increased power

Selection and ordering data

			Opera	ating v	alues a	t rated	power								Cast-iron series		
P _{rated} ,		Frame	n _{ra-}	$T_{\rm ra-}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{\rm B}/$	$L_{pfA,}$	L _{WA} ,	1LE1502 – Basic Line	m _{IM B3}	J
50 Hz/ P50	60 Hz/	size	ted,	ted,	ted, 50 Hz,	ted, 50 Hz,	ted, 50 Hz,	Prated, 50 Hz,	ted,	I _{ra-}	I _{ra-}	I _{ra-}	50 Hz	50 Hz			
P30	P60 1)		50 Hz	30 HZ	30 ⊓Z, 4/4	3/4	2/4	30 HZ, 4/4	50 Hz, 400 V		ted, 50 Hz	ted, 50 Hz			Article No.		
kW	kW	FS	rpm	Nm	%	%	%		Α				dB(A)	dB(A)	,	kg	kgm ²
• Cool	ing: Se	elf-ventila	ated (IC	411)	or with	order o	code F9	0 force	d-air c	ooled	withou	ut exte	rnal far	n and fa	n cover (IC 418)		<u> </u>
 Effic 	iencv a	ccordine	a to IEC	C 6003	4-30: IE	E1 Stan	dard Et	fficienc∖	/. servi	ce fac	tor (SI	F) 1.1			nce with thermal class 155	(temper	atura class E)
		rpm at 50					33 I <i>)</i> , II	JJ deg	166 01	protec	tion, t	ıınzaı	ion in a	ccordai	ice with thermal class 155	(temper	ature class i
2.2	2.55	100 L	930	23	77.7	79.5	78.1	0.78	5.2	2	4	2.2	59	71	1LE1502-1AC6	35	0.0084
3	3.45	112 M	945	30	79.7	79.5	76.3	0.72	7.5	2.9	4.6	3	57	69	1LE1502-1BC6 -		0.013
7.5	8.6	132 M	950	75	84.7	85.3	84.1	0.74	17.3	2.4	5.3	3	63	75	1LE1502-1CC6	78	0.032
15	17.3	160 L	965	148	87.7	87.9	86.5	0.75	33	2.9	6	3.4	67	79	1LE1502-1DC6	140	0.094
18.5	22	180 L	970	182	88.6	89.4	89.1	0.77	39	2.2	5.9	2.9	56	69	1LE1502-1EC6	165	0.206
30	34.5	200 L	975	294	90.2	91.4	91.7	0.78	62	2.6	6	2.7	61	75	1LE1502-2AC6 -	245	0.381
37	44.5	225 M	978	361	90.8	91.5	91.5	0.82	72	2.5	6.1	2.8	76	93	1LE1502-2BC6	310	0.62
45	54	250 M	982	438	91.4	92.2	92.1	0.83	86	2.7	6.6	2.3	76	95	1LE1502-2CC6	390	0.93
75	90	280 M	985	727	92.6	93.3	93.2	0.84	139	2.9	7	2.7	61	75	1LE1502-2DC6	560	1.7
8-pole	: 750 rp	om at 50	Hz, 900) rpm	at 60 H	z ¹⁾											
15	18	180 L	718	199	86.2	87.5	87.2	0.74	34	2.1	4.7	2.3	64	78	1LE1502-1ED6	190	0.263
18.5	22	200 L	720	245	86.9	88.2	88.4	0.76	40	2.7	6.1	3.2	59	72	1LE1502-2AD6 -	250	0.416
30	36	225 M	730	392	88.3	89.1	89.1	0.79	62	2.6	5.6	2.8	57	70	1LE1502-2BD6		0.73
37	44.5	250 M	730	484	88.8	89.8	89.9	0.83	72	2.3	5.7	2.6	63	77	1LE1502-2CD6 -		1
55	66	280 M	736	714	89.7	90.4	90.5	8.0	111	2.5	5.7	2.5	70	81	1LE1502-2DD6	550	1.6
Voltag	es ²⁾											Ve	ersion			Ord	er code
50 Hz	230 VΔ/	400 VY		Hz ¹⁾ 4								St	tandard	l	2 2	-	
50 Hz	400 V∆/	690 VY	60	Hz ¹⁾ 4	-60 VΔ							St	tandard	ı	3 4	-	
50 Hz	500 VY											W	ithout a	dditiona	I charge 2 7	-	
50 Hz												W	ithout a	dditiona	2 2 3 4 I charge 2 7 I charge 4 0 9 0	-	
		iges ¹⁾ ar		e inforn	nation,	see fror	n page	2/88							9 0		
		struction		٥)									ersion			Ord	er code
	it flange)		B3 ³⁾								St	tandard	ı	A	-	
With fla	•			B5 ³⁾										itional ch	•	-	
With fla	0			B14 ³⁾								W	ith addi	itional ch	narge K	-	
		s of cons	truction	and r	nore inf	ormatic	n, see f	rom pag	ge 2/94								
	protect	tion											ersion			Ord	er code
Withou		c .										_	tandard		A	_	
		r with 3 to				41			20			W	ith addi	itional ch	narge	_	
		or protect		more	intorma	ation, se	ee trom	page 2/9	99			١.,	vole:				
		position											ersion				
	al box a	'	n n n l ti			forms c ti	on oc-	frame = -	~~ O/4	24		Si	tandard		4		
		inal box	position	is and	more in	normati	on, see	irom pa	.ge 2/1	JI						0.44	or ando(a)
-	al version	ons oled moto	ore w/o	avt for	n/fan co	war (IC	/12\								1LE1502 ■-■■■		er code(s)
					ijian cc	wer (iC	410)								1LE1502		
1.01.0b	tions, se	ee from p	age 2/	109											ILE 1302	-2	r

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE3 Premium Efficiency



Self-ventilated or forced-air cooled motors · Aluminum series 1LE1043

Selection and ordering data

		peciii		- 41 ·												Al		
_	_			_	values at ra		ower			,	. ,	, ,	- ,	,	,	Aluminum series 1LE1043		,
		Frame size		T _{ra-}	Different IE class		$\eta_{\rm ra}$	$\eta_{\rm ra}$ -	COS-	I _{ra-}		/LR/	I _B /	L_{pfA}	L _{WA} ,	ILE 1043	m _{IM B3}	J
60 Hz/ P50	60 Hz/ P60	3126	ted,	ted,	60 Hz/P60		ted,	ted,	Prated		I _{ra-}	I _{ra-} ted,	I _{ra-} ted,	60 Hz	60 Hz			
750	POU		60 HZ	60 HZ	60 HZ/F60	4/4	3/4	2/4	4/4			eu, 2 60 Hz				Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)	dB(A)	7 11 11010 140.	kg	kgm ²
Cool	ina: Se	elf-venti			1) or with	order	code	F90 fo	rced-a	ir coo	led w	ithou	exte	, ,	()	an cover (IC 418)	9	<u> </u>
Effic	iency a	ccordi	ng to IÌ	EC 60	034-30: IE	3 Pre	mium	Efficie	ency									
Insu	lation:	Therma	ıl class	155 ((temperat	ure cl	ass F)	, IP55	degree	of pro	otecti	on, ut	ilizati	on in a	iccorda	nce with thermal class 130	(tempera	ture class
2-pole	: 3000 ı	rpm at !	50 Hz,	3600	rpm at 60	Hz												
).75	0.86	80 M	3480	2.1		77	77.2	75.7	0.84	1.45	3	7.1	3.6	64	75	1LE1043-0DA2		0.0011
1.1	1.27	80 M	3500	3		84	84	82	0.83	1.98	3.3	8.4	4	64	75	1LE1043-0DA3	12	0.0013
1.5	1.75	90 S	3525	4.1		85.5	84.8	82.3	0.84	2.6	3.1	9.8	4.9	69	81	1LE1043-0EA0 ■ - ■ ■ ■	15	0.0021
2.2	2.55	90 L	3530	6		86.5	86.4	84.5	0.87	3.65	3	9.6	4.9	69	81	1LE1043-0EA4 ■ - ■ ■ ■	19	0.0031
3	3.45	100 L	3525	8.1		88.5	88.7	87.2	0.87	4.9	3.8	9.7	5.5	71	83	1LE1043-1AA4	26	0.0054
ļ	4.55	112 M	3560	10		88.5	88	86.2	0.88	6	3.2	10.8	5.1	73	85	1LE1043-1BA2	34	0.012
5.5	6.3	132 S	3555	15		89.5	89.4	88.2	0.9	8.6	2.1	8.6	4.4	72	84	1LE1043-1CA0 -	43	0.024
7.5	8.6	132 S	3555	20		90.2	90.5	90	0.91	11.5	2.4	9.5	4.7	72	84	1LE1043-1CA1	57	0.031
11	12.6	160 M	3560	30		91	90.4	88.4	0.88	17.2	2.8	8.5	4.3	77	89	1LE1043-1DA2 -	75	0.053
15	17.3	160 M	3565	40		91	90.5	88.9	0.86	24	3.1	9.7	4.8	77	89	1LE1043-1DA3 -	84	0.061
18.5	21.3	160 L	3560	50		91.7	91.5	90.3	0.9	28	3.1	9.4	4.4	77	89	1LE1043-1DA4 -		0.068
22	24.5	180 M		59		91.7	91.4	90	0.89	34	2.8	8.2	3.9	77	89	1LE1043-1EA2	-	0.08
30	33.5	200 L	3560	80		92.4	92.2	91.4	0.87	47	2.9	7.6	3.6	77	84	1LE1043-2AA4 -		0.134
37	41.5	200 L	3560	99		93	92.8	91.6	0.88	57	2.8	7.5	3.6	77	84	1LE1043-2AA5 -		0.158
					rpm at 60		52.0	31.0	0.00	01	2.0	7.5	0.0	11	04	TEL 1040 ZAAS	104	0.100
).75	0.86	80 M	1760			83.5	82.6	79.3	0.71	1.59	2 1	8.3	4.7	55	66	1LE1043-0DB3 -	1/	0.0021
1.1	1.27	90 S	1750	6		86.5	86.4	84.2	0.75	2.15		8.2	4.4	58	70		16	0.0021
1.5	1.75	90 S	1755	8.2		86.5	86.4	84.6	0.73	2.13	3.4	8.4	4.4	58	70	1LE1043-0EB4		0.0029
2.2			1770	11.9										62	74			0.0049
	2.55	100 L				89.5	89.2	87.2	0.81	3.8	3.5	9.6	5.1			1LE1043-1AB4		
3	3.45	100 L	1760	16.3		89.5	89.5	88.3	0.82	5.1	3.1	9.5	4.6	62	74	1LE1043-1AB5		0.014
1	4.55	112 M		19		89.5	89.4	87.7	0.8	6.5	2.9	8.2	4.3	62	74	1LE1043-1BB2		0.017
5.5	6.3	132 S	1775	30		91.7	91.6	90.5	0.81	9.3	3.9	9.7	4.5	68	80		64	0.046
7.5	8.6	132 M		40		91.7	91.8	91	0.83	12.4		9.6	4.2	68	80	1LE1043-1CB2 -		0.046
11	12.6	160 M	1775	59		92.4	92.3	91.1	0.83	18	3	8.9	3.8	69	81		83	0.083
15	17.3	160 L	1780	80		93	92.8	91.4	0.81	25	2.9	9.5	4.3	69	81	1LE1043-1DB4		0.099
18.5	21.3	180 M		100		93.6	93.7	93.1	0.81	30.5		7.8	3.6	68	75	1LE1043-1EB2		0.13
22	25.3	180 L	1775	118		93.6	93.8	93.3	0.81	36.5	2.8	7.7	3.7	70	77	1LE1043-1EB4		0.14
30	34.5	200 L	1778	161	IE2	94.1	94.3	93.8	0.83	48	3	8.1	3.5	70	77	1LE1043-2AB5 -	189	0.22
/oltag	es												Ve	ersion			Orde	r code
0 Hz	230 VΔ/	/400 VY	6	0 Hz 4	460 VY								St	andar	t	2 2	-	
50 Hz	400 VΔ/	690 VY	6	0 Hz 4	460 V∆								St	andar	t	3 4	-	
0 Hz	500 VY												W	ithout a	additiona	al charge 2 7	-	
0 Hz	500 VΔ												W	ithout a	additiona	al charge 4 0	_	
or oth	er volta	ages an	d more	inforr	mation, see	e from	page	2/85								9 0		
		structio											Ve	ersion			Orde	r code
Vithou	t flange)	IN	и Вз ¹	1)								St	andar	d	A	-	
Vith fla				и B5 ¹											- itional c	harge F	_	
Vith fla	0			и В14											itional c	-	_	
	0	s of cor			d more info	ormati	ion se	e from	nage :	2/90						114.190		
	protect		.5 3011	51. air			,	2 0171	page .	_,00			Ve	ersion				r code
Vithou	•													andar	1	A	_	. 3000
		r with 1	or 3 to	mper	ature sens	ors (fr	ame ci	700 90	90 0	100 +	2001	,			a itional c			
										100 10	, 200)	'	٧V	iiii auu	ilionai C	naige D		
				nu mc	ore informa	ation, S	SEE 1101	iii pag	c 2/98				1/-	roica				
ermir		positio	rı											ersion				
	al box a					,				01/-			St	andar	1	4		
ermin			· maniti	ons ar	ad more in	torma	tion, se	ee fron	n page	2/100								
ermin or oth	er term		positi	orio ai	na moro in													
ermin or oth	er term al versio	ons																r code(s)
ermin or oth orecia	er term al version l-air cod	ons oled mo	tors w/	o ext.	fan/fan co	over (10	C 416)									1LE1043■-■■■■	-Z F90 +	

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.



Motors with IE3 Premium Efficiency

Self-ventilated or forced-air cooled motors · Aluminum series 1LE1043

Selection and ordering data

			Opera	ating v	alues at r	ated p	ower									Aluminum series		
	P _{rated} ,	Frame size		T _{ra-}	Different IE class	$\eta_{\rm ra-}$	$\eta_{ m ra}$ - ted,	$\eta_{\text{ra-}}$ ted,	COS- Prated	I _{ra-}	T_{LR}/T_{ra}	I _{LR} / I _{ra-}	$T_{\rm B}/T_{\rm ra-}$	L _{pfA,} 60 Hz	L _{WA} , 60 Hz	1LE1043	m _{IM B3}	J
	P60				60 Hz/P60					60 Hz	ted,	ted, 60 Hz	ted,		00112	Article No.		
kW	kW	FS	rpm	Nm		%	%	%	., .	Α					ΛΒ(Δ)	▲ New	kg	kgm ²
			Tr.		1) or with				rced-a		led w	rithou	tevte	. ,	,	an cover (IC 418)	ky	Kgiii
• Effici	iency a	ccordi	ng to l	EC 60	034-30: I	E3 Pre	mium	Efficie	ency									
					<u> </u>		ass F)	, IP55	degree	of pr	otecti	on, u	ilizati	on in a	accorda	ance with thermal class 130	(temperat	ure class E
					rpm at 60													
	0.86	90 S	1155	_		82.5	82.4	79.9	0.65	1.76		5.3	3.1	46	58	1LE1043-0EC0	-	0.004
	1.27	100 L		8.9		87.5	87.2	84.8	0.69	2.3	2.4	6.7	3.3	62	74	1LE1043-1AC3		0.014
	1.75	112 S		14		88.5	88.7	87.3	0.76	3.25		6.2	2.8	65	77	▲ 1LE1043-1BC1 ■ - ■ ■ ■ ■	-	0.017
	2.55	132 S		21		89.5	89.8	88.8	0.77	4.65		7.1	3.1	67	79	▲ 1LE1043-1CC1■-■■■■		0.037
	3.45	132 S		24		89.5	89.6	88.4	0.75	5.6	2.3	7.5	3.3	67	79	1LE1043-1CC0	-	0.037
	4.55	132 M		30		89.5	89.6	88.4	0.73	7.1	2.4	7.6	3.4	67	79	1LE1043-1CC2 -		0.037
	6.3	132 M		45		91	91.4	90.5	0.74	10.3		7.2	3.3	67	79	1LE1043-1CC3	-	0.046
	8.6	160 M		60		91	91.1	90	0.75	13.8		5.9	2.6	70	82	1LE1043-1DC2 -		0.098
	12.6	160 L		89		91.7	91.9	91	0.75	20	2.3	5.8	2.6	70	82	1LE1043-1DC4		0.12
	18	180 L		122	IE2	91.7	92	91.4	0.79	26	2.5	6.8	3	61	68	1LE1043-1EC4		0.19
	22	200 L		150	IE2	93	93.8	93.8	0.78	32	2.8	6.5	3	64	71	1LE1043-2AC4		0.28
22	26.5	200 L	1180	178	IE2	93	93.5	93.4	0.79	37.5	2.6	6.3	2.8	63	70	1LE1043-2AC5	179	0.32
Voltage	es												Ve	ersion			Order	code
50 Hz 2	230 VA/	400 VY	6	0 Hz 4	460 VY								St	andar	d	2 2 3 4	-	
50 Hz 4	400 VΔ/	690 VY	6	0 Hz	460 V∆								St	andar	d		-	
50 Hz 5	500 VY												W	ithout a	addition	al charge 2 7 al charge 4 0	-	
50 Hz 5	500 V∆												W	ithout a	addition		-	
For oth	er volta	iges an	d more	infor	mation, se	e from	n page	2/85								9 0		
		structio												ersion			Order	code
Withou	0)		M B3									St	andar	d	A	-	
With fla	0			M B5									W	ith ado	litional o		-	
With fla	ange		11	M B14	1)								W	ith ado	litional o	charge K	-	
For oth	er type	s of cor	structi	on an	d more in	format	ion, se	e from	page 2	2/90						•		
Motor		tion												ersion			Order	code
Withou														andar		A	-	
					ature sen	,) to 20	0)		W	ith add	ditional o	charge B	-	
For oth	er moto	or prote	ction a	nd mo	ore inform	ation,	see fro	m pag	e 2/98									
		positio	n											ersion				
Termina	al box a	at top											St	andar	d	4		
For oth	er term	inal box	positi	ons a	nd more i	nforma	ation, s	ee fron	n page	2/100								
Specia	l versi	ons															Order	code(s)
Forced	l-air cod	oled mo	tors w/	o ext.	fan/fan c	over (I	C 416)									1LE1043 ■-■■■■	-Z F90 +	++
For oth	er term	inal box	(positi	ons a	nd more i	nforma	ation, s	ee fron	n page	2/102						1LE1043 ■-■■■■	-Z+.	++

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

Motors with IE3 Premium Efficiency



Self-ventilated or forced-air cooled motors · Aluminum series 1LE1043 with increased power

Selection and ordering data

			Opera	ating v	alues at ra	ated p	ower									Aluminum series		
P _{rated,} 60 Hz/ P50	P _{rated} , 60 Hz/ P60	Frame size	ted,	T _{ra-} ted, 60 Hz	Different IE class 60 Hz/P60	ted,	η _{ra-} ted, 60 Hz, 3/4	η _{ra-} ted, 60 Hz, 2/4	COS- Prated, 60 Hz, 4/4	60 Hz,		I _{LR} / I _{ra-} ted, 60 Hz	T _B / T _{ra-} ted,		L _{WA} , 60 Hz	1LE1043	m _{IM B3}	J
kW	kW	FS	rnm	Nm		%	%	%	4/4	400 V	00112	. 00112	2 00 1 12		4D(V)	Article No. New	ka	kgm ²
			rpm		1) or with				rood-a		lod w	ithou	t ovto	(/	. ,	fan cover (IC 418)	kg	кутт
• Effic	ing. 3e	ccordi	ng to II	EC 60	034-30: IE	E3 Pre	mium	Efficie	ency	II COO	ieu w	itiiou	i exte	illai la	II allu I	ance with thermal class 130		
							ass F),	IP55	degree	of pro	otecti	on, u	tilizat	ion in a	accorda	ance with thermal class 130	(tempera	ture class B
		•			rpm at 60													
4	4.55	100 L				88.5	89.6	89.5		7.3	3	8.4	4	71	83	▲ 1LE1043-1AA6■-■■■		0.0054
11		132 M		_		91	91.1	90.3		17.6		9.6	5.2	72	84	1LE1043-1CA6		0.031
15		132 L				91.7	92.1	91.7		26.5		8.7	4.8	72	84	▲ 1LE1043-1CA7■-■■■		0.035
22	25.3	160 L				91.7	91.8		0.9		3.1	9.7	4.5	77	89	1LE1043-1DA6		0.073
30	33.5	180 L				92.4	92.6	92.1	0.87	47	2.9	8.8	4.5	77	89	1LE1043-1EA6		0.094
45	51	200 L				93.6	93.7	93	0.86	70	3	8.4	3.7	77	84	1LE1043-2AA6	194	0.170
		•			rpm at 60													
11	12.6	132 M				92.4	92.6	91.8		19	3.1	8.7	4.1	68	80	1LE1043-1CB6	-	0.046
18.5	21.3	160 L				93.6	93.3	91.9		33	3.9	9.6	4.5	69	81	1LE1043-1DB6		0.099
30	34.5	180 L		161	IE2	94.1	94.4	94	0.78	51	3.1	8.8	4.1	70	77	1LE1043-1EB6 ■ - ■ ■ ■		0.173
37	42.5	200 L	1780	198		94.5	94.7	94.2	0.8	61	3.3	9	4	70	77	1LE1043-2AB6■-■■■	205	0.275
Voltag	es												Ve	ersion			Orde	r code
50 Hz	230 VΔ/	400 VY	6	0 Hz 4	160 VY								S	tandar	d	2 2	-	
50 Hz	400 VΔ/	690 VY	6	0 Hz 4	460 V∆								S	tandar	d	3 4	-	
50 Hz	500 VY												W	ithout a	addition	nal charge 2 7	-	
50 Hz	500 VΔ												W	ithout a	addition	nal charge 4 0	-	
For oth	ner volta	iges an	d more	inforr	nation, se	e from	page	2/85								9 0		
Types	of cons	structio	n										Ve	ersion			Orde	r code
Withou	ıt flange)	11	и Вз ¹	1)								S	tandar	d	Α	-	
With fla	ange		11	И В5 ¹	1)								W	ith add	litional d	charge F	-	
With fla	ange		11	И В14	1)								W	ith add	litional d	charge K	-	
For oth	ner type	s of cor	nstructi	on an	d more inf	ormati	on, see	e from	page 2	2/90						•		
Motor	protect	tion											Ve	ersion			Orde	r code
Withou	ut												S	tandar	d	A	-	
PTC th	ermisto	r with 3	tempe	rature	sensors								W	ith add	litional o	charge B	-	
For oth	ner moto	or prote	ction a	nd mo	re informa	ation, s	ee from	n pag	e 2/98									
Termi	nal box	positio	n										Ve	ersion				
Termin	al box a	at top											S	tandar	d		Į.	
For oth	ner term	inal box	c positi	ons ar	nd more in	nforma	tion, se	ee fron	n page	2/100								
Specia	al versi	ons															Orde	r code(s)
Forced	d-air cod	oled mo	tors w/	o ext.	fan/fan co	over (IC	2 416)									1LE1043 ■-■■■	-Z F90 +	++
For oth	ner term	inal box	c positi	ons ar	nd more in	nforma	tion, se	ee fron	n page	2/102						1LE1043 ■-■■■	-Z+.	++

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.



Motors with IE3 Premium Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1543 Basic Line

Selection and ordering data

Prated, 50 Hz/50 PS Frame 50 Hz/50 PS Frame 50 Hz/50 PS Transited, 1E class 1ed, 60 Hz/60 PS π/πa 1ed, 1E class 1ed, 60 Hz/60 PS π/ma 1ed, 1E class 1e				Opera	atina v	alues at r	ated po	ower									Cast-iron series		
	Protod	Protod	Frame		_				η_{ro}	COS-	lro	Tip/	/ı p/	T _D /	LnfA	Lwa		mina	po J
Second Control Contr	60 Hz/	,				IE class	ted,				, ted,							···IIVI	D3 -
No.	P50	P60		60 Hz	60 Hz	60 Hz/P60				60 Hz,	60 Hz								
Cooling: Self-ventilated (IC 411) or with order code F80 forced-air cooled without external fan and fan cover (IC 418) Efficiency according to Ic & Coolar 30: E32 Premium Efficiency according to Ic & Coolar 31: E47 Premium										4/4		60 Hz	60 Hz	60 Hz		.=	Article No.		. 2
### Efficiency according to IEC 60004-30: IES Premium Efficiency introduction. Unitivation in accordance with thermal class 130 (temperature class 200 rpm at 50 Hz, 3500 rpm at 50 Hz, 3500 rpm at 50 Hz, 3500 rpm at 50 Hz. ### Profession rpm at 50 Hz, 3500 rpm at 50 Hz, 3500 rpm at 50 Hz, 3500 rpm at 50 Hz. ### Profession rp	kW		_			`									٠,	` '	(10.110)	kg	kgm²
Paralletin: Thermal class 150 (temperature class F), 1255 degree of protection, utilization in accordance with thermal class 130 (temperature class Pepeles: 3000 pm at 60 Hz; 250 pm at 60 Hz;	CoolEffic	ing: Se iency a	elf-venti accordi	ilated (I	C 411) or with 134-30: IF	order o	code l nium l	-90 to Efficie	rced-ai ncv	r cool	ed wi	thout	exter	nal fan	and fai	n cover (IC 418)		
0.75	• Insul	lation:	Therma	l class	155 (1	temperat	ure cla	ss F),	IP55 c	legree	of pro	tectic	n, uti	lizatio	on in a	ccordan	ice with thermal class 13	0 (tem	perature class
1.1 1.27 80 M 3500 3	2-pole	: 3000	rpm at !	50 Hz, 3	3600 r	pm at 60	Hz												
1.5 1.75 9.8 3525 4.1 85.5 84.8 82.3 0.84 2.6 3.1 9.8 4.9 6.9 81 1LE1543-0EA0 200.0021 2.2 2.55 90 L 3530 6 86.5 86.4 84.5 0.87 3.65 3 9.6 4.9 6.9 81 1LE1543-0EA0 200.0021 3.3 3.45 100 L 3525 8.1 88.5 88.7 87.2 0.87 49 3.8 9.7 5.5 71 83 1LE1543-1AA4 200.0021 3.7 4.55 112 M 3660 10 88.5 88 86.2 0.88 6 3.2 10.8 5.1 73 85 1LE1543-1AA4 200.0021 3.7 4.55 112 M 3660 10 88.5 88 86.2 0.88 6 3.2 10.8 5.1 73 85 1LE1543-1BA2 200.0021 3.7 4.55 112 M 3660 10 88.5 88 86.2 0.88 6 3.2 10.8 5.1 73 85 1LE1543-1BA2 200.0021 3.7 4.55 112 M 3660 10 90.2 90.5 90 0.91 11.5 2.4 9.5 4.7 72 84 1LE1543-1CA1 200.0021 3.15 1.73 86.6 13.2 S 3555 20 90.2 90.5 90 0.91 11.5 2.4 9.5 4.7 72 84 1LE1543-1CA1 200.0021 3.15 17.3 160 M 3660 30 91 90.5 88.9 96.2 24 31. 97 4.8 77 89 1LE1543-1DA2 200.0031 3.15 17.3 160 M 3660 50 91.7 91.5 90.3 0.9 28 3.1 9.4 4.4 77 89 1LE1543-1DA2 200.0031 3.5 200 L 3660 50 91.7 91.4 90.6 98.9 34 2.8 82 3.9 77 89 1LE1543-1DA3 200.0031 3.5 200 L 3660 99 93 92.8 91.6 0.88 57 2.8 75 3.6 77 84 1LE1543-1DA3 200.0031 3.7 41.5 200 L 3660 99 93 92.8 91.6 0.88 57 2.8 75 3.6 77 84 1LE1543-2DA3 200.0031 3.7 41.5 200 L 3660 99 93 92.8 91.6 0.88 59 2.8 75 3.6 77 84 1LE1543-2DA3 200.0031 3.7 41.5 200 L 3660 99 93 92.8 91.6 0.88 57 2.8 75 3.6 77 84 1LE1543-2DA3 200.0031 3.7 41.5 200 M 3670 20 93.6 93.7 93.1 0.88 69 2.7 7.6 3.5 75 89 1LE1543-2DA3 200.0031 3.7 41.5 200 M 3670 80 162 93.6 93.7 93.1 0.88 69 2.7 7.6 3.5 75 89 1LE1543-2DA3 200.0031 3.7 41.5 200 M 3670 80 162 93.6 93.7 93.1 0.88 69 2.7 7.6 3.5 75 89 1LE1543-2DA3 200.0031 3.7 41.5 200 M 3670 80 162 93.6 93.7 93.1 0.88 69 2.7 7.6 3.5 79 89 1LE1543-2DA3 200.0031 3.7 41.5 200 M 3670 80 162 93.6 93.7 93.1 0.88 69 2.7 7.6 3.5 79 89 1LE1543-2DA3 200.0031 3.7 41.5 200 M 3670 80 162 93.0 93 93.8 93.8 93.8 93.8 93.8 93.8 93.8 9	0.75	0.86	80 M	3480	2.1		77	77.2	75.7	0.84	1.45	3	7.1	3.6	64	75	1LE1543-0DA2	18	0.0011
2.2 2.55 90 L 3530 6 86.5 86.4 84.5 0.87 3.65 3 9.6 4.9 69 81 1 1LE1543-DEA.41 32 0.0034 3.7 4.55 112 M 3560 10 88.5 88.7 87.2 0.87 4.9 3.8 9.7 5.5 71 83 1LE1543-1BA.41 36 0.0054 3.7 4.55 112 M 3560 10 88.5 88 86.2 0.9 86 3.2 10.8 51 73 85 1LE1543-1BA.41 50.012 5.5 6.3 132 S 3555 15 99.5 89.4 88.2 0.9 8.6 2.1 8.6 4.4 72 84 1LE1543-1BA.21 10.0 0.012 5.5 6.3 132 S 3555 20 90.2 90.5 90 0.91 11.5 24 9.5 4.7 72 84 1LE1543-1BA.21 10.0 0.051 11. 12.6 160 M 3560 30 91 90.5 88.9 8.8 0.8 17.2 2.8 8.5 43 77 8.9 1LE1543-1DA.21 10.0 0.053 15. 17.3 160 M 3565 40 91 90.5 88.9 0.86 24 3.1 9.7 4.8 77 89 1LE1543-1DA.21 10.0 0.051 18.5 21.3 160 L 3560 50 91.7 91.5 90.3 0.9 28 3.1 9.4 44 77 89 1LE1543-1DA.21 11.0 0.061 18.5 21.3 160 L 3560 99 91.7 91.5 90.3 0.9 28 3.1 9.4 44 77 89 1LE1543-1DA.21 11.0 0.061 18.5 21.3 160 L 3560 99 91.7 91.5 90.3 93 42 2.8 8.2 39 77 89 1LE1543-1DA.21 11.0 0.061 18.5 51.2 25 M 3570 120 93.6 93.7 93.1 0.8 57 2.8 7.5 3.6 77 84 1LE1543-2DA.21 12.1 10.0 0.8 12.1 10.0 0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	1.1	1.27	80 M	3500	3			84		0.83	1.98	3.3	8.4	4	64	75	1LE1543-0DA3	1 21	0.0013
3 3.45 100 L 3525 8.1 88.5 88.7 87.2 0.87 4.9 3.8 9.7 5.5 71 83 1LE1543-1AA4	1.5	1.75	90 S	3525	4.1		85.5	84.8	82.3	0.84	2.6		9.8	4.9	69	81	1LE1543-0EA0	2 6	0.0021
3.7	2.2	2.55	90 L	3530	6		86.5	86.4	84.5	0.87	3.65	3	9.6	4.9	69	81	1LE1543-0EA4	32	0.0031
5.5 6.3 132 S 3555 15 89.5 89.4 88.2 0.9 8.6 2.1 8.6 4.4 72 84 1LE1543-1CA0	3																		0.0054
7.5 8.6 132 S 3555 20 90.2 90.5 90 0.91 11.5 2.4 9.5 4.7 72 84 1LE1543-1CA1 - 73 0.031 11 12.6 160 M 3560 30 91 90.5 80 0.91 90.5 88 17.2 2.8 8.5 4.3 77 89 1LE1543-1DA2 - 10 0.053 15 17.3 160 M 3565 40 91 90.5 88 9 0.86 24 31.9 7 4.8 77 89 1LE1543-1DA2 - 10 10 0.061 18.5 21.3 160 L 3560 50 91.7 91.5 90.3 0.9 28 3.1 9.4 4.4 77 89 1LE1543-1DA2 - 10 10 0.061 18.5 21.3 160 L 3560 80 92.4 92.9 91.4 90.0 88 34 2.8 8.2 3.9 77 89 1LE1543-1DA4 - 10 10 0.061 18.5 21.3 160 L 3560 80 92.4 92.9 91.4 90.0 88 37 2.8 8.2 3.9 77 89 1LE1543-1DA4 - 10 10 0.081 18.5 21.3 160 L 3560 80 92.4 92.2 91.4 90.8 74 2.9 7.6 3.6 77 84 1LE1543-1DA4 - 10 10 0.081 18.5 12.5 M 3570 120 93.6 93.7 93.1 0.88 69 2.7 7.6 3.5 75 89 1LE1543-2DA4 - 10 250 0.158 15 51 225 M 3570 120 93.6 93.7 93.1 0.88 69 2.7 7.6 3.5 75 89 1LE1543-2DA4 - 10 250 0.158 15 51 225 M 3570 120 93.6 93.7 93.1 0.88 69 2.7 7.6 3.5 75 89 1LE1543-2DA2 - 10 355 0.46 15 5 62 250 M 3578 147 93.6 93.4 92.3 0.89 83 2.5 73 3.3 76 90 1LE1543-2DA2 - 10 355 0.46 15 64 280 S 3578 200 IE2 94.1 93.9 92.7 0.89 112 2.7 7.6 3.2 78 92 1LE1543-2DA2 - 10 355 0.46 10 10 12 3 315 S 3585 293 95 94.8 93.8 0.9 13 2.7 8.1 3.8 92 1LE1543-3DA2 - 10 50 0.77 10 10 12 3 315 S 3585 293 95 94.8 93.8 0.9 13 2.7 8.1 3.8 92 1LE1543-3DA2 - 10 50 0.09 160 180 315 5388 5352 95.4 95.1 94. 0.91 191 2.8 8 3.4 79 93 1LE1543-3DA2 - 10 50 0.09 17 19 10 10 12 3 315 S 3585 5352 95.4 95.1 94. 0.91 191 2.8 8 3.4 79 93 1LE1543-3DA2 - 10 50 0.09 180 12 30 V/400 V/Y 60 Hz 460 V/A	3.7																	_	
11 12.6 160 M 3560 30 91 90.4 88.4 0.88 17.2 2.8 8.5 4.3 77 89 1LE1543-IDA2 - 100 0.053 15 17.3 160 M 3565 40 91 90.5 88.9 0.86 24 3.1 9.7 4.8 77 89 1LE1543-IDA2 - 110 0.061 18.5 21.3 160 L 3560 50 91.7 91.5 90.3 0.9 28 31 9.4 4.7 77 89 1LE1543-IDA2 - 110 0.061 22 24.5 180 M 3560 59 91.7 91.4 90 0.89 34 2.8 8.2 3.9 77 89 1LE1543-IDA2 - 110 127 0.068 23 33.5 200 L 3560 80 92.4 92.2 91.4 0.87 47 2.9 7.6 3.6 77 84 1LE1543-IDA2 - 110 125 0.158 24 31 51 225 M 3570 120 93.6 93.7 93.1 0.88 69 2.7 7.6 3.5 75 89 1LE1543-IDA2 - 110 250 0.158 25 250 M 3578 100 99 93. 92.8 91.6 0.88 57 2.8 7.5 3.6 77 84 1LE1543-IDA2 - 110 250 0.158 26 250 M 3578 100 99 93. 92.8 91.6 0.88 57 2.8 7.5 3.6 77 84 1LE1543-IDA2 - 110 250 0.158 25 62 250 M 3578 100 99 93. 92.8 91.6 0.88 59 2.5 7.3 3.3 76 90 1LE1543-IDA2 - 110 250 0.158 26 250 M 3578 100 12 94.1 93.9 92.7 0.89 112 2.7 7.6 3.5 75 89 1LE1543-IDA2 - 110 250 0.158 27 84 280 S 3578 200 1E2 94.1 93.9 92.7 0.89 112 2.7 7.6 3.5 75 89 1LE1543-IDA2 - 110 250 0.158 28 12 94.1 93.9 92.7 0.89 12 2.7 7.6 3.5 75 89 1LE1543-IDA2 - 110 250 0.158 29 101 280 M 3578 240 1E2 94.1 93.9 92.7 0.89 132 2.7 8.1 3.3 78 92 1LE1543-2DA2 - 110 510 0.77 290 101 280 M 3578 240 1E2 95 94.8 93.8 0.91 122 7.7 8.1 3.3 78 92 1LE1543-2DA2 - 110 50 0.77 201 123 315 S 3585 293 95 94.8 93.8 0.91 129 2.8 8 3.4 79 93 1LE1543-3DA2 - 110 50 0.94 201 24 315 L 3586 533 95.8 95.7 94.8 0.92 285 78 80 80 12 12 12 12 12 12 12 12 12 12 12 12 12	5.5																		
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90 101 280 M 3578 240 E2 95 94.8 93.8 0.9 132 2.7 8.1 3.3 78 92 1LE1543-2DA2 - 95 94.8 93.8 0.91 160 2.6 8 3.3 79 93 1LE1543-3DA2 - 95 95 95 95 95 95 95 95 95 95 95 95 95						IFO													
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Standard Standard Without additional charge Version Version Without flange IM B3 ¹⁾ With flange IM B5 ¹⁾ With additional charge For other types of construction and more information, see from page 2/94 With flange IM B5 ¹⁾ With additional charge For other types of construction and more information, see from page 2/94 With additional charge For other motor protection and more information, see from page 2/99 Terminal box position Terminal box position Version Standard Version Standard For other trynial box positions and more information, see from page 2/101 Special versions Order code(s) For other terminal box positions and more information, see from page 2/101 Special versions Order code(s)	•		/400 \/\/	CC) I I = 4	CO 1/1/													Dider code
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Forced-air cooled motors w/o ext. fan/fan cover (IC 418) 1LE1543 F90+++	For oth	er term	inal box	c positio	ons an	d more in	format	ion, se	e from	page	2/101								
	Specia	al versi	ons																Order code(s)
For options, see from page 2/109	Forced	l-air cod	oled mo	tors w/c	ext. 1	fan/fan co	over (IC	418)									1LE1543 ■-■■■	■ -Z	F90+++.
	For opt	tions, se	ee from	page 2	2/109												1LE1543 ■-■■■	■ -Z	+ + +

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE3 Premium Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1543 Basic Line

Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

			Opera	atina v	alues at i	rated p	ower									Cast-iron series			
Protod	Protect	Frame		$T_{\rm ra}$	Differen		$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T_{LR}	/ı p/	$T_{\rm B}$	L_{pfA}	L_{WA}	1LE1543 - Basic Line	m-	M B3	J
60 Hz/	60 Hz/	size	ted,	ted.	IE class		ted,	ted.	φ_{rated}		$T_{\rm ra}$	I _{ra-}	$T_{\rm ra}$	-рід, 60 Hz	60 Hz			IVI DO	
P50	P60		60 Hz	60 Hz	60 Hz/P60		60 Hz,		60 Hz,	60 Hz	ted,	ted,	ted,						
						4/4	3/4	2/4	4/4	460 V	60 Hz	60 Hz	60 Hz			Article No.			•
kW	kW	FS	rpm	Nm		%	%	%		Α				٠,	` '	▲ New	kg	l	kgm ²
Cool	ing: Se	If-ventil	ated (IC 411	or with	order	code	F90 fo	rced-a	ir cool	ed wi	thout	exter	nal fan	and fa	an cover (IC 418)			
· Insu	lency a	Therma	g to it I class	155 (034-30: II tempera	ture cla	mium ass F).	IP55 (ncy legree	of pro	tectio	on, uti	lizatio	on in ac	ccordai	nce with thermal class 1	30 (tei	nperat	ure class
					pm at 60														
0.75	0.86	80 M	1760	4.1	•	83.5	82.6	79.3	0.71	1.59	3.1	8.3	4.7	55	66	1LE1543-0DB3	22)	0.0029
1.1	1.27	90 S	1750	6		86.5	86.4	84.2	0.75	2.15	3.4	8.2	4.4	58	70	1LE1543-0EB0■-■■	25)	0.0036
1.5	1.75	90 L	1755	8.2		86.5	86.4	84.6	0.77	2.85	3	8.4	4.3	58	70	1LE1543-0EB4	31		0.0049
2.2	2.55	100 L	1770	11.9		89.5	89.2	87.2	0.81	3.8	3.5	9.6	5.1	62	74	1LE1543-1AB4	40)	0.014
3	3.45	100 L	1760	16.3		89.5	89.5	88.3	0.82	5.1	3.1	9.5	4.6	62	74	1LE1543-1AB5	40)	0.014
4	4.55	112 M	1770	19		89.5	89.4	87.7	0.8	6.5	2.9	8.2	4.3	62	74	1LE1543-1BB2	46	<u>;</u>	0.017
5.5	6.3	132 S	1775	30		91.7	91.6	90.5	0.81	9.3	3.9	9.7	4.5	68	80	1LE1543-1CB0■-■■			0.046
7.5	8.6	132 M	1770	40		91.7	91.8	91	0.83	12.4	2.7	9.6	4.2	68	80	1LE1543-1CB2■-■■	80)	0.046
11	12.6	160 M	1775	59		92.4	92.3	91.1	0.83	18	3	8.9	3.8	69	81	1LE1543-1DB2	10	9	0.083
15	17.3	160 L	1780	80		93	92.8	91.4	0.81	25	2.9	9.5	4.3	69	81	1LE1543-1DB4	12	27	0.099
18.5	21.3	180 M	1775	100		93.6	93.7	93.1	0.81	30.5	2.7	7.8	3.6	68	75	1LE1543-1EB2■-■■	16	35	0.13
22	25.3	180 L	1775	118		93.6	93.8	93.3	0.81	36.5	2.8	7.7	3.7	70	77	1LE1543-1EB4■-■■	17	'0	0.14
30	34.5	200 L	1778	161	IE2	94.1	94.3	93.8	0.83	48	3	8.1	3.5	70	77	1LE1543-2AB5	24	10	0.22
37	42.5	225 S	1782	198	IE2	94.5	94.7	94.2	0.85	58	2.8	7.5	3	66	80	1LE1543-2BB0	== 28	35	0.42
45	52	225 M	1782	241	IE2	95	95.3	94.9	0.84	71	2.9	7.2	3	67	81	1LE1543-2BB2■-■■	32	20	0.47
55	63	250 M	1786	294	IE2	95.4	95.6	95.1	0.86	84	2.8	7.6	3.2	67	81	1LE1543-2CB2	42	20	0.85
75	86	280 S	1785	460	IE2	94.5	94.7	94.2	0.87	131	2.5	6.8	2.9	77	91	▲ 1LE1543-2DB0■-■■	57	0	1.39
90	104	280 M	1788	481	IE2	95.4	95.5	94.9	0.87	136	2.9	8	3.3	79	93	1LE1543-2DB2■-■■	67	'0	1.7
110	127	315 S	1790	587		95.8	95.9	95.4	0.86	168	3	7.5	3.1	73	87	1LE1543-3AB0■-■■	11 76	0	2.2
132	152	315 M	1790	704		96.2	96.3	95.8	0.87	198	3.1	8.2	3.2	76	90	1LE1543-3AB2	== 96	0	2.9
160	184	315 L	1791	853		96.2	96.2	95.7	0.87	240	3.3	8.4	3.3	76	90	1LE1543-3AB4■-■■	99	90	3.1
200	230	315 L	1791	1066	IE2	96.2	96.2	95.5	0.87	300	3.5	8.7	3.2	78	93	1LE1543-3AB5	11	90	3.7
Voltag	es												Ver	rsion				Order	code
50 Hz	230 VΔ/	400 VY	60) Hz 4	60 VY								Sta	andard		2 2		-	
50 Hz	400 V∆/	690 VY	60) Hz 4	60 V∆								Sta	andard		3 4		-	
50 Hz	500 VY												Wit	hout a	dditiona	al charge 2 7		-	
50 Hz	500 V∆												Wit	hout a	dditiona	al charge 4 0		-	
				inform	nation, se	e from	page	2/88								9 0			
••		structio												rsion				Order	code
	it flange	:		и ВЗ ¹										andard		A		-	
With fla	0			1 B5 ¹									Wit	h addit	tional ch	harge F		-	
			struction	on and	d more in	formati	on, see	e from	page 2	2/94									
	protect	tion												rsion				Order	code
Withou														andard			A	-	
					sensors								Wit	th addit	tional ch	harge	В	-	
				nd mo	re inform	ation, s	ee fror	n page	2/99										
		positio	n											rsion					
	al box a												Sta	andard			4		
			position	ons an	id more ii	nforma	tion, se	ee from	page	2/101									
•	al versi																		code(s)
					fan/fan c	over (IC	3 418)									1LE1543 ■-■■			
0 . 0 .	tions se	ee from p	page 2	2/109												1LE1543 ■-■■	■■-Z	+.	++

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



Motors with IE3 Premium Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1543 Basic Line

Selection and ordering data

			Opera	ating v	alues at r	ated p	ower									Cast-iron series			
P _{rated} .	P _{rated} .	Frame	n _{ra-}	T _{ra-}	Different	η_{ra}	$\eta_{ra ext{-}}$	$\eta_{ m ra-}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{\rm B}$ /	L_{pfA}	L _{WA} .	1LE1543 – Basic L	ine	m _{IM B3}	J
60 Hz/	60 Hz/	size	ted,	ted,	IE class	ted,	ted,	ted,	$\varphi_{\rm rated}$, ted,	I _{ra-}	I _{ra-}	I _{ra-}	60 Hz	,				
P50	P60		60 Hz	60 Hz	60 Hz/P60	60 Hz, 4/4	60 Hz, 3/4	60 Hz, 2/4	60 Hz, 4/4	60 Hz	ted,	ted,	ted, 60 Hz			At.: - - N -			
kW	kW			NI		·			4/4		00 1 12	. 00112	. 00112		\ -ID(A)	Article No.		l	12
		FS	rpm	Nm	N. a. a. a. atala.	%	%	% E00.4-		Α		711-0-0-0		. ,) dB(A)	(10, 440)		kg	kgm ²
) or with 034-30: IE					ır coo	iea w	itnou	exte	rnai tai	n and ta	n cover (IC 418)			
• Insu	lation:	Therma	l class	155 (temperat	ure cla	ass F)	IP55	degree	of pro	tectio	on, ut	ilizati	on in a	ccordan	ce with thermal clas	s 130 (tempera	ture class E
6-pole	e: 1000 i	rpm at §	50 Hz,	1200 ı	rpm at 60	Hz													
0.75	0.86	90 S	1155	6.2		82.5	82.4	79.9	0.65	3.05	2.4	5.3	3.1	46	58	1LE1543-0EC0■-		27	0.004
1.1	1.27	100 L	1180	8.9		87.5	87.2	84.8	0.69	2.3	2.4	6.7	3.3	62	74	1LE1543-1AC3■-	Ш	25	0.011
1.5	1.75	112 M	1175	12		88.5	88.3	86.2	0.73	2.9	2.2	6.9	3.2	65	77	1LE1543-1BC1■-			0.017
2.2	2.55	132 S	1185	18		89.5	89.3	87.7	0.74	4.15		8	3.5	67	79	1LE1543-1CC1■-			0.037
3	3.45	132 S	1185	24		89.5	89.6	88.4	0.75	5.6	2.3	7.5	3.3	67	79	1LE1543-1CC0 -			0.037
4	4.55	132 M	1175	30		89.5	89.6	88.4	0.73	7.1	2.4	7.6	3.4	67	79	1LE1543-1CC2			0.037
5.5	6.3	132 M	1180	45		91	91.4	90.5	0.74	10.3		7.2	3.3	67	79	1LE1543-1CC3			0.037
7.5	8.6	160 M		60		91	91.1	90	0.75	13.8		5.9	2.6	70	82	1LE1543-1DC2			0.098
11	12.6	160 L	1180	89		91.7	91.9	91	0.75	20	2.3	5.8	2.6	70	82	1LE1543-1DC4■-			0.12
15	18	180 L	1178	122	IE2	91.7	92	91.4	0.79	26	2.5	6.8	3	61	68	1LE1543-1EC4			0.19
18.5	22	200 L	1180	150	IE2	93	93.8	93.8	0.78	32	2.8	6.5	3	64	71	1LE1543-2AC4■-			0.28
22	26.5	200 L	1180	178	IE2	93	93.5	93.4	0.79	37.5	2.6	6.3	2.8	63	70	1LE1543-2AC5■-			0.32
37	44.5	250 M	1188	297	IE2	94.1	94.4	93.9	0.83	59	3.1	8	3.1	63	76	1LE1543-2CC2■-			1
45	54	280 S	1190	361	IE2	94.5	94.6	94.1	0.83	72	3.3	7.7	3.1	66	80	1LE1543-2DC0■-			1.4
55	66	280 M	1190	441	IE2	94.5	94.6	94	0.83	88	3.6	7.9	3.3	66	80	1LE1543-2DC2■-			1.6
75	90	315 S	1192	601		95	94.9	94.1	0.82	121	3.1	8.4	3.3	64	79	1LE1543-3AC0■-			2.6
90	108	315 M	1192	721	IE2	95	95	94.4	0.84	142	2.7	7.7	3	64	79	1LE1543-3AC2			3.1
110	132	315 L	1192	881	IE2	95.8	95.9	95.5	0.83	174	3.2	8.2	3.4	64	79	1LE1543-3AC4			3.9
132	158	315 L	1192	1057	IE2	95.8	96	95.6	0.84	205	3.1	8.4	3.3	65	80	1LE1543-3AC5■-		1110	4.4
Voltag	jes												Ve	rsion				Orde	er code
		/400 VY		0 Hz 4	60 VY								St	andard	i		2	-	
		/690 VY	6	0 Hz 4	-60 VΔ								St	andard	i		4	-	
	500 VY														dditiona		7	-	
	500 V∆												Wi	thout a	dditiona		0	-	
				inforn	nation, se	e from	page	2/88								9 (0		
		structio			,									rsion				Orde	er code
	ut flange	9		И ВЗ ¹										andard			Α	-	
With fl	0			И В5 ¹									Wi	th addi	itional ch	arge	F	-	
			structi	on and	d more inf	ormati	on, se	e from	page 2	2/94									
	protect	tion												rsion				Orde	er code
Withou														andard			A	-	
					sensors								Wi	th addi	itional ch	arge	В	-	
				nd mo	re informa	ation, s	see fro	m pag	e 2/99										
		positio	n											rsion					
	nal box a												St	andard	i		4		
			positi	ons ar	nd more in	ntorma	tion, se	ee fron	n page	2/101									
•	al versi																		er code(s)
Force					fan/fan co	over (IC	C 418)									1LE1543 ■-I			
_				2/109												1LE1543 ■-I		-Z+.	+ +

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE3 Premium Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1643 Performance Line

Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

			Opera	iting v	alues at ra	ated p	ower									Cast-iron series		
P _{rated,}		Frame		T_{ra}	Different	$\eta_{\text{ra-}}$	$\eta_{\text{ra-}}$	$\eta_{\text{ra-}}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{\rm B}$ /	$L_{pfA,}$	L _{WA} ,	1LE1643 -	m _{IM B3}	J
60 Hz/	60 Hz/	size	ted,		IE class		ted,	ted,	Prated.		T _{ra-}	I _{ra-}	T _{ra-}	60 Hz	60 Hz	Performance Line		
P50	P60		60 Hz	60 HZ	60 Hz/P60	60 HZ, 4/4	60 HZ, 3/4	60 HZ, 2/4	60 HZ, 4/4			ted, 60 Hz	ted, 60 Hz			Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α					dB(A)	7 11 11010 1 10.	kg	kgm ²
) or with	, -			ced-ai		ed wi	thout	exter	٠,	٠,	n cover (IC 418)	ng	Ngiii
Effic	iency a	ccordin	ig to IE	C 600)34-30: IE	3 Prer	nium I	Efficie	ncy							ce with thermal class 130	(tompora	turo olace
				<u> </u>	pm at 60		ы г),	11755 0	egree	oi pio	tectio	ni, uu	nzauc	iii iii at	Coruan	ce with thermal class 130	(tempera	luie ciass
.75	0.86	80 M	3480	2.1		77	77.2	75.7	0.84	1.45	3	7.1	3.6	64	75	1LE1643-0DA2	18	0.0011
1.1	1.27	80 M	3500	3		84	84	82	0.83	1.98	3.3	8.4	4	64	75	1LE1643-0DA3 -		0.0013
1.5	1.75	90 S	3525	4.1		85.5	84.8	82.3	0.84	2.6	3.1	9.8	4.9	69	81	1LE1643-0EA0	26	0.0021
2.2	2.55	90 L	3530	6		86.5	86.4	84.5	0.87	3.65	3	9.6	4.9	69	81	1LE1643-0EA4 -	32	0.0031
3	3.45	100 L	3525	8.1		88.5	88.7	87.2	0.87	4.9	3.8	9.7	5.5	71	83	1LE1643-1AA4	36	0.0054
3.7	4.55	112 M	3560	10		88.5	88	86.2	0.88	6	3.2	10.8	5.1	73	85	1LE1643-1BA2		0.012
5.5	6.3	132 S	3555	15		89.5	89.4	88.2	0.9	8.6	2.1	8.6	4.4	72	84	1LE1643-1CA0 -	58	0.024
7.5	8.6	132 S	3555	20		90.2	90.5	90	0.91	11.5	2.4	9.5	4.7	72	84	1LE1643-1CA1 -		0.031
11	12.6	160 M	3560	30		91	90.4	88.4	0.88	17.2	2.8	8.5	4.3	77	89	1LE1643-1DA2	100	0.053
15	17.3	160 M	3565	40		91	90.5	88.9	0.86	24	3.1	9.7	4.8	77	89	1LE1643-1DA3		0.061
18.5	21.3	160 L	3560	50		91.7	91.5	90.3	0.9	28	3.1	9.4	4.4	77	89	1LE1643-1DA4		0.068
22	24.5	180 M	3560	59		91.7	91.4	90	0.89	34	2.8	8.2	3.9	77	89	1LE1643-1EA2	160	0.08
30	33.5	200 L	3560	80		92.4	92.2	91.4	0.87	47	2.9	7.6	3.6	77	84	1LE1643-2AA4	225	0.134
37	41.5	200 L	3560	99		93	92.8	91.6	0.88	57	2.8	7.5	3.6	77	84	1LE1643-2AA5	250	0.158
45	51	225 M	3570	120		93.6	93.7	93.1	0.88	69	2.7	7.6	3.5	75	89	1LE1643-2BA2	315	0.26
55	62	250 M	3578	147		93.6	93.4	92.3	0.89	83	2.5	7.3	3.3	76	90	1LE1643-2CA2	385	0.46
75	84	280 S	3578	200	IE2	94.1	93.9	92.7	0.89	112	2.7	7.6	3.2	78	92	1LE1643-2DA0 -	510	0.77
90	101	280 M	3578	240	IE2	95	94.8	93.8	0.9	132	2.7	8.1	3.3	78	92	1LE1643-2DA2	590	0.94
110	123	315 S	3585	293		95	94.8	93.8	0.91	160	2.6	8	3.3	79	93	1LE1643-3AA0	750	1.4
132	148	315 M	3585	352		95.4	95.1	94	0.91	191	2.8	8	3.4	79	93	1LE1643-3AA2	880	1.6
160	180	315 L	3588	426	IE2	95.4	95.1	93.9	0.91	230	3.2	8.8	3.5	82	96	1LE1643-3AA4	980	1.9
200	224	315 L	3586	533		95.8	95.7	94.8	0.92	285	3.2	8.3	3.3	82	96	1LE1643-3AA5	1150	2.3
/oltag	es												Ver	sion			Orde	r code
50 Hz	230 VΔ/	400 VY	60	Hz 4	60 VY								Sta	ındard		2 2	-	
50 Hz	400 VΔ/	690 VY	60) Hz 4	60 V∆								Sta	ındard		3 4	-	
50 Hz	500 VY												Wit	hout ac	dditional	charge 2 7 charge 4 0 9 0	-	
50 Hz	500 VΔ												Wit	hout ac	dditional	charge 4 0	-	
or oth	ner volta	iges and	more	inform	nation, see	e from	page 2	2/88								9 0		
Types	of cons	structio	n										Ver	sion			Orde	er code
Nithou	ıt flange	:		1 B3 ¹⁾									Sta	ındard		A	-	
Nith fl	ange		IN	1 B5 ¹⁾									Wit	h addit	ional ch	arge F	-	
or oth	ner type	s of con	structio	on and	I more info	ormatio	on, see	from	page 2	/94								
/lotor	protect	tion											Ver	sion			Orde	r code
PTC th	ermisto	r with 3	tempe	ature	sensors								Sta	ındard		В	-	
or oth	ner moto	or protec	tion ar	nd mor	e informa	ition, s	ee fron	n page	2/99									
Termi	nal box	positio	n										Ver	sion				
Termin	al box a	at top											Sta	ndard			l .	
or oth	ner term	inal box	positio	ns an	d more in	format	ion, se	e from	page 2	2/101								
` :	al versio	ons															Orde	er code(s)
pecia																		

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



Motors with IE3 Premium Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1643 Performance Line

Selection and ordering data

			Opera	ting v	alues at ra	ated p	ower									Cast-iron series		
P _{rated}	P _{rated}	Frame		T _{ra-}	Different		$\eta_{\text{ra-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T _{IR} /	I _{LR} /	$T_{B}/$	L_{pfA}	L_{WA}	1LE1643 -	m _{IM B3}	J
60 Hz/		size	ted,		IE class		ted,	ted,	φ_{rated}		$T_{\rm ra}$	I _{ra-}	$T_{\rm ra}$	60 Hz		Performance Line	IIVI DO	
P50	P60		60 Hz	60 Hz	60 Hz/P60	60 Hz, 4/4			60 Hz,	60 Hz	ted,	ted,	ted, 60 Hz			A I' I NI		
							3/4	2/4	4/4		60 HZ	. 60 HZ	60 HZ		ID (A)	Article No.	.	. 2
¢W	kW	FS	rpm	Nm		%	%	%		Α				(/	(/	▲ New	kg	kgm ²
Cool	ing: Se iency a	lf-ventil	lated (C 411) or with)34-30: IE	order	code mium	F90 fo Efficie	rced-ai	ir cool	ed wi	thout	exter	nal fan	and fa	an cover (IC 418)		
Insul	ation:	Therma	class	155 (1	temperat	ure cla	ass F),	IP55 c	legree	of pro	tectio	on, uti	lizatio	on in a	ccorda	nce with thermal class 130	(tempera	ture class
l-pole	: 1500 r	rpm at 5	i0 Hz,	1800 r	pm at 60	Hz												
3	3.45	100 L	1760	16.3		89.5	89.5	88.3	0.82	5.1	3.1	9.5	4.6	62	74	1LE1643-1AB5	40	0.014
ļ.	4.55	112 M	1770	19		89.5	89.4	87.7	8.0	6.5	2.9	8.2	4.3	62	74	1LE1643-1BB2■-■■■	4 6	0.017
5.5	6.3	132 S	1775	30		91.7	91.6	90.5	0.81	9.3	3.9	9.7	4.5	68	80	1LE1643-1CB0■-■■■	74	0.046
7.5	8.6	132 M	1770	40		91.7	91.8	91	0.83	12.4	2.7	9.6	4.2	68	80	1LE1643-1CB2	80	0.046
11	12.6	160 M	1775	59		92.4	92.3	91.1	0.83	18	3	8.9	3.8	69	81	1LE1643-1DB2■-■■■	109	0.083
15	17.3	160 L	1780	80		93	92.8	91.4	0.81	25	2.9	9.5	4.3	69	81	1LE1643-1DB4	127	0.099
18.5	21.3	180 M	1775	100		93.6	93.7	93.1	0.81	30.5	2.7	7.8	3.6	68	75	1LE1643-1EB2■-■■■	165	0.13
22	25.3	180 L	1775	118		93.6	93.8	93.3	0.81	36.5	2.8	7.7	3.7	70	77	1LE1643-1EB4■-■■■	170	0.14
30	34.5	200 L	1778	161	IE2	94.1	94.3	93.8	0.83	48	3	8.1	3.5	70	77	1LE1643-2AB5■-■■■	240	0.22
37	42.5	225 S	1782	198	IE2	94.5	94.7	94.2	0.85	58	2.8	7.5	3	66	80	1LE1643-2BB0■-■■■	285	0.42
45	52	225 M	1782	241	IE2	95	95.3	94.9	0.84	71	2.9	7.2	3	67	81	1LE1643-2BB2■-■■■	320	0.47
55	63	250 M	1786	294	IE2	95.4	95.6	95.1	0.86	84	2.8	7.6	3.2	67	81	1LE1643-2CB2■-■■■	420	0.85
75	86	280 S	1785	460	IE2	94.5	94.7	94.2	0.87	131	2.5	6.8	2.9	77	91	▲ 1LE1643-2DB0■-■■■	570	1.39
90	104	280 M	1788	481	IE2	95.4	95.5	94.9	0.87	136	2.9	8	3.3	79	93	1LE1643-2DB2■-■■■	670	1.7
110	127	315 S	1790	587		95.8	95.9	95.4	0.86	168	3	7.5	3.1	73	87	1LE1643-3AB0■-■■■	760	2.2
132	152	315 M	1790	704		96.2	96.3	95.8	0.87	198	3.1	8.2	3.2	76	90	1LE1643-3AB2■-■■■	960	2.9
160	184	315 L	1791	853		96.2	96.2	95.7	0.87	240	3.3	8.4	3.3	76	90	1LE1643-3AB4■-■■■	990	3.1
200	230	315 L	1791	1066	IE2	96.2	96.2	95.5	0.87	300	3.5	8.7	3.2	78	93	1LE1643-3AB5■-■■■	1190	3.7
/oltag	es												Ver	sion			Orde	r code
50 Hz :	230 VΔ/	400 VY	60	Hz 4	60 VY								Sta	ndard		2 2	-	
50 Hz 4	400 V∆/	690 VY	60	Hz 4	60 V∆								Sta	andard		3 4	_	
50 Hz :	500 VY												Wit	hout ac	dditiona	3 4 al charge 2 7 al charge 4 0 9 0	_	
50 Hz :	500 VΔ												Wit	hout ac	dditiona	al charge 4 0	_	
or oth	er volta	iges and	d more	inform	nation, se	e from	page	2/88								9 0		
		structio					, ,						Ver	sion			Orde	r code
	t flange			1 B3 ¹⁾)								Sta	ndard		A	_	
With fla	_			1 B5 ¹⁾											tional c	harge F	_	
	0	s of con			l more inf	ormati	on, see	e from	page 2	2/94						~		
	protect												Ver	sion				r code
			tempe	rature	sensors									ndard		В	_	
					e informa	ation, s	ee fron	n page	2/99									
		positio				, 0		Fage	_, 50				Ver	sion				
	al box a	•												andard			4	
			positio	ons an	d more in	forma	tion, se	ee from	page	2/101			0.0					
01 0111			Poortic	arı	G .11010 III				Pago	_, 101							Orde	r code(s)
Specia																	Orac	. ,
Specia Forced		oled mot	ors w/	eyt f	an/fan co	wer (IC	2 4181									1LE1643 ■-■■■	-7 F904	

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Motors with IE3 Premium Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1643 Performance Line

Selection and ordering data

			Opera	ating v	alues at ra	ated po	ower									Cast-iron series		
P _{rated}	P _{rated} ,	Frame	n _{ra-}	$T_{\rm ra}$	Different	$\eta_{ra ext{-}}$	$\eta_{\text{ra-}}$	$\eta_{\text{ra-}}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{\rm B}/$	L_{pfA}	L _{WA} ,	1LE1643 -	m _{IM B3}	J
60 Hz/	60 Hz/	size	ted,	ted,	IE class		ted,	ted,	<i>φ</i> _{rated}		T _{ra-}	I _{ra-}	T _{ra-}	60 Hz	60 Hz	Performance Line		
P50	P60		60 Hz	60 Hz	60 Hz/P60	60 Hz, 4/4	60 Hz, 3/4	60 Hz, 2/4	60 Hz, 4/4		, ted, 60 Hz	ted, 60 Hz	ted, 60 Hz			Article No.		
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)	dB(A)	7 (1000 140.	kg	kgm ²
) or with			-	rced-ai		led wi	ithout	exter	. ,	. ,	n cover (IC 418)	9	.vg
 Effic 	ciency a	accordir	ng to IÌ	EC 600	Ú34-30: IE	3 Prei	nium I	Efficie	ncy								(A	otuva alaaa D)
					pm at 60		iss r),	IP55 C	iegree	oi pro	otectio	on, ut	ııızatı	on in a	ccordan	ice with thermal class 130	(temper	ature class b)
1.1	1.27	100 L			pili at ou	87.5	87.2	84.8	0.69	2.3	2.4	6.7	3.3	62	74	1LE1643-1AC3	25	0.011
1.5	1.75	112 M		12		88.5	88.3	86.2	0.73	2.9	2.2	6.9	3.2	65	77	1LE1643-1BC1 -		0.017
2.2	2.55	132 S		18		89.5	89.3	87.7	0.74	4.15	2.3	8	3.5	67	79	1LE1643-1CC1		0.037
3	3.45	132 S	1185	24		89.5	89.6	88.4	0.75	5.6	2.3	7.5	3.3	67	79	1LE1643-1CC0 -	70	0.037
4	4.55	132 M	1175	30		89.5	89.6	88.4	0.73	7.1	2.4	7.6	3.4	67	79	1LE1643-1CC2	70	0.037
5.5	6.3	132 M	1180	45		91	91.4	90.5	0.74	10.3	2.3	7.2	3.3	67	79	1LE1643-1CC3	83	0.037
7.5	8.6	160 M	1185	60		91	91.1	90	0.75	13.8	2.4	5.9	2.6	70	82	1LE1643-1DC2	122	0.098
11	12.6		1180	89		91.7	91.9	91	0.75	20	2.3	5.8	2.6	70	82	1LE1643-1DC4		0.12
15	18		1178		IE2	91.7	92	91.4	0.79	26	2.5	6.8	3	61	68	1LE1643-1EC4		0.19
18.5	22	200 L	1180	150	IE2	93	93.8	93.8	0.78	32	2.8	6.5	3	64	71	1LE1643-2AC4		0.28
22	26.5	200 L	1180	178	IE2	93	93.5	93.4	0.79	37.5		6.3	2.8	63	70	1LE1643-2AC5		0.32
37	44.5	250 M		297	IE2	94.1	94.4	93.9	0.83	59	3.1	8	3.1	63	76	1LE1643-2CC2		1 1
45 55	54 66	280 S 280 M	1190	361 441	IE2	94.5	94.6 94.6	94.1	0.83	72 88	3.3	7.7	3.1	66 66	80	1LE1643-2DC0 - 1LE1643-2DC2 - 1LE1643-2DC2		1.4
75	90	315 S	1190	601	IEZ	95	94.0	94.1	0.82	121	3.1	8.4	3.3	64	79	1LE1643-3AC0 -		2.6
90	108	315 M		721	IE2	95	95	94.1	0.84	142	2.7	7.7	3.3	64	79	1LE1643-3AC2		3.1
110	132	315 L	1192	881	IE2	95.8	95.9	95.5	0.83	174	3.2	8.2	3.4	64	79	1LE1643-3AC4 -		3.9
132	158		1192	1057		95.8	96	95.6	0.84	205	3.1	8.4	3.3	65	80	1LE1643-3AC5		4.4
Voltag	ies												Ve	rsion			Ord	er code
_	230 VΔ	/400 VY	6	0 Hz 4	60 VY									andard		2 2	-	0. 0000
	400 VΔ		6) Hz 4	60 VΔ								Sta	andard		2 2 3 4 I charge 2 7 I charge 4 0 9 0	_	
50 Hz	500 VY												Wit	thout a	dditiona	I charge 2 7	_	
50 Hz	500 VΔ												Wi	thout a	dditiona	I charge 4 0	-	
For oth	ner volta	ages and	d more	inform	nation, see	e from	page :	2/88								9 0		
Types	of con	structio											Vei	rsion			Ord	er code
	ut flange	Э		И ВЗ ¹										andard		A	-	
With fl	0			И В5 ¹									Wi	th addi	tional ch	narge F	_	
			structi	on and	d more info	ormatio	on, see	from	page 2	2/94								
	protec													rsion			Ord	er code
					sensors	at			0/00				Sta	andard		В	_	
				nd moi	re informa	ition, s	ee tror	n page	2/99				\/a-	rsion				
		positio	11											rsion andard				
	nal box a		nociti	nne an	nd more in	format	ion so	a from	nago	2/101			Sta	anuara		4		
	al versi		Positi	orio all	ia more in	ionnal	.ioi i, St	i ii Ui I	paye	2/101							Ord	er code(s)
•			tors w/	o ext	fan/fan co	ver (IC	(418)									1LE1643 ■-■■■■		` '
		ee from			,	. 51 (10	. 110)									1LE1643 ■-■■■		
. or op		200111	page 2	.,														

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



SIMOTICS GP/SD 1LE1 - APAC Line standard motors

Motors with IE3 Premium Efficiency

Self-ventilated motors · Cast-iron series 1LE1543 Basic Line with increased power

Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

			Opera	ating v	alues at ra	ated po	ower									Cast-iron series			
rated, 60 Hz/ P50		Frame size	n _{ra-} ted, 60 Hz	T _{ra-} ted, 60 Hz	Different IE class 60 Hz/P60	ted, 60 Hz,				60 Hz		/ _{LR} / / _{ra-} ted,	T _B / T _{ra-} ted,		L _{WA} , 60 Hz	1LE1543 – Basic Line	m _{II}	M B3	J
κW	kW	FS	×10.100	NIma		4/4 %	3/4	2/4 %	4/4		60 HZ	60 Hz	60 Hz		/ 4D///	Article No. New	l e		kgm ²
			rpm	Nm IC 411	\ or with		-	-	rood-a	A ir coo	lod w	ithout	ovto		. ,	an cover (IC 418)	kg		kgm
Effic Insul	iency a lation:	ccordir Therma	ng to lÌ I class	EC 600 155 (Ú34-30: IE	3 Prer ure cla	nium	Efficie	encv							nce with thermal class 13	0 (ten	nperatı	ure class
1	4.55	100 L	3500	12		88.5	89.6	89.5	0.89	7.3	3	8.4	4	71	83	▲ 1LE1543-1AA6■-■■■	37		0.0054
1	12.6	132 M	3565	29		91	91.1	90.3	0.86	17.6	2.5	9.6	5.2	72	84	1LE1543-1CA6	75		0.031
5	17.3	132 M	3560	40		91	91.1	90.2	0.87	24	2.7	9.9	5.5	72	84	1LE1543-1CA7 -	85		0.035
2	25.3	160 L	3560	59		91.7	91.8	90.9	0.9	33.5	3.1	9.7	4.5	77	89	1LE1543-1DA6	14	8	0.073
0	33.5	180 L	3560	80		92.4	92.6	92.1	0.87	47	2.9	8.8	4.5	77	89	1LE1543-1EA6 ■-■■	18	0	0.094
5	51	200 L	3560	121		93.6	93.7	93	0.86	70	3	8.4	3.7	77	84	1LE1543-2AA6■-■■	24	5	0.17
5	62	225 M	3570	147		93.6	93.6	92.8	0.88	84	3.2	8.9	4	76	89	1LE1543-2BA6■-■■	37	0	0.31
5	84	250 M	3575	200		94.1	93.9	92.9	0.9	111	2.5	7.5	3.2	82	96	1LE1543-2CA6■-■■	45	5	0.56
10	123	280 M	3578	294		95	94.8	94	0.91	160	2.9	8.5	3.5	82	96	1LE1543-2DA6■-■■	66	0	1.1
-pole	: 1500 r	rpm at 5	50 Hz,	1800 r	pm at 60	Hz													
1	12.6	132 M	1775	59		92.4	92.6	91.8	0.79	19	3.1	8.7	4.1	68	80	1LE1543-1CB6■-■■	82		0.046
8.5	21.3	160 L	1780	99		93.6	93.3	91.9	0.75	33	3.9	9.6	4.5	69	81	1LE1543-1DB6■-■■	14	0	0.099
0	34.5	180 L	1775	161	IE2	94.1	94.4	94	0.78	51	3.1	8.8	4.1	70	77	1LE1543-1EB6■-■■	19:	2	0.173
7	42.5	200 L	1780	198		94.5	94.7	94.2		61	3.3	9	4	70	77	1LE1543-2AB6			0.275
5	63	225 M	1782	295	IE2	95.4	95.7	95.4	0.85	85	3.1	7.4	3	75	89	1LE1543-2BB6■-■■			0.65
5	86	250 M	1788	401		95.4	95.4	94.8	0.84	117	3.4	8.8	3.8	75	89	1LE1543-2CB6			1.1
10	127	280 M		587	IE2	95.8	95.7	94.9	0.85	170	3.4	9.2	3.7	82	96	1LE1543-2DB6	71	0	1.8
•		•			pm at 60														
8.5	22	180 L		150		93	93.2	92.6	0.75	33.5		7.9	3.7	69	81	1LE1543-1EC6			0.247
0	36	200 L	1182	242	IE2	94.1	94.5	94.2	0.77	52	3.2	7.6	3.2	63	70	1LE1543-2AC6			0.434
7	44.5	225 M	1186	298	IE2	94.1	94.3	93.7	8.0	62	3.3	8.2	3.5	71	85	1LE1543-2BC6			0.84
5	54	250 M	1188	362	IE2	94.5	94.7	94.2	0.83	72	2.8	8.1	3.2	69	83	1LE1543-2CC6			1.3
5	90	280 M		602		95	95.1	94.6	0.82	121	4.2	9.5	3.6	70	84	1LE1543-2DC6			1.9
60	192	315 L	1192	1282	IE2	95.8	95.7	95	0.82	255	3.3	9	3.8	69	83	1LE1543-3AC6	110	60	4.6
oltag	es												Ve	rsion				Order	code
0 Hz :	230 VΔ/	400 VY	6	0 Hz 4	60 VY								St	andard	i	2 2		-	
0 Hz	400 V∆/	690 VY	6) Hz 4	60 V∆								St	andard	i	3 4		-	
0 Hz !	500 VY												Wi	thout a	ddition	al charge 2 7		-	
	500 V∆												Wi	thout a	ddition	al charge 4 0		-	
				inform	nation, see	e from	page	2/88								9 0			
		structio		1	,									rsion				Order	code
	t flange	:		И ВЗ ¹										andard		A		-	
Vith fla	_			И В5 ¹									Wi	th add	itional c	harge F		-	
			struction	on and	d more info	ormatio	on, see	e from	page 2	2/94									
	protect	tion												rsion				Order	code
Vithou														andard			A .	-	
					sensors								Wi	th add	itional c	harge	3	-	
		- 1		nd mo	re informa	tion, s	ee fror	n pag	e 2/99										
		positio	n											rsion					
	al box a												St	andard	i		4		
			position	ons an	d more in	format	ion, se	ee fron	n page	2/101									
necis	ıl versi	ons																Order	code(s)

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

SIMOTICS GP/SD 1LE1 - APAC Line standard motors

Motors with IE3 Premium Efficiency



Self-ventilated motors · Cast-iron series 1LE1643 Performance Line with increased power

Selection and ordering data

Technical specifications at 60 Hz/P50 power rating

					alues at ra				_							Cast-iron series			
D	D	Frame	•		Different			22	000-	1	T/	1/	T _D /	1	1	1LE1643 -	m.		J
		Frame size	ted.	I _{ra-} ted.	IE class		$\eta_{\text{ra-}}$ ted,	$\eta_{ m ra}$ - ted,	cos- φ_{rated}	I _{ra-}	T_{LR}/T_{ra}	I _{LR} / I _{ra-}	$T_{\rm B}/T_{\rm ra-}$	L _{pfA} ,	L _{WA} , 60 Hz	Performance Line	111	M B3	J
	P60		60 Hz		60 Hz/P60							ted,	ted.	00112	00 112				
					, , ,	4/4	3/4	2/4	4/4				60 Hz			Article No.			
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)	dB(A)	▲ New	ka	ŀ	kgm ²
• Cooli	na: Se	lf-venti	lated (IC 411) or with	order	code	F90 fo	rced-a	ir coo	led w	ithou	exter	rnal far	and fa	an cover (IC 418)			
• Effici	ency a	ccordir	ıg to lÈ	EC 600	Ú34-30: IE	3 Prei	mium	Efficie	ency										
							iss F),	IP55	degree	of pro	otecti	on, ut	ilizatio	on in a	ccorda	nce with thermal class 1	30 (tei	nperatur	e class E
•					pm at 60														
	4.55	100 L	3500	12		88.5		89.5	0.89	7.3	3	8.4	4	71	83	▲ 1LE1643-1AA6■-■■			0.0054
	12.6	132 M	3565	29		91	91.1	90.3	0.86	17.6		9.6	5.2	72	84	1LE1643-1CA6■-■■			0.031
	17.3	132 M	3560	40		91	91.1	90.2	0.87	24	2.7	9.9	5.5	72	84	1LE1643-1CA7■-■■			0.035
22	25.3	160 L	3560	59		91.7	91.8	90.9	0.9	33.5	3.1	9.7	4.5	77	89	1LE1643-1DA6■-■■	14	.8 (0.073
30	33.5	180 L	3560	80		92.4	92.6	92.1	0.87	47	2.9	8.8	4.5	77	89	1LE1643-1EA6■-■■	18	0 (0.094
45	51	200 L	3560	121		93.6	93.7	93	0.86	70	3	8.4	3.7	77	84	1LE1643-2AA6■-■■	24	5 (0.17
55	62	225 M	3570	147		93.6	93.6	92.8	0.88	84	3.2	8.9	4	76	89	1LE1643-2BA6	37	0 (0.31
75	84	250 M	3575	200		94.1	93.9	92.9	0.9	111	2.5	7.5	3.2	82	96	1LE1643-2CA6	45	5 (0.56
110	123	280 M	3578	294		95	94.8	94	0.91	160	2.9	8.5	3.5	82	96	1LE1643-2DA6■-■■	66	0 -	1.1
4-pole:	15 <u>00</u> r	pm at 5	50 Hz,	1800 <u>r</u>	pm at 60	Hz													
11	12.6	132 M	1775	59		92.4	92.6	91.8	0.79	19	3.1	8.7	4.1	68	80	1LE1643-1CB6■-■■	82	! (0.046
18.5	21.3	160 L	1780	99		93.6	93.3	91.9	0.75	33	3.9	9.6	4.5	69	81	1LE1643-1DB6■-■■	14	.0 (0.099
30	34.5	180 L	1775	161	IE2	94.1	94.4	94	0.78	51	3.1	8.8	4.1	70	77	1LE1643-1EB6■-■■	19	2 (0.173
37	42.5	200 L	1780	198		94.5	94.7	94.2	0.8	61	3.3	9	4	70	77	1LE1643-2AB6■-■■			0.275
55	63	225 M	1782	295	IE2	95.4	95.7	95.4	0.85	85	3.1	7.4	3	75	89	1LE1643-2BB6 -	40	5 (0.65
	86	250 M	1788	401		95.4	95.4	94.8	0.84	117	3.4	8.8	3.8	75	89	1LE1643-2CB6 -			1.1
	127	280 M	1788	587	IE2	95.8	95.7	94.9	0.85	170	3.4	9.2	3.7	82	96	1LE1643-2DB6			1.8
					pm at 60		00.7	0 1.0	0.00	170	0.1	0.2	0.7	02	00	1221010 2550		<u> </u>	1.0
	22	•	1180	150	pin at oo	93	93.2	92.6	0.75	33.5	2.9	7.9	3.7	69	81	1LE1643-1EC6	18	5 (0.247
30	36	200 L	1182	242	IE2	94.1	94.5	94.2	0.77	52	3.2	7.6	3.2	63	70	1LE1643-2AC6■-■■	27	0 (0.434
37	44.5	225 M	1186	298	IE2	94.1	94.3	93.7	0.8	62	3.3	8.2	3.5	71	85	1LE1643-2BC6■-■■			0.84
45	54	250 M	1188	362	IE2	94.5	94.7	94.2	0.83	72	2.8	8.1	3.2	69	83	1LE1643-2CC6■-■■	48	0 -	1.3
	90	280 M	1190	602		95	95.1	94.6	0.82	121	4.2	9.5	3.6	70	84	1LE1643-2DC6■-■■			1.9
	192		1192	1282	IE2	95.8	95.7	95	0.82	255	3.3	9	3.8	69	83	1LE1643-3AC6■-■■			4.6
Voltage													1/0	rsion				Order co	odo
50 Hz 2		400 VV	61	∩ ⊔	60 VY									andard	1	2 2		Oldel C	oue
50 Hz 4					60 VΔ									andard					
50 Hz 5		030 V I	O.	J 1 12 4	00 VA											al charge 2 7			
50 Hz 5																3 4 al charge 2 7 al charge 4 0		_	
		acc cn	d moro	inform	nation, see	o from	naga	2/00					VVI	liioul a	adition	ar charge 4 0		_	
		structio		IIIIOIII	iation, see	3 110111	page	2/00					1/0	roion		9 0		Order o	odo
• •				/ B3 ¹)									rsion andard		A		Order co	oue
Without	_			л вз 1 Л В5 ¹												horas		_	
With fla	0	o of oc				0 KNO 0 41	on o-	o from-	0000	2/0.4			VVI	ııı addı	tional c	charge F		_	
			Structio	on and	d more info	omati	on, se	= Irom	page 2	2/94			1/0	roion				Order or	odo
Motor			tons:-	rot. ···	00000									rsion				Order co	oue
					sensors	41	(- 0/00				Sta	andard			В	_	
				nd moi	re informa	ition, s	ee troi	n pag	e 2/99										
		positio	n											rsion					
Termina													Sta	andard			4		
			position	ons an	nd more in	format	tion, se	ee fron	n page	2/101									
Specia																		Order co	. ,
For ont	ions, se	ee from	page 2	2/109												1LE1643 ■-■■	■■-Z		++

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



SIMOTICS GP/SD 1LE1 – APAC Line standard motors

Motors with IE2 High Efficiency

Self-ventilated or forced-air cooled motors · Aluminum series 1LE1041

Selection and ordering data

			Opera	ting va	lues at	rated p	ower								Aluminum series		
P _{rated} ,	P _{rated} ,	Frame	n _{ra-}	T_{ra-}	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{\text{ra-}}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{\rm B}/$	$L_{pfA,}$	L _{WA} ,	1LE1041	m _{IM E}	33 J
60 Hz/ P50	60 Hz/ P60	size	ted, 60 Hz	ted,	ted, 60 Hz,	ted, 60 Hz,	ted, 60 Hz,	Prated,	ted, 60 Hz,	T _{ra-}	I _{ra-} ted,	T _{ra-} ted,	60 Hz	60 Hz	Artiala Na		
1 30	100		00112	00112	4/4	3/4	2/4	4/4	460 V		60 Hz				Article No.		
kW	kW	FS	rpm	Nm	%	%	%		Α				٠,	dB(A)			
• Cool	ing: Se	elf-ventil	ated (IC	411)	or with	order c	ode F9	0 force	d-air c	ooled	witho	ut ext	ernal fa	ın and fa	an cover (IC 418)		
• Insu	iency a lation:	accordin Thermal	g to IEC class 1	, 60034 55 (ter	ı-30: ı⊑ nperatı	iz High ure clas	Efficiei ss F), IP	ncy 955 deg	ree of	protec	ction, i	utiliza	tion in a	accorda	nce with thermal class 130	(temp	erature class B)
2-pole	: 3000	rpm at 5	0 Hz, 36	00 rpr	n at 60	Hz										Ì	
0.75	0.86	80 M	3445	2.1	75.5	76.2	74.8	0.83	1.5	2.1	6	3	64	75	1LE1041-0DA2	9	0.0008
1.5	1.75	90 S	3505	4.1	84	83.5	80.7	0.82	2.75	3.1	8.5	4.5	69	81	1LE1041-0EA0	13	0.0017
2.2	2.55	90 L	3510	6	85.5	85.2	82.6	0.83	3.9	3	8.7	4.6	69	81	1LE1041-0EA4	15	0.0021
4	4.55	112 M	3555	10	87.5	86.9	84.6	0.83	6.4	2.7	9.9	4.5	73	85	1LE1041-1BA2		0.0092
5.5	6.3	132 S	3555	15	88.5	88.4	87	0.86	9.1	2	7.6	3.3	72	84	1LE1041-1CA0	_	0.02
7.5	8.6	132 S	3560	20	89.5	89.7	88.7	0.87	12.1	2.3	8.2	3.6	72	84	1LE1041-1CA1	_	0.024
11	12.6	160 M	3560	30	90.2	89.6	87.4	0.86	17.8	2.4	8.2	3.6	77	89	1LE1041-1DA2		0.045
15	17.3	160 M	3565	40	90.2	90	88.6	0.87	24	2.8	8.4	3.9	77	89	1LE1041-1DA3		0.053
18.5	21.3	160 L	3565	50	91	90.8	89.5	0.87	29.5	3.3	8.9	4.1	77	89	1LE1041-1DA4	84	0.061
4-pole 0.75	0.86	rpm at 5 80 M	1750	4.1	n at 60 78	77.4	74.6	0.72	1.68	2.5	6.8	3.8	55	66	1LE1041-0DB3	11	0.0021
1.5	1.75	90 L	1745	8.2	84	84	81.9	0.72	3	2.9	7.5	4	58	70	1LE1041-0EB4	_	0.0021
2.2	2.55	100 L	1760	12	87.5	88.3	87.4	0.73	4.05	2.5	8.1	3.9	62	74		21	0.0086
4	4.55	112 M	1770	20	87.5	87.2	85.1	0.77	6.9	3	8.7	4	62	74	1LE1041-1BB2		0.014
5.5	6.3	132 S	1770	30	89.5	89.6	88.1	0.78	9.9	2.6	8	3.3	68	80	1LE1041-1CB0		0.027
7.5	8.6	132 M	1770	40	89.5	90	89.3	0.82	12.8	2.7	8	3.4	68	80	1LE1041-1CB2 -		0.034
11	12.6	160 M	1775	59	91	91.2	90.1	0.84	18.1	2.5	7.7	3.2	69	81	1LE1041-1DB2	71	0.065
15	17.3	160 L	1780	80	91	91.1	90.1	0.84	24.5	2.6	8.5	3.4	69	81	1LE1041-1DB4	83	0.083
Voltag	es (≤ 6	00 V)										\	/ersion				Order code
_		/400 VY	60 I	Hz 460	VY							9	Standar	d	2 2	_	
50 Hz	400 VΔ		60 I	Hz 460	VΔ							9	Standar	d	3 4	-	
50 Hz	500 VY											١	Without a	additiona	al charge 2 7	-	
50 Hz	500 V∆											١	Without a	additiona	al charge 4 0	-	
For oth	ner volta	ages and	I more in	format	ion, se	e from p	age 2/8	35							9 0		
Types	of con	structio										١	/ersion			(Order code
With fla	_			35 ¹⁾										ditional c	ŭ.	-	
With fla	0			314 ¹⁾								١	With add	ditional c	harge K	_	
		s of cons	struction	and m	nore inte	ormatio	n, see ti	rom pag	je 2/90								• •
	protec	tion											/ersion			(Order code
Withou		r with 4	or 2 tor-	norst	ro oon-	oro /fre	mo c:=-	00.00	or 100) to 00	ω)		Standar		horae		
		or with 1) to 20	0)	٧	with add	ditional c	harge B		
		or protec position		поге	HIIOHII	mon, se	e IIOIII	Jaye 2/	90			1	/ersion				
	al box	-											zersion Standar	d		1	
		ninal box	nosition	s and	more in	formation	n see	from na	ne 2/1	00		•	Janual				
	al versi		Podition	o and		TOTTICALIC	Jii, 300	nom pa	90 2/1								Order code(s)
•		oled moto	rs w/o ex	kt. fan/f	an cove	er (IC 41	8)								1LE1041		` '
		ee from p				(-/								1LE1041		
. с. ор			90 -/ 1														

Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) and stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.

SIMOTICS GP/SD 1LE1 - APAC Line standard motors

Motors with IE2 High Efficiency



Self-ventilated or forced-air cooled motors · Aluminum series 1LE1041

Selection	and	ordering	data
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Selec	uon a	iiu oiu	ering	uata														
			Opera	iting va	lues at	rated p	ower								Aluminum serie	s		
P _{rated,} 60 Hz/ P50	P _{rated,} 60 Hz/ P60	Frame size	n _{ra-} ted, 60 Hz	T _{ra-} ted, 60 Hz	η _{ra-} ted, 60 Hz, 4/4	$\eta_{\text{ra-}}$ ted, 60 Hz, 3/4	η _{ra-} ted, 60 Hz, 2/4	COS- Prated, 60 Hz, 4/4	I _{ra-} ted, 60 Hz, 460 V	T _{LR} / T _{ra-} ted, 60 Hz	I _{LR} / I _{ra-} ted, 60 Hz	T _B / T _{ra-} ted, 2 60 Hz	L _{pfA} , 60 Hz	L _{WA} , 60 Hz	1LE1041 Article No.		m _{IM B}	3 J
kW	kW	FS	rpm	Nm	%	%	%		Α				dB(A)	dB(A)				
• Cool • Effic • Insu	ling: Se iency a lation:	elf-ventil accordin Thermal	ated (IC g to IEC I class	C 411) (C 6003 155 (te	or with 4-30: IE mperat	order o 2 High ure clas	ode F9 Efficie ss F), IF	0 force ncy 255 deg	d-air co	ooled protec	witho tion, (ut ext utiliza	ernal fa	an and f	an cover (IC 418) ince with thermal c	lass 130	(temp	erature class
		rpm at 5																
0.75	0.86	90 S	1145	6.3	73	72.7	69.7	0.65	1.98	2.2	4.5	3	46	58	1LE1041-0EC0		-	0.003
1.5	1.75	100 L	1175	12	86.5	86.3	84.2	0.69	3.15	2.2	6.4	3.2	62	74	1LE1041-1AC4			0.011
2.2	2.55	112 M	1170	18	87.5	87.6	86	0.73	4.3	2.1	6.3	3.2	65	77	1LE1041-1BC2			0.014
4	4.55	132 M	1180	30	87.5	87.5	85.7	0.71	7.5	1.9	6.2	3	67	79	1LE1041-1CC2			0.029
5.5 7.5	6.3 8.6	132 M 160 M	1175 1180	45 61	89.5 89.5	89.9 89.6	88.9 88.4	0.73	10.6	2.1	6.5 5.4	2.9	67 70	79 82	1LE1041-1CC3		52 77	0.037
11	12.6	160 M	1180	89	90.2	90.5	89.5	0.73	20.5	2.1	5.4	2.5	70	82	1LE1041-1DC2			0.075
			1100	09	30.2	90.5	09.5	0.74	20.5	2.2	5.5			02	1221041-1004			
_	es (≤ 6	/400 VY	60	Hz 460	1///								/ersion Standar	ام،		2 2	U	rder code
	230 VΔ, 400 VΔ	400 V I		Hz 460									Standar Standar			2 2 3 4	_	
	500 VY		00	112 400	JVΔ											2 7		
	500 VΔ														al charge	4 0		
		ages and	l more i	nforma	tion, se	e from r	page 2/	35				•	vitilout	addition	ai oriai go	4 0 9 0		
		structio										\	/ersion				0	rder code
With fla	ange		IM	B5 ¹⁾								٧	Vith add	ditional c	harge	F	-	
With fla	ange		IM	B14 1)								٧	Vith add	ditional c	charge	K	_	
For oth	ner type	s of con	struction	n and n	nore inf	ormatio	n, see f	rom pag	ge 2/90									
Motor	protec	tion										\	/ersion				0	rder code
Withou	ut											5	Standar	rd		Α	-	
PTC th	ermisto	r with 1	or 3 tem	nperatu	ire sens	ors (fra	me size	s 90 or	100 to 2	200)		٧	Vith add	ditional c	charge	В	_	
For oth	ner moto	or protec	tion and	d more	informa	ation, se	e from	page 2/	98									
		positio	n									١	ersion/					
	al box											5	Standar	rd		4		
		inal box	position	ns and	more in	formati	on, see	from pa	ge 2/10	00								
	al versi																	rder code(s)
		led moto			fan cov	er (IC 41	(8)								1LE1041			
For op	tions, s	ee from p	page 2/	102											1LE1041	- 1 1 1	-Z	+++

Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) and stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.



SIMOTICS GP/SD 1LE1 – APAC Line standard motors

Motors with IE2 High Efficiency

Self-ventilated or forced-air cooled motors · Aluminum series 1LE1041 with increased power

Selection and ordering data

Plant Plan				Opera	ating v	alues at ra	ated po	ower									Aluminum series		
P80					$T_{\rm ra-}$	Different	$\eta_{\text{ra-}}$	$\eta_{\text{ra-}}$	$\eta_{ra ext{-}}$								1LE1041	m _{IM B3}	J
Mathematical Content of Content			size												60 Hz	60 Hz	A 1 A1		
Cooling: Self-ventilated (IC 411) or with order code F90 forced-air colled without external fan and fan cover (IC 418)	P50	P60		60 HZ	60 HZ	1											Article No.		
Cooling: Self-ventilated (IC 411) or with order code F90 forced-air colled without external fan and fan cover (IC 418)	kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)	dB(A)		kg	kgm ²
Insulation: Thermal class 155 (temperature class F). PS5 degree of protection, utilization in accordance with thermal class 130 (temperature class B2 cloples 300 pm at 50 Hz. 4	• Coo	ling: Se	elf-venti	lated (I	IC 411) or with	order (code F	90 fo	rced-ai	r cool	ed wi	thout	exter	nal fai	n and fa	an cover (IC 418)		
Part	• Effic	iency a	iccordir	ng to IE	EC 600	034-30: IE	2 High	Effici	ency	logroo	of pro	tectic	n uti	lizatio	nn in a	ccorda	nce with thermal class 130	(tempe	ratura class R
4.55					<u> </u>	<u></u> -		33 I <i>)</i> ,	IF 33 C	legiee	oi pio	tectic	ni, uu	nzati	Jii iii a	ccorda	nce with thermal class 150	(temper	lature class D
Second 12 M 3550 15			•			pin at oo		87.5	85.9	0.84	6.3	3.3	9.6	4.6	71	83	1LE1041-1AA6	26	0.0054
11 12.6 132 M 3555 30 90.2 90.6 90.3 0.91 72 2.7 9.3 3.6 72 84 1LE1041-1CA6																			
17.3 132 L 3555 40 90.2 90.6 90.3 0.91 23 2.5 10 4.7 72 84 1LE1041-1CA7 ■ ■ 65 0.035 22 25.3 160 L 3565 59 91 91 89.9 0.59 34 3.6 96 4.3 77 89 1LE1041-1DA6 ■ ■ 94 0.068 4 4.55 100 L 1770 20 87.5 87.7 86.3 0.76 7 2.8 9.2 4.3 62 74 1LE1041-1DA6 ■ ■ 94 0.014 5.5 6.3 112 M 1765 30 89.5 89.3 87.4 0.8 9.6 2.8 8.3 36.6 62 74 1LE1041-1DA6 ■ ■ 94 0.017 11 12.6 132 M 1770 59 91 91.5 90.8 0.82 18.5 2.9 8.8 3.6 62 74 1LE1041-1DA6 ■ ■ 94 0.017 11 12.6 132 M 1770 59 91 91.5 90.8 0.82 18.5 2.9 8.8 3.6 69 81 1LE1041-1DA6 ■ ■ 94 0.046 18.5 21.3 160 L 1780 99 92.4 92.4 91.3 0.84 30 2.9 8.8 3.6 69 81 1LE1041-1DA6 ■ ■ 94 0.046 18.5 21.3 160 L 1780 99 92.4 92.4 91.3 0.84 30 2.9 8.8 3.6 69 81 1LE1041-1DA6 ■ ■ 94 0.046 18.5 21.3 160 L 1780 99 92.4 92.4 93.3 0.73 2.5 2.5 5.8 2.6 70 82 1LE1041-1DA6 ■ ■ 94 0.046 18.5 21.3 160 L 1780 99 92.4 92.4 93.3 0.73 2.5 2.5 5.8 2.6 70 82 1LE1041-1DA6 ■ ■ 94 0.046 19.5 17.3 160 L 1780 121 E1 90.2 90.4 89.3 0.73 2.5 2.5 5.8 2.6 70 82 1LE1041-1DA6 ■ ■ 94 0.046 19.5 17.3 160 L 1780 121 E1 90.2 90.4 89.3 0.73 2.5 2.5 5.8 2.6 70 82 1LE1041-1DA6 ■ ■ 94 0.046 19.5 17.3 160 L 1780 121 E1 90.2 90.4 89.3 0.73 2.5 2.5 5.8 2.6 70 82 1LE1041-1DA6 ■ ■ 94 0.046 19.5 17.3 160 L 1780 121 E1 90.2 90.4 89.3 0.73 2.5 2.5 5.8 2.6 70 82 1LE1041-1DA6 ■ ■ 94 0.046 19.5 17.3 160 L 1780 17.5 18.5 18.5 19.5 18.5 19.5 18.5 19.5 18.5 19.5 1																			
4 4.55 100 L 1770 20 87.5 87.7 86.3 0.76 7 2.8 9.2 4.3 62 74 1LE1041-1AB6	15	17.3	132 L	3555	40		90.2	90.6	90.3	0.91	23	2.5	10	4.7	72	84	1LE1041-1CA7	65	0.035
4 4.55 100 L 1770 20 87.5 87.7 86.3 0.76 7 2.8 9.2 43 62 74 1LE1041-1B66 30 0.014 5.5 6.3 112 M 1765 30 89.5 89.3 87.4 0.8 9.6 2.8 8.3 3.6 62 74 1LE1041-1B66 34 0.017 11 12.6 132 M 1770 59 91 91.5 99.8 0.8 0.82 18.5 2.9 8.5 3.6 68 80 1LE1041-1B66 34 0.046 18.5 21.3 160 L 1780 99 92.4 92.4 91.3 0.84 30 2.9 8.8 3.6 69 81 1LE1041-1B66 34 0.046 18.5 21.3 160 L 1780 99 92.4 92.4 91.3 0.84 30 2.9 8.8 3.6 69 81 1LE1041-1D66 34 0.046 18.5 21.3 160 L 1780 199 92.4 92.4 91.3 0.84 30 2.9 8.8 3.6 69 81 1LE1041-1D66 34 0.046 18.5 21.3 160 L 1780 99 92.4 92.4 91.3 0.84 30 2.9 8.8 3.6 69 81 1LE1041-1D66 34 0.046 18.5 21.3 160 L 1780 99 92.4 92.4 91.3 0.84 30 2.9 8.8 3.6 69 81 1LE1041-1D66 34 0.046 18.5 21.3 160 L 1780 99 92.4 92.4 91.3 0.84 30 2.9 8.8 3.6 69 81 1LE1041-1D66 34 0.046 18.5 21.3 160 L 1780 99 92.4 92.4 91.3 0.84 30 2.9 8.8 3.6 69 81 1LE1041-1D66 34 0.046 18.5 21.3 160 L 1780 120 rpm at 60 Hz Voltages (\$ 600 V) 1 V V V V V V V V V V V V V V V V V	22	25.3	160 L	3565	59		91	91	89.9	0.89	34	3.6	9.6	4.3	77	89	1LE1041-1DA6 ■-■■■	94	0.068
5.5 6.3 112 M 1765 30 89.5 89.3 87.4 0.8 9.6 2.8 8.3 3.6 62 74 1 LE1041-1B86 30 34 0.017 11 12.6 132 M 1770 59 91 91.5 90.8 0.82 18.5 2.9 8.5 3.6 68 80 1 LE1041-1C86 4 0.046 18.5 21.3 160 L 1780 99 92.4 92.4 91.3 0.84 30 2.9 8.8 3.6 69 81 1 LE1041-1D86 4 0.046 18.5 21.3 160 L 1780 99 92.4 92.4 91.3 0.84 30 2.9 8.8 3.6 69 81 1 LE1041-1D86 4 0.046 15 17.3 160 L 1180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 1180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 1180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1 LE1041-1DC6 4 0.046 15 17.3 160 L 180 121 IE1 90.2 90.4 89.3 0.73 2 IE1041-1D	4-pole	: 1500 i	rpm at 5	50 Hz,	1800 r	pm at 60	Hz												
11 12.6 132 M 1770 59 91 91.5 90.8 0.82 18.5 2.9 8.5 3.6 68 80 1LE1041-1CB6 - ■ ■ 64 0.046 18.5 21.3 150 L 1780 99 92.4 92.4 91.3 0.84 30 2.9 8.8 3.6 69 81 1LE1041-1DB6 - ■ ■ 100 0.099 6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz 7.5 8.6 132 M 1175 61 89.5 89.8 88.7 0.72 14.6 2.2 6.4 3 67 79 1LE1041-1CC6 - ■ ■ 64 0.046 15 17.3 150 L 1180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1LE1041-1DC6 - ■ ■ 115 0.12 Voltages (≤ 600 V) 1 Version 115 0.12 0.12 Version 115 0.12 Version 115 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12	4	4.55	100 L	1770	20		87.5	87.7	86.3	0.76	7	2.8	9.2	4.3	62	74	1LE1041-1AB6	30	0.014
18.5 21.3 160 L 1780 99 92.4 92.4 91.3 0.84 30 2.9 8.8 3.6 69 81 1LE1041-1D86 ■ ■ 100 0.099 6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz 7.5 8.6 132 M 1175 61 89.5 89.8 88.7 0.72 14.6 2.2 6.4 3 67 79 1LE1041-1DC6 ■ ■ 115 0.046 15 17.3 160 L 1180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1LE1041-1DC6 ■ ■ 115 0.12 Voltages (s 600 V) 1 Version 50 Hz 230 V∆/400 VY 60 Hz 460 V∆ Standard 2 2 2	5.5	6.3	112 M	1765	30		89.5	89.3	87.4	0.8	9.6	2.8	8.3	3.6	62	74	1LE1041-1BB6	34	0.017
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz 7.5 8.6 132 M 1175 61 89.5 89.8 88.7 0.72 14.6 2.2 6.4 3 67 79 1LE1041-1CC6 64 64 0.046 15 17.3 160 L 1180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1LE1041-1DC6 64 0.046 15 0 Hz 230 Vx)400 VY 60 Hz 460 VY	11	12.6	132 M	1770	59		91	91.5	90.8	0.82	18.5	2.9	8.5	3.6	68	80	1LE1041-1CB6 ■-■■■	64	0.046
7.5 8.6 132 M 1175 61 89.5 89.8 88.7 0.72 14.6 2.2 6.4 3 67 79 1LE1041-1CC6 1 64 0.046 15 17.3 160 L 1180 121 IE1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 1LE1041-1DC6 1 115 0.12 Voltages (\$ 600 V) 1 Version 50 Hz 230 Vα/400 VY 60 Hz 460 VY 50 Hz 460 VΔ Standard 2 2 2 7 Without additional charge 4 0 Without additional charge 4 0 Without additional charge 50 Hz 500 VΔ With flange IM B5 3) With flange IM B14 3) With flange IM B14 3) With flange IM B14 3) Without posterior with 3 temperature sensors For other worter protection and more information, see from page 2/90 Motor protection Motor protection Without additional charge 50 Construction and more information, see from page 2/90 Terminal box position Terminal box positions and more information, see from page 2/100 Special versions Order code(s) Order code(s) For other terminal box positions and more information, see from page 2/100 Special versions Order code(s) Order code(s)	18.5	21.3	160 L	1780	99		92.4	92.4	91.3	0.84	30	2.9	8.8	3.6	69	81	1LE1041-1DB6	100	0.099
15 17.3 160 L 1180 121 E1 90.2 90.4 89.3 0.73 28.5 2.3 5.8 2.6 70 82 Voltages (≤ 600 V) 1)	6-pole	: 1000	rpm at 5	50 Hz,	1200 r	pm at 60	Hz												
Voltages (≤ 600 V) ¹¹ Version Order code 50 Hz 230 VΔ/400 VY 60 Hz 460 VY Standard 2 2 50 Hz 400 VΔ 60 Hz 460 VΔ Standard 3 4 - 50 Hz 500 VY Without additional charge 2 7 - 50 Hz 500 VΔ Without additional charge 4 0 - For other voltages and more information, see from page 2/85 With additional charge F - With flange IM B5 ³) With additional charge K - With glange IM B14 ³) With additional charge K - For other types of construction and more information, see from page 2/90 Version Order code Motor protection Version Order code Without Standard A - PTC thermistor with 3 temperature sensors With additional charge B - For other motor protection and more information, see from page 2/98 - Terminal box position Version Standard 4 - Special versions Order code(s)													_						
50 Hz 230 VA/400 VY 60 Hz 460 VY Standard 2 2 2 5 50 Hz 400 VA 60 Hz 460 VA Standard 3 4 5 50 Hz 500 VY Without additional charge 4 0 7 50 Hz 500 VA Without additional charge 4 0 7 50 Hz 500 VA Without additional charge 4 0 7 50 Hz 500 VA Without additional charge 4 0 7 50 Hz 500 VA Without additional charge 5 0 Version 9 0 0 0 0 Version With flange IM Bts 3) With additional charge 5 0 Vith additional charge 7 0 Version With flange IM Bts 3) With additional charge 7 0 Version Without 8 0 Version 9 0 0 0 Version 9 0				1180	121	IE1	90.2	90.4	89.3	0.73	28.5	2.3	5.8	2.6	70	82	1LE1041-1DC6 ■-■■■	115	0.12
50 Hz 400 VΔ 60 Hz 460 VΔ Without additional charge 2 7 50 Hz 500 VY Without additional charge 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Voltag	es (≤ 6	00 V) ¹⁾											Ve	rsion			Ord	der code
Types of construction 2) With flange IM B5 3) With additional charge With flange IM B14 3) For other types of construction and more information, see from page 2/90 Motor protection Without Standard PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 2/98 Terminal box position Terminal box at top For other terminal box positions and more information, see from page 2/100 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) Order code Terminal box position Order code Terminal box at top Standard Order code TERMINAL TABLETO41- TERMIN	50 Hz	230 VΔ/	/400 VY											Sta	andard	i	2 2	-	
Types of construction 2) With flange IM B5 3) With additional charge With flange IM B14 3) With additional charge Without Wersion Version Standard A PTC thermistor with 3 temperature sensors With additional charge With additional charge B For other motor protection and more information, see from page 2/98 Terminal box position Version Terminal box position Version Standard A C Order code Terminal box at top Standard A For other terminal box positions and more information, see from page 2/100 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) TLE1041 F90+++				60) Hz 4	60 V∆											3 4	-	
Types of construction 2) With flange IM B5 3) With additional charge With flange IM B14 3) With additional charge Without Wersion Version Order code Order code Types of construction and more information, see from page 2/90 Without Standard A PTC thermistor with 3 temperature sensors With additional charge B For other motor protection and more information, see from page 2/98 Terminal box position Version Standard 4 For other terminal box positions and more information, see from page 2/100 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) Version Standard 4 For other terminal box positions and more information, see from page 2/100 Order code(s)																	al charge 2 7	-	
Types of construction 2) With flange IM B5 3) With additional charge With flange IM B14 3) With additional charge Without Wersion Version Standard A PTC thermistor with 3 temperature sensors With additional charge With additional charge B For other motor protection and more information, see from page 2/98 Terminal box position Version Terminal box position Version Standard A C Order code Terminal box at top Standard A For other terminal box positions and more information, see from page 2/100 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) TLE1041 F90+++														Wi	thout a	ddition	al charge 4 0	_	
With flange IM B5 ³⁾ With additional charge FWith flange IM B14 ³⁾ With additional charge Without Version Order code Without Standard APTC thermistor with 3 temperature sensors With additional charge BFor other motor protection and more information, see from page 2/98 Terminal box position Version Terminal box at top Standard 4 For other terminal box positions and more information, see from page 2/100 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) With additional charge APA					intorn	nation, see	e trom	page 2	2/85								9 0		
With flange IM B14 ³⁾ With additional charge K For other types of construction and more information, see from page 2/90 Motor protection Without Standard PTC thermistor with 3 temperature sensors With additional charge For other motor protection and more information, see from page 2/98 Terminal box position Version Terminal box at top Standard Standard 4 For other terminal box positions and more information, see from page 2/100 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) With additional charge	• •		structio		4 DE 3)											_	Ord	aer coae
For other types of construction and more information, see from page 2/90 Motor protection Without Standard PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 2/98 Terminal box position Version Terminal box at top Standard 4 For other terminal box positions and more information, see from page 2/100 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) Order code Order code Order code The standard A		•															•	_	
Motor protection Version Order code Without Standard A - PTC thermistor with 3 temperature sensors With additional charge B - For other motor protection and more information, see from page 2/98 Version Terminal box position Version Standard 4 For other terminal box positions and more information, see from page 2/100 Order code(s) Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) 1LE1041		0	o of oon				ormotic	n ccc	from	2000	/OO			VVI	ırı addı	ilionai c	narge		
Without PTC thermistor with 3 temperature sensors With additional charge For other motor protection and more information, see from page 2/98 Terminal box position Version Standard 4 For other terminal box positions and more information, see from page 2/100 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) Standard Order code(s) F90+ + + + + + + + + + + + + + + + + + +		- 71		เธเเนตเเ	טון מוונ	a more inic	imalic	лт, see	110111	paye 2	190			\/o	reion				
PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 2/98 Terminal box position Terminal box at top For other terminal box positions and more information, see from page 2/100 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) With additional charge		•	UII													1	Δ	-	aci code
For other motor protection and more information, see from page 2/98 Terminal box position Terminal box at top For other terminal box positions and more information, see from page 2/100 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) Ursion Order code(s) Terminal box position A Usersion Standard 4 Order code(s) TLE1041 Fe00+++			r with 3	tempe	rature	sensors													
Terminal box position Terminal box at top Standard For other terminal box positions and more information, see from page 2/100 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) Version Standard 4 Order code(s) ILE10412 F90+++							tion, se	ee fron	n page	2/98				VVI	iii aaa	itional C	na go		
Terminal box at top For other terminal box positions and more information, see from page 2/100 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) Standard Order code(s) ILE1041 F90+++									. page	_,50				Ve	rsion				
For other terminal box positions and more information, see from page 2/100 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC 418) Order code(s) 1LE1041 F90+++			•													ı			
Special versions Order code(s) Forced-air cooled motors w/o ext. fan/fan cover (IC 418) 1LE1041 F90++				positio	ons an	nd more in	formati	on, se	e from	page 2	2/100								
Forced-air cooled motors w/o ext. fan/fan cover (IC 418)										,								Ord	der code(s)
	-			ors w/o	ext. fa	n/fan cove	r (IC 4	18)									1LE1041■-■■■		()
																	1LE1041 ■-■■■	-Z	+++

 $^{^{1)}}$ Operating voltages only $\leq 600~\text{V}$ admissible in accordance with MG1 Table 12-11.

²⁾ Types of construction with feet are not possible for 2-pole, 4-pole and 6-pole motors ≤ 200 hp in accordance with MG1 Table 12-11.

Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) and stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.

SIMOTICS GP/SD 1LE1 - APAC Line standard motors

Motors with IE2 High Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1541 Basic Line

Selection and ordering data

			Opera	ating va	alues at	rated	power									Cast-iron series		
P _{rated}	P _{rated} ,	Frame	n _{ra-}	$T_{\rm ra-}$	Differ-	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	COS-	I _{ra-}	T_{LR}	$I_{LR}/$	$T_{B}/$	L_{pfA}	L_{WA}	1LE1541 – Basic Line	m _{IM B3}	J
60 Hz/	60 Hz/		ted,	ted,	ent IE	ted,	ted,	ted,	φ_{rated}	ted,	$T_{\rm ra-}$	I _{ra-}	$T_{\rm ra-}$		60 Hz			
P50	P60		60 Hz	60 Hz	class	60 Hz, 4/4	60 Hz, 3/4	60 Hz, 2/4	60 Hz, 4/4			ted, 60 Hz	ted,	,		Article No.		
kW	kW	FS	rpm	Nm		4/4	%	%	4/4	Α	00112	. 00112	00 112) dB(A)	Article No.	kg	kgm ²
					or wit	h orde			rced-a		led w	ithout	exter		. ,	n cover (IC 418)	ng .	ngm
 Effic 	iency a	accordir	ng to lÈ	EC 600	34-30:	IE2 Hiç	gh Effi	ciency										
				<u> </u>			lass F	, IP55	degree	of pro	otectio	on, ut	ilizatio	on in a	ccordar	nce with thermal class 130	(tempera	ture class
		rpm at 5			om at 6													
22	24.5	180 M				91	90.8	89.5	0.86	35.5		8.4	4.1	81	84	1LE1541-1EA2		0.069
30	33.5	200 L	3565	80		91.7	91.2	89.6	0.86	47.5	2.9	7.7	3.8	82	89	1LE1541-2AA4		0.13
37	41.5	200 L	3565	99		92.4	92.2	91	0.87	58	3.3	8.1	3.8	82	89	1LE1541-2AA5		0.15
1 5	51	225 M	3570	120		93	92.7	91.3	0.88	69	3.1	8.7	3.8	77	90	1LE1541-2BA2		0.23
55	62	250 M	3575	147		93	92.5	91	0.89	83	2.4	7.4	3.5	80	94	1LE1541-2CA2		0.4
75	84	280 S	3580	200		93.6	92.9	91.1	0.87	116	2.8	7.7	3.5	81	95	1LE1541-2DA0		0.71
90	101 123	280 M 315 S	3578 3585	240 293		94.5	94.2	93.1 92.5	0.88	136 162	2.7	7.9 7.9	3.4	81 82	95 96	1LE1541-2DA2		0.83
110						94.5								82		1LE1541-3AA0		
132	148 180	315 M 315 L	3585 3585	352 426		95 95	94.7 94.6	93.6 93.3	0.91	192	2.7	8.1	3.4	82	96 99	1LE1541-3AA2		1.6 1.8
160 200	224	315 L	3585	533		95 95.4	94.6	93.3	0.92	230 285	3.1	8.3	3.2	84	99	1LE1541-3AA4		2.2
		rpm at 5			am at 6		90.2	94.∠	0.92	200	٥.١	0.3	3.2	04	33	1LE1541-3AA5	1130	۷.۷
1-роге 18.5	21.3	180 M		100 r	oni at o	92.4	92.6	91.9	0.83	30.5	2 8	7.7	3.9	64	77	1LE1541-1EB2■-■■■	160	0.12
22	25.3	180 L	1770	119		92.4	92.5	91.8	0.83	36	3	8.4	3.9	72	79	1LE1541-1EB4		0.12
30	34.5	200 L	1778	161		93	93.1	92.2	0.84	48	3.2	8.2	3.7	72	79	1LE1541-2AB5		0.13
37	42.5	225 S	1778	199		93	93.1	92.5	0.87	57	2.7	7.2	3.3	69	82	1LE1541-2BB0		0.42
45	52	225 M	1778	242		93.6	93.8	93.1	0.86	70	3	7.6	3.5	69	83	1LE1541-2BB2		0.42
55	63	250 M	1785	294		94.1	94.1	93.3	0.84	87	3.1	7.3	3.3	69	83	1LE1541-2CB2		0.40
75	86	280 S	1788	401		94.5	94.3	93.2	0.87	114	2.7	7.6	3.2	79	92	1LE1541-2DB0		1.3
90	104	280 M	1788	481		94.5	94.3	93.3	0.87	137	2.9	8.1	3.4	78	92	1LE1541-2DB2		1.4
110	127	315 S	1790	587		95	94.8	93.8	0.86	169	3.1	8	3.3	79	93	1LE1541-3AB0 -		2
132	152	315 M	1790	704		95	94.8	94	0.86	205	3.1	7.8	3.2	79	93	1LE1541-3AB2		2.3
160	184	315 L	1790	854		95	94.7	93.5	0.87	245	3.1	8.3	3.2	80	95	1LE1541-3AB4		2.8
200	230	315 L	1792	1066		95.4	94.7	93.6	0.86	305	3.8	9	3.2	84	98	1LE1541-3AB5		3.5
/oltag	es													sion				er code
		/400 VY	6	0 Hz 46	60 VY									indard		2 2	-	J. 0000
		/690 VY		0 Hz 46										indard		2 2 3 4	_	
	500 VY		Ū.												dditional	I charge 2 7	_	
	500 VΔ															I charge 4 0	_	
or oth	ner volta	ages and	d more	inform	ation. s	ee fron	n page	2/88								9 0		
		structio					1 - 5						Ver	sion			Orde	er code
Nith fla				л В5 ¹⁾									Wit	h addit	ional ch	arge F	-	
or oth	ner type	s of con	struction	on and	more in	nformat	tion, se	e from	page 2	2/94								
	protec												Ver	sion			Orde	er code
Nithou	-												Sta	ndard		A	-	
PTC th	ermisto	or with 3	tempe	rature s	sensors								Wit	h addit	ional ch	arge B	-	
		or protec					see fro	m pag	e 2/99									
		positio											Ver	sion				
	al box a	•											Sta	ndard			4	
		ninal box	positio	ons and	d more	informa	ation, s	ee fror	n page	2/101								
	al versi																Orde	er code(s)
•		oled mo	tors w/	o ext. fa	an/fan c	cover (I	C 418)								1LE1541 ■-■■■		. ,
			page 2			,										1LE1541 ■-■■■		

Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



SIMOTICS GP/SD 1LE1 – APAC Line standard motors

Motors with IE2 High Efficiency

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1541 Basic Line

Selection and ordering data (continued)

			Opera	ating v	alues at	t rated	power									Cast-iron series			
		Frame	n _{ra-}	T_{ra}	Differ-	$\eta_{ra ext{-}}$	$\eta_{\text{ra-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{\rm B}/$	$L_{pfA,}$	L _{WA} ,	1LE1541 – Basic Line	m	IM B3	J
	60 Hz/	size	ted,	ted,	ent IE class		ted,	ted,	Prated.		$T_{\rm ra-}$	I _{ra-}	I _{ra-}	60 Hz	60 Hz				
P50	P60		60 HZ	60 Hz	olado	60 HZ, 4/4	60 HZ, 3/4	60 HZ, 2/4	60 Hz, 4/4			ted, 60 Hz	ted, 60 Hz			Article No.			
kW	kW	FS	rpm	Nm			%	%		Α				dB(A)) dB(A)		kg	J	kgm ²
• Cool	ing: Se	lf-ventil	lated (l	IC 411	or wit	h orde	r code	F90 f	orced-a	ir coo	led w	ithout	exter	nal far	n and fa	n cover (IC 418)			
Effic Ineul	iency a	ccordin	ig to IE	EC 600	34-30:	IE2 Hi	gh Effi	ciency	deares	of pro	atacti.	on ut	ilizatio	an in a	ccordar	nce with thermal class 1	20 (tai	mnerat	tura clase Ri
		rpm at 5					1033 1	, ir 55	uegree	or pre) lection	on, at	mzati	JII III a	ccordar	ice with thermal class 1	JO (LEI	прега	ure class b
15	18	•	1178		piii at o	90.2	90.2	89	0.77	27	2.8	6.9	3.4	60	73	1LE1541-1EC4 -	15	55	0.17
18.5	22	200 L	1182	149	IE1	91.7	92	91.5	0.81	31.5	2.6	6.7	3	66	79	1LE1541-2AC4		_	0.25
22	26.5	200 L	1182	178	IE1	91.7	92.1	91.6	0.81	37	3	7.4	3	66	79	1LE1541-2AC5			0.3
30	36	225 M	1182	242	IE1	93	93.3	92.6	0.83	49	2.9	7	3.1	66	79	1LE1541-2BC2	30	00	0.58
37	44.5	250 M	1185	298	IE1	93	93.3	92.6	0.83	60	3.3	7.3	2.8	66	79	1LE1541-2CC2	37	' 0	0.86
45	54	280 S	1188	362	IE1	93.6	93.8	93.1	0.84	72	3.1	7.4	3	67	81	1LE1541-2DC0■-■■	46	60	1.1
55	66	280 M	1188	442	IE1	93.6	93.9	93.4	0.85	87	3.1	7.2	2.9	67	81	1LE1541-2DC2	51	0	1.4
75	90	315 S	1190	602	IE1	94.1	94.1	93.2	0.83	121	2.7	7.5	3	67	82	1LE1541-3AC0	66	60	2.1
90	108	315 M	1190	722	IE1	94.1	94.4	93.5	0.84	143	2.9	7.6	3.1	68	83	1LE1541-3AC2	73	30	2.5
110	132	315 L	1190	883	IE1	95	95	94.6	0.85	171	3.3	8.1	3.2	69	84	1LE1541-3AC4	94	10	3.6
132	158	315 L	1190	1059		95	95	94.4	0.85	205	3.7	9.2	3.6	69	84	1LE1541-3AC5■-■■	99	90	4
160	192	315 L	1192	1282		95	94.9	94.2	0.85	250	3.8	9.3	3.4	72	87	1LE1541-3AC6■-■■	11	60	4.7
Voltage	es												Ver	rsion				Orde	r code
50 Hz	230 VA	400 VY	60) Hz 46	60 VY								Sta	andard		2 2		-	
50 Hz	400 V∆/	690 VY	60) Hz 46	60 V∆								Sta	andard		3 4		-	
50 Hz	500 VY												Wit	hout a	dditional	I charge 2 7		-	
50 Hz	500 V∆												Wit	hout a	dditional	2 2 3 4 1 charge 2 7 1 charge 4 0 9 0		-	
		iges and		inform	ation, s	ee fron	n page	2/88								9 0			
		structio		0)									Ver	rsion				Orde	r code
With fla				1 В5 ²⁾									Wit	h addit	tional ch	arge F		_	
	21	s of con	struction	on and	more in	nforma	tion, se	ee from	page	2/94									
Motor	•	tion												rsion				Orde	r code
Withou														andard			A	-	
		r with 3							0/0-				Wit	n addi	tional ch	narge	3	_	
		or protec		nd mor	e intorn	nation,	see fro	m pag	je 2/99				١,						
		positio	n											rsion					
	al box a		nool!!		d 50 0 x -	Inform	otion -	fu		0/101			518	andard			4		
		inal box	positio	oris an	u more	IIIIorma	ation, 9	ee iror	n page	2/101								Orda	r oodo(a)
Specia			oro wil	ovt f	on/for	oover (IC 410	\								11 51541	- 7		r code(s)
		oled mot			a11/1a11 (cover (10 4 18)								1LE1541 ■-■■ 1LE1541 ■-■■			
roi opi	lions, se	ee from	page 2	7109												ILE 1341		+.	+ +

 $^{^{1)}}$ Types of construction with feet are not possible for 2-pole, 4-pole and 6-pole motors \leq 200 hp in accordance with MG1 Table 12-11.

Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

SIMOTICS GP/SD 1LE1 - APAC Line standard motors

Motors with IE2 High Efficiency



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1541 Basic Line with increased power

Selection and ordering data

			Opera	ating va	alues at	rated	power									Cast-iron series			
P _{rated,} 60 Hz/ P50	P _{rated} , 60 Hz/ P60	Frame size	n _{ra-} ted, 60 Hz	T _{ra-} ted, 60 Hz	Differ- ent IE class	ted,	$\eta_{\text{ra-}}$ ted, 60 Hz,	$\eta_{\text{ra-}}$ ted, 60 Hz,	COS- Prated, 60 Hz,		T_{LR}/T_{ra-} ted,	I _{LR} / I _{ra-} ted,	$T_{\rm B}/T_{\rm ra-}$ ted,	L _{pfA} , 60 Hz	L _{WA} , 60 Hz	1LE1541 – Basic Li	ine	m _{IM B3}	J
						4/4	3/4	2/4	4/4		60 Hz	60 Hz	60 Hz			Article No.			. 2
kW	kW	FS	rpm	Nm			%	%		Α				. ()	dB(A)	"		kg	kgm ²
CoolEffic	ing: Se	lf-ventil ccordin	ated (I	C 411)	or with 34₌30 · I	ı order F2 Hia	code	F90 fo	rced-a	ir coo	led w	ithout	exte	nal fan	n and far	cover (IC 418)			
• Insu	lation:	Therma	class	155 (te	empera	ture cl	ass F)	, IP55	degree	of pro	otectio	on, ut	ilizatio	on in a	ccordan	ce with thermal class	s 130 (tempera	ature class B)
2-pole	: 3000 ı	rpm at 5	0 Hz, 3	8600 rp	m at 60) Hz													
30	33.5	180 L	3550	81		91.7	91.8	90.6	0.89	46	2.5	8.5	3.7	81	83	1LE1541-1EA6 -	$\overline{\mathbf{m}}$	180	0.094
45	51	200 L	3560	121		93	93.1	92.4	0.86	71	3	8.4	3.7	82	89	1LE1541-2AA6 -	ш	245	0.176
55	62	225 M	3565	147		93	92.8	91.8	0.88	84	2.8	7.9	3.6	77	91	1LE1541-2BA6■-	Ш	320	0.26
75	84	250 M	3578	200		93.6	93.1	91.6	0.85	118	2.4	7.7	3.5	80	94	1LE1541-2CA6 -	ш	390	0.46
110	123	280 M	3582	293		94.5	94.4	93.5	0.9	162	3.5	9.6	3.9	82	96	1LE1541-2DA6 -	\Box	650	1.2
4-pole	։ 1500 ւ	rpm at 5	0 Hz, 1	800 rp	m at 60) Hz													
30	34.5	180 L	1770	162		93	93.2	92.7	0.8	51	2.6	8.7	3.9	71	78	1LE1541-1EB6■-■		185	0.159
37	42.5	200 L	1775	199		93	93.4	93.1	0.84	59	2.6	8.4	3.3	71	78	1LE1541-2AB6	\Box	240	0.246
55	63	225 M	1780	295		94.1	94.4	94	0.84	87	2.8	7.1	3	72	85	1LE1541-2BB6 -	Ш	320	0.47
75	86	250 M	1785	401		94.5	94.6	94	0.85	117	2.6	7.1	3.1	76	89	1LE1541-2CB6■-	ш	440	0.85
110	127	280 M	1786	588		95	95.1	94.5	0.86	169	2.9	7.9	3.3	80	94	1LE1541-2DB6 -	Ш	680	1.7
6-pole	: 1000 ı	rpm at 5	0 Hz, 1	200 rp	m at 60) Hz													
18.5	22	180 L	1180	150		91.7	91.8	90.9	0.75	34	2.6	7	3.4	70	83	1LE1541-1EC6 -	$\overline{\mathbf{m}}$	165	0.206
30	34.5	200 L	1180	243		93	93.4	93	0.77	53	2.9	7.4	3.1	71	78	1LE1541-2AC6■-	ш	240	0.381
37	44.5	225 M	1182	299	IE1	93	93.3	92.8	0.82	61	2.8	7.3	3.2	66	79	1LE1541-2BC6■-■	$\Box \Box$	325	0.67
45	54	250 M	1186	362	IE1	93.6	93.9	93.4	0.84	72	2.7	7.8	3	70	84	1LE1541-2CC6 -	Ш	410	1
75	90	280 M	1188	603		94.1	94.3	93.9	0.84	119	3.7	8	3.2	69	83	1LE1541-2DC6	$\overline{\mathbf{III}}$	570	1.8
Voltag	es												Vei	rsion				Ord	er code
50 Hz	230 VΔ/	400 VY	60	Hz 46	0 VY								Sta	andard		2 2	2	_	
50 Hz	400 VΔ/	690 VY	60	Hz 46	60 VΔ								Sta	andard		2 2 3 4 4 Charge 2 7 Charge 4 0 9 0	1	_	
50 Hz	500 VY												Wit	thout ac	dditional	charge 2 7	7	-	
50 Hz	500 V∆												Wit	thout ac	dditional	charge 4 0)	-	
For oth	er volta	iges and	more	informa	ation, se	ee from	page	2/88								9 ()		
Types	of cons	structio	n ¹⁾										Vei	rsion				Ord	er code
With fla	ange		IM	I B5 ²⁾									Wit	th addit	tional cha	arge	F	-	
For oth	er type	s of con	structio	n and	more in	format	ion, se	e from	page 2	2/94									
Motor	protect	tion											Vei	rsion				Ord	er code
Withou	it												Sta	andard			Α	-	
PTC th	ermisto	r with 3	temper	ature s	sensors								Wit	th addit	tional cha	arge	В	-	
For oth	er moto	or protec	tion an	d more	e inform	ation, s	see fro	m pag	e 2/99										
Termin	nal box	positio	n										Vei	rsion					
Termin	al box a	at top											Sta	andard			4		
For oth	er term	inal box	positio	ns and	d more i	nforma	tion, s	ee fror	n page	2/101									
Specia	al versi	ons																Ord	er code(s)
Forced	l-air cod	oled mot	ors w/c	ext. fa	an/fan c	over (I	C 418)									1LE1541 ■-■		-Z F90	+++
For op	tions, se	ee from p	page 2	/109												1LE1541 ■-■		-Z+	+ +

 $^{^{1)}}$ Types of construction with feet are not possible for 2-pole, 4-pole and 6-pole motors \leq 200 hp in accordance with MG1 Table 12-11.

Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



SIMOTICS GP/SD 1LE1 standard motors – Eagle Line NEMA Premium Efficient MG1 motors, Table 12-12

Self-ventilated or forced-air cooled motors · Aluminum series 1LE1023

Selection and ordering data

Selec	tion a	na ora	ering	aata	ı													
			Opera	ating v	alues at ra	ated po	ower									Aluminum series		
Prated	Prated	Frame	n _{ra-}	T _{ra-}	EISA	η_{ra}	$\eta_{ra ext{-}}$	$\eta_{\text{ra-}}$	cos-	I _{ra-}	T_{LR}	/ _{IR} /	$T_{B}/$	L_{pfA}	L _{WA} .	1LE1023	m _{IM B3}	J
60 Hz/	60 Hz/	size	ted,	ted,	CC No.	ted,	ted,	ted,	φ_{rated}		T _{ra-}	I _{ra-}	$T_{\rm ra-}$		60 Hz		IIVI DO	
P50	P60		60 Hz	60 Hz	. CC032A	00 1 12,			60 Hz,	60 Hz		ted,	ted,			Article No.		
						4/4	3/4	2/4	4/4		60 H	z 60 Hz	2 60 Hz		ID(A)			. 2
kW	hp	FS	rpm	Nm		%	%	%		Α				. ,) dB(A)	(10.110)	kg	kgm ²
																n cover (IC 418) A, Canada, and Mexico		
• Insu	lation:	Therma	l class	155 (t	temperatu	ire cla	ss F),	IP55 d	egree	of pro	tectio	on, ut	lizati	on in a	ccordar	ice with thermal class 130	(temperat	ture class B)
2-pole	: 3000	rpm at 5	50 Hz, 3	3600 r	pm at 60	Hz												
0.75	1	80 M	3480	2.1	1	77	77.2	75.7	0.84	1.45	3	7.1	3.6	64	75	1LE1023-0DA2	11	0.0011
1.1	1.5	80 M	3500	3	/	84	84	82	0.83	1.98	3.3	8.4	4	64	75	1LE1023-0DA3	12	0.0013
1.5	2	90 S	3525	4.1	1	85.5	84.8	82.3	0.84	2.6	3.1	9.8	4.9	69	81	1LE1023-0EA0	15	0.0021
2.2	3	90 L	3530	6	1	86.5	86.4	84.5	0.87	3.65	3	9.6	4.9	69	81	1LE1023-0EA4	19	0.0031
3	4	100 L	3525	8.1	1	88.5	88.7	87.2	0.87	4.9	3.8	9.7	5.5	71	83	1LE1023-1AA4 -	26	0.0054
3.7	5	112 M	3560	10	1	88.5	88	86.2	0.88	6	3.2	10.8	5.1	73	85	1LE1023-1BA2	34	0.012
5.5	7.5	132 S	3555	15	1	89.5	89.4	88.2	0.9	8.6	2.1	8.6	4.4	72	84	1LE1023-1CA0 -	43	0.024
7.5	10	132 S	3555	20	/	90.2	90.5	90	0.91	11.5	2.4	9.5	4.7	72	84	1LE1023-1CA1	57	0.031
11	15	160 M	3560	30	1	91	90.4	88.4	0.88	17.2	2.8	8.5	4.3	77	89	1LE1023-1DA2	75	0.053
15	20	160 M	3565	40	1	91	90.5	88.9	0.86	24	3.1	9.7	4.8	77	89	1LE1023-1DA3	84	0.061
18.5	25	160 L	3560	50	/	91.7	91.5	90.3	0.9	28	3.1	9.4	4.4	77	89	1LE1023-1DA4	94	0.068
22	30	180 M	3560	59	1	91.7	91.4	90	0.89	34	2.8	8.2	3.9	77	89	1LE1023-1EA2	129	0.08
30	40	200 L	3560	80	1	92.4	92.2	91.4	0.87	47	2.9	7.6	3.6	77	84	1LE1023-2AA4 -	173	0.134
37	50	200 L	3560	99	1	93	92.8	91.6	0.88	57	2.8	7.5	3.6	77	84	1LE1023-2AA5 -	194	0.158
4-pole	: 1500	rpm at 5	50 Hz, 1	1800 r	pm at 60	Hz												
0.55	0.75	80 M	1750	3	-	81.1	80.8	78.2	0.74	1.15	2.7	6.9	3.8	55	66	1LE1023-0DB2	11	0.0021
0.75	1	80 M	1760	4.1	✓	83.5	82.6	79.3	0.71	1.59	3.1	8.3	4.7	55	66	1LE1023-0DB3	14	0.0029
1.1	1.5	90 S	1750	6	✓	86.5	86.4	84.2	0.75	2.15	3.4	8.2	4.4	58	70	1LE1023-0EB0	16	0.0036
1.5	2	90 L	1755	8.2	✓	86.5	86.4	84.6	0.77	2.85	3	8.4	4.3	58	70	1LE1023-0EB4	19	0.0049
2.2	3	100 L	1770	11.9		89.5	89.2	87.2	0.81	3.8	3.5	9.6	5.1	62	74	1LE1023-1AB4 -		0.014
3	4	100 L	1760	16.3		89.5	89.5	88.3	0.82	5.1	3.1	9.5	4.6	62	74	1LE1023-1AB5 -		0.014
3.7	5	112 M	1770	19	1	89.5	89.4	87.7	0.8	6.5	2.9	8.2	4.3	62	74	1LE1023-1BB2		0.017
5.5	7.5	132 S	1775	30	√	91.7	91.6	90.5	0.81	9.3	3.9	9.7	4.5	68	80	1LE1023-1CB0		0.046
7.5	10	132 M	1770	40	/	91.7	91.8	91	0.83	12.4	2.7	9.6	4.2	68	80	1LE1023-1CB2		0.046
11	15	160 M	1775	59	√	92.4	92.3	91.1	0.83	18	3	8.9	3.8	69	81	1LE1023-1DB2		0.083
15	20	160 L	1780	80	1	93	92.8	91.4	0.81	25 20 F	2.9	9.5	4.3	69	81		100	0.099
18.5 22	25 30	180 M 180 L	1775 1775	100 118	1	93.6 93.6	93.7 93.8	93.1	0.81	30.5	2.7	7.8	3.6	68 70	75 77	1LE1023-1EB2		0.13
30	40	200 L	1778	161	1	94.1	94.3		0.83	48	3	8.1	3.5	70	77	1LE1023-1EB4 - 1LE1023-2AB5 - 1LE102		0.14
			1770	101	·	34.1	34.3	95.0	0.03	40	3	0.1		-	7.7	TLE 1023-2AD3		
		00 V) 1)	CC) I I= 4	CO V/V									rsion			Orde	r code
		/400 VY) Hz 40) Hz 40									-	andard		2 2 3 4	_	
	400 V∆ 500 VY		10) MZ 41	00 VΔ									andard			_	
	500 V1 500 V∆														dditiona	9	_	
		agos one	d moro	inform	nation, see	from	naga S)/QE					VVI	li lout a	dditiona	9 0	_	
		structio		IIIIOIII	iation, see	HOITI	page 2	./00					\/e	rsion		3 0	Orde	r code
	it flange			1 B3 ²⁾)									andarc	1	A	_	i code
With fl		•		1 B5 ²⁾											• itional ch		_	
With fl	_			1 B14 ²											itional ch	Ü	_	
	_	es of con			I more info	ormatic	n see	from r	nage 2	/90			• • • •	iii aaa	itioriai oi	largo		
	protec		ou douc	orr arra	THOIO IIIIC	, i i i a i a	71, 000	110111	Jugo L	700			Ve	rsion				r code
Withou	•													andard	1	Δ	-	. 3000
		or with 1	or 3 ter	mpera	ture senso	ors (fra	me siz	es 80	90 or	100 to	200)				• itional ch	narge B	_	
					re informat	•					/					J		
		positio						, , ,					Ve	rsion				
	al box	•												andard	ł		4	
			positio	ons an	d more inf	formati	on, se	e from	page :	2/100								
	al versi																Orde	r code(s)
-			tors w/c	ext. f	an/fan co	ver (IC	418)									1LE1023 ■-■■■		
For op	tions, s	ee from	page 2	2/102												1LE1023 ■-■■■	■ -Z+.	++

Not required

provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.

[✓] Available

Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12.

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible,

SIMOTICS GP/SD 1LE1 standard motors – Eagle Line

NEMA Premium Efficient MG1 motors, Table 12-12



Self-ventilated or forced-air cooled motors · Aluminum series 1LE1023

Selection and ordering data (continued) Operating values at rated power Aluminum series 1LE1023 EISA CC No. Prated, Prated, Frame nra- T_{ra} $\eta_{\text{ra-}}$ $\eta_{\text{ra-}}$ $\eta_{\text{ra-}}$ cos-I_{ra-} $T_{LR}/I_{LR}/$ L_{pfA} $m_{\rm IM~B3}$ J T_{ra} 60 Hz/ 60 Hz/ size $\varphi_{\rm rated, ted,}$ T_{ra-} I_{ra-} ted. ted. ted, ted, ted, 60 Hz 60 Hz CC032A 60 Hz, 60 Hz, 60 Hz, 60 Hz, 60 Hz, ted, P50 P60 ted ted Article No. 460 V 60 Hz 60 Hz 60 Hz 4/4 3/4 2/4 4/4 kgm² kW hp rpm Nm dB(A) dB(A) kg Cooling: Self-ventilated (IC 411) or with order code F90 forced-air cooled without external fan and fan cover (IC 418) Efficiency: NEMA Premium Efficient, UL, CSA, and service factor (SF) 1.15 – for operation in the USA, Canada, and Mexico Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) 1000 rpm at 50 Hz, 1200 rpm at 60 Hz 75.3 74.3 70 2.7 1LE1023-0DC2 - 12 0.37 0.5 80 M 1150 3.1 0.61 1.01 5 3.3 45 56 0.0025 0.55 0.75 80 M 1145 4.6 80.5 76.4 0.63 1.34 2.8 5.3 3.4 45 56 1LE1023-0DC3 - - 14 0.0031 81.7 82.4 79.9 0.65 1LE1023-0EC0 - - 16 0.004 0.75 1 90 S 1155 6.2 1.76 2.4 5.3 3.1 46 58 1LE1023-1AC3 - 30 1.1 1.5 100 L 1180 8.9 87.2 84.8 0.69 2.3 24 6.7 3.3 62 74 0.014 / 2.3 7.5 3.3 79 1LE1023-1CC0 - 52 1185 24 89.5 89.6 88.4 0.75 56 67 3 4 132 S 3.7 5 132 M 1175 89.5 89.6 88.4 0.73 7 1 24 7.6 3.4 67 79 1LE1023-1CC2 - - 52 0.037 5.5 7.5 132 M 1180 45 91.4 90.5 0.74 10.3 2.3 7.2 3.3 79 1LE1023-1CC3 - - 64 0.046 7.5 10 160 M 1185 60 91 91.1 90 0.75 13.8 2.4 5.9 2.6 70 82 1LE1023-1DC2 - 93 0.098 91.9 91 11 15 160 L 1180 89 91.7 0.75 20 2.3 5.8 2.6 70 82 1LE1023-1DC4 - 115 0.12 15 20 180 L 1178 122 917 92 91.4 0.79 26 2.5 6.8 3 61 68 1LE1023-1EC4 - 130 0.19 18.5 25 200 L 1180 150 93 93.8 93.8 0.78 32 2.8 6.5 3 64 71 1LE1023-2AC4 - 166 0.28 22 30 200 L 1180 178 93 93.5 93.4 0.79 37.5 2.6 6.3 2.8 63 70 1LE1023-2AC5 - 179 0.32 om at <u>50</u> 8-р 2.2 132 S 880 24 85.5 85.6 83.6 0.6 5.4 1.5 4 2.1 67 80 1LE1023-1CD0 - - 56 0.038 3 3 4 132 M 880 33 86.5 86.7 84.9 0.6 7.3 17 4.3 23 67 80 1LE1023-1CD2 - 65 0.048 1LE1023-1DD2 - - 72 0.065 160 M 885 86.5 86.2 84 87 2 22 79 3.7 5 40 / 0.62 4.4 66 5.5 160 M 884 86.5 86.5 85 12.5 4.4 2.2 66 1LE1023-1DD3 - 86 0.083 7.5 59 0.64 1.9 79 / 7.5 10 160 L 882 81 89.5 89.8 88.9 0.64 16.4 4.3 66 79 1LE1023-1DD4 - 110 0.116 180 L 880 89.5 89.9 89.3 0.72 2.3 5.8 1LE1023-1ED4 - - 161 0.267 11 15 119 21.5 65 78 902 902 892 07 7 7 73 1LE1023-2AD5 - 212 0.420 15 20 200 L 882 162 / 30 34 42 60 Voltages (≤ 600 V) 1) Version Order code 50 Hz 230 VΔ/400 VY 60 Hz 460 VY Standard 2 3 2 4 9 4 7 0 50 Hz 400 VA 60 Hz 460 VA Standard 50 Hz 500 VY Without additional charge 50 Hz 500 VA Without additional charge 0 For other voltages and more information, see from page 2/85 Types of construction Version Order code IM B3²⁾ Standard Without flange With flange IM B5²⁾ With additional charge

Motor protection

With flange IM B14 ²⁾ For other types of construction and n

For other types of construction and more information, see from page 2/90

Without

PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200) For other motor protection and more information, see from page 2/98

Terminal box position
Terminal box at top
For other terminal box positions and more information, see from page 2/100

Special versions
Forced-air cooled motors w/o ext. fan/fan cover (IC 418)

Forced-air cooled motors w/o ext. fan/fan cover (IC 418) For options, see from page 2/102

Not required✓ Available

provided that no requirements exist for condensation drainage holes (**H03**) or stamping of the type on the rating plate. The basic type IM B3, IM B5, or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (**H03**), the type must be specified.

Order code

Order code(s)

В

1LE1023- ■-■■■■ -Z F90 +. . . +. . . +. .

1LE1023-....

With additional charge

With additional charge

Version

Version

Standard

Standard

Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12.

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible,



SIMOTICS GP/SD 1LE1 standard motors – Eagle Line NEMA Premium Efficient MG1 motors, Table 12-12

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1523 Basic Line

Selection and ordering data

Selec	lion a	iiu oiu																
			Opera	ating v	alues at r	ated p	ower									Cast-iron series		
		Frame	n _{ra-}	T_{ra}	EISA	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	COS-	I _{ra-}	T_{LR}	/ _{LR} /	$T_{\rm B}$	$L_{pfA,}$		1LE1523 – Basic Line	m_{IM}	_{B3} J
60 Hz/	60 Hz/	size	ted,	ted,	CC No. CC032A	ted,	ted,	ted,	Prated	, ted,	I _{ra-}	I _{ra-}	T _{ra-}	60 Hz	60 Hz			
P50	P60		60 Hz	60 HZ	0000271	60 HZ, 4/4	60 HZ,	60 HZ,	60 HZ,	60 HZ, 460 V	tea, 60 Hz	ted, 2 60 Hz	ted, 60 Hz	,		Article No.		
kW	hp	FS	rpm	Nm		%	%	%	., .	Α) dB(A)		kg	kgm ²
) or with				rced-a		ed wi	thout	exter	,	, , ,	n cover (IC 418)	9	g
• Effic	iency:	NEMA F	remiu	m Eff	icient, UL	., CSA	, and	servic	e facto	r (SF)	1.15 -	for o	perat	ion in	the USA	l, Canada, and Mexico ice with thermal class 130		
							ass F),	IP55	degree	of pro	tectic	n, uti	lizatio	on in a	ccordan	ce with thermal class 130	(temp	erature class B)
•		•			pm at 60													
0.37	0.5	71 M	3470	1	_	73.4	71.7	67	0.73	0.87	4.2	6.8	4.2	57	68	1LE1523-0CA2		0.00045
0.55	0.75	71 M	3470	1.5	_	76.8	75.3	71	0.73	1.23	4.5	7.2	4.5	62	73	1LE1523-0CA3	_	0.00056
0.75	1	80 M	3480	2.1	✓	77	77.2	75.7	0.84	1.45	3	7.1	3.6	64	75	1LE1523-0DA2 -	_	0.0011
1.1	1.5	80 M	3500	3	✓	84	84	82	0.83	1.98	3.3	8.4	4	64	75	1LE1523-0DA3 -		0.0013
1.5	2	90 S	3525	4.1	✓	85.5	84.8	82.3	0.84	2.6	3.1	9.8	4.9	69	81	1LE1523-0EA0	_	0.0021
2.2	3	90 L	3530	6	✓	86.5	86.4	84.5	0.87	3.65	3	9.6	4.9	69	81	1LE1523-0EA4	32	0.0031
3	4	100 L	3525	8.1	✓	88.5	88.7	87.2	0.87	4.9	3.8	9.7	5.5	71	83	1LE1523-1AA4	_	0.0054
3.7	5	112 M	3560	10	✓	88.5	88	86.2	0.88	6	3.2	10.8	5.1	73	85	1LE1523-1BA2 -		0.012
5.5	7.5	132 S	3555	15	✓	89.5	89.4	88.2	0.9	8.6	2.1	8.6	4.4	72	84	1LE1523-1CA0 -		0.024
7.5	10	132 S	3555	20	✓	90.2	90.5	90	0.91	11.5	2.4	9.5	4.7	72	84	1LE1523-1CA1 -		0.031
11	15	160 M	3560	30	✓	91	90.4	88.4	0.88	17.2	2.8	8.5	4.3	77	89	1LE1523-1DA2 -		0.053
15	20		3565	40	✓	91	90.5	88.9	0.86	24	3.1	9.7	4.8	77	89	1LE1523-1DA3	_	0.061
18.5	25	160 L	3560	50	✓	91.7	91.5	90.3	0.9	28	3.1	9.4	4.4	77	89	1LE1523-1DA4 -		0.068
22	30	180 M	3560	59	✓	91.7	91.4	90	0.89	34	2.8	8.2	3.9	77	89	1LE1523-1EA2		0.08
30	40	200 L	3560	80	✓	92.4	92.2	91.4	0.87	47	2.9	7.6	3.6	77	84	1LE1523-2AA4	_	0.134
37	50	200 L	3560	99	✓	93	92.8	91.6	0.88	57	2.8	7.5	3.6	77	84	1LE1523-2AA5		0.158
45	60	225 M	3570	120	✓	93.6	93.7	93.1	0.88	69	2.7	7.6	3.5	75	89	1LE1523-2BA2		0.26
55	75	250 M	3578	147	✓	93.6	93.4	92.3	0.89	83	2.5	7.3	3.3	76	90	1LE1523-2CA2		0.46
75	100	280 S	3578	200	✓	94.1	93.9	92.7	0.89	112	2.7	7.6	3.2	78	92	1LE1523-2DA0		0.77
90	125	280 M	3578	240	✓	95	94.8	93.8	0.9	132	2.7	8.1	3.3	78	92	1LE1523-2DA2		0.94
110	150	315 S	3585	293	✓	95	94.8	93.8	0.91	160	2.6	8	3.3	79	93	1LE1523-3AA0	750	1.4
132	175	315 M	3585	352	✓	95.4	95.1	94	0.91	191	2.8	8	3.4	79	93	1LE1523-3AA2		1.6
150	200	315 L	3588	399	✓	95.4	95.1	93.9	0.91	215	3.3	9.1	3.7	82	96	1LE1523-3AA4		1.9
185	250	315 L	3586	493	/	95.8	95.7	94.8	0.92	265	3.5	8.5	3.5	82	96	1LE1523-3AA5	1150) 2.3
Voltag	es (≤ 60	00 V) ¹⁾											Ver	sion			C	Order code
50 Hz	230 VΔ/	400 VY	6) Hz 4	60 VY								Sta	ndard		2 2	-	
50 Hz	400 V∆		6) Hz 4	60 V∆								Sta	ndard	l	2 2 3 4	-	
50 Hz	500 VY												Wit	hout a	dditional	charge 2 7 charge 4 0	-	
50 Hz	500 V∆												Wit	hout a	dditional	charge 4 0	-	
For oth	ner volta	iges and	d more	inforn	nation, se	e from	page	2/88								9 0		
Types	of cons	structio	n										Ver	sion			C	Order code
Withou	it flange	:	IN	л ВЗ ²)								Sta	ndard		A	-	
With fla	ange		IN	Л В5 ²)								Wit	h addi	tional ch	arge F	-	
With fla	ange		IN	ЛВ14	2)								Wit	h addi	tional ch	arge K	-	
	7.1		struction	on and	d more inf	ormati	on, see	e from	page 2	2/94								
Motor	protect	tion											Ver	sion			C	Order code
Withou	t												Sta	ndard		A	-	
PTC th	ermisto	r with 3	tempe	rature	sensors								Wit	h addi	tional ch	arge B	-	
For oth	er moto	or protec	tion ar	nd mo	re informa	ation, s	ee from	n pag	e 2/99									
Termin	nal box	positio	n										Ver	sion				
Termin	al box a	at top											Sta	ndard			4	
For oth	er term	inal box	position	ons ar	d more in	format	tion, se	ee from	n page	2/101								
Specia	al versi	ons															C	Order code(s)
Forced	l-air cod	oled mot	ors w/	o ext.	fan/fan co	over (IC	418)									1LE1523 ■-■■■	-Z F	90+++
For op	tions, se	ee from p	page 2	2/109												1LE1523 ■-■■■	■-Z .	+ + +

- Not required
- ✓ Available

Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12.

Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

SIMOTICS GP/SD 1LE1 standard motors – Eagle Line

NEMA Premium Efficient MG1 motors, Table 12-12



Self-v	entila	ated o	r forc	ed-a	ir coole	ed m	otors	· Ca	st-irc	n se	ries	1LE	1523	Bas	ic Lin	е		
Selec	tion a	nd ord	ering	j data	a (contin	ued)												
			Opera	ating v	alues at ra	ated po	ower									Cast-iron series		
P _{rated} ,	P _{rated} ,	Frame	n _{ra-}	$T_{\rm ra-}$	EISA	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	COS-	I _{ra-}	T_{LR}	I _{LR} /	$T_{\rm B}/$	L_{pfA}	L_{WA}	1LE1523 – Basic Line	m _{IM B}	3 J
60 Hz/	60 Hz/	size	ted,	ted,	CC No.	ted	ted,	ted,	φ_{rated}	, ted,	$T_{\rm ra-}$	I _{ra-}	T _{ra} -	60 Hz	60 Hz			
P50	P60		60 Hz	60 Hz	CC032A	60 Hz, 4/4	60 Hz, 3/4	60 Hz, 2/4	60 Hz, 4/4	60 Hz, 460 V	ted, 60 Hz	ted,	ted, 60 Hz			Article No.		
kW	hp	FS	rpm	Nm		%	%	%	4/4	Α	00112	. 00112	. 00112) dB(A)		kg	kgm ²
																n cover (IC 418)		
																A, Canada, and Mexico	/tomp	eratura alaga P
					rpm at 60		ю г),	IP35 C	iegree	oi pio	iectic	ni, uu	IIIZalii	JII III a	ccordai	nce with thermal class 130	(tempe	erature class b
_	0.33	•		1.4	– pili at 00		70.2	68	0.68	0.63	2.0	4.0	3.1	47	58	1LE1523-0CB2	12	0.00095
0.25	0.5	71 M 71 M	1715	2.1			72.3	72.5	0.66	0.03	2.9	4.9 5.7	3.8	62	73		_	0.00093
0.37			1720 1750	3	_	78.2	76.9		0.00	1.15	2.7					1LE1523-0CB3		
0.55	0.75	80 M				81.1	80.8	78.2				6.9	3.8	55	66	1LE1523-0DB2		0.0021
0.75	1	80 M	1760	4.1	✓ <u> </u>	83.5	82.6	79.3	0.71	1.59	3.1	8.3	4.7	55	66	1LE1523-0DB3		0.0029
1.1	1.5	90 S	1750	6	✓ <u> </u>	86.5	86.4	84.2	0.75	2.15	3.4	8.2	4.4	58	70	1LE1523-0EB0		0.0036
1.5	2	90 L	1755	8.2	√	86.5	86.4	84.6	0.77	2.85	3	8.4	4.3	58	70	1LE1523-0EB4	_	0.0049
2.2	3	100 L	1770	11.9		89.5	89.2	87.2	0.81	3.8	3.5	9.6	5.1	62	74	1LE1523-1AB4		0.014
3	4	100 L	1760	16.3		89.5	89.5	88.3	0.82	5.1	3.1	9.5	4.6	62	74	1LE1523-1AB5		0.014
3.7	5	112 M	1770	19	1	89.5	89.4	87.7	0.8	6.5	2.9	8.2	4.3	62	74	1LE1523-1BB2		0.017
5.5	7.5	132 S	1775	30	/	91.7	91.6	90.5	0.81	9.3	3.9	9.7	4.5	68	80	1LE1523-1CB0 -		0.046
7.5	10		1770	40	✓	91.7	91.8	91	0.83	12.4	2.7	9.6	4.2	68	80	1LE1523-1CB2		0.046
11	15		1775	59	✓	92.4	92.3	91.1	0.83	18	3	8.9	3.8	69	81	1LE1523-1DB2		0.083
15	20	160 L	1780	80	✓	93	92.8	91.4	0.81	25	2.9	9.5	4.3	69	81	1LE1523-1DB4		0.099
18.5	25		1775	100	1	93.6	93.7	93.1	0.81	30.5	2.7	7.8	3.6	68	75	1LE1523-1EB2		0.13
22	30	180 L	1775	118	✓	93.6	93.8	93.3	0.81	36.5	2.8	7.7	3.7	70	77	1LE1523-1EB4	170	0.14
30	40	200 L	1778	161	✓	94.1	94.3	93.8	0.83	48	3	8.1	3.5	70	77	1LE1523-2AB5	240	0.22
37	50	225 S	1782	198	✓	94.5	94.7	94.2	0.85	58	2.8	7.5	3	66	80	1LE1523-2BB0		0.42
45	60	225 M	1782	241	✓	95	95.3	94.9	0.84	71	2.9	7.2	3	67	81	1LE1523-2BB2	320	0.47
55	75	250 M	1786	294	✓	95.4	95.6	95.1	0.86	84	2.8	7.6	3.2	67	81	1LE1523-2CB2		0.85
75	100	280 S	1788	401	✓	95.4	95.3	94.5	0.85	116	2.8	7.7	3.3	77	91	1LE1523-2DB0	570	1.4
90	125	280 M	1788	481	✓	95.4	95.5	94.9	0.87	136	2.9	8	3.3	79	93	1LE1523-2DB2	670	1.7
110	150	315 S	1790	587	✓	95.8	95.9	95.4	0.86	168	3	7.5	3.1	73	87	1LE1523-3AB0		2.2
132	175	315 M	1790	704	✓	96.2	96.3	95.8	0.87	198	3.1	8.2	3.2	76	90	1LE1523-3AB2	960	2.9
150	200	315 L	1791	800	✓	96.2	96.2	95.7	0.87	225	3.5	8.8	3.6	76	90	1LE1523-3AB4	990	3.1
185	250	315 L	1791	986	✓	96.2	96.2	95.5	0.87	275	3.9	9	3.6	78	93	1LE1523-3AB5	1190	3.7
Voltag	es (≤ 6	00 V) ¹⁾											Ve	rsion			O	rder code
50 Hz	230 VΔ/	/400 VY	6	0 Hz 4	60 VY								Sta	andard	ı	2 2	-	
50 Hz	400 VΔ		6	0 Hz 4	-60 VΔ								Sta	andard	ı	3 4	-	
50 Hz	500 VY												Wi	thout a	dditiona	ll charge 2 7	_	
50 Hz	500 VΔ												Wi	thout a	dditiona	Il charge 4 0	_	
For oth	er volta	ages and	d more	inforn	nation, see	e from	page 2	2/88								9 0		
Types	of con	structio	n										Ve	rsion			O	rder code
Withou	t flange)	IN	и ВЗ ²)								Sta	andard	i	A	-	
With fla	ange			л B5 ²									Wi	th addi	itional ch	narge F	_	
With fla	ange		IN	Л В14	2)										itional ch		_	
	•	s of con	struction	on and	d more info	ormatio	on, see	from	page 2	/94								
Motor							, 230		,				Ve	rsion				rder code
Withou														andard	1	A	_	
		r with 3	temne	rature	sensors										• itional cl		_	
					re informa	tion s	ee fron	n page	2/99				•••			9 3		
		positio		1110			30 1101	page	, 2,00				\/e	rsion				
	al box	•												andard	1			
			nocitie	one or	nd more in	format	ion co	o from	nago	2/101			31	ariaaru				
			positio	orio al	id more in	ionnal	.1011, 56	e non	paye	Z/ 10 I								rdor codo(a)
Specia	ıı versi	ons	,			(10											OI	rder code(s)

Not required

For options, see from page 2/109

✓ Available

1LE1523- ■-■■■■-Z F90+. . . + . . + . 1LE1523- ■-■■■■-Z . . . +. . . +. . . +. .

dimensions

Forced-air cooled motors w/o ext. fan/fan cover (IC 418)

Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12. Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



SIMOTICS GP/SD 1LE1 standard motors – Eagle Line NEMA Premium Efficient MG1 motors, Table 12-12

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1523 Basic Line

Selection and ordering data (continued)

			Oper	ating v	` alues at r	atad na	wor									Cast-iron series		
D	D	Eromo		_					000	,	т /	, ,	т /	,	,	1LE1523 – Basic Line	m	,
rated,	rated,	Frame size	ted,	/ _{ra-} ted,	EISA CC No.	$\eta_{ m ra-}$ ted,	$\eta_{\text{ra-}}$ ted,	$\eta_{ m ra-}$ ted,	COS- φ_{rated}	I _{ra-}	T_{LR}/T_{ra}	I _{LR} /	I _B / T _{ra-}	L _{pfA} , 60 Hz	L _{WA} , 60 Hz	TEL 1020 Dasic Line	m _{IM B}	₃₃ J
P50	P60	0.20	60 Hz	60 Hz	00000	60 Hz.	60 Hz,	60 Hz.	, 60 Hz,	, teu, 60 Hz,	ted,	ted,	ted,	60 HZ	60 HZ	Article No.		
						4/4	3/4	2/4	4/4	460 V	60 Hz	z 60 Hz		2		7 11 11 01 0 1 40.		
kW	hp	FS	rpm	Nm		%	%	%		Α				dB(A)) dB(A)		kg	kgm ²
• Coo	ling: Se	elf-venti	lated (IC 411) or with	order	code F	90 fo	rced-a	ir cool	ed wi	thout	exte	nal fa	n and fa	n cover (IC 418)		
																A, Canadà, and Mexico nce with thermal class 130) (temp	erature class B)
					pm at 60													
0.18	0.25	71 M	1110	1.5	_	67.5	66.3	61	0.63	0.53	2.8	3.5	2.9	42	53	1LE1523-0CC2 -	13	0.001
0.25	0.33	71 M	1110	2.2	_	71.4	70.6	66.4	0.64	0.69	3.2	3.9	3.2	48	59	1LE1523-0CC3 -	16	0.015
0.37	0.5	80 M	1150	3.1	_	75.3	74.3	70	0.61	1.01	2.7	5	3.3	45	56	1LE1523-0DC2	19	0.0025
0.55	0.75	80 M	1145	4.6	_	81.7	80.5	76.4	0.63	1.34	2.8	5.3	3.4	45	56	1LE1523-0DC3 -	23	0.0031
0.75	1	90 S	1155	6.2	/	82.5	82.4	79.9	0.65	1.76	2.4	5.3	3.1	46	58	1LE1523-0EC0	27	0.0040
3	4	132 S	1185	24	1	89.5	89.6	88.4	0.75	5.6	2.3	7.5	3.3	67	79	1LE1523-1CC0 -	70	0.037
3.7	5	132 M	1175	30	/	89.5	89.6	88.4	0.73	7.1	2.4	7.6	3.4	67	79	1LE1523-1CC2 -	70	0.037
5.5	7.5	132 M	1180	45	1	91	91.4	90.5	0.74	10.3	2.3	7.2	3.3	67	79	1LE1523-1CC3 -	83	0.046
7.5	10	160 M	1185	60	1	91	91.1	90	0.75	13.8	2.4	5.9	2.6	70	82	1LE1523-1DC2 -	122	0.098
11	15	160 L	1180	89	1	91.7	91.9	91	0.75	20	2.3	5.8	2.6	70	82	1LE1523-1DC4	147	0.12
15	20	180 L	1178	122	1	91.7	92	91.4	0.79	26	2.5	6.8	3	61	68	1LE1523-1EC4 -	180	0.19
18.5	25	200 L	1180	150	1	93	93.8	93.8	0.78	32	2.8	6.5	3	64	71	1LE1523-2AC4 -	215	0.28
22	30	200 L	1180	178	/	93	93.5	93.4	0.79	37.5	2.6	6.3	2.8	63	70	1LE1523-2AC5 -	230	0.32
30	40	225 M	1185	242	√	94.1	94.4	94.1	0.82	49	2.9	7.6	3.3	66	79	1LE1523-2BC2 -	325	0.67
37	50	250 M	1188	297	√	94.1	94.4	93.9	0.83	59	3.1	8	3.1	63	76	1LE1523-2CC2 -	405	1
45	60	280 S	1190	361	/	94.5	94.6	94.1	0.83	72	3.3	7.7	3.1	66	80	1LE1523-2DC0	510	1.4
55	75	280 M	1190	441	√	94.5	94.6	94	0.83	88	3.6	7.9	3.3	66	80	1LE1523-2DC2	560	1.6
75	100	315 S	1192	601	/	95	94.9	94.1	0.82	121	3.1	8.4	3.3	64	79	1LE1523-3AC0	750	2.6
90	125	315 M	1192	721	√	95	95	94.4	0.84	142	2.7	7.7	3	64	79	1LE1523-3AC2 -	890	3.1
110	150	315 L	1192	881	1	95.8	95.9	95.5	0.83	174	3.2	8.2	3.4	64	79	1LE1523-3AC4	990	3.9
132	175	315 L	1192	1057	1	95.8	96	95.6	0.84	205	3.1	8.4	3.3	65	80	1LE1523-3AC5 -	1110	4.4
150	200	315 L	1192	1202	✓	95.8	95.7	95	0.81	245	3.6	9.6	4.1	69	83	1LE1523-3AC6	1160	4.6
Voltag	jes (≤ 6	00 V) ¹⁾											Ve	rsion			0	rder code
		/400 VY	6	0 Hz 4	60 VY								Sta	andard	ı	2 2	-	
50 Hz	400 VΔ		6	0 Hz 4	60 V∆								Sta	andard	ı	3 4	-	
50 Hz	500 VY												Wi	thout a	.dditiona	l charge 2 7	-	
50 Hz	500 VΔ												Wi	thout a	.dditiona	l charge 4 0	-	
For otl	ner volta	ages and	d more	inform	nation, se	e from	page 2	2/88								9 0		
Types	of con	structio	n										Ve	rsion			0	rder code
Withou	ut flange	9	IN	и ВЗ ²⁾)								Sta	andard	l	Α	-	
With fl	ange		IN	и B5 ²⁾)								Wi	th addi	itional ch	narge F	-	
With fl	ange		IN	И В14	2)								Wi	th addi	itional ch	narge K	_	
For oth	ner type	s of con	structi	on and	l more inf	ormatio	n, see	from	page 2	2/94								
Motor	protec	tion											Ve	rsion			0	rder code
Withou	ut												Sta	andard	1	A	-	
		or with 3											Wi	th addi	itional ch	narge B	_	
				nd mor	re informa	ation, se	ee fron	n page	2/99									
		positio	n										Ve	rsion				
	nal box a												Sta	andard	ı		4	
For oth	ner term	ninal box	positi	ons an	d more ir	nformat	on, se	e from	page	2/101								
Speci	al versi	ons															0	rder code(s)
Force	d-air co	oled mo	tors w/	o ext. f	ian/fan co	over (IC	418)									1LE1523 ■-■■■		
For op	tions, s	ee from	page 2	2/109												1LE1523 ■-■■■	■-Z	.+++

Not required

dimensions

✓ Available

Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12. Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

SIMOTICS GP/SD 1LE1 standard motors – Eagle Line

NEMA Premium Efficient MG1 motors, Table 12-12



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1623 Performance Line

Selection and ordering data

Selec	tion a	nd ord	dering	y data	a													
			Opera	ating v	alues at r	ated p	ower									Cast-iron series		
P _{rated} .	P _{rated} .	Frame	n _{ra-}	$T_{\rm ra-}$	EISA	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T_{LR}	I _{LR} /	$T_{B}/$	L_{pfA}	L_{WA}	1LE1623 -	m _{IM E}	33 J
60 Hz/	60 Hz/	size	ted,	ted,	CC No.	ted	ted,	ted,	φ_{rated}		$T_{\rm ra-}$	I _{ra-}	$T_{\rm ra-}$		60 Hz	Performance Line		
P50	P60		60 Hz	60 Hz	CC032A	60 Hz, 4/4	60 Hz, 3/4	60 Hz, 2/4	60 Hz, 4/4			ted, : 60 Hz	ted, 60 Hz	,		Article No.		
kW	hp	FS	rpm	Nm		%	%	%	., .	Α	00 1 12	. 00112	00112) dB(A)		kg	kgm ²
• Coo	ling: Se	lf-venti	lated (IC 411) or with	order	code l	F90 fo	rced-ai	r cool	ed wi	thout	exter	nal far	and fa	n cover (IC 418)		
• Effic	iency:	NEMA F	Premiù	m Eff	icient, UL	., CSA	, and s	service	facto	r (SF)	1.15 -	for o	perat	ion in	the USA	A, Canada, and Mexico nce with thermal class 130	/tomp	oraturo elace R
					rpm at 60		а ээ г <i>)</i> ,	11-55 (iegree	oi pio	lectic	n, uu	izatic	лі ІІІ а	ccordar	ice with thermal class 130	(tellip	erature ciass b
3	4	100 L	3525	8.1	<i>y</i>	88.5	88.7	87.2	0.87	4.9	3.8	9.7	5.5	71	83	1LE1623-1AA4	36	0.0054
3.7	5	112 M		10	✓	88.5	88	86.2	0.88	6	3.2	10.8		73	85	1LE1623-1BA2 -		0.012
5.5	7.5	132 S	3555	15	1	89.5	89.4	88.2	0.9	8.6	2.1	8.6	4.4	72	84	1LE1623-1CA0		0.024
7.5	10	132 S	3555	20	1	90.2	90.5	90	0.91	11.5	2.4	9.5	4.7	72	84	1LE1623-1CA1 -	73	0.031
11	15	160 M	3560	30	/	91	90.4	88.4	0.88	17.2	2.8	8.5	4.3	77	89	1LE1623-1DA2	100	0.053
15	20	160 M	3565	40	1	91	90.5	88.9	0.86	24	3.1	9.7	4.8	77	89	1LE1623-1DA3	110	0.061
18.5	25	160 L	3560	50	✓	91.7	91.5	90.3	0.9	28	3.1	9.4	4.4	77	89	1LE1623-1DA4	127	0.068
22	30	180 M	3560	59	✓	91.7	91.4	90	0.89	34	2.8	8.2	3.9	77	89	1LE1623-1EA2 ■-■■■		0.08
30	40	200 L	3560	80	✓	92.4	92.2	91.4	0.87	47	2.9	7.6	3.6	77	84	1LE1623-2AA4		0.134
37	50	200 L	3560	99	✓	93	92.8	91.6	0.88	57	2.8	7.5	3.6	77	84	1LE1623-2AA5		0.158
45	60	225 M	3570	120	✓	93.6	93.7	93.1	0.88	69	2.7	7.6	3.5	75	89	1LE1623-2BA2		0.26
55	75	250 M	3578	147	/	93.6	93.4	92.3	0.89	83	2.5	7.3	3.3	76	90	1LE1623-2CA2		0.46
75	100	280 S	3578	200	/	94.1	93.9	92.7	0.89	112	2.7	7.6	3.2	78	92	1LE1623-2DA0		0.77
90	125	280 M	3578	240	/	95	94.8	93.8	0.9	132	2.7	8.1	3.3	78	92		590	0.94
110 132	150 175	315 S 315 M	3585 3585	293 352	1	95 95.4	94.8 95.1	93.8 94	0.91	160 191	2.6	8	3.3	79 79	93 93	1LE1623-3AA0		1.4
150	200	315 M	3588	399	1	95.4	95.1	93.9	0.91	215	3.3	9.1	3.7	82	96	1LE1623-3AA4		1.0
185	250	315 L	3586	493	1	95.8	95.7	94.8	0.92	265	3.5	8.5	3.5	82	96	1LE1623-3AA5		
	es (≤ 6		0000	700	•	55.5	55.7	54.0	0.52	200	0.0	0.0			30	TEE TOZO GARGE		
	es (≤ 6) 230 V∆/		6	0 Hz 4	60 VV									sion I ndard		2 2		Order code
	230 VΔ, 400 VΔ	400 V I		0 Hz 4										ındard		3 4		
	500 VY		U	01124	-00 VA											I charge 2 7		
	500 VΔ															I charge 4 0	_	
		ages and	d more	inforn	nation, se	e from	page :	2/88								2 2 3 4 I charge 2 7 I charge 4 0 9 0		
		structio					1 3 3						Ver	sion			C	Order code
	ıt flange			и вз ²)								Sta	ndard		A	_	
With fla	ange			и B5 ²									Wit	h addi	tional ch	narge F	_	
With fla	ange		IN	И В14	2)								Wit	h addi	tional ch	narge K	-	
For oth	ner type	s of con	nstructi	on and	d more inf	ormati	on, see	e from	page 2	/94								
Motor	protect	tion											Ver	sion			C	order code
PTC th	ermisto	r with 3	tempe	rature	sensors								Sta	ndard		В	-	
For oth	ner moto	or protec	ction a	nd mo	re informa	ation, s	ee fror	n page	e 2/99									
Termi	nal box	positio	n										Ver	sion				
Termin	al box a	at top											Sta	ndard			4	
For oth	ner term	inal box	c positi	ons ar	nd more in	forma	tion, se	ee from	page	2/101								
	al versi																	Order code(s)
Forced	d-air cod	oled mo	tors w/	o ext.	fan/fan co	over (IC	2 418)									1LE1623 ■-■■■	■-Z F	90+++

Not required

For options, see from page 2/109

✓ Available

1LE1623- ■-■■■■-Z . . . +. . . + . . . + . .

dimensions

Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12. Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



SIMOTICS GP/SD 1LE1 standard motors – Eagle Line NEMA Premium Efficient MG1 motors, Table 12-12

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1623 Performance Line

Selection and ordering data (continued)

			Opera	atina v	alues at r	ated n	ower									Cast-iron series			
P	P	Frame		T_{ra}	EISA			n	COS-	1	T _{LR} /	1.5/	T _D /	1	Lucia	1LE1623 -		mu a po	J
rated, 60 Hz/	rated, 60 Hz/	Frame size	ted,	ted	CC No.	$\eta_{ m ra-}$ ted,	$\eta_{ m ra-}$ ted,	$\eta_{ m ra-}$ ted,	φ_{rated}	I _{ra-}	T_{ra-}	I _{LR} / I _{ra-}	$T_{\rm B}/T_{\rm ra-}$	L _{pfA} , 60 Hz	L _{WA} , 60 Hz	Performance Line		m _{IM B3}	J
P50	P60		60 Hz	60 Hz	CC032A	60 Hz,	60 Hz,	60 Hz,	60 Hz,	60 Hz,	ted,	ted,	ted,		001.12	Article No.			
						4/4	3/4	2/4	4/4	460 V	60 Hz	60 Hz	2 60 Hz		ID(A)				. 2
kW	hp	FS	rpm	Nm	N	%	%	%		Α				. ,	dB(A)	(10,440)		kg	kgm ²
• Cool	ing: Se iencv: l	III-VENTI NEMA F	iated (Premiu	IC 411 ım Eff	i) or with icient. UL	order CSA	code i	-90 tol service	rced-a e facto	ır cool r (SF)	ea wii 1.15 –	tnout for c	exter	'nai tar tion in	1 and ta the US	ın cover (IC 418) A, Canada, and Mexi	co		
• Insu	lation:	Therma	l class	155 (temperat	ure cla	iss F),	IP55 c	legree	of pro	tectio	n, uti	lizati	on in a	ccorda	nce with thermal clas	ss 130 (tempera	ture class B
4-pole	: 1500 r	rpm at 5	60 Hz,	1800 ı	rpm at 60	Hz													
2.2	3	100 L	1770	11.9	✓	89.5	89.2	87.2	0.81	3.8	3.5	9.6	5.1	62	74	1LE1623-1AB4		40	0.014
3	4	100 L	1760	16.3	✓	89.5	89.5	88.3	0.82	5.1	3.1	9.5	4.6	62	74	1LE1623-1AB5■-		40	0.014
3.7	5	112 M	1770	19	✓	89.5	89.4	87.7	0.8	6.5	2.9	8.2	4.3	62	74	1LE1623-1BB2■-			0.017
5.5	7.5	132 S	1775	30	✓	91.7	91.6	90.5	0.81	9.3	3.9	9.7	4.5	68	80	1LE1623-1CB0■-			0.046
7.5	10	132 M	1770	40	✓	91.7	91.8	91	0.83	12.4	2.7	9.6	4.2	68	80	1LE1623-1CB2■-			0.046
11	15	160 M	1775	59	✓	92.4	92.3	91.1	0.83	18	3	8.9	3.8	69	81	1LE1623-1DB2■-			0.083
15	20	160 L	1780	80	✓	93	92.8	91.4	0.81	25	2.9	9.5	4.3	69	81	1LE1623-1DB4■-			0.099
18.5	25	180 M	1775	100	1	93.6	93.7	93.1	0.81	30.5	2.7	7.8	3.6	68	75	1LE1623-1EB2■-			0.13
22	30	180 L	1775	118	✓	93.6	93.8	93.3	0.81	36.5	2.8	7.7	3.7	70	77	1LE1623-1EB4■-			0.14
30	40	200 L	1778	161	✓	94.1	94.3	93.8	0.83	48	3	8.1	3.5	70	77	1LE1623-2AB5■-			0.22
37	50	225 S	1782	198	1	94.5	94.7	94.2	0.85	58	2.8	7.5	3	66	80	1LE1623-2BB0■-			0.42
45	60	225 M	1782	241	✓	95	95.3	94.9	0.84	71	2.9	7.2	3	67	81	1LE1623-2BB2■-			0.47
55	75	250 M	1786	294	1	95.4	95.6	95.1	0.86	84	2.8	7.6	3.2	67	81	1LE1623-2CB2■-			0.85
75	100	280 S	1788	401	✓	95.4	95.3	94.5	0.85	116	2.8	7.7	3.3	77	91	1LE1623-2DB0■-			1.4
90	125	280 M	1788	481	1	95.4	95.5	94.9	0.87	136	2.9	8	3.3	79	93	1LE1623-2DB2■-		670	1.7
110	150	315 S	1790	587	✓	95.8	95.9	95.4	0.86	168	3	7.5	3.1	73	87	1LE1623-3AB0■-		760	2.2
132	175	315 M	1790	704	1	96.2	96.3	95.8	0.87	198	3.1	8.2	3.2	76	90	1LE1623-3AB2■-			2.9
150	200	315 L	1791	800	/	96.2	96.2	95.7	0.87	225	3.5	8.8	3.6	76	90	1LE1623-3AB4			3.1
185	250	315 L	1791	986	✓	96.2	96.2	95.5	0.87	275	3.9	9	3.6	78	93	1LE1623-3AB5■-		1190	3.7
_	es (≤ 60	•											Ve	rsion				Orde	r code
	230 VΔ/	400 VY	_		60 VY								St	andard	I	2	2	-	
	400 V∆		6	0 Hz 4	-60 VΔ									andard	-	_	4	-	
50 Hz																al charge 2	7	-	
	500 V∆												Wi	thout a	dditiona	al charge 4	0	_	
				inforn	nation, se	e from	page 2	2/88								9	0		
		structio			\									rsion				Orde	r code
	it flange)		И ВЗ ²										andard			Α	-	
With fla	0			И В5 ²											itional ch	0	F	-	
With fla	0			ЛВ14									Wi	th addi	itional ch	narge	K	-	
			struction	on and	d more inf	ormatio	on, see	from	page 2	2/94									
	protect													rsion				Orde	r code
					sensors								St	andard			В	-	
				nd mo	re informa	ation, s	ee fron	n page	2/99										
		positio	n											rsion					
	al box a					,		,		011-			Sta	andard			4		
			position	ons ar	nd more in	itormat	ion, se	e trom	page	2/101								0 :	1.7
•	al versio																		r code(s)
					fan/fan co	over (IC	(418)									1LE1623 ■-			
For op	tions, se	ee from	page 2	2/109												1LE1623 ■-		-2+	++

- Not required
- ✓ Available

¹⁾ Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12. Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

SIMOTICS GP/SD 1LE1 standard motors - Eagle Line

NEMA Premium Efficient MG1 motors, Table 12-12



Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1623 Performance Line

Selection and ordering data (continued)

Selec	tion a	nd ord	lering	j data	ı (contin	ued)												
			Opera	ating va	alues at ra	ated po	ower									Cast-iron series		
P _{rated,} 60 Hz/ P50	P _{rated} , 60 Hz/ P60	Frame size	n _{ra-} ted, 60 Hz	T _{ra-} ted,	EISA CC No. CC032A	η _{ra-} ted,	η _{ra-} ted,	η _{ra-} ted,	COS- Prated,	I _{ra-} ted, 60 Hz,	T _{LR} / T _{ra-}	I _{LR} / I _{ra-} ted.	$T_{\rm B}/T_{\rm ra-}$ ted.	L _{pfA,} 60 Hz	L _{WA,} 60 Hz	1LE1623 – Performance Line Article No.	m _{IM E}	₃₃ J
			00112	00112		4/4	3/4	2/4	4/4	460 V						Alticle No.		
kW	hp	FS	rpm	Nm		%	%	%		Α				()	dB(A)		kg	kgm ²
• Effic • Insu	iency: lation:	NEMA F Therma	Premiu Il class	im Effi 155 (t	cient, UL emperati	, CSA, ure cla	code F and s ss F),	F90 for service IP55 c	rced-ai facto legree	r cool r (SF) of pro	ed wi 1.15 - tectio	thout for c n, uti	exter perat lizatio	nal far tion in on in a	n and fa the USA ccordar	n cover (IC 418) A, Canada, and Mexico nce with thermal class 130	(temp	erature class I
3	4	•	1185	24	pm at 60	89.5	89.6	88.4	0.75	5.6	2.3	7.5	3.3	67	79	1LE1623-1CC0	70	0.037
3.7	5	132 M	1175	30	<u>/</u>	89.5	89.6	88.4	0.73	7.1	2.4	7.6	3.4	67	79	1LE1623-1CC2		0.037
5.5	7.5	132 M	1180	45	1	91	91.4	90.5	0.74	10.3	2.3	7.2	3.3	67	79	1LE1623-1CC3	_	0.046
7.5	10	160 M	1185	60	<u>/</u>	91	91.1	90	0.75	13.8	2.4	5.9	2.6	70	82	1LE1623-1DC2		0.098
11	15	160 L	1180	89	<u> </u>	91.7	91.9	91	0.75	20	2.3	5.8	2.6	70	82	1LE1623-1DC4		0.12
15	20	180 L	1178	122	<u> </u>	91.7	92	91.4	0.79	26	2.5	6.8	3	61	68	1LE1623-1EC4 -		0.19
18.5	25	200 L	1180	150	1	93	93.8	93.8	0.78	32	2.8	6.5	3	64	71	1LE1623-2AC4 -		0.28
22	30	200 L	1180	178	1	93	93.5	93.4	0.79	37.5	2.6	6.3	2.8	63	70	1LE1623-2AC5		0.32
30	40	225 M	1185	242	1	94.1	94.4	94.1	0.82	49	2.9	7.6	3.3	66	79	1LE1623-2BC2		0.67
37	50	250 M	1188	297	1	94.1	94.4	93.9	0.83	59	3.1	8	3.1	63	76	1LE1623-2CC2	405	1
45	60	280 S	1190	361	/	94.5	94.6	94.1	0.83	72	3.3	7.7	3.1	66	80	1LE1623-2DC0		1.4
55	75	280 M	1190	441	/	94.5	94.6	94	0.83	88	3.6	7.9	3.3	66	80	1LE1623-2DC2	560	1.6
75	100	315 S	1192	601	/	95	94.9	94.1	0.82	121	3.1	8.4	3.3	64	79	1LE1623-3AC0 -	750	2.6
90	125	315 M	1192	721	1	95	95	94.4	0.84	142	2.7	7.7	3	64	79	1LE1623-3AC2 -	890	3.1
110	150	315 L	1192	881	1	95.8	95.9	95.5	0.83	174	3.2	8.2	3.4	64	79	1LE1623-3AC4	990	3.9
132	175	315 L	1192	1057	/	95.8	96	95.6	0.84	205	3.1	8.4	3.3	65	80	1LE1623-3AC5 -	1110	4.4
150	200	315 L	1192	1202	1	95.8	95.7	95	0.81	245	3.6	9.6	4.1	69	83	1LE1623-3AC6	1160	4.6
Voltag	es (≤ 6	00 V) ¹⁾											Ver	rsion			C	order code
50 Hz	230 VΔ/	/400 VY	6	0 Hz 4	60 VY								Sta	andard	l	2 2	-	
50 Hz	400 VΔ		6	0 Hz 4	60 VΔ								Sta	andard	l	3 4	_	
50 Hz	500 VY												Wit	thout a	dditional	I charge 2 7	-	
50 Hz	500 VΔ												Wit	thout a	dditional	I charge 2 7 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	-	
For oth	ner volta	ages and	d more	inform	ation, see	e from	page 2	2/88								9 0		
Types	of con	structio	n										Ver	rsion			C	order code
Withou	ıt flange)	IN	и Вз ²⁾									Sta	andard	l	A	-	
With fla	ange		IN	и В5 ²⁾									Wit	th addi	tional ch	narge F	-	
With fla	ange		IN	и В14 ²	2)								Wit	th addi	tional ch	narge K	-	
For oth	ner type	s of con	struction	on and	more info	ormatic	n, see	from	page 2	/94						•		
Motor	protect	tion											Ver	rsion			C	order code
PTC th	ermisto	r with 3	tempe	rature	sensors								Sta	andard		В	-	
For oth	ner moto	or protec	ction ar	nd mor	e informa	tion, se	ee fron	n page	2/99									
Termi	nal box	positio	n										Ver	rsion				
Termin	al box a	at top											Sta	andard	l	4	1	
For oth	ner term	inal box	position	ons an	d more in	formati	ion, se	e from	page	2/101							4	
Specia	al versi	ons															C	order code(s)
Forced	d-air cod	oled mo	tors w/	o ext. f	an/fan co	ver (IC	418)									1LE1623 ■-■■■	-Z F	90+++
-			tors w/	o ext. f	an/fan co	ver (IC	418)									1LE1623 ■-■■■■	-Z F	90+

Not required

For options, see from page 2/109

✓ Available

1LE1623- ■-■■■■-Z . . . +. . . +. . . +. . .

Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12. Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor dimensions

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



SIMOTICS GP/SD 1LE1 standard motors – Eagle Line NEMA Premium Efficient MG1 motors, Table 12-12

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1623 Performance Line

Selection and ordering data (continued)

Jeiec	lion a	iiu oiu	ieiiiić	j uata	(COITHII)	ueu)												
			Opera	ating va	alues at ra	ated po	ower									Cast-iron series		
Prated.	P _{rated} .	Frame	n _{ra-}	$T_{\rm ra-}$	EISA	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	cos-	I _{ra-}	T_{LR}	I_{LR}	$T_{\rm B}/$	L_{pfA}	L_{WA}	1LE1623 -	m _{IM E}	33 J
60 Hz/	60 Hz/	size	ted,	ted,	CC No.	ted,	ted,	ted,	φ_{rated}	, ted,	$T_{\rm ra-}$	I _{ra-}	$T_{\rm ra-}$	60 Hz	60 Hz	Performance Line		
P50	P60		60 Hz	60 Hz	CC032A	60 Hz,	60 Hz,	60 Hz,	60 Hz, 4/4	60 Hz,	ted,	ted,	ted,	_		Article No.		
kW	h			Nine		4/4	3/4	2/4	4/4	460 V	60 HZ	2 60 Hz	2 60 Hz		-ID(A)	Article No.	lan.	12
	hp	FS	rpm	Nm	• • • • • • • • • • • • • • • • • • • •	%	%	%		Α				. ,	dB(A)	(10.440)	kg	kgm ²
• Cool	ing: Se	IT-Venti NEMA E	lated (Premii	IC 411 ım Effi) or with (cient III	oraer (and s	9U TOI	rced-al	r (SF)	ea wi 1 15 -	tnout - for c	exte	rnaı taı tion in	n and ta the IIS	n cover (IC 418) A, Canada, and Mexico		
• Insu	lation:	Therma	l class	155 (t	emperati	ire cla	ss F),	IP55 d	legree	of pro	tectic	n, uti	lizati	on in a	ccordar	ice with thermal class 130	(temp	erature class B
8-pole	: 750 rp	om at 50) Hz, 9	00 rpm	at 60 Hz													
2.2	3	132 S	880	24	/	85.5	85.6	83.6	0.6	5.4	1.5	4	2.1	67	80	1LE1623-1CD0	66	0.038
3	4	132 M	880	33	/	86.5	86.7	84.9	0.6	7.3	1.7	4.3	2.3	67	80	1LE1623-1CD2	78	0.048
3.7	5	160 M	885	40	/	86.5	86.2	84	0.62	8.7	2	4.4	2.2	66	79	1LE1623-1DD2	98	0.065
5.5	7.5	160 M	884	59	✓	86.5	86.5	85	0.64	12.5	1.9	4.4	2.2	66	79	1LE1623-1DD3	110	0.083
7.5	10	160 L	882	81	/	89.5	89.8	88.9	0.64	16.4	2	4.3	2.2	66	79	1LE1623-1DD4	135	0.116
11	15	180 L	880	119	1	89.5	89.9	89.3	0.72	21.5	2.3	5.8	2.7	65	78	1LE1623-1ED4 -	190	0.267
15	20	200 L	882	162	1	90.2	90.2	89.2	0.7	30	3.4	7.7	4.2	60	73	1LE1623-2AD5		0.420
18.5	25	225 S	886	199	<u> </u>	90.2	90.2	89	0.73	35.5	2.9	6.6	3.4	58	72	1LE1623-2BD0 -		0.50
22	30	225 M	886	237	<u>/</u>	91.7	91.8	90.8	0.76	39.5	2.9	6.8	3.3	60	74	1LE1623-2BD2		0.55
30	40	250 M	888	323	√	91.7	91.9	91.1	0.77	53	2.9	7	3.3	63	77	1LE1623-2CD2		0.86
37	50	280 S	890	397	1	92.4	92.6	91.9	0.77	65	2.5	6.1	2.6	64	78	1LE1623-2DD0 -		1.1
45	60	280 M	890	483	√	92.4	92.5	91.9	0.79	77	2.7	6.8	2.7	65	79	1LE1623-2DD2 -		1.6
55	75	315 S	891	589	√	93.6	93.6	92.9	0.79	93	2.6	6.8	3	68	82	1LE1623-3AD0 -		2.0
75	100	315 M	890	805	√	93.6	93.7	93	0.79	126	2.5	6.7	3	73	87	1LE1623-3AD2 -		2.5
90	125	315 L	890	966	✓	94.1	94.4	94.1	0.81	148	2.4	6.5	2.8	74	88	1LE1623-3AD4		3.1
110	150	315 L	891	1179	1	94.1	94.4	93.7	0.81	181	2.4	7.2	3.2	74	88	1LE1623-3AD5 -		3.9
132	175	315 L	892	1413	•		94.5		0.8	220	3.2	7.9	3.7	78	92	1LE1623-3AD6 -		
			092	1413	·	94.5	94.5	93.9	0.0	220	3.2	7.9		-	92	ILE 1023-3AD0		
	es (≤ 60													rsion			C	Order code
		400 VY		0 Hz 46										andard		2 2	-	
	400 VΔ		6	0 Hz 46	60 V∆								St	andard	l	3 4	-	
50 Hz	500 VY												Wi	thout a	dditiona	I charge 2 7	-	
50 Hz	500 V∆												Wi	thout a	dditiona	2 2 3 4 I charge 2 7 I charge 4 0 9 0	_	
For oth	er volta	iges and	d more	inform	ation, see	from	page 2	2/88								9 0		
Types	of cons	structio											Ve	rsion			C	Order code
Withou	it flange)	11	И ВЗ ²⁾									St	andard	l	A	-	
With fla	ange		11	И В5 ²⁾									Wi	th addi	itional ch	narge F	-	
With fla	ange		11	И В14 ²	2)								Wi	th addi	itional ch	narge K	-	
For oth	er type	s of con	structi	on and	more info	ormatic	n, see	from	page 2	/94								
Motor	protect	tion											Ve	rsion			C	Order code
PTC th	ermisto	r with 3	tempe	rature	sensors								St	andard	ı	В	-	
For oth	er moto	or protec	ction a	nd mor	e informa	tion, se	ee from	n page	2/99									
		positio											Ve	rsion				
	al box a	-											St	andard	ı		4	
			positi	ons an	d more int	formati	on, se	e from	page	2/101								
	al versi		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				., 50		1,2.50	,							(Order code(s)
•			tors w/	'n ext f	an/fan co	ver (IC	418)									1LE1623 ■-■■■		. ,
		ee from			annan oo	voi (10	,10)									1LE1623 ■-		
ι οι ορ	10115, 50	56 110111	page 2	-/109												1 LL 1020		

Not required

dimensions

✓ Available

Operating voltages only ≤ 600 V admissible in accordance with MG1 Table 12-12. Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code **R52**) or a larger terminal box (order code **R50**) can be used. Order codes **R52** and **R50** alter the motor

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

SIMOTICS GP/SD 1LE1 standard motors - Eagle Line

NEMA Energy Efficient MG1 motors, Table 12-11



Self-ventilated or forced-air cooled motors · Aluminum series 1LE1021

Selection and ordering data (continued)

			Opera	ating v	alues at r	ated p	ower									Aluminum seri	es			
P _{rated} ,		Frame	n _{ra-}	T_{ra}	EISA	$\eta_{ra ext{-}}$	$\eta_{\text{ra-}}$	$\eta_{\text{ra-}}$	cos-	I _{ra-}	T_{LR}		$T_{\rm B}/$	$L_{pfA,}$	$L_{WA,}$	1LE1021		m_{IN}	1 B3	J
60 Hz/ P50	60 Hz/ P60	size	ted, 60 Hz	ted, 60 Hz	CC No. CC032A	ted, 60 Hz,	ted, 60 Hz,	ted, 60 Hz,	Prated 60 Hz,		T _{ra-} ted,	I _{ra-} ted,		60 Hz	60 Hz	Article No.				
						4/4	3/4	2/4	4/4	460 V										
kW	hp	FS	rpm	Nm		%	%	%		Α				()	dB(A)					
CooEfficInsu	ling: Se eiency: l lation:	lf-ventil NEMA E Therma	lated (I nergy I class	C 411 Efficie 155 (t) or with o ent, UL, C emperatu	order d SA, ar ire cla	ode F d serv ss F). I	90 ford rice fac IP55 de	ed-air ctor (Sl earee c	coole F) 1.15 of prot	d with – for ection	out e oper 1. util	xtern ation izatio	al fan a in the l n in ac	and fan USA an cordan	cover (IC 418) d Canada, not adı ce with thermal c	nissible fo	or ex tem:	cportin peratur	g to Mexico e class B)
					pm at 60		,,													
0.55	0.75	80 M	1750	3	_	75.5	74.6	71.1	0.71	1.29	2.7	6.4	3.8	55	66	1LE1021-0DB2		10		0.0017
6-pole	e: 1000 i	rpm at 5	50 Hz,	1200 r	pm at 60	Hz														
0.37	0.5	80 M	1140	3.1	_	64	63	59.1	0.63	1.15	2.3	4.6	2.9	45	56	1LE1021-0DC2		9		0.0017
0.55	0.75	80 M	1135	4.6	-	68	67.4	63.7	0.61	1.66	2.9	5.2	3.6	45	56	1LE1021-0DC3		12		0.0025
Voltag	jes (≤ 6	00 V) ¹⁾											Ve	rsion					Order	code
50 Hz	230 VΔ/	400 VY	60) Hz 4	60 VY								St	andard	ı		2 2		-	
50 Hz	400 $V\Delta$		60) Hz 4	60 V∆								St	andard	i		3 4		-	
50 Hz	500 VY												Wi	thout a	ddition	al charge	2 7		-	
50 Hz	500 VΔ												Wi	thout a	ddition	al charge	4 0		-	
				inform	nation, see	e from	page 2	2/85									9 0			
		structio											Ve	rsion					Order	code
With fl	0			1 B5 ³											itional c	· ·	F		-	
With fl	5 .			И В14									Wi	th addi	itional c	harge	K		-	
			struction	on and	d more info	ormatio	on, see	from	page 2	/90							_			
	protect	tion												rsion					Order	code
Withou														andard	-		A		-	
		r with 1					,		0/00				Wi	th addi	itional c	harge	В		-	
				nd moi	re informa	ition, s	ee fron	n page	2/98											
		positio	n											rsion						
	nal box a							,		2/400			Sta	andard	1		4			
			position	ons an	d more in	tormat	ion, se	e from	page 2	2/100									0	(-)
-	al versi		toro w./		fanlfan	(IC	110)									11 51001		7		code(s)
					fan/fan co	iver (IC	418)									1LE1021				
For op	tions, se	ee from	page 2	2/102												1LE1021	-	-2	+	.++

Not required

[✓] Available

 $^{^{1)}}$ Operating voltages only $\leq 600~V$ admissible in accordance with MG1 Table 12-11.

Types of construction with feet are not possible for 2-pole, 4-pole and 6-pole motors ≤ 200 hp in accordance with MG1 Table 12-11.

Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) and stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.



SIMOTICS GP/SD 1LE1 standard motors – Eagle Line

NEMA Energy Efficient MG1 motors, Table 12-11

Self-ventilated or forced-air cooled motors · Cast-iron series 1LE1521 Basic Line

Selection and ordering data

_	_	_		_	alues at r	ated p	ower									Cast-iron series		
		Frame size		$T_{\rm ra-}$	EISA CC No.	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$	$\eta_{ra ext{-}}$		I _{ra-}	T_{LR}		$T_{\rm B}/T_{\rm B}$	L_{pfA}	L _{WA} ,	1LE1521 – Basic Line	m _{IM B3}	₃ J
60 Hz/ P50	60 Hz/ P60	SIZE	ted, 60 Hz	ted,	CC032A	ted,	ted,	ted,	Prated	, ted,	I _{ra-}	I _{ra-} ted,	I _{ra-} ted.	60 Hz	60 Hz	Article No.		
1 30	1 00		00 112	00112		4/4	3/4	2/4	4/4	460 V	60 Hz	2 60 Hz	2 60 Hz	2		Article No.		
kW	hp	FS	rpm	Nm		%	%	%		Α				dB(A)	dB(A)		kg	kgm ²
• Cool	ina: Se	lf-ventil	ated (C 411) or with	order o	ode F	90 for	ced-ai	r coole	d wit	hout (extern	. ,	. ,	cover (IC 418)	Ü	Ü
 Effic 	iency: I	NEMA E	nergy	Efficie	ent, UL, C	SA, ar	nd ser	vice fa	ictor (S	SF) 1.1	5 – foi	r opei	ation	in the	USA an	d Canada, not admissible t		
							ss F),	1P55 C	iegree	or pro	tectio	n, uti	iizatio	n in ac	cordan	ce with thermal class 130 (temper	ature class B)
					rpm at 60		74.4	07.0	0.77	0.04	0.0	- 1		00	7.4	41 54504 0040	40	0.00005
0.37	0.5	71 M	3410	1.0	_	72	71.4	67.8	0.77	0.84	2.9	5.1	3	63	74	1LE1521-0CA2	_	0.00035
0.55	0.75	71 M	3420	1.5	_	74	73.4	69.6	0.76	1.23	3.4	5.4	3.4	63	74	1LE1521-0CA3	13	0.00045
					rpm at 60		00.5		0.04						0.4		4.0	0.00070
0.25	0.33	71 M	1715	1.4	-	70	68.5	63.6	0.64	0.7	2.8	4.4	3.1	53	64	1LE1521-0CB2		0.00076
0.37	0.5	71 M	1705	2.1	_	72	71.2	66.9	0.67	0.96	2.8	4.4	2.8	53	64	1LE1521-0CB3		0.00095
0.55	0.75	80 M	1750	3.0	_	75.5	74.6	71.1	0.71	1.29	2.7	6.4	3.8	55	66	1LE1521-0DB2	1/	0.0017
					rpm at 60			45 -						40	0.0			0.5
0.18	0.25	71 M	1105	1.6	_	55		48.8	0.61	0.67	2.9	2.7	2.9	49	60	1LE1521-0CC2		0.00080
0.25	0.33	71 M	1100	2.4	-	59.5	58.9	54.7	0.64	0.82	2.7	3	2.7	49	60		13	0.00100
0.37	0.5	80 M	1140	3.1	-	64	63	59.1	0.63	1.15	2.3	4.6	2.9	45	56	1LE1521-0DC2		0.0017
0.55	0.75	80 M	1135	4.6	-	68	67.4	63.7	0.61	1.66	2.9	5.2	3.6	45	56	1LE1521-0DC3	19	0.0025
					n at 60 H													
0.09	0.12	71 M	815	1.1	_	40	38	33	0.59	0.5	2.1	1.8	2.1	59	63	1LE1521-0CD2		0.00077
0.12	0.16	71 M	815	1.4	-	40	38	33	0.57	0.7	2.3	2.1	2.4	52	63	1LE1521-0CD3	13	0.00100
0.18	0.25	80 M	855	2.1	_	46	43.5	37	0.53	0.93	2	2.5	2.6	55	66	1LE1521-0DD2	17	0.00175
0.25	0.33	80 M	860	2.8	_	52	49	43	0.51	1.21	2.2	2.9	3	55	66	1LE1521-0DD3	19	0.00246
0.37	0.5	90 S	845	4.2	-	58	55.8	49.5	0.64	1.25	1.6	3	2.1	57	69	1LE1521-0ED0	23	0.00225
0.55	0.75	90 L	840	6.3	-	62	61.2	56.5	0.66	1.69	1.8	3.1	2.1	57	69	1LE1521-0ED4	26	0.00305
Voltag	es (≤ 6	00 V) ¹⁾											Ve	ersion			O	der code
50 Hz	230 VΔ/	400 VY	6	0 Hz 4	60 VY								St	andard	t	2 2	_	
50 Hz	400 VΔ		6	0 Hz 4	-60 VΔ								St	andard	t	3 4	_	
50 Hz	500 VY												W	ithout a	additiona	al charge 2 7	_	
50 Hz	500 VΔ												W	ithout a	additiona	al charge 4 0	_	
For oth	ner volta	iges and	d more	inforn	nation, se	e from	page	2/88								9 0		
Types	of con	structio	n ²⁾										Ve	ersion			Or	der code
Withou	ıt flange)	II	и вз ³)								St	andard	t	A	-	
With fla	ange		IN	и в5 ³)								W	ith add	itional c	harge F	_	
For oth	ner type	s of con	structi	on and	d more inf	ormati	on, se	e from	page 2	2/94								
Motor	protec	tion											Ve	ersion			10	der code
Withou	ıt												St	andard	t	A	-	
PTC th	ermisto	r with 1	tempe	rature	sensor								W	ith add	itional c	harge B	_	
					re informa	ation, s	ee from	m pag	e 2/99									
		positio						, ,					Ve	ersion				
	al box a	-												andard	d		1	
			positi	ons ar	nd more in	forma	tion, se	ee fron	n page	2/101								
	al versi		,						1								10	der code(s)
			tors w/	o ext	fan/fan co	ver (IC	2 418)									1LE1521 ■-■■■		(-)
. 0.000		J.JU 1110	.515 77/	O OAL.	, , , , , , , , , , , ,		, ,,,,,											

Not required

For options, see from page 2/109

✓ Available

1LE1521- ■-■■■■-Z . . . +. . . +. . . +. . .

Operating voltages only $\leq 600 \text{ V}$ admissible in accordance with MG1 Table 12-11. Parallel supply lines are required in the case of connection to \leq 240 V. For frame size 315 with connection to \leq 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

Types of construction with feet are not possible for 2-pole, 4-pole and 6-pole motors ≤ 200 hp in accordance with MG1 Table 12-11

Types derived from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B5 or IM B14 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are

SIMOTICS GP/SD 1LE1 standard motors – pole-changing

Self-ventilated motors · Aluminum series 1LE1011 for constant load torque

Selection and ordering data Operating values at rated power for N1 Operating values at rated power for N2 Aluminum series 1LE1011 P_{ra} P_{ra} Frame n_{ra} $T_{IB}/I_{IB}/$ $m_{\rm IM~B3}$ J one winding ted2, Tra- Irated1, ted2, size 50 Hz 50 Hz 50 Hz, ted1, 50 Hz, ted1, ted1, ted1, 50 Hz 50 Hz 50 Hz, ted2, 4/4 50 Hz, 400 V 50 Hz 50 Hz 50 Hz 50 Hz 50 Hz 50 Hz 50 Hz. ted2, ted2, ted2, 50 Hz, 400 V 50 Hz 50 Hz 50 Hz Article No. 4/4 4/4 kgm² kW kW FS rpm Nm % Α rpm Nm % Α Cooling: Self-ventilated (IC411) Line operation: double pole-changing for constant load torque Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) 4/2-pole: 1500/3000 rpm at 50 Hz with one winding connected in Dahlander circuit 1500 3000 1500 3000 rpm rpm 2800 8.2 1LE1011-1AJ4 ---- 18 0.0059 1390 13.1 72 0.87 4.40 1.7 18 70 0.88 5.6 42 1.8 1.9 2.4 100 L 4 1 18 2.5 3.1 100 L 1440 16.6 76.3 0.87 5.4 19 5.2 28 2840 10.4 77.3 0.9 6.4 2.1 5.2 29 1LE1011-1AJ5 - 22 0.0078 3.7 112 M 1420 24.9 79.9 0.86 7.8 1.8 4.9 2.3 2885 14.6 80.8 0.92 8.5 2.1 6.4 2.6 1LE1011-1BJ2 - 27 0.01 4.7 5.9 132 S 1440 31.2 82 0.84 9.8 1.6 5.6 2.7 2875 19.6 80 0.89 12.0 1.8 5.6 2.8 1LE1011-1CJ0 -- 38 0.019 15.3 1.8 1LE1011-1CJ2 ---- 44 0.024 6.5 8.0 **132 M** 1435 43.3 82 0.86 13.3 1.7 5.4 2.6 2880 26.5 82 0.92 6.3 2.8 9.3 **11.5 160 M** 1440 61.7 84.5 0.87 18.3 1.7 5.7 2.8 2870 38.3 82 0.92 22.0 1.8 6 2.9 1LE1011-1DJ2 - 62 0.044 13.0 16 160 L 1450 85.6 87 0.85 25.5 1.6 6 2.3 2920 52.3 86 0.94 35.5 1.9 7.1 2.8 1LE1011-1DJ6 --- 85 0.068 8/4-pole: 750/1500 rpm at 50 Hz with one winding connected in Dahlander circuit 750 1500 750 1500 rpm rpm rpm rpm 0.55 1.1 100 L 715 7.3 57 0.53 2.65 2 2.7 1425 7.4 77.7 0.87 2.35 1.7 4.6 2.1 1LE1011-1AL4 --- 18 0.0059 1LE1011-1AL5 - 22 3.15 1.9 700 12.3 64.2 0.64 3.15 2.9 77.7 0.0078 0.9 1.5 100 L 1415 10.1 0.89 1.5 4.5 1.9 **112 M** 715 14.7 66.5 0.6 4.00 1.6 3.2 2.3 1440 12.6 80.9 0.87 3.90 1.6 5.4 2.3 1LE1011-1BL2 - 27 0.01 1.1 1.6 3.2 **132 S** 730 20.9 61.5 0.53 7.1 1.6 3.3 2.6 1450 21.1 82.3 0.87 1.4 5 2.1 1LE1011-1CL0 - 38 0.019 2.2 **132 M** 730 28.8 68 0.52 9.0 2 3.8 3 1450 29 84.5 0.88 8.5 1.5 5.5 2.3 1LE1011-1CL2 -- 44 0.024 4.4 0.044 3.5 7 160 M 730 45.8 77.5 0.57 114 2 42 28 1450 46 1 84 0.9 13.4 1.6 52 22 1LE1011-1DL2 --- 62 1445 72.7 84.4 0.9 1LE1011-1DL4 - 73 0.056 11 160 L 725 73.8 80.2 0.6 16.8 1.9 4 2.7 21.0 1.5 5.1 2.2 5.6 **Voltages** Version Order code Standard 50 Hz 230 V 2 3 4 2 4 50 Hz 400 V Standard Without additional charge 0 50 Hz 500 V 4 7 50 Hz 690 V Without additional charge For other voltages 1) and more information, see from page 2/87 9 O Types of construction Version Order code IM B3²⁾ Without flange Standard IM B5 2) With flange With additional charge IM B14²⁾ With flange With additional charge For other types of construction and more information, see from page 2/90 Motor protection Version Order code Without Standard PTC thermistor with 3 temperature sensors With additional charge В For other motor protection and more information, see from page 2/98 Terminal box position Version Terminal box at top Standard For other terminal box positions and more information, see from page 2/100

Note: Pole-changing motors (4/2-pole) do not comply with the vibration values stipulated in IEC 60034-14 when rigidly installed (see also page 1/56).

1LE1011- ■-■■■■-Z

Order code(s)

Special versions

For options, see from page 2/102

¹⁾ Operating values for 60 Hz are available on request.

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.

SIMOTICS GP/SD 1LE1 standard motors – pole-changing

Self-ventilated motors · Aluminum series 1LE1011/1LE1012 for square-law load torque

Selection and ordering data

		i ana c		_				war fo	NI4		Onor	ation a	valua.			war fa	~ NIO		Aluminum assis	-		
_	_					at rat				. ,	•	_		at rat	, '			T /	Aluminum serie	!S		,
ted1,	P _{ra-} ted2, 50 Hz	Frame size	ted1,	ted1,	ted1,	50 Hz,	ted1,	$T_{\rm ra-}$, ted1,	ted1,	T _{ra-} ted1,	50 Hz	ted2,	ted2,	φ _{ra-} ted2, 50 Hz.		ted2,	I _{ra} - ted2,	T _B / T _{ra-} ted2, z 50 Hz	one winding 1LE1012 – two windings Article No.		m _{IM B3}	J
kW	kW	FS	rpm	Nm	%	4/4	Α				rpm	Nm	%	4/4	Α				Article No.			
• Co	oling	: Self-ve	ntilate	d (IC	411)																	
• Lin	e ope	eration: o	double mal cl	e pole ass 1	e-cha 55 (te	nging mper	for so	quare	-law l	oad t	orque	, e.g.	for d	riving on ut	fans lizatio	on in	acco	rdance	with thermal clas	s 130 (te	mperatu	re class B)
		500/300			<u> </u>										Latir		4000	danoo	With thornial oldo	0.100 (10	mporate	10 0.000 2)
_	3000		1500								3000											
-	rpm		rpm								rpm											
0.65					75		1.45		4.1	1.8	2800		70	0.88		1.8	4.2	1.8	1LE1011-1AP4			0.0059
0.8	3.1	100 L	1435		79	0.85	1.72	1.9	5.2	2.8	2840			0.9	6.4	2.1	5.2	2.8	1LE1011-1AP5			0.0078
1.1	4.4	112 M			83.4		2.25	2.2	6.1	2.5			80.8	0.92	8.5	2.1	6.4	2.5	1LE1011-1BP2			0.01
1.45	5.9	132 S	1460		84	0.84	2.95	1.6	5.8	2.8	2875			0.89	12.0	1.8	5.6	2.8	1LE1011-1CP0			0.019
2.0	8.0	132 M	1455			0.85	4.00	1.8	5.6	2.8	2880			0.92	15.3	1.8	6.3	2.8	1LE1011-1CP2			0.024
2.9			1465				5.6	1.8	5.9	2.9	2870			0.92	22.0	1.8	6	2.9	1LE1011-1DP2			0.044
4.3	16		1455			0.85		1.6	6	2.3	2920	52.3	86	0.94	28.5	1.9	7.1	2.3	1LE1011-1DP6		85	0.068
_	ole: 1 0 1500	1000/150	0 rpm 1000		J HZ V	vith tw	o wir	aing	S		1500											
	rpm)	rpm								1500 rpm											
0.6	1.7	100 L	•	5.9	55.5	0.62	2.50	1.7	3.4	2.7	•	11.3	76.2	0.83	3.90	1.8	4.6	2.7	1LE1012-1AQ4	-	18	0.0059
0.75	2.1		955	8		0.77	2.20	1.2	3.4	2	1435			0.84			5.4	2	1LE1012-1AQ5			0.0078
0.9	3.0		975	8.8	64.7		3.05	1.6	3.9	2.5			81.4		6.8	2.1	6.4	2.5	1LE1012-1BQ2			0.01
1.2	3.9	132 S	980	11.7	72.3	0.7	3.40	1.4	4.6	2.5	1455	25.6	83.1	0.83	8.2	1.5	5.7	2.5	1LE1012-1CQ0		38	0.019
1.7	5.4	132 M	980	16.6	74.1	0.71	4.65	1.7	5	2.5	1465	35.2	85.9	0.82	11.1	2	6.9	2.5	1LE1012-1CQ2		44	0.024
2.5	7.2	160 M	985	24.2	77.7	0.71	6.5	1.5	4.7	2.6	1470	46.8	86.9	0.85	14.1	1.8	6.3	2.6	1LE1012-1DQ2		62	0.044
3.7	12.0	160 L	985	35.9	82.4	0.69	9.4	2.3	6.2	3.5	1475	77.7	87.9	0.8	24.5	2.1	7.5	3.5	1LE1012-1DQ4	F	73	0.059
6.5	19	180 L	985	63	81.0	0.7	16.5	1.8	5.5	2.7	1475	123	0.9	0.8	38.0	2.5	8.1	3.7	1LE1012-1EQ4	-	132	0.13
9.5	26	200 L	985	92	84.5	0.7	23.0	2.3	6.5	2.8	1475	168	0.91	8.0	52	2.3	7.5	3.4	1LE1012-2AQ5		173	0.20
Volta	iges														Ver	rsion					Ord	er code
50 H	z 230	V													Sta	andar	ď			2 2	-	
50 H	z 400	V													Sta	andar	ď			3 4	-	
50 H	z 500	V													Wit	hout	additi	ional ch	narge	4 0	-	
50 H	z 690	V													Wit	hout	additi	ional ch		17	-	
For o	ther v	oltages	1) and	more	inform	mation	, see	from	oage.	2/87									9	9 0		
•		onstruc	tion												Ver	rsion					Ord	er code
	out fla	•			B3 ²⁾										Sta	andar	d			Α	-	
	flange				B5 ²⁾													al char	~	F	-	
	flange				B14 ²⁾										Wit	h add	dition	al char	ge	K	-	
		ypes of c	constru	uction	and i	more i	nform	ation,	see f	rom p	age 2/	90										
	-	tection														rsion					Ord	er code
Witho																andar	-			Α	-	
		istor with							,		0.10 -				Wit	th add	ditiona	al char	ge	В	-	
		notor pro		n and	more	inforn	nation	, see	from	oage	2/98											
		oox posi														rsion						
		ox at top										2/4.05			Sta	andar	d			4		
		erminal b	oox po	sition	is and	more	intorn	nation	i, see	trom	page 2	2/100										
		ersions			100														41 =40:=			er code(s)
For o	ptions	s, see fro	m pag	ge 2/1	102														1LE101■		-2+	+

Note: Pole-changing motors (4/2-pole) do not comply with the vibration values stipulated in IEC 60034-14 when rigidly installed (see also page 1/56).

¹⁾ Operating values for 60 Hz are available on request.

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.

SIMOTICS GP/SD 1LE1 standard motors – pole-changing

Self-ventilated motors · Aluminum series 1LE1011/1LE1012 for square-law load torque

Selection and ordering data (continued) Operating values at rated power for N1 Operating values at rated power for N2 Aluminum series 1LE1011 $m_{\rm IM~B3}$ J one winding 50 Hz 50 Hz 50 Hz, ted1, 50 Hz, ted1, ted1, ted1, 50 Hz 50 Hz 50 Hz, ted2, 50 Hz, ted2, te 50 Hz 50 Hz 50 Hz, 400 V 50 Hz 50 Hz 50 Hz Article No. kW kW FS rpm Nm % rpm Nm % Cooling: Self-ventilated (IC411) Line operation: double pole-changing for square-law load torque, e.g. for driving fans Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) 8/4-pole: 750/1500 rpm at 50 Hz with one winding connected in Dahlander circuit 750 1500 rpm rpm 0.5 2.80 1.3 3.3 1440 13.3 82 0.79 4.45 3 1LE1011-1AR4 - 22 100 L 6.6 52 34 7.5 34 0.0078 0.5 2.0 720 0.65 2.5 100 L 715 8.7 56 0.58 2.90 32 26 1425 16.8 81 0.84 5.3 23 6.3 2.6 1LE1011-1AR5 - 22 0.0078 0.01 0.9 3.6 112 M 715 12 56 0.57 4.05 2.8 2.1 1430 24 82 0.84 7.5 1.9 5.6 2.1 1LE1011-1BR2 - 27 1.1 4.7 **132 S** 730 14.4 62 0.54 4.75 1 3.2 2.2 1430 31.4 82 0.86 9.6 1.7 5.2 2.2 1LE1011-1CR0 - 38 0.019 18.3 67.5 0.52 5.8 1440 42.4 84.5 0.87 12.6 1.9 1LE1011-1CR2 - 44 0.024 1.4 6.4 132 M 730 1.1 3.5 2.3 5.7 2.3 2.2 9.5 **160 M** 730 28.8 80.6 0.63 6.3 1.5 2.5 1465 61.9 86.1 0.84 19.0 2 6.3 2.5 1LE1011-1DR2 - 62 0.044 4 3.3 14 160 L 735 42.9 81.4 0.56 10.4 2.5 4.8 3.3 1475 90.6 85.8 0.73 32.5 2.5 72 3.3 1LE1011-1DR4 - 73 0.056 1LE1011-1ER2 - 128 4.5 16 180 M 730 59 79.3 0.59 13.9 1.4 3.8 2.3 1470 104 84.6 0.83 33.0 1.4 0.12 2.7 1LE1011-1ER4 - 132 180 L 730 65 78.3 0.6 15.4 1.5 3.8 2.1 1470 120 86.6 0.83 37.0 2.3 0.13 5 18.5 7.5 28 **200 L** 735 97 85.0 0.6 21.0 1.7 4 2.1 1475 181 90.5 0.85 53 27 74 3.1 1LE1011-2AR5 - 173 0.20 Voltages Version Order code 50 Hz 230 V Standard 2 3 4 4 2 4 0 50 Hz 400 V Standard 50 Hz 500 V Without additional charge 7 50 Hz 690 V Without additional charge For other voltages 1) and more information, see from page 2/87 9 0 Types of construction Version Order code IM B3²⁾ Without flange Standard IM B5 ²⁾ With flange With additional charge F IM B14²⁾ With flange With additional charge For other types of construction and more information, see from page 2/90 Motor protection Version Order code Without Standard With additional charge В PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 2/98 Terminal box position Version Terminal box at top Standard For other terminal box positions and more information, see from page 2/100 Special versions Order code(s)

Note: Pole-changing motors (4/2-pole) do not comply with the vibration values stipulated in IEC 60034-14 when rigidly installed (see also page 1/56).

For options, see from page 2/102

1LE101■-....■-■■■■-Z

Operating values for 60 Hz are available on request.

Types derived from IM B3 (IM B6/7/8, IM V6, and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.

SIMOTICS GP 1LE1 standard motors

Voltages · Aluminum series 1LE10

Selection and ordering data																	
Voltages				. supplement		ne size	00	00	400	140	100	100	400	000	Motor ver	sion	
	C	OI1	tage le	Additional identifica-	63	71	80	90	100	112 1004	132	160	180	200	IEC	IE4	•
	1.	2t	h and	tion code			1LE1	1002	IILE	1004					IEC	IE3	1
		3t	h sition	withorder code and	ETTE:	1001	ILE	1003								IE3	2
	0	f t	he	plain text	1LE											IE1	3
		ırti Io.	cle	if required	ILE	1002	AL E	1040							APAC		(4) (5)
	IV	10.					1LE								Line	IE3	6
							1LE									NPE (NEMA)	7
1LE10		-1		Order code			ILE	1LE1	1021						Eagle Line	NEE (NEMA)	8
Voltage at 50 Hz or 60 Hz – Operation	ting	I V	alues a	at rated power	for 6	0 Hz ar	e stor	ed in th	ne Dri	ve Tecl	hnolog	y Conf	igurat	or (DTC	()		
50 Hz 230 VΔ/400 VY, 60 Hz 460 VY	2	-	2	-	0	0		0	0	_							
50 Hz 400 VΔ/690 VY, 60 Hz 460 VΔ ¹⁾	3		4	-		_				_	_	_		0	Not for:	APAC Line Eagle Line	(5), (6) (7), (8)
50 Hz 400 VΔ, 60 Hz 460 VΔ ¹⁾					-	-	_	0	_		_	_	_	_	Only for:	APAC Line Eagle Line	(5), (6) (7), (8)
50 Hz 400 VY, 60 Hz 460 VY ^{2) 3)}	0		2	-	-	-	_	_	_		_	_	_				
50 Hz 400 VΔ, 60 Hz 460 VΔ ⁴⁾	0		4	-	-	-	_			_	_	_	_				
50 Hz 500 VY 60 Hz 575 VY ⁷⁾	2		7	-	0	0	0	0	0	0	0	0	0	0	Not for:	IEC IE4	1
50 Hz 500 VΔ 60 Hz 575 VΔ	4		0	-	0	0	-	-	0	0	0	0	0	0	Not for:	IEC IE4	1
50 Hz 220 VΔ/380 VY 60 Hz 440 VY	2		1	-	1	✓	1	1	1	1	1	1	1	✓			
50 Hz 380 VΔ/660 VY ¹⁾ , 60 Hz 440 VΔ	3		3	-	1	✓	1	✓	✓	✓	1	✓	1	✓	Not for:	APAC Line Eagle Line	(5), (6) (7), (8)
50 Hz 380 VΔ ¹⁾					-	-	-	-	1	1	1	✓	1	/	Only for:	APAC Line Eagle Line	(5), (6) (7), (8)
50 Hz 240 VΔ/415 VY, 60 Hz 480 VY	2		3	-	1	✓	1	1	1	1	1	✓	1	✓			
50 Hz 415 VΔ,	3		5	-	0	0	✓	✓	1	✓	✓	✓	1	1			
60 Hz 480 VΔ																	
60 Hz 220 VΔ/380 VY	1	_	7	-	-	-	✓	✓	1	✓	✓	✓	1	✓	Not for:	IEC IE1	4
60 Hz 230 VΔ/400 VY	1	_	8	_	-	-	✓	✓	1	✓	✓	✓	1	✓	Not for:	IEC IE1	4
60 Hz 380 VΔ/660 VY ¹⁾	3		0	-	-	-	1	✓	✓	✓	1	✓	1	✓	Not for:	IEC IE1 Eagle Line	7, 8
60 Hz 380 VΔ ¹⁾				_	-	-	✓	✓	1	✓	✓	✓	1	1	Only for:	Eagle Line	7 8
60 Hz 400 VΔ/690 VY ¹⁾	3		1	-	-	-	1	✓	✓	✓	1	✓	1	✓	Not for:	IEC IE1 Eagle Line	7, 8
60 Hz 400 VΔ ¹⁾				_	-	-	1	1	1	✓	✓	✓	1	1	Only for:	Eagle Line	7, 8
Multi-voltage at 60 Hz and require	ed p	00	wer at	60 Hz													
60 Hz 230 VYY/460 VY; 50 Hz power, 9 main terminals and electrical version according to NEMA	6		0	-	-	-	-	-	-	-	-	-	1	1	Not for:	IEC IE1 APAC Line IE2	(4) (6)
60 Hz 230 VYY/460 VY; 60 Hz power, 9 main terminals and electrical version according to NEMA	6		1	-	-	-	-	-	-	-	-	-	1	1	Not for:	IEC IE1 APAC Line IE2	(4) (6)
60 Hz 230 VAA/460 VA; 50 Hz power, 12 main terminals and electrical version according to NEMA	6		2	-	-	-	-	-	-	-	-	-	1	1	Not for:	IEC IE1 APAC Line IE2	(4) (6)
60 Hz 230 VΔΔ/460 VΔ; 60 Hz power, 12 main terminals and electrical version according to NEMA	6		3	-	-	-	-	-	-	-	-	-	1	1	Not for:	IEC/IE1 APAC Line IE2	(4) (6)

SIMOTICS GP 1LE1 standard motors

Voltages · Aluminum series 1LE10

LE1001 LE1002 LE1003 LE1003 LE1003 LE1004 LE1005 LE1 005 L	Voltages	Artic	le No.	supplement	Fran	ne size									Motor ver	rsion	
1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	ŭ						80	90	100	112	132	160	180	200			
LE1001 LE1002 LE1003 LE1003 LE1004 LE1005 LE1 005 LE1005 LE1 005 L									1LE	1004					IEC	IE4	1
Code and of This Code and of The Code and							1LE1	1003								IE3	2
ILEIOAS		posit	tion (code and	1LE	1001										IE2	3
Section Sect					1LE	1002										IE1	4
ILEIO3 ILEIO3 Eagle NPE (NEMA) (0 NEE (NEMA) (0			,10 1	ii required			1LE1	1043								IE3	5
1LE10							1LE1	1041							Line	IE2	6
1LE10							1LE1	1023								NPE (NEMA)	7
220 VA/380 VY; 50 Hz power	1LE10		(Order code				1LE1	1021						Line		8
220 VA/380 VY; 50 Hz power	Voltage at 60 Hz and required pov	ver at (60 Hz														
September Sept	220 VΔ/380 VY; 50 Hz power	9 0		M2A	1	1	1	1	1	/	/	/	1	/			
380 VA,660 VY, 50 Hz power 1)	220 VΔ/380 VY; 60 Hz power	9 0		M1A	1	✓	1	1	1	✓	1	/	1	1	Not for:		(5), (6) (7), (8)
380 VA; 50 Hz power 1)	380 VΔ/660 VY; 50 Hz power ¹⁾	9 0	1	M2B	✓	✓	1	1	1	✓	1	1	1	1	Not for:		5, 6 7, 8
380 VA/660 VY; 50 Hz power	380 V∆; 50 Hz power ¹⁾				-	-	-	-	1	1	✓	1	1	1	Only for:		5, 6 7, 8
440 VX; 60 Hz power 9 0 M2D	380 VΔ/660 VY; 60 Hz power ^{1) 5)}	9 0		M1B	1	✓	1	1	1	✓	1	1	1	1	Not for:		5, 6 7, 8
440 VA; 50 Hz power 9 0 MID	440 VY; 50 Hz power	9 0		M2C	1		✓	1	✓				1	✓			
440 VA; 60 Hz power 9 0 M1D	440 VY; 60 Hz power	9 0		M1C	1	✓	1	1	1	✓	1	1	1	1	Not for:		5, 6 7, 8
460 VY; 50 Hz power 9 0 M2E	440 VΔ; 50 Hz power			M2D	-			-	-		•	•					
460 VY; 60 Hz power 9 0 M1E 0 0 0 0 0 0 0 0 0 Not for: APAC Line 6. (6. 460 VA; 50 Hz power 9 0 M1F 0 0 0 0 0 0 0 0 0 0 Not for: APAC Line 6. (6. 460 VA; 60 Hz power 9 0 M1F 0 0 0 0 0 0 0 0 0 0 0 Not for: APAC Line 6. (6. 460 VA; 60 Hz power 7) 9 0 M2G	440 VΔ; 60 Hz power	9 0		M1D	1	✓	1	1	1	✓	1	1	1	1	Not for:		5, 6 7, 8
460 V∆; 50 Hz power 9 0 M1F 0 0 0 0 0 0 0 0 Not for: APAC Line Eagle Line (), (ii) (575 VY; 50 Hz power 7) 9 0 M2G	460 VY; 50 Hz power			M2E	1			•			•						
460 VA; 60 Hz power 9 0 M1F 0 0 0 0 0 0 0 0 0 Not for: APAC Line Eagle Line (), (ii) (iii)	460 VY; 60 Hz power	9 0		M1E	0	0	0	0	0	0	0	0			Not for:		5, 6 7, 8
575 VY, 50 Hz power 7) 9 0 M2G	460 VΔ; 50 Hz power	-		M2F	-		100				•			✓			
575 VY; 60 Hz power 7) 9 0 M1G ✓	· '	9 0		M1F	0	0	0	0	0	0	0	0	0		Not for:	Eagle Line	5, 6 7, 8
575 VΔ; 50 Hz power 7) 9 0 M2H					-		-		-		•				Not for:		1
575 VΔ; 60 Hz power 7) 9 0 M1H		9 0			1	✓	1	1	1	✓	✓	1	1	1	Not for:	Eagle Line	5, 6 7, 8
Eagle Line ①, ② 400 VΔ/690 VY; 50 Hz power ¹) 9 0 M2J					-		1 1	1					1 -				1
400 VΔ; 50 Hz power 9 0 M1J																Eagle Line	(5), (6) (7), (8)
400 VΔ/690 VY; 60 Hz power 9 0 M1J		_9 0		M2J	<u> </u>	✓							_				7, 8
480 VY; 50 Hz power 9 0 M2K					-	-	-								-		7, 8
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					-										Not for:	Eagle Line	7, 8
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	· · · · · · · · · · · · · · · · · · ·				-			-	-				-		N.		0.0
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					-		-	-	-				-		Not for:	Eagle Line	7, 8
$ 230 \ \text{VA}/400 \ \text{VY}; 50 \ \text{Hz power} \qquad 9 0 \qquad \text{M2M} \qquad \checkmark \qquad $					-		-	-	-				-		Not for:	Engle Line	
230 VA/400 VY; 60 Hz power 9 0 M1M \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark Not for: Eagle Line ①, (a) Voltage at 87 Hz and 87 Hz power 400 V Δ $^{(5)}$ 9 0 M3A $^{-}$ $^{-}$ $^{-}$ $^{\prime}$ Non-standard voltage and/or frequencies Non-standard winding $^{(6)}$ 9 0 M1Y • and customer															INOLIOF:	Eagle Line	(1), (8)
Voltage at 87 Hz and 87 Hz power $400 \ V\Delta^{(5)} \qquad \qquad 9 0 \qquad \qquad M3A \qquad - - \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark $															Not for:	Fagle Line	(2) (6)
$\begin{array}{cccccccccccccccccccccccccccccccccccc$				IVI I IVI	V	·	V	V	V	·	V	V	V	V	NOT IOI.	Layle Lille	(J), (8)
Non-standard voltage and/or frequencies Non-standard winding ⁶⁾ 9				МЗД			./	./	./	./	1	./	./	./			
Non-standard winding ⁶⁾ 9 0 M1Y • and customer	*** *=			IIIOA							Ť						
tions				customer specifica-	1	1	✓	✓	√	1	1	✓	1	1			

- Standard version
- Without additional charge
- This order code only determines the price of the version Additional plain text is required.
- ✓ With additional charge
- Not possible

For North America export versions Eagle Line 1LE1021 NEMA Energy Efficient and 1LE1023 NEMA Premium Efficient, voltages above 600 V will not be stamped.

²⁾ Frame sizes 80 and 90 with voltage code 02 can only be supplied without motor protection (motor protection code A).

³⁾ Delta connection is not possible.

⁴⁾ Star connection is not possible.

Only possible for 4-pole, 6-pole and 8-pole motors. The operating data for converter operation is also provided in a table on the rating plate.

⁶⁾ Plain text must be specified in the order: Voltage between 200 and 690 V (voltages outside this range are available on request), frequency, circuit, for 60 Hz additionally required rated power in kW.

⁷⁾ Not possible for 2-pole and 4-pole motors with increased power (11th position of the Article No.: 6) in frame sizes 80 and 90.

SIMOTICS GP 1LE1 standard motors

Voltages · Aluminum series 1LE1011, 1LE1012 - Pole-changing

Selection and ordering data

Voltages	Aı	ticle No	. supplement	Frame si	ize					Motor version
		oltage	Additional	100	112	132	160	180	200	
		ode 2th and	identifica- tion code	1LE101	1					Pole-changing
	13	3th	withorder	1LE1012	2					
		osition the	code and plain text							
	Aı	rticle	if required							
	N									
1LE10		• • • • • • • • • • • • • • • • • • • •	Order code							
Voltage at 50 Hz and 50 Hz power										
230 V	2	2	_							
400 V	3	4	_							
500 V	4	0	_	0	0	0	0	0	0	
690 V	4	7	_	0	0	0	0	0	0	
Voltage at 60 Hz and required pow	er									
220 V; 50 Hz power	9		M5K	O.R.	O.R.	O.R.	O.R.	O.R.	0. R.	
220 V; 60 Hz power	9	0	M5C	O.R.	O.R.	O.R.	O.R.	O.R.	0. R.	
380 V; 50 Hz power	9	0	M5L	O.R.	O. R.	O.R.	O.R.	O. R.	O. R.	
380 V; 60 Hz power	9	0	M5D	O. R.	O. R.	O. R.	O.R.	O. R.	0. R.	
440 V; 50 Hz power	9	0	M5M	O.R.	O. R.	O. R.	O.R.	O. R.	0. R.	
440 V; 60 Hz power	9	0	M5E	O.R.	0. R.	0. R.	O.R.	0. R.	0. R.	
460 V; 50 Hz power	9	0	M5N	O.R.	O. R.	O. R.	O.R.	O. R.	0. R.	
460 V; 60 Hz power	9	0	M5F	O.R.	O. R.	O. R.	O.R.	O. R.	0. R.	
575 V; 50 Hz power	9	0	M5P	0. R.	O.R.	O.R.	O.R.	O. R.	O. R.	
575 V; 60 Hz power		0	M5G	0. R.	O.R.	O.R.	O.R.	O. R.	0. R.	
Non-standard voltage and/or frequ										
Non-standard winding ¹⁾	9	0	M1Y • and customer specifications	✓	√	✓	√	√	✓	

- Standard version
- Without additional charge
 This order code only determines the price of the version –
 Additional plain text is required.
- With additional charge
- O.R. Possible on request

 $^{^{\}rm 1)}$ Plain text must be specified in the order: Voltage between 200 and 690 V (voltages outside this range are available on request), frequency, circuit, for 60 Hz additionally required rated power in kW.

Article No. supplements and special versions SIMOTICS SD 1LE1 standard motors

Voltages · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

Selection and ordering	g d	ata																	
Voltages			. supplement														Motor versi	on	
	CO	oltage ode	Additional identifica-	71	80	90		112 1504				200	225	250	280	315	IEC	IE4	1
	13		tion code with order				1LE	E1604				ine							2
	of	sition the	code and plain text	1LE	1503	Basi		ie E1603	Perf	orma	nce l	ine						IE3	<u>3</u>
	Ar No	ticle o.	if required	1LE	1501	Basi			1 011	Office	1100 L	-1110						IE2	5
								E1601				ine						154	6
					11.6	=1543		E1502 ic Lin		IC LIN	ie						APAC Line	IE1	⑦ ⑧
							1LE	E1643	Perf	orma	_								9
				STEE:	1523	Basi	c I in	e			1LE	E1541	Bas	ic Lir	ie		Fagle Line	NPE (NEMA)	10
					.10_0	, Buoi		E1623	Perf	orma	nce L	ine					Lagio Lino		12
1LE1	-	•	Order code				1LE	E1521	Basi	ic Lin	e							NEE (NEMA)	(13)
Voltage at 50 Hz or 60 Hz 50 Hz 230 VΔ/400 VY,	2	2			_														
60 Hz 460 VY			_																
50 Hz 400 VΔ/690 VY, 60 Hz 460 VΔ ¹⁾	3	4	-	_	_			_		_	_	_	_		_	_	Not for:	APAC Line (8), (9) Eagle Line (11), (12)), 🔞
50 Hz 400 VΔ, 60 Hz 460 VΔ ¹⁾																	Only for:	APAC Line (8), (9) Eagle Line (11), (12)), 10
50 Hz 400 VY,	0	2	_	0	_			_				_				0. R.		Lagio Lino (ii), (ii), (II)
60 Hz 460 VY ^{2) 3)} 50 Hz 400 VΔ,	0	4	_	-		_		_	_	_	_	_	_	_	_	_			
60 Hz 460 VΔ,	Ü				_		_				_								
50 Hz 500 VY/575 VY	2	7	-	0	0	0	0	0	0	0	0	0	0	0	0	0	Not for:	IEC IE4 ①, ② frame sizes 100	160
50 Hz 500 VΔ, 60 Hz 575 VΔ	4	0	-	-	-	-	0	0	0	0	0	0	0	0	0	0	Not for:	IEC IE4 ①, ② frame sizes 100	160
50 Hz 220 VΔ/380 VY, 60 Hz 440 VY	2	1	-	1	1	1	1	1	1	✓	1	1	1	1	✓	1			
50 Hz 380 VΔ/660 VY, 60 Hz 440 VΔ ¹⁾	3	3	-	1	1	1	1	1	1	✓	1	✓	1	1	1	1	Not for:	APAC Line (8), (9) Eagle Line (11), (2)), (10), (13
50 Hz 380 VΔ ¹⁾				1	1	1	1	1	1	✓	1	✓	1	✓	1	1	Only for:	APAC Line (8), (9) Eagle Line (11), (12)	
50 Hz 240 VΔ/415 VY, 60 Hz 480 VY	2	3	-	1	1	✓	1	✓	1	✓	1	1	1	1	✓	1			
50 Hz 415 VΔ, 60 Hz 480 VΔ	3	5	-	1	1	1	1	✓	✓	✓	1	✓	✓	✓	✓	✓			
60 Hz 220 VΔ/380 VY 60 Hz 230 VΔ/400 VY	1	7 8	-	1	1	1	1	1	✓ ✓	1	1	1	1	1	1	0. R. 0. R.			
60 Hz 380 VΔ/660 VY ¹⁾	3	0	_	1	1	√	1	√	1	1	1	✓	✓	1	✓	√	Not for:	IEC IE1 ①	
60 Hz 380 VΔ ¹⁾	-			1	1	1	1	1		1	1				/	/	Only for:	Eagle Line (1), (2))
	_			•	Ļ				<u> </u>								Í	Eagle Line (11), (12)
60 Hz 400 VΔ/690 VY ¹⁾	3	1	_		/	<i>,</i>	/	/		/	/	✓	<i>'</i>		<i>'</i>	/	Not for:	IEC IE1 ⑦ Eagle Line ⑪, ⑫)
60 Hz 400 VΔ ¹⁾				1	/	1	1	1	/	1	1	1	1	/	1	✓	Only for:	IEC IE1 ⑦ Eagle Line ⑪, ⑫)
Voltage at 60 Hz and require			_																
220 V∆/380 VY; 50 Hz power	9	0	M2A	1	✓	√	✓	/	/	/	1	/	/	/	/	√			
220 VΔ/380 VY; 60 Hz power ²⁾	9	0	M1A	1	1	/	✓	/	✓	✓	✓	✓	/	✓	/	✓	Not for:	APAC Line (8), (9) Eagle Line (11), (12)	
380 VΔ/660 VY; 50 Hz power ¹⁾	9	0	M2B	-	-	-	✓	1	/	1	1	1	1	1	1	✓	Not for:	APAC Line (8), (9) Eagle Line (11), (12)), (10), (13
380 VΔ; 50 Hz power ¹⁾				-	-	-	1	✓	1	1	1	1	✓	1	✓	1	Only for:	APAC Line (8), (9) Eagle Line (11), (12)), (10)
380 VΔ/660 VY: 60 Hz power ^{1)' 2)}	9	0	M1B	-	-	-	1	✓	1	1	1	✓	✓	✓	✓	✓	Not for:	APAC Line (8), (9) Eagle Line (11), (12)), (10), (13
440 VY; 50 Hz power	9	0	M2C	-	-	-	1	1	1	1	1	1	1	1	1	1	Not for	ADAO Line O	
440 VY; 60 Hz power ²⁾	9	0	M1C			_	1	1		/	✓	/			/	✓	Not for:	APAC Line (8), (9) Eagle Line (11), (12)	
440 VΔ; 50 Hz power 440 VΔ; 60 Hz power ²⁾	9	0	M2D M1D	-	-	-	1	1	1	1	1	1	1	1	1	1	Not for:	APAC Line @ @) (ii)
, ,											,						INULIUI:	APAC Line (8), (9) Eagle Line (11), (12)	
460 VY; 50 Hz power	9	0	M2E	-	-	-	1	✓	/	1	1	1	✓	1	1	1			

For legends and footnotes, see page 2/89.

SIMOTICS SD 1LE1 standard motors

Voltages · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

Voltages		ticle No. Itage	supplement Additional	Fran		ze 90	100	112	132	160	180	200	225	5 250	280	315	Motor vers	ion	
	12	de th and	identifica- tion code				1LE	E1504 E1604	Bas	ic Lin	e						IEC	IE4	<u>1</u>
		sition	with order code and	11.5	1503	Basi			Pell	Omna	nce L	_IIIE						IE3	3
		the ticle	plain text if required					1603	Perf	orma	nce L	_ine						.20	4
	No		ii required	1LE	1501	Basi	c Lin	ie										IE2	5
							1LE	E1601	Perf	orma	nce L	_ine							6
							1LE	E1502	Bas	ic Lin	e							IE1	7
					1LE	1543											APAC Line	IE3	8
							1LE	1643	Perf	orma									9
					P I - C Y						111.8	E1541	Bas	ic Lir	ie		F 1 1:	IE2	10
				TLE	1523	Basi			Dowl								Eagle Line	NPE (NEMA)	(1)
1LE1		_	Order code					1623 1521				_ine						NEE (NEMA)	(12) (13)
							ILLE	1321	Das	IC LIII	e							INEE (INEIVIA)	(B)
Voltage at 60 Hz and requi		_	,																
460 VY; 60 Hz power ²⁾	9	0	M1E	-	-	-	0	0	0	0	0	0	0	0	0	0	Not for:	APAC Line (8), (9) Eagle Line (11), (12)	
460 VΔ; 50 Hz power	9	0	M2F	_	_	_	/	1	/	/	/	/	/	/	/	/		Lagio Lino (i), (ii	5, 10
460 VΔ; 60 Hz power ²⁾	9	0	M1F	-	-	-	0	0	0	0	0	0	0	0	0	0	Not for:	APAC Line (8), (9) Eagle Line (11), (2)	9, 10
575 VY; 50 Hz power	9	0	M2G	-	-	-	1	✓	✓	✓	1	✓	✓	1	1	1	Not for:	IEC IE4 ①, ② frame sizes 100	
575 VY; 60 Hz power ²⁾	9	0	M1G	-	-	-	1	1	1	✓	1	✓	✓	1	1	1	Not for:	(10), (11), (12), (13) and frame sizes 100	d (1), (2)
575 VΔ; 50 Hz power	9	0	М2Н	-	-	-	1	1	1	✓	1	✓	✓	1	1	1	Not for:	IEC IE4 ①, ② frame sizes 100	160
575 VΔ; 60 Hz power ²⁾	9	0	M1H	-	-	-	1	1	1	1	1	✓	✓	1	1	1	Not for:	(10), (11), (12), (13) and frame sizes 100	
400 VΔ/690 VY; 50 Hz power ¹⁾	9	0	M2J	1	1	1	1	✓	1	✓	1	✓	✓	1	1	1	Not for:	IEC IE1 ⑦ Eagle Line ⑪, ⑫	2)
400 VΔ; 50 Hz power ¹⁾				1	1	1	1	✓	1	✓	1	✓	✓	1	1	1	Only for:	IEC IE1 ⑦ Eagle Line ⑪, ⑫	2
400 VΔ/690 VY; 60 Hz power	9	0	M1J	1	1	1	1	✓	1	1	1	1	1	1	1	1	Not for:	IEC IE1 ⑦ Eagle Line ⑪, ⑫	2)
480 VY; 50 Hz power	9	0	M2K	1	1	✓	1	1	1	1	1	/	/	1	1	1			
480 VY; 60 Hz power	9	0	M1K	1	1	✓	1	1	1	1	1	1	1	1	1	1	Not for:	IEC IE1 ⑦ Eagle Line ⑪, ⑫	2
480 VΔ;	9	0	M2L	1	1	/	1	/	1	/	1	/	/	/	1	/			
50 Hz power																			
480 V∆; 60 Hz power	9	0	M1L	1	1	1	1	1	1	1	1	1	1	1	1	1	Not for:	IEC IE1 ① Eagle Line ⑪, ⑫	2
230 VΔ/400 VY;	9	0	M2M	1	/	/	/	/	/	1	/	1	1	/	/	0. R.			
50 Hz power																			
230 VΔ/400 VY; 60 Hz power	9	0	M1M	1	1	1	1	1	1	1	1	1	1	1	1	0. R.	Not for:	IEC IE1 ⑦ Eagle Line ⑪, ⑫	<u> </u>
Voltage at 87 Hz and 87 Hz	ne	wer																~go (), (a	
400 VA ⁵⁾	9		МЗА	1	/	/	1	1	/	/	1	1	/	/	/	/			
Non-standard voltage and				,	v	V	v		v			·	·	v					
Non-standard winding ⁶⁾	9	0	M1Y • and	1	/	/	1	/	1	/	1	/	/	/	/	/			
Startdard Williams			customer specifica- tions					•							,	•			

- Standard version
- o Without additional charge
- This order code only determines the price of the version Additional plain text is required.
- ✓ With additional charge
- O.R. Possible on request

For North America export versions Eagle Line 1LE1521 NEMA Energy Efficient and 1LE1523/1LE1623 NEMA Premium Efficient, voltages above 600 V will not be stamped.

Not admissible for North America export versions Eagle Line 1LE1521 NEMA Energy Efficient and 1LE1523/1LE1623 NEMA Premium Efficient.

³⁾ Delta connection is not possible.

⁴⁾ Star connection is not possible.

Only possible for 4-pole, 6-pole and 8-pole motors. The operating data for converter operation is also provided in a table on the rating plate.

Plain text must be specified in the order: Voltage between 200 and 690 V (voltages outside this range are available on request), frequency, circuit, for 60 Hz additionally required rated power in kW.

Article No. supplements and special versions SIMOTICS GP 1LE1 standard motors

Selection a	_														
Types of const	truction		supplement	Frame		00	00	100	110	100	160	100	200	Motor ve	ersion
		Type of construc-	For types of construction	63	71	80	90	100 1LE10	112	132	160	180	200	IEC	IE4 ①
		tion code letter 14th	with order code(s)			1LE10	03							120	IE3 ②
		position	Article No.	1LE10	01										IE2 ③
		of the Article	with additional	1LE10	02										IE1 4
		No.	identifica-			1LE10								APAC	IE3 ⑤
			tion code -Z			1LE10								Line	IE2 6
						1LE10	23 1LE10	21						Eagle Line	NPE (NEMA) ① NEE (NEMA) ⑧
							ILEIU	1LE10	11					Pole-cha	anging (
1LE1	10	■ (-Z)	Order code					1LE10						. 0.0 0.10	IE3
Without flang															
IM B3 ^{1) 2) 3)}		A	-	_	_	_	_		-	-	0	0	0	Not for:	APAC Line IE2 (6) Eagle Line NEE (8)
IM B6 ^{2) 3)}	L	Т	_	_					_		_		_	Not for:	APAC Line IE2 ⑥
															Eagle Line NEE ®
IM B7 ^{2) 3) 9)}		U	-	0	0		0	0		0				Not for:	APAC Line IE2 (6) Eagle Line NEE (8)
IM B8 ^{2) 3)}		V	-	0	0	0	0	0	0	0	0	0	0	Not for:	APAC Line IE2 (6) Eagle Line NEE (8)
IM V6 ^{2) 3)}		D	-	0	0		0	0	0	0		0		Not for:	APAC Line IE2 6 Eagle Line NEE ®
IM V5 without protective cover 2) 3)		С	-	0	0		0	0	0	0	0	0	0	Not for:	APAC Line IE2 (6) Eagle Line NEE (8)
IM V5 with protective cover 2) 3) 4) 5) 6)		С	H00	-	-	1	1	1	√	✓	√	√	√	Not for:	APAC Line IE2 (6) Eagle Line NEE (8) Combination with order code F90
With flange		EN 50347								FF265					
IM B5 ^{2) 7)}		DIN 42948	-	A 140	A 160	A 200	A 200	A 250	A 250	A 300	A 350	A 350	A 400		
IM V1				<i>J</i>	<u> </u>	<i>y</i>	<i>y</i>	1	<i>y</i>	<i>y</i>	<i>'</i>	<i>y</i>	<i>'</i>		
without protective cover ²⁾	-	G	_	,	V		,	7	,	,	,	•			
IM V1 with protective cover 2) 4) 5) 6)		G	H00	-	_	•	/	•	1	✓	√	✓	√	Not for:	Combination with order code F90
IM V3 ⁴⁾		Н	-	1	1	1	1	1	√	✓	√	V	√		
IM B35 ³⁾		J	-	✓	✓	1	√	✓	1	1	1	√	✓	Not for:	APAC Line IE2 6 Eagle Line NEE 8

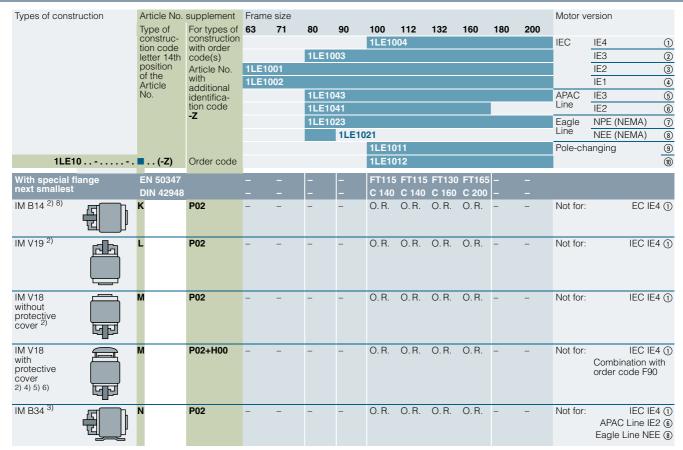
SIMOTICS GP 1LE1 standard motors

Types of construction	Article No.	supplement For types of	Frame	size 71	80	90	100	112	132	160	180	200	Motor ve	ersion	
	construc-	construction					1LE10						IEC	IE4	1
	tion code letter 14th	with order code(s)			1LE10	03								IE3	2
	position of the	Article No.	1LE10	01										IE2	3
	Article	with additional	1LE10	02										IE1	4
	No.	identifica-			1LE10								APAC	IE3	456
		tion code -Z			1LE10								Line	IE2	6
		_			1LE10								Eagle Line	NPE (NEMA)	7
						1LE10								NEE (NEMA)	8
41.540	- (7)	0					1LE10						Pole-cha	anging	(1) (8) (9) (10)
1LE10		Order code					1LE10								(III)
With special flange next largest	EN 50347 DIN 42948							FF265 A 300							
IM B5 ^{2) 7)}	DIN 42940	P01	_	_	_	_	/ A 300	A 300 ✓	A 330	_	_	_			
	1							·	•						
IM V1	G	P01	-	-	-	-	1	✓	1	-	-	-			
without protective cover ²															
T															
IM V1	G	P01+H00	-	-	-	-	✓	✓	✓	-	-	-	Not for:	Combination wi	
with protective														order code F90	!
cover															
2) 4) 5) 6)															
IM V3 ⁴⁾	Н	P01	_		-	_	/	/	/		_	_			
		101					•	•	•						
IM B35 ³⁾		D04					1	√	,				Not for	ADAC Line IE	2.0
IIVI B35 9	J	P01	_	-	-	-	/	/	✓	_	-	-	Not for:	APAC Line IE2 Eagle Line NEE	_
-\\\\\														Lagie Line NLL	- 0
Wish and in the second	EN 50047			_	EE400	EE4 CE	EE4 CE	EE4 CE	FEO4E	FEOCE	FEOCE	FF000			_
With special flange next smallest	EN 50347 DIN 42948	,			A 160					FF265					
IM B5 ^{2) 7)}	DIN 42946	P02	_	_	O. R.	A 200 O.R.	A 200	A 200	A 250	A 300	A 300	A 350			
		FU2	_	_	O. 11.	O.11.	•	•	•	•	•	•			
IM V1	G	P02	-	-	-	-	O. R.	O. R.	O.R.	0. R.	O.R.	O.R.			
without protective															
cover 2)															
T															
IM V1	G	P02+H00	-	-	-	-	O.R.	O.R.	O.R.	O. R.	O.R.	O.R.	Not for:	Combination wi	
with														order code F90	1
cover															
cover 2) 4) 5) 6)															
U 4) (0 4)							0 -	0 -	0 -	0.5	0 -	0 -			
IM V3 ⁴⁾	Н	P02	-	-	-	-	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.			
IM B35 ³⁾	J	P02	-	-	-	-	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	Not for:	APAC Line IE2	
														Eagle Line NEE	= (8)

Article No. supplements and special versions SIMOTICS GP 1LE1 standard motors

Types of const	truction	Article No.	supplement	Frame	size									Motor ve	ersion	
		Type of	For types of	63	71	80	90	100	112	132	160	180	200			
		construc- tion code	construction with order					1LE10	04					IEC	IE4	1
		letter 14th	code(s)			1LE10	03								IE3	2
		position of the		1LE10											IE2	3
		Article	with additional	1LE10	02										IE1	3 4 5
		No.	identifica-			1LE10								APAC Line	IE3	5
			tion code -Z			1LE10									IE2	6
			_			1LE10								Eagle Line	NPE (NEMA)	7
							1LE10								NEE (NEMA)	8
		_ , _,						1LE10						Pole-cha	anging	8 9 0
1LE1	10	(-Z)	Order code					1LE10								(10)
With flange		EN 50347		FT75	FT85	FT100	FT115	FT130	FT130	FT165	FT215	_				
		DIN 42948		C 90	C 105	C 120	C 140	C 160	C 160	C 200	C 250	_				
IM B14 ^{2) 8)}		K	-	V	✓	✓	✓	✓	✓	✓	1	-	-			
IM V19 ²⁾		L	_	1	1	1	✓	✓	1	✓	1	-	-			
IM V18 without protective cover ²⁾		М	-	√	√	√	y	<i>y</i>	✓	✓	√	-	-			
IM V18 with protective cover 2) 4) 5) 6)		М	H00	-	-	1	1	1	1	1	1	-	-	Not for:	Combination w order code F90	
IM B34 ³⁾		N	-	1	1	1	1	1	√	1	1	-	-	Not for:	Eagle Line NE	E (8)
With special f next largest ¹	flange	EN 50347					FT130		FT165			_				
		DIN 42948		-	-	C 160	C 160	C 200	C 200	C 250	_	-	_			
IM B14 ^{2) 8)}		K	P01	-	-	√	1	1	√	√	_	-	-			
IM V19 ²⁾			P01	-	-	1	✓	✓	√	√	-	_	-			
IM V18 without protective cover ²		М	P01	-	-	1	1	1	√	1	-	-	-			
IM V18 with protective cover 2) 4) 5) 6)		М	P01+H00	-	-	1	✓	1	1	√	-	_	-	Not for:	Combination w order code F90	ith)
IM B34 ³⁾		N	P01	-	-	✓	√	J	✓	1	-	-	-	Not for:	APAC Line IE: Eagle Line NEI	

SIMOTICS GP 1LE1 standard motors



- □ Standard version✓ With additional chargeNot possible
- O.R. Possible on request

- The types of construction IM B6/7/8, IM V6, and IM V5 with/without protective cover are also possible as long as there are no condensation drainage holes (order code H03) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM B3 is then stamped on the rating plate. With type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code H00. The protective cover is not stamped on the rating plate.
- 2) The type of construction is stamped on the rating plate. For orders with condensation drainage holes (order code H03), if mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.
- For North America export version Eagle Line 1LE1021 NEMA Energy Efficient, types of construction with feet are not possible for 2-pole, 4-pole and 6-pole motors ≤ 200 hp in accordance with NEMA MG1 Table 12-11.
- 4) The "Standard cylindrical shaft extension (second shaft extension)" option (order code L05) is not possible.
- 5) In combination with an encoder, it is not necessary to order the protective cover (order code H00), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard version (without additional charge).

- 6) Not possible for forced-air cooled 1LE1 motors with order code F90 without external fan and fan cover.
- 7) The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as there are no condensation drainage holes (order code H03) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code H00. The protective cover is not stamped on the rating plate.
- The types of construction IM V19 and IM V18 with/without protective cover are also possible as long as there are no condensation drainage holes (order code **H03**) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM B14 is then stamped on the rating plate. With type of construction IM V18 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.
- When ordering frame size B7 and the required cable outlet below, option R12 must also be ordered.
- 10) For the standard EN 50347, flanges which are 2 levels larger are used in frame size 80 with option P01.

Article No. supplements and special versions SIMOTICS SD 1LE1 standard motors

Types of construction · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

Selection	on and orde	ring da	ata																	
Types of construct	tion	Article N supplen		Fram	ne size	9													Motor ve	rsion
Construct	uon	Type of construc-	For types of con-	71	80	90	100	112	132	160	180	200	225	250	280	315 S/M		315 L 4 to 8- pole		
		tion code	struc- tion						Basic		. I inc								IEC	IE4 <u>①</u>
		letter 14th	with order	1LE	1503 E	Basic I		1604	Perfor	mance	e Line	.								E4
		of the	code(s) Article					1603	Perfor	mance	e Line									4
		Article No.	No. with addi-	1LE	1501 I	3asic I		1601	Perfor	mance	- Line									IE2 <u>⑤</u>
			tional identifi-						Basic		Line									IE1 ①
			cation code		1LE	1543 E													APAC Line	IE3 <u>8</u>
			-Z				1LE	1643	Perfor	mance		: 1541 I	Rasic	Line					Line	(9) IE2 (0)
				1LE	1523 E	Basic I	Line					15-11	Jusio	Lille					Eagle	NPE (NEMA) (11)
			Order						Perfor		e Line								Line	12
		(-Z)	coae				1LE	1521	Basic	Line										NEE (NEMA) ®
Without IM B3 1) 2) 3)		A	-	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	Not for:	(10), (3) 2, 4, 6- pole ≤ 200 hp;
	الكلا																			(1), (12) 8-pole ≤ 200 hp
IM B6 2) 3)		Т	-	0	-	_	_	_	0	_								_	Not for:	(ii), (ii) 2, 4, 6- pole ≤ 200 hp; (ii), (ii) 8-pole
																				≤ 200 hp
IM B7 2) 3) 9)		U	-	-		-		-	0	0	0	0	-	0	0		_		Not for:	(iii)(iiii)(iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii
IM B8 2) 3)		V	-	0								0	0	0	0			0	Not for:	(10), (3) 2, 4, 6- pole ≤ 200 hp; (11), (12) 8-pole ≤ 200 hp
IM V6 2) 3)		D	-	0	0	0		0	0	0	0	0	0	0	0	0	✓	0	Not for:	(ii), (ii) 2, 4, 6- pole ≤ 200 hp; (iii), (iii) 8-pole ≤ 200 hp
IM V5 without protec- tive cover 2) 3)		С	-	0	0	0	0	0	0	0	0	0	0	0	0		✓	0	Not for:	(®), (®) 2, 4, 6- pole ≤ 200 hp; (®), (®) 8-pole ≤ 200 hp
IM V5 with protec- tive cover 2) 3) 4) 5)		С	H00	1	1	1	1	1	√	1	✓	1	1	1	1	1	√	√	Not for:	(®), (®) 2, 4, 6- pole ≤ 200 hp; (†), (@) 8-pole ≤ 200 hp

SIMOTICS SD 1LE1 standard motors

Types of construction · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

Types of	Article N		Fram	ne size	9													Motor ve	rsion	T
construction	Type of con- struc-	For types of con-	71	80	90	100	112	132	160	180	200	225	250	280			315 L e 4 to 8- pole			
	tion code	struc- tion						Basic Perfor		a l ima							polo	IEC	IE4	1
	letter 14th position	with order code(s)	1LE	1503 E	Basic I	Line													IE3	1 2 3 4 5 6 7 8 9
	of the Article	Article No. with	1LE	1501 E	Basic I		1603	Perfor	manc	e Line									IE2	<u>4</u>
	No.	addi- tional identifi-						Perfor Basic		e Line									IE1	6
		cation		1LE	1543 E	Basic	Line											APAC Line	IE3	8
		code -Z				1LE	1643	Perfor	manc			Basic	Line					Line	IE2	(9) (10)
		0.1	1LE	1523 E	Basic I		1622	Perfor	mano	o Lino								Eagle Line	NPE (NEMA)	11)
1LE1	. . (-Z)	Order code				_		Basic		e Lille									NEE (NEMA)	13
With flange	EN 5034																00 FF600			
IM B5 2) 6)	DIN 429	-	A 160	√ A 200	A 200	A 231	J A 251	J A SUC	√ A 350	√ A 350	√ A 400	J A 45	√ A 55	U A 55	U A 00	- A 00	0 A 660 –			
IM V1 without protec-	G	-	1	1	1	1	1	✓	✓	1	✓	1	√	✓	1	✓	1			
tive cover 2)																				
IM V1 with protective cover	G	H00	✓	1	✓	1	1	1	1	1	√	1	1	1	1	✓	1			
2) 4) 5) IM V3 ⁵⁾	Н	_	1	/	/	1	/	/	/	/	/	/	/	/	/	_	_			
IM B35 ³⁾	J	-	J	1	1	1	1	1	✓	1	✓	1	✓	1	1	1	1	Not for:	(10), (13) 2, 4, 6- pole ≤ 200 hp; (11), (12) 8-pole ≤ 200 hp);
With special flange next largest	EN 5034		-	-	-			5 FF30		-	-	-	-	-	-	-	-			
IM B5 2) 6)	DIN 429	P01	-	-	-	/ A 300	J A 301	O A 350 ✓	<i>-</i>	-	-	-	-	-	-	-	-			
IM V1 without protective	G	P01	-	-	-	1	1	√	-	-	-	-	-	_	-	-	-			
cover ²⁾																				
IM V1 with protective cover 2) 4) 5)	G	P01+ H00	-	-	-	√	✓	√	-	-	-	-	-	-	-	-	-			
IM V3 ⁵⁾	н	P01	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-			
IM B35 ³⁾	J	P01	-	-	-	1	√	1	-	-	-	-	-	-	-	_	-	Not for:	(®), (®) 2, 4, 6- pole ≤ 200 hp; (⊕), (@) 8-pole ≤ 200 hp; (⊕), (@) on request	;

Article No. supplements and special versions SIMOTICS SD 1LE1 standard motors

Types of construction · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

Types of construction	Article N supplem		Fram	ne size)													Motor ve	ersion
CONSTRUCTION	Type of con- struc-	For	71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L 2-pole	315 L 4 to 8- pole		
	tion code	struc- tion						Basic	Line mance	Lino							-	IEC	IE4 <u>①</u>
	letter 14th	with order code(s)	1LE1	1503 E	Basic L	ine													IE4 ① ② IE3 ③ IE2 ⑤ IE1 ⑦ IE3 ③ IE3 ⑥
	of the Article	Article No. with	1LE1	1501 E	Basic L		1603 F	Perfor	mance	Line									IE2 (5)
	No.	addi- tional						Perfor Basic	mance	Line									6
		identifi- cation		1LE	1543 B	asic	Line											APAC	IE1 ⑦
		code -Z				1LE1	1643 F	Perfor	mance		I <i>E 1</i> 1 E	Basic	Lino					Line	9 IE2 ®
			1LE1	1523 E	Basic L	ine				ILE	1541 6	basic	Line					Eagle	NPE (NEMA) ①
11 51	. (7)	Order						Perfor Basic	mance	Line								Line	NEE (NEMA) ③
With special flange	EN 5034			-	_				5 FF26	_								_	INCE (INCINIA) (B)
next smallest	DIN 429		-	_	-				A 300		-	_	_	_	_	_	_		
² (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	F	P02	-	-	-	✓	1	1	1	_	-	-	-	-	_	-	-		
IM V1 without protec- tive cover ²⁾	G	P02	-	-	-	O.R.	O.R	O.R	. O.R.	-	-	-	-	-	-	-	-		
IM V1 with protec- tive cover 2) 4) 5)	G	P02+ H00	-	-	-	O.R.	O.R	O.R	. O.R.	-	-	-	-	-	-	-	-		
IM V3 ⁵⁾	Н	P02	-	-	-	O.R.	O.R	O.R	. O.R.	-	-	-	-	-	-	-	-		
IM B35 ³⁾	J	P02	-	-	-	O.R.	O.R	O. R	. O.R.	-	-	-	-	-	-	-	-	Not for:	(10), (13) 2, 4, 6- pole ≤ 200 hp; (11), (12) 8-pole ≤ 200 hp
With flange	EN 5034 DIN 429		FT85 C 105		0 FT115) C 140														
IM B14 2) 7)	K	-	-	-	-	/	1	1	1	-	-	-	-	-	-	-	-		
IM V19 ²⁾	L	-	-	-	-	1	✓	√	1	-	-	-	-	-	-	-	-		
IM V18 without protective cover 2)	M	-	-	-	-	1	✓	✓	✓	-	-	-	-	-	-	-	-		
IM V18 with protective cover 2) 4) 5)	M	H00	-	_	-	1	√	✓	✓	-	-	-	-	-	-	-	-		
IM B34 ³⁾	N	-	1	1	✓	✓	1	1	✓	-	-	-	-	-	-	-	-	Not for:	(10), (13) 2, 4, 6- pole ≤ 200 hp; (11), (12) 8-pole ≤ 200 hp

SIMOTICS SD 1LE1 standard motors

Types of construction · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

Types of construction	Article N supplen		Fram	e size)													Motor ve	rsion
	Type of construc-	For types of con-	71	80	90	100	112	132	160	180	200	225	250	280		315 L 2-pole	315 L 4 to 8- pole		
	tion code	struc- tion						Basic										IEC	IE4 <u>①</u>
	letter 14th	with order	ETH-E	E02 E	Basic L		1604	Perfo	mance	e Line									E4
		code(s) Article	114-1	3U3 E	Dasic L		1603	Perfo	mance	e Line									(4)
	Article	No. with	1LE1	501 E	Basic L														IE2 §
	No.	addi- tional							mance	e Line									6
		identifi- cation		31 E	1543 B			Basic	Line									APAC	IE1 ⑦
		code - Z						Perfo	mance	e Line								Line	9
		_								1LE1	1541 E	Basic	Line						IE2 (10)
			1LE1	523 E	Basic L	_												Eagle Line	NPE (NEMA) ①
1LE1	(-7)	Order			_			Perfo Basic	mance	e Line								Line	NEE (NEMA) (3)
With special flange	EN 5034		ET146	ET40	0 FT130													_	TVEE (TVEIVITY)
next largest	DIN 429) C 160														
IM B14 2) 7) 8)	K	P01	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-		
IM V19 2) 8)	_	P01	-	-	-	√	1	1	-	-	-	-	-	-	-	-	-		
IM V18 without protec- tive cover 2) 8)	M	P01	-	-	-	1	√	√	-	-	-	-	-	-	-	-	-		
IM V18 with protective cover 2) 4) 5) 8)	М	P01+ H00	-	-	-	1	√	√	-	-	-	-	-	-	-	-	-		
IM B34 3) 8)	N	P01	_	_	-	J	1	1	-	-	_	_	_	-	_	-	-	Not for:	(10), (13) 2, 4, 6- pole ≤ 200 hp (11), (12) 8-pole ≤ 200 hp

□ Standard version
✓ With additional charge
O.R. Possible on request
- Not possible

- 1) The types of construction IM B6/7/8, IM V6 and IM V5 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B3 is then stamped on the rating plate. With type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code H00. The protective cover is not stamped on the rating plate.
- The type of construction is stamped on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.
- 3) For North America export version Eagle Line 1LE1521 NEMA Energy Efficient, types of construction with feet are not possible for 2-pole, 4-pole and 6-pole motors ≤ 200 hp in accordance with NEMA MG1 Table 12-11.
- ⁴⁾ In combination with an encoder, it is not necessary to order the protective cover (order code **H00**), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard design (without additional charge).
- 5) The "Standard cylindrical shaft extension (second shaft extension)" option (order code L05) is not possible.

- 6) The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code H00. The protective cover is not stamped on the rating plate.
- The types of construction IM V19 and IM V18 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B14 is then stamped on the rating plate. With type of construction IM V18 with protective cover, the protective cover has to be additionally ordered with order code H00. The protective cover is not stamped on the rating plate.
- 8) With reference to standard EN 50347, flanges that are 2 levels larger are used with option P01 in the frame sizes 71 and 80.
- 9) When ordering frame size B7 and the required cable outlet below, option R12 must also be ordered.

SIMOTICS GP 1LE1 standard motors

Motor protection · Aluminum series 1LE10

Selection and ordering data Article No. supplement Motor protection Frame size Motor version Additional 132 63 71 90 112 160 Motor 80 100 180 200 identificaprotec-1LE1004 **IEC** IE4 1 tion code tion code 1LE1003 IE3 2 letter 15th with order position of the Article No. code and 1LE1001 IE2 3 plain text if required 1LE1002 IE1 4 1LE1043 IE3 (5) APAC 1LE1041 IE2 6 1LE1023 NPE (NEMA) 7 1LE1021 NEE (NEMA) 8 1LE1011 Pole-changing 9 1LE10..-...■. Order code 1LE1012 10 Motor protection Without (standard) 1 or 3 PTC thermistors – for tripping (2 terminals) 1) В 1 1 1 1 1 1 1 1 2 or 6 PTC thermistors - for 1 1 1 alarm and tripping (4 terminals) 1) 1 KTY84-130 temperature sensor (2 terminals) 1) / 1 1 1 / 1 2 KTY84-130 temperature G 1 1 1 1 / 1 1 / sensors (4 terminals) 3 Pt100 resistance thermometers – 2-wire input (6 terminals) 1 Pt1000 resistance 1 1 1 1 1 thermometer (2 terminals) 2) 2 Pt1000 resistance / 1 / / thermometers (4 terminals) 2)

1

1

1

1

1

(NC contacts) – for tripping (2 terminals)

Standard version

With additional charge

Z

Q2A

Q3A

Not possible

1 Pt100 resistance

(2 terminals)

(9 terminals)
6 Pt100 resistance
thermometers – 3-wire input

(18 terminals)

3 NTC thermistors – for tripping (6 terminals) 1)

3 bimetal sensors

thermometer – 2-wire input

3 Pt100 resistance thermometers – 3-wire input

Evaluation with appropriate tripping unit (see Catalog IC 10) is recommended. For pole-changing motors with two separate windings, double the number of temperature sensors or temperature detectors is required. This also results in a double additional charge.

²⁾ Not UL certified. Not in combination with option D31.

SIMOTICS SD 1LE1 standard motors

Motor protection · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

Selection and ordering data

Mater Properties Properti	Motor protection	Article No.	supplement	Fran	ne siz	'e											Motor ve	rsion	
ILE150 Basic Line	Wictor protoculori						100	112	132	160	180	200	225	250	280	315	Wiotor Vo	101011	
Letter 15th with order protection Letter 15th with order protection Letter 15th Letter 1			identifica-				1LE	1504	Basic	Line							IEC	IE4	1
TLE1543 Basic Line							1LE	1604	Perfo	rmano	e Lir	ne					i		
TLE1543 Basic Line				1LE	1503	Basic	Line										i	IE3	3
TLE1543 Basic Line							1LE	1603	Perfo	rmano	e Lir	ne							4
TLE1543 Basic Line		No.	·	1LE	1501	Basic												IE2	(5)
TLE1543 Basic Line											e Lir	ne							6
TLE1523 Basic Line									Basic	Line									7
TLE1523 Basic Line					1LE	1543			D (IE3	8
TLE1							ILE	1643	Perio	rmano			Danie	lino			20	IFO	(9)
TLE1623 Performance Line NEK (NEMA) ©				SUE:	1522	Racio	Lino				114	1541	Dasic	Line			Faglo		(III)
NEE (NEMA) @				15.5	1323	Dasic		1623	Perfo	rmano	e l ir	16						INF L (INLINIA)	
Motor protection Without (standard) 1) A —	1LE1		Order code				_				JC EII	10						NEE (NEMA)	
Without (standard) 1)			2.00.0000																, 🐷
1 or 3 PTC thermistors—for tripping (2 terminals) 1 2 2 2 2 4 2 2 4 4 4 4 4 4 4 4 4 4 4 4		۸		п			п		_	п		п	_	_		_	Only for:	Basic Line	
Total Continuity Total Conti	Without (standard)			_	_	_	_	_	_	_	_	_	_	_	_	_	Offiny Ior.	1, 3, 5, 7),
C C C C C C C C C C		_															0 1 1)
©	1 or 3 PTC thermistors – for tripping (2 terminals) 1) 2)	В	-	/	/	/	/	/	/	/	/	/	/	/	/	/	Only for:)
2 or 6 PTC thermistors - for alarm and fripping (4 terminals)	inpping (2 terminale)																	8, 6, 6)
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) ⁹ 1 KTY84-130 temperature sensor (2 terminals) ⁹ 2 KTY84-130 temperature sensor (2 terminals) ⁹ 3 Pt100 resistance thermometers – 2-wire input (5 terminals) ⁹ 1 Pt1000 resistance thermometers (2 terminals) ⁹ 1 Pt1000 resistance thermometers (2 terminals) ⁹ 1 Pt1000 resistance thermometers (2 terminals) ⁹ 1 Pt1000 resistance thermometers (4 terminals) ⁹ 1 Pt1000 resistance thermometers (2 terminals) ⁹ 2 Pt1000 resistance thermometers (3 terminals) ⁹ 3 Pt100 resistance thermometers (4 terminals) ⁹ 3 Pt100 resistance thermometers – 2-wire input (2 terminals) ⁹ 3 Pt100 resistance thermometers – 3-wire input (2 terminals) ⁹ 4 Pt1000 resistance thermometers – 3-wire input (18 terminals) ⁹ 5 Pt1000 resistance thermometers – 3-wire input (18 terminals) ⁹ 6 Pt100 resistance thermometers – 3-wire input (18 terminals) ⁹ 7 Pt1000 resistance thermometers – 3-wire input (18 terminals) ⁹ 8 Pt100 resistance thermometers – 5-wire input (18 terminals) ⁹ 8 Pt100 resistance thermometers – 5-wire input (18 terminals) ⁹ 8 Dimetal sensors of tripping (2 terminals) ⁹ 2 Q2A																	Only for:	Performance)
2 or 6 PTC thermistors - for alarm and tripping (4 terminals) 3																		(9), (12)	6),
KTY84-130 temperature sensor (2 terminals) 2 2 KTY84-130 temperature sensor (2 terminals) 2 2 KTY84-130 temperature sensor (4 terminals) 2 2 KTY84-130 temperature sensor (4 terminals) 2 2 KTY84-130 temperature sensor (4 terminals) 2 3 Pt100 resistance thermometers – 2-wire input (12 terminals) 4 -	2 or 6 PTC thermistors – for	С	-	1	1	1	1	1	1	/	1	/	1	1	1	1			
TKTY84-130 temperature	alarm and tripping																		
sensor (2 terminals) ²⁾ 2 KTV84-130 temperature	,	F	_	1	1		1				1								
sensor (4 terminals) ²) 3 Pt100 resistance thermometers – 2-wire input (6 terminals) 6 Pt100 resistance thermometers – 2-wire input (12 terminals) 1 Pt100 resistance stermometers (2 terminals) ³) 2 Pt1000 resistance thermometers (4 terminals) ³) 1 Pt1000 resistance thermometers (4 terminals) ³) 1 Pt100 resistance thermometers (4 terminals) ³) 2 Pt1000 resistance thermometers (4 terminals) ³) 3 Pt100 resistance thermometer (4 terminals) ³) 4 Pt100 resistance thermometer 3 - 3 wire input (2 terminals) ⁴ 6 Pt100 resistance thermometers – 3 wire input (18 terminals) ⁴ 8 PT100 resistance thermometers – 3 wire input (18 terminals) ⁴ 8 PT100 resistance thermometers – 3 wire input (18 terminals) ⁴ 8 PT100 resistance thermometers – 5 wire input (18 terminals) ⁴ 8 PT100 resistance thermometers – 5 ror tripping (6 terminals) ⁴ 8 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 8 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 8 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 8 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 8 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 8 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 8 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 8 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 9 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 9 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 9 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 9 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 9 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 9 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 9 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 9 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 9 PT100 resistance thermometers – 7 wire input (18 terminals) ⁴ 9 PT100 resistance thermometers – 7 wi					ľ	•		•	•	•		•	Ů	•	•	·			
## Pt100 resistance thermometers – 2-wire input (6 terminals) ## Pt100 resistance thermometers – 2-wire input (12 terminals) ## Pt1000 resistance thermometers (2 terminals) ## Pt1000 resistance thermometers (2 terminals) ## Pt1000 resistance thermometers (2 terminals) ## Pt1000 resistance thermometers (4 terminals) ## Pt1000 resistance thermometers (4 terminals) ## Pt100 resistance thermometer – 2-wire input (2 terminals) ## Pt100 resistance thermometers – 3-wire input (9 terminals) ## Pt100 resistance thermometers – 3-wire input (8 terminals) ## Pt100 resistance thermometers – 3-wire input (18 terminals) ## Pt100 resistance thermometers – 3-wire input (18 terminals) ## Pt100 resistance thermometers – 3-wire input (18 terminals) ## Pt100 resistance thermometers – 3-wire input (18 terminals) ## Pt100 resistance thermometers – 3-wire input (18 terminals) ## Pt100 resistance thermometers – 3-wire input (18 terminals) ## Pt100 resistance thermometers – 3-wire input (18 terminals) ## Pt100 resistance thermometers – 3-wire input (18 terminals) ## Pt100 resistance thermometers – 3-wire input (18 terminals) ## Pt100 resistance thermometers – 3-wire input (18 terminals) ## Pt100 resistance thermometers – 3-wire input (18 terminals) ## Pt100 resistance thermometers – 3-wire input (18 terminals) ## Pt100 resistance thermometers – 3-wire input (18 terminals) ## Pt100 resistance thermometers – 3-wire input (18 terminals) ## Pt100 resistance thermometers –		G	-	1	1	1	1	1	1	1	1	✓	1	1	1	1			
thermometers – 2-wire input (6 terminals) 6 Pt100 resistance thermometers (2 terminals) 1 Pt1000 resistance thermometers (4 terminals) 1 Pt1000 resistance thermometers (4 terminals) 1 Pt1000 resistance thermometers (4 terminals) 1 Pt100 resistance thermometers (4 terminals) 1 Pt100 resistance thermometers (4 terminals) 3 Pt100 resistance thermometer – 2-wire input (2 terminals) 3 Pt100 resistance thermometer – 3-wire input (9 terminals) 6 Pt100 resistance thermometers – 3-wire input (9 terminals) 3 NTC thermistors – for thermometers – 3-wire input (18 terminals) 3 NTC thermistors – for tripping (6 terminals) 3 Dimetal sensors (NC contacts) – for tripping (2 terminals) 4 QQA				-	,	,	,		,	,	,		,	,		,			
6 Pt100 resistance thermometers – 2-wire input (12 terminals) 1 Pt1000 resistance thermometers (2 terminals) 2 Pt1000 resistance thermometers (2 terminals) 1 Pt100 resistance thermometers (4 terminals) 1 Pt100 resistance thermometers (4 terminals) 1 Pt100 resistance thermometer – 2-wire input (2 terminals) 3 Pt100 resistance thermometer – 3-wire input (9 terminals) 3 Pt100 resistance thermometers – 3-wire input (9 terminals) 6 Pt100 resistance thermometers – 3-wire input (18 terminals) 3 NTC thermistors – for tripping (6 terminals) 3 Dimetal sensors (NC contacts) – for tripping (2 terminals) 4 QQA			_	•	•	•	•	•	•	•	•	•	•	•	•	•			
thermometers – 2-wire input (12 terminals) 1 Pt1000 resistance thermometers (2 terminals) 3) 2 Pt1000 resistance thermometers (4 terminals) 3) 1 Pt100 resistance thermometer (4 terminals) 3) 1 Pt100 resistance thermometer – 2-wire input (2 terminals) 3 Pt100 resistance thermometer – 2-wire input (2 terminals) 3 Pt100 resistance thermometers – 3-wire input (9 terminals) 6 Pt100 resistance thermometers – 3-wire input (9 terminals) 7 Pt100 resistance thermometers – 3-wire input (9 terminals) 8 Pt100 resistance thermometers – 3-wire input (9 terminals) 8 Pt100 resistance thermometers – 3-wire input (9 terminals) 8 Pt100 resistance thermometers – 3-wire input (9 terminals) 9 Pt100 resistance thermometers – 3-wire input (9 terminals) 8 Pt100 resistance thermometers – 3-wire input (9 terminals) 9 Pt100 resistance thermometers – 3-wire input (9 terminals) 9 Pt100 resistance thermometers – 3-wire input (9 terminals) 9 Pt100 resistance thermometers – 1	,																		
12 terminals 1		J	-	-	-	-	-	-	-	-	1	1	1	1	1	1			
thermometers (2 terminals) ³⁾ 2 Pt1000 resistance thermometers (4 terminals) ³⁾ 1 Pt100 resistance thermometer - 2-wire input (2 terminals) 3 Pt100 resistance thermometers - 3-wire input (9 terminals) 6 Pt100 resistance thermometers - 3-wire input (18 terminals) 7 NTC thermistors - for tripping (6 terminals) 7 Diagram (19 Diagram and 19 Diagram																			
2 Pt1000 resistance thermometers (4 terminals) ³⁾ L	1 Pt1000 resistance	K	-	1	1	✓	1	1	1	/	1	✓	1	1	1	/			
thermometers (4 terminals) 3) 1 Pt100 resistance thermometer – 2-wire input (2 terminals) 3 Pt100 resistance thermometers – 3-wire input (9 terminals) 6 Pt100 resistance thermometers – 3-wire input (9 terminals) 3 NTC thermistors – for tripping (6 terminals) 3 bimetal sensors (NC contacts) – for tripping (2 terminals) Z Q9A				,	,		,		,	,	,								
1 Pt100 resistance thermometer – 2-wire input (2 terminals) 3 Pt100 resistance thermometers – 3-wire input (9 terminals) 6 Pt100 resistance thermometers – 3-wire input (18 terminals) 3 NTC thermistors – for tripping (6 terminals) 3 bimetal sensors (NC contacts) – for tripping (2 terminals) 7 Q3A — — — — — — — — — — — — — — — — — — —	thermometers (4 terminals) 3)	-	_	1	•	•	•	•	•	/	/	•	•	•	•	•			
(2 terminals) 3 Pt100 resistance Content	1 Pt100 resistance	Р	-	-	-	-	1	1	1	/	1	/	1	1	/	1			
3 Pt100 resistance thermometers – 3-wire input (9 terminals) 6 Pt100 resistance thermometers – 3-wire input (18 terminals) 3 NTC thermistors – for tripping (6 terminals) 3 bimetal sensors (NC contacts) – for tripping (2 terminals) Z Q9A																			
thermometers – 3-wire input (9 terminals) 6 Pt100 resistance thermometers – 3-wire input (18 terminals) 3 NTC thermistors – for tripping (6 terminals) 3 bimetal sensors (NC contacts) – for tripping (2 terminals) C	,	O	_	_	_		1		1	J	1				ſ				
6 Pt100 resistance thermometers – 3-wire input (18 terminals) 3 NTC thermistors – for tripping (6 terminals) 3 bimetal sensors (NC contacts) – for tripping (2 terminals) C	thermometers – 3-wire input						ľ	•	•	•	ľ	•	•	•	•	•			
thermometers – 3-wire input (18 terminals) 3 NTC thermistors – for tripping (6 terminals) 3 bimetal sensors (NC contacts) – for tripping (2 terminals) 2 Q3A	,	_																	
(18 terminals) 3 NTC thermistors – for tripping (6 terminals) 3 bimetal sensors (NC contacts) – for tripping (2 terminals) 6 bimetal sensors (NC contacts) for alarm and Q9A V<		R	-	-	-	-	/	/	/	/	/	/	/	/	/	/			
tripping (6 terminals) 3 bimetal sensors (NC contacts) – for tripping (2 terminals) Z Q3A V V V V V V V V V V V V V																			
3 bimetal sensors (NC contacts) – for tripping (2 terminals) 2 Q3A V V V V V V V V V V V V V		Z	Q2A	1	1	✓	1	1	1	1	_	-	-	-	-	-			
(NC contacts) – for tripping (2 terminals) ² 6 bimetal sensors (NC contacts) for alarm and	11 01	7	034	1	1	/	1	1	/	/	1	1	/	/	./	/			
6 bimetal sensors Z Q9A V V V V V V V V V V	(NC contacts) – for tripping	_	GSA	•	-	V	•	•	•	,	•	,	•	•	,	•			
(NC contacts) for alarm and																			
tripping (4 terminals) ²⁾		Z	Q9A	-	-	-	/	1	/	/	/	/	/	/	/	/			
	tripping (4 terminals) 2)																		

- Standard version
- With additional charge
- Not possible

Note:

Options are available specifically for bearing protection for order codes and descriptions, see from page 2/109.

For the Performance Line, motor protection by means of PTC thermistors with 3 built-in temperature sensors for tripping (motor protection code letter B) is already included in the basic price. For the Performance Line, the option "without motor protection" (motor protection code letter A) is not possible.

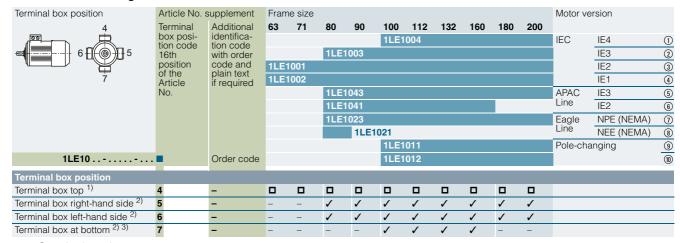
²⁾ Evaluation with appropriate tripping unit (see Catalog IC 10) is recommended.

³⁾ Not UL certified. Not in combination with option D31.

SIMOTICS GP 1LE1 standard motors

Terminal box position · Aluminum series 1LE10

Selection and ordering data



■ Standard version✓ With additional charge

- Not possible

For types of construction with feet up to and including frame size 160, cast feet are standard. Screwed-on feet are available with order code H01. Frame sizes 180 and 200 are fitted as standard with screwed-on feet.

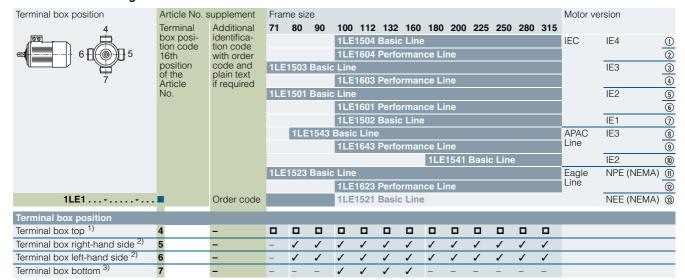
²⁾ For types of construction with feet, screwed-on feet are standard.

³⁾ Not generally possible for motors with feet.

SIMOTICS SD 1LE1 standard motors

Terminal box position · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

Selection and ordering data



- Standard version
- With additional charge
- Not possible

¹⁾ For types of construction with feet and flange-mounted with feet, cast feet are standard. Screwed-on feet are available with order code H01.

²⁾ For types of construction with feet and flange-mounted with feet, screwed-on feet are standard. Except for frame sizes 225, 250, 280 and 315: in which case for types of construction with feet and flange-mounted with feet, cast feet are standard. Screwed-on feet are available with order code H01.

³⁾ Not generally possible for motors with feet.

Article No. supplements and special versions SIMOTICS GP 1LE1 standard motors

Options · Aluminum series 1LE10

Selection and ordering data															
Special versions	Additional		Fran	ne size									Motor ve	rsion	
	identification code -Z wi		63	71	80	90		112	132	160	180	200			
	order code and plain t	Э					1LE1	004					IEC	IE4	①
	if required		41.5	1001	1LE1	003								IE3	2
				1001										IE2 IE1	<u>3</u>
			ILE	1002	1LE1	1043							APAC	IE3	5
					1LE1								Line	IE2	6
					1LE1	023							Eagle	NPE (NEMA)	<u> </u>
						1LE1	021						Line	NEE (NEMA)	8
							1LE1	011					Pole-cha	nging	9
1LE10 Z	Order cod	е					1LE1	012							10
Motor protection															
1 or 3 PTC thermistors – for tripping (2 terminals)	Q11	New!	1	✓	1	1	1	1	✓	✓	1	1			
2 or 6 PTC thermistors – for alarm and tripping (4 terminals)	Q12	New!		✓	1	1	1	1	✓	1	1	1			
1 KTY84-130 temperature sensor (2 terminals)	Q23	New!		✓	1	1	1	✓	✓	✓	1	✓			
2 KTY84-130 temperature sensors (4 terminals)	Q25	New!		✓	1	1	1	/	/	/	1	1			
3 bimetal sensors (NC contacts) for tripping (2 terminals)	Q31	New!		_	1	1	1	✓	√	✓	/	/			
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)	Q32	New!		_	✓	1	1	<i>'</i>	✓	/	1	/			
3 bimetal sensors (NC contacts) for tripping (6 terminals)	Q33	New!		_	_	-	-	_		_	1	/			
6 bimetal sensors (NC contacts) for alarm and tripping (12 terminals)	Q34	New!			_	-	-				/	/			
1 Pt1000 resistance thermometer (2 terminals) 40)	Q35		✓	✓	/	1	1	/	✓	/	/	/			
2 Pt1000 resistance thermometers (4 terminals) 40)	Q36	4/	1	✓	1	1	/	✓	/	/	/	/			
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	Q60	New!		_	_	-	/	/	/	/	/	/			
6 Pt100 resistance thermometers – 2-wire input (12 terminals)	Q61	New!		_	_	_	1	<i>'</i>	<u> </u>	<i>'</i>	1	/			
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	Q62	New!		_	_	_	1	<i>'</i>	<u> </u>	/	1	/			
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	Q63	New!		_	_	_	√ √	<i>'</i>	1	1	1	<i>'</i>			
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	Q64	New!			_	_		O . R.		•		_			
2 Pt100 screw-in thermometers in basic configuration for bearings (2 terminals)	Q78	New!			_	_		O.R.				1			
2 Pt100 screw-in thermometers in 3-wire input for bearing (6 terminals)		New!			_	-									
2 Pt100 double screw-in thermometers in 3-wire input for bearing (12 terminals) Motor connection and terminal box		New!	_	_	_	_	O. H.	O.R.	O. R.	O. R.	7	<i>'</i>			
External grounding	H04		/	/	1	1	1	/	/	/	1	/			
Terminal box on NDE 3)	H08		1	<u>✓</u>	/	1	1	1	<u> </u>	1	1	1			
Rotation of the terminal box through 90°, entry from DE 1)	R10		0	0	0	0	0	0	0	0	1	1			
Rotation of the terminal box through 90°, entry from NDE	R11		0	0	0	0	0	0	0	0	1	1			
Rotation of the terminal box by 180°	R12		0	0	0	0	0	0	0	0	1	1			
Terminal box in position 0°; connection from right 41)	R13	New!	0	0	0	0	0	0	0	-	-	-			
One metal cable gland	R15		/	/	1	1	1	1	1	/	1	1			
Metal cable gland,	R18		-	_	_	_	-	-	-	-	1	1			
maximum configuration	D20		/	/	/	/	-	/	/	/			Not for:	(a) (b)	
3 cables protruding, 0.5 m long ⁴⁾⁵⁾	R20		/	/	/	1	/	/	✓ 	✓	_	_	Not for:	9, 10	
3 cables protruding, 1.5 m long ⁴⁾⁵⁾	R21		1	✓	✓	1	1	✓	√	√			Not for:	9, 10	
6 cables protruding, 0.5 m long ⁴⁾	R22		✓	✓	✓	1	1	1	✓	1		O.R.			
6 cables protruding, 1.5 m long ⁴⁾	R23		1	1	1	1	1	1	✓	✓	O.R.	O.R.			

For legends and footnotes, see page 2/108.

SIMOTICS GP 1LE1 standard motors

Special versions	Additional identification code -Z with	Fram	ne size 71	80	90	_		132	160	180	200	Motor ve		
	order code					1LE1	004					IEC	IE4	1
	and plain text if required	PIEZ-	1001	1LE1	1003								IE3	2
		1LE											IE2 IE1	<u>3</u>
		ILE	1002	1LE1	1043							APAC	IE3	5
				1LE1								Line	IE2	6
				1LE1								Eagle	NPE (NEMA)	7
					1LE1	021						Line	NEE (NEMA)	8
						1LE1	011					Pole-cha	nging	9
1LE10 Z	Order code					1LE1	012							10
Motor connection and terminal box (c	ontinued)													
6 cables protruding, 3 m long ⁴⁾	R24	✓	✓	1	1	✓	/	✓	✓	O.R.	O.R.			
Reduction piece for M cable gland in accordance with British Standard, mounted on both cable entries 2)	R30	-	-	-	-	1	1	√	1	-	-			
Larger terminal box	R50	/	/	1	1	1	/	/	/	1	/	Not for:	①, ⑧ < frame size 100	
	_	-	-										①, ⑧ < frame size 100	
Auxiliary terminal box, aluminum	R60	-	-	-	-	-	-	-	-	1	✓			
Motor connector Han-Drive 10e for 230 VΔ/400 VY 30)	R70	1	1	1	1	1	1	/	-	-	-			
Motor connector Han-Drive 10e EMC for 230 VΔ/400 VY 30)	R71	1	1	1	1	1	✓	√	-	-	-			
Small motor connector CQ12 with EMC	R72	-	-	1	1	-	-	-	-	-	-			
Small motor connector CQ12 without EMC	R73	-	-	1	1	-	-	-	-	-	-			
Windings and insulation Temperature class 155 (F), utilized according to 155 (F), with service factor	N01	-	-	-	-	1	✓	1	1	✓	1			
Temperature class 155 (F), utilized acc. to 155 (F), with increased power	N02	-	-	-	-	1	1	1	1	1	1			
Temperature class 155 (F), utilized acc. to 155 (F), with increased coolant temperature	N03	1	1	1	1	1	1	✓	1	1	1			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %	N05	1	1	1	1	1	1	✓	1	1	1			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %	N06	1	1	1	1	1	1	✓	1	1	1			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %	N07	1	1	1	1	1	1	1	1	1	1			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	N08	1	1	1	1	✓	✓	✓	✓	1	1			
Temperature class 180 (H) 31)	N10	✓	✓	1	1	-	-	-	-	-	-	Not for:	0.0.0.0	
Temperature class 180 (H) at rated power and max. CT 60 °C ^{6) 31)}	N11	/	<i>'</i>	1	/	/	/	/	/	/	<i>'</i>	Not for:	①	
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	N3U	1	✓	1	1	1	✓	1	✓	✓	✓			
Increased air humidity/temperature with 60 to 100 g water per m ³ of air		✓	1	1	1	1	✓	1	1	1	1			
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	y50 • and spec. power, CT°C or IA m above sea level	<i>y</i>	✓	J	1	✓	✓	✓	√	/	✓			
Temperature class 155 (F), utilized according to 155 (F), other requirements	Y52 ● and spec. power, CT°C or IA m above sea level	✓	√	✓	1	V	√	✓	✓	1	√			
Temperature class 180 (H), utilized according to 155 (F)	and spec. power, CT°C or IA m above sea level	_	-	_	-	O.R.	O.R.	O.R.	O.R.	_	-	Not for:	①	

Article No. supplements and special versions SIMOTICS GP 1LE1 standard motors

Options · Aluminum series 1LE10

Special versions	Additional identification code -Z with order code	th e	Fram 63	e size 71	80	90	100 1LE1		132	160	180	200	Motor ve	ersion IE4	①
	and plain t	ext			1LE1	003								IE3	2
	ii required		1LE1											IE2	3
			1LE1	002										IE1	4
					1LE1								APAC	IE3	(5)
					1LE1	041							Line	IE2	6
					1LE1								Eagle	NPE (NEMA)	7
						1LE1							Line	NEE (NEMA)	8
1LE10	Order code	e					1LE1						Pole-cha	anging	9
Colors and paint finish															
Standard paint finish C2 in RAL 7030 stone gray				_				_	_	_					
Unpainted (only cast-iron parts primed	S00		0	0	0	0	0	0	0	0	0	0			
Unpainted, only primed	S01		1	-	1	1	1	-	-	-	1	<u>√</u>			
Special paint finish C3	S02		1	1	1	1	1	<u> </u>	1	1	1	· /			
Special paint finish sea air resistant C4	S03		1	<u>, </u>	/	1	1	<u>, </u>	<u>, </u>	<u>, </u>	1	· /			
Internal coating	S05	New!	1	1	/	1	1	<u> </u>	1	<u> </u>	1	· /			
Top coat polyurethane ³⁴⁾	S06	7,000;	1	<u> </u>	/	1	1	1	<u> </u>	<u> </u>	1	· /			
Paint finish in other standard RAL	Y53 •		1	1	1	1	1	1	1	1	1	1			
colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	and paint finish RAL														
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	Y56 • and paint finish RAL		1	✓	✓	J	J	✓	✓	✓	1	1			
Modular technology – Basic versions	7)														
Mounting of holding brake (standard assignment) 8) 28)	F01		✓	1	1	1	1	✓	1	1	1	1			
Mounting of brake for higher switching frequency (operating brake)	F02		O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	-	-			
Mounting of separately driven fan ²⁹⁾	F70		✓	✓	✓	1	✓	✓	✓	✓	1	✓			
Mounting of 1XP8012-10 (HTL) rotary pulse encoder ^{9) 10)}	G01		✓	✓	✓	1	✓	✓	✓	✓	1	✓			
Mounting of 1XP8012-20 (TTL) rotary pulse encoder ^{9) 10)}	G02		1	✓	✓	1	1	✓	✓	✓	1	1			
Mounting of Kübler Sendix 5020 HTL, 1024 I rotary pulse encoder	G11		-	-	✓	1	1	✓	✓	✓	1	✓			
Mounting of Kübler Sendix 5020 TTL, 1024 I rotary pulse encoder	G12		_	-	✓	1	1	✓	✓	✓	1	1			
Modular technology – Additional vers															
Brake supply voltage 24 V DC			✓	✓	✓	٧	✓	✓	✓		1	✓			
Brake supply voltage 230 V AC, 50/60 Hz	F11		✓	✓	✓	1	0	0	0	0	0	0			
Brake supply voltage 400 V AC, 50/60 Hz	F12		1	✓	✓	1	1	✓	✓	✓	1	1			
Mechanical manual brake release with lever (no locking)	F50		✓	✓	✓	1	1	✓	✓	✓	1	1			
Special technology ⁷⁾															
Mounting of LL 861 900 220 rotary pulse encoder 9)	G04		-	-	-	-	1	✓	✓	✓	1	✓			
Mounting of HOG 9 DN 1024 I rotary pulse encoder ⁹⁾	G05		-	-	-	-	1	✓	✓	1	1	1			
Mounting of HOG 10 D 1024 I rotary pulse encoder ⁹⁾	G06		-	-	-	-	1	1	1	1	1	1			
Mechanical version and degrees of p	rotection														
Low-noise version for 2-pole motors with clockwise direction of rotation	F77		-	-	-	-	-	-	1	1	1	✓			
Low-noise version for 2-pole motors with counterclockwise direction of rotation	F78		_	-	-	-	-	-	1	✓	1	✓			
Prepared for mountings, centering hole only ¹⁰⁾	G40		-	-	1	1	1	1	1	1		0			
Prepared for mountings with D12 shaft 15			1	1	1	1	1	1	1	1	1	1			
Prepared for mountings with D16 shaft ¹⁵			-	-		O.R.		✓	✓	1	1	1			
Mechanical protection for encoder	G43		O.R.	O.R.	✓	✓	✓	✓	/	✓	✓	✓			

For legends and footnotes, see page 2/108.

SIMOTICS GP 1LE1 standard motors

Special versions	Additional identification		ne size									Motor ve	rsion
	code -Z with	63	71	80	90	100		132	160	180	200	IEC	IE4 ①
	order code and plain text			1LE	1003	ILE	1004					IEC	IE4 ① IE3 ②
	if required	11.5	1001		1000								IE2 ③
			1002										IE1 4
				1LE	1043							APAC	IE3 §
				1LE	1041							Line	IE2 6
				1LE	1023							Eagle	NPE (NEMA)
					1LE	1021						Line	NEE (NEMA) 8
						1LE1						Pole-cha	NEE (NEMA) 8 anging 9 0
1LE10Z	Order code					1LE1	1012						(10)
Mechanical design and degrees of pro	otection (contin	ued)											
Protective cover ^{9) 11)}	H00	1	✓	1	1	1	✓	✓	1	1	✓		
Screwed-on (instead of cast) feet	H01	-	-	✓	1	1	✓	✓	/				
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994 39)	H02	1	1	1	1	1	1	1	1	1	✓		
Condensation drainage holes ¹⁴⁾	H03	1	✓	1	1	1	✓	1	✓	1	✓		
Rust-resistant screws (externally)	H07	1	✓	1	1	1	✓	✓	✓	1	✓		
Housing with screw mounting ³²⁾	H10	-	-	1	1	-	-	-	-	1	1	Only for:	②, ③, ⑤, ⑥ (frame sizes 80, 90), ⑦, ⑧
Degree of protection IP65 ¹³⁾	H20	1	/	1	/	1	/	/	/	1	/		00, 90), (1), (0)
Degree of protection IP56 ¹²⁾	H22	1	✓	1	1	1	√	<u>/</u>	✓	1	✓		
Drive-end seal for flange-mounting	H23	1	1	1	1	1	1	1	1	1	1		
motors, oil-tight to 0.1 bar ¹⁶⁾ Coolant temperature and installation a		_	_					_	_		_	_	
Coolant temperature -40 to +40 °C ^{16) 28)}	D03	1	✓	1	1	1	✓	1	1	1	✓		
Coolant temperature -30 to +40 °C ^{16) 28)}	D04	1	1	1	1	1	✓	1	1	1	1		
Versions in accordance with standard	s and specifica	tions											
VIK version	C02	-	-	1	1	1	✓	/	/	_	-	Only for:	2, 3
CCC China Compulsory Certification ¹⁷⁾	D01 New	/ _	-	1	1	-	-	-	-	_	-		
Motor without CE marking for export outside EEA (see EU Directive 640/2009)	D22	-	0	0	0	0	0	0	0	0	0	Only for:	3, 4
Electrical according to NEMA MG1-12 ¹⁸⁾	D30	-	-	1	1	1	✓	✓	✓	1	✓	Not for:	7, 8
	-	-	-									Only for:	
Design according to UL with "Recognition Mark" 19)	D31	-	-	✓	1	1	✓	✓	✓	✓	✓	Not for:	7, 8
	-	-	-									Only for:	
KEMCO Korea Energy Efficiency Label	D33	-	_	0	0	0	0	0	0	0	0	Only for:	
China Energy Efficiency Label ³⁸⁾	D34	-	-	0	0	0	0	0	0	0	0	Not for:	4, 9, 10
Canadian regulations (CSA) 33) 37)	D40	1	✓	/	/	/	<u>/</u>	<u>/</u>	<u>/</u>	/	<u>/</u>	Not for:	4, 7, 8, 9, 10
TR CU product safety certificate EAC	D47	-				□	<u> </u>		<u> </u>	□ ✓		Only for:	(1), (8)
for Eurasian customs union 35)	D41	_	_	•	•	•	•	•	•	•	•		
Version suitable for railways IC 411, EN IEC 60349, without EN 45545, with external fan and fan cover in plastic	L90 New	/ –	-	1	1	1	1	1	1	1	1		
Version suitable for railways IC 411, EN IEC 60349, with EN 45545, with external fan and fan cover in metal	L91 New	/ /	1	1	1	1	1	1	1	1	1		
Version suitable for railways IC 418, EN IEC 60349, without EN 45545, without external fan and fan cover	L92 New	15	1	1	1	1	✓	1	✓	1	1		
Bearings and lubrication													
Regreasing device with M10 \times 1 grease nipple according to DIN 71412-A	L19	-	-	-	-	-	-	-	-	1	✓		
Located bearing DE	L20	1	1	1	1	1	1	✓	1	1	1		
Located bearing NDE	L21	1	✓	1	1	1	✓	✓					
Bearing design for increased cantilever forces 36)	L22	-	-	1	1	1	✓	√	1	1	✓		
Regreasing device ²⁰⁾	L23	-	-	_	-	1	✓	✓	✓	1	/		
Bearings reinforced at both ends for DE and NDE, bearing size 63	L25	-	-	1	1	1	✓	1	1	1	✓		
Measuring nipple for SPM shock pulse measurement for bearing inspection ²⁰⁾	Q01	-	-	-	-	✓	✓	✓	✓	1	✓		

Article No. supplements and special versions SIMOTICS GP 1LE1 standard motors

Special versions	Additional identification code -Z with	Fran	ne size 71	80	90	100	112	132	160	180	200	Motor ve	ersion	
	order code					1LE	1004					IEC	IE4	1
	and plain text if required			1LE1	1003								IE3	2
	ii required	1LE											IE2	3
		1LE	1002										IE1	4
				1LE1								APAC	IE3	(5)
				1LE1								Line	IE2	6
				1LE1	_							Eagle	NPE (NEMA)	7
					1LE							Line	NEE (NEMA)	8
1LE10 Z	Order code					1LE						Pole-cha	anging	8 9 10
Balance and vibration severity														
Vibration severity grade A														
Vibration severity grade B	L00	1	/	1	1	1	1	1	/	1	1			
Half-key balancing (standard)														
Balancing without feather key	L01	1	/	1	1	1	/	/	/	1	/			
Full-key balancing	L02	-	-	1	1	1	/	/	/	1	/			
Shaft and rotor														
Shaft extension with standard dimensions, without feather keyway	L04	-	-	-	-	✓	✓	1	1	1	1			
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	L05	✓	✓	1	√	√	√	√	√	1	√			
Standard shaft made of stainless steel (e.g. 1.4021)	L06	1	✓	1	1	1	✓	1	1	1	✓			
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L07	1	✓	1	✓	✓	√	√	✓	1	√			
Concentricity of shaft extension, coaxiality, and linear movement in accordance with DIN 42955 Tolerance R for flange-mounted motors	L08	√	√	1	/	/	1	✓	✓	1	1			
Non-standard cylindrical shaft extension, DE 21)	Y58 • and customer specifications	1	√	1	1	1	✓	✓	1	1	1			
Non-standard cylindrical shaft extension, NDE 21)	Y59 • and customer specifications	✓	✓	1	√	√	1	1	✓	1	1			
Heating and ventilation														
Sheet metal fan cover	F74	-	-	1	1	1	✓	✓	/	1	/			
Fan cover for textile industry ²²⁾	F75	✓	✓	1	1	✓	✓	✓	✓	1	✓			
Metal external fan ^{23) 29)}	F76	1	✓	1	1	1	✓	✓	✓	1	✓			
Without external fan and without fan cover	F90	✓	✓	✓	1	1	✓	✓	✓	1	✓	Not for:	9, 10	
Anti-condensation heating for 230 V (2 terminals)	Q02	1	✓	/	1	1	✓	✓	/	/	✓			
Anti-condensation heating for 115 V (2 terminals)	Q03	1	/	/	/	1	/	/	/	1	1			
Rating plate and additional rating plate														
Additional rating plate for voltage tolerance ²⁴⁾	B07	1	✓ 	/	/	/	<i>'</i>	/	<i>'</i>	1	<i>\</i>	Not for:	(9), (10), 8-pole motors	
Second rating plate, loose ²⁵⁾	M10	/	/	/	/	/	/	/	/	/	/			
Rating plate, stainless steel	M11	/	/	/	/	/	<u>/</u>	/	/	/	✓			
Additional rating plate with deviating rating plate data	Y80 • and customer specifications	<i>y</i>	✓	✓	√	√	✓	✓	✓	1	1			
Additional rating plate with customer specifications	Y82 • and customer specifications	1	1	1	1	1	√	1	1	1	1			
Additional information on rating plate and on package label (max. 20 characters)	Y84 • and customer specifications	√	1	1	1	1	✓	✓	✓	1	✓			
Adhesive label, supplied loose (printed with: Article No., Serial No.: 2 lines of text)	Y85 • and customer specifications	-	-	-	-	√	1	1	1	1	1			

Article No. supplements and special versionsSIMOTICS GP 1LE1 standard motors

												_			
Special versions	Additional identification		Fran	ne size 71	80	90	100	112	132	160	180	200	Motor ve	ersion	
	code -Z wi						1LE	1004					IEC	IE4	1
	and plain t				1LE1	003								IE3	
	if required		1LE	1001										IE2	3
			1LE	1002										IE1	<u>(4)</u>
					1LE1	1043							APAC	IE3	② ③ ④ ⑤ ⑥
					1LE1								Line	IE2	(6)
					1LE1	1023							Eagle	NPE (NEMA)	
						1LE	1021						Line	NEE (NEMA)	(8)
							1LE	1011					Pole-cha	, ,	(7) (8) (9) (0)
1LE10Z	Order code	е					1LE	1012						0 0	10
Packaging, safety notes, documentati	on and too	t oort	ificat	00	-	-									
	on and les	i ceri		es	_	_		_	_			_	_		
Printed German/English Operating Instructions (compact) enclosed ²⁷⁾															
Printed German/English Operating Instructions (compact) enclosed in each wire-lattice pallet ²⁷)	B01		0	0	0	0	0	0	0	0	0	0			
Acceptance test certificate 3.1 according to EN 10204 ²⁶⁾	B02		✓	1	1	1	1	1	1	1	1	1			
Printed German/English Operating Instructions enclosed	B04		-	-	1	1	1	1	1	1	1	1			
Document - Electrical data sheet	B60		-	-	1	1	1	/	/	/	1	1			
Document - Order dimensional drawing	B61		-	-	1	1	1	✓	1	/	1	/			
Type test with heat run for horizontal motors, with acceptance	B83		✓	1	1	1	1	1	1	1	1	1			
"Basic" documentation package	B90	New!	′ –	-	1	1	1	/	/	/	1	1			
"Advanced" documentation package	B91	New!	′ —	-	1	1	1	/	/	/	1	1			
"Projects" documentation package	B92	New!	′ –	-	1	1	1	/	/	/	1	1			
Wire-lattice pallet packaging	B99		1	✓	0	0	0	0	0	0	0	0			
Connected in star for dispatch	M01		-	-	-	-	1	/	/	/	1	/			
Connected in delta for dispatch	M02		-	-	-	-	1	1	✓	1	1	1			

SIMOTICS GP 1LE1 standard motors

Options · Aluminum series 1LE10

Standard version

o Without additional charge

This order code only determines the price of the version –

Additional plain text is required.

✓ With additional charge
O. R. Possible on request
Av. soon Available soon
Not possible

- 1) With IM B5 flange, only possible in combination with **H08**.
- 2) Not possible in combination with order code R15 "One metal cable gland".
- 3) With H08, feet dimensions C and CA differ from EN 50347! Further information is available in the DT Configurator (see Appendix, "Tools and engineering").
- 4) In conjunction with motor protection (15th position of the Article No.) or anti-condensation heating option, please inquire before ordering.
- 5) Not possible in combination with voltage code 22 or 34
- 6) Cannot be used for motors in UL version (order code **D31**). The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.
- A second shaft extension is not possible. Please inquire for mounted brakes
- 8) For order codes F10, F11, and F12, the brake supply voltage must be specified or ordered.
- 9) All encoders are supplied with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover. In combination with a separately driven fan (order code F70) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.
- 10) As standard, motors that are prepared for additional mountings (order codes G40, G41, G42) are shipped without protective cover. If a protective cover is requested as a cover or mechanical protection for mountings provided by the customer, this can be ordered with order code G43. Not possible in combination with order code L00 vibration severity grade B. In combination with a separately driven fan (order code F70) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.
- ¹¹⁾ Order code **H00** provides mechanical protection for encoders.
- 12) Not possible in combination with 2LM8 brake order code F01.
- 13) Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code G05) and/or brake 2LM8 (order code F01).
- Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If the condensation drainage holes are required for motors of the IM B6, IM B7, or IM B8 type of construction (feet on side or top), the motors must be ordered in the respective type of construction and with order code H03, so that the condensation drainage holes will be placed in the correct position.
- As standard, motors that are prepared for additional mountings (order codes G40, G41, G42) are shipped without protective cover. If a protective cover is requested as a cover or mechanical protection for mountings provided by the customer, this can be ordered with order code G43. Not possible in combination with order code L00 vibration severity grade B.
- 16) In connection with mountings, the respective technical specifications must be observed, please inquire before ordering.
- 17) CCC mandatory certification, see Chapter 1 Page 1/27.
- 18) Possible up to 600 V max. The rated voltage is indicated on the rating plate without voltage range. Order codes **D30** and **D31** do not authorize importing into USA and Mexico. The North America export versions Eagle Line 1LE1021 NEMA Energy Efficient and 1LE1023 NEMA Premium Efficient are available for this purpose.
- 19) In connection with mountings, the respective technical specifications must be observed, please inquire before ordering.
- ²⁰⁾ Not possible when brake is mounted.

- 21) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with EN 50347, Form A are used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather key is always supplied. For order codes Y58, Y59 and L05 the following applies:
 - Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables for "Dimensions")
 - Dimensions E and EA $\leq 2 \times$ length E (standard) of the shaft extension.
- 22) The special requirements of the textile industry regarding the sheet metal cover open up the possibility that a finger may be inserted between the cover and housing. The customer must implement appropriate measures to ensure that the installed system is "finger-safe".
- 23) Converter operation is permitted for 1LE1 motors with metal external fans. The metal external fan is not possible in combination with the low-noise version – order code F77 or F78.
- ²⁴⁾ Can be ordered for 230 VΔ/400 VY or 400 VΔ/690 VY (voltage code "22" or "34"). Not possible in combination with order code D34.
- ²⁵⁾ As adhesive label for frame sizes 80 and 90.
- 26) The delivery time for the factory test certificate may differ from the delivery time for the motor and it will be dispatched by email.
- 27) The Operating Instructions (compact) are available in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/40761976.
- 28) Not possible in combination with order codes N05, N06, N07, N08, and N11.
- ²⁹⁾ Order codes **F70** and **F76** cannot be combined.
- 30) When ordering with order code R70 and R71, order code R50 is included.
- 31) Not possible for 2-pole and 4-pole motors with increased power (11th position of the Article No.: 6) in frame sizes 80 and 90.
- ³²⁾ Possible with frame sizes 180 and 200 with screw-mounted fan cover.
- ³³⁾ For frame sizes 180 and 200, constructed with metric entry thread.
- 34) Order code S06 cannot be combined with order code S00 and S01. It can be combined with Y53 and Y56 on request.
- 35) Please note the additional use of order code **D22** "Motor without CE marking for export outside EEA (see EU Directive 640/2009)".
- 36) A minimum cantilever force F_{min} of 0.5 · F_{max} is required for NU bearings (cylindrical roller bearings) in contrast to ball bearings. Cylindrical roller bearings are not suitable for coupling output or for brief periods of no-load operation without cantilever force.
- 37) The rated voltage is indicated on the rating plate without voltage range. Order code **D40** does not authorize importing into Canada. The North America export versions Eagle Line 1LE1021 NEMA Energy Efficient and 1LE1023 NEMA Premium Efficient are available for this purpose.
- Not possible in combination with voltage code (12th or 13th position of the Article No.) 17, 18, 30, 31, 60, 61, 62, 63 and 90 with the additional order codes M1A; M2A; M2B; M1B; M1C; M2C; M1D; M2D; M1E; M2E; M1F; M2F; M1G; M2G; M1H; M2H; 1K; M2K; M1J; M2J; M1L; M2L; M1M; M2M and M3A.
- ³⁹⁾ Not possible in combination with order code **R50**
- 40) Not UL certified. Not in combination with option D31.
- ⁴¹⁾ Not possible in combination with order codes R70, R71, R72, and R73.

SIMOTICS SD 1LE1 standard motors

Options · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

Selection and ordering data																	
Special versions	Additional iden-	Fra	me s	size											Motor v	ersion	
	tification code -	71	80	90	100	112	2 132	2 160	180	0 20	0 22	5 25	0 28	0 315			
	Z with order code and plain					E150									IEC	IE4	1
	text if required				1LI	E160	4 Pe	rforn	nanc	e Lir	ne .						(1) (2) (3) (4) (5) (6) (6) (7) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7
		1LE	E150	3 Ba	sic L	.ine										IE3	3
					1LI	E160	3 Pe	rforn	nanc	e Lir	ne						4
		1LE	E150	1 Ba	sic L	.ine										IE2	(5)
					1LI	E160	1 Pe	rforn	nanc	e Lir	ne .						6
					1LI	E150	2 Ba	sic L	.ine							IE1	7
			1L	E154	_										APAC	IE3	8
					1L	E164	3 Pe	rforn							Line		9
									1L	E154	l1 Ba	isic l	_ine			IE2	(10)
		1LE	152	3 Ba	_										Eagle Line	NPE (NEMA)	(1) (2)
					_	E162				e Lir	ne				Line		(12)
1LE1 Z	Order code				1L	E152	1 Ba	sic L	.ine							NEE (NEMA)	13
Motor protection																	
1 or 3 PTC thermistors – for tripping (2 terminals)	Q11	-	-	-	1	1	✓	1	1	1	✓	1	✓	1			
2 or 6 PTC thermistors – for alarm and tripping (4 terminals)	Q12	-	-	-	1	1	✓	✓	1	✓	✓	✓	✓	/			
1 KTY84-130 temperature sensor (2 terminals)	Q23	-	-	-	1	1	1	1	1	1	1	1	1	1			
2 KTY84-130 temperature sensors (4 terminals)	Q25	-	-	-	1	1	1	✓	1	1	✓	✓	✓	1			
3 bimetal sensors (NC contacts) for tripping (2 terminals)	Q31	-	-	-	1	1	1	✓	1	1	✓	✓	✓	1			
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)	Q32	-	-	-	1	1	1	1	1	/	✓	1	1	1			
3 bimetal sensors (NC contacts) for tripping (6 terminals)	Q33	-	-	-	1	1	1	1	1	/	✓	1	1	1			
6 bimetal sensors (NC contacts) for alarm and tripping (12 terminals)	Q34	-	-	-	1	1	1	1	1	1	1	1	1	1			
1 Pt1000 resistance thermometer (2 terminals) ⁴⁰⁾	Q35	-	-	-	1	✓	✓	✓	✓	✓	✓	✓	✓	1			
2 Pt1000 resistance thermometers (4 terminals) ⁴⁰⁾	Q36	-	-	-	1	✓	✓	✓	✓	✓	✓	✓	✓	1			
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	Q60	-	-	-	1	1	1	1	1	1	1	1	1	1			
6 Pt100 resistance thermometers – 2-wire input (12 terminals) ²⁷⁾	Q61	-	-	-	1	1	√	✓	1	✓	✓	✓	✓	/			
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	Q62	-	-	-	1	1	√	✓	1	✓	✓	✓	✓	/			
3 Pt100 resistance thermometers – 3-wire input (9 terminals) 30)	Q63	-	-	-	1	√	✓	√	1	√	✓	✓	✓	√			
6 Pt100 resistance thermometers – 3-wire input (18 terminals) 30)	Q64	-	-	-	1	√	√	√	1	√	✓	✓	✓	√			
2 Pt100 screw-in thermometers in basic configuration for bearing (2 terminals) 2)	Q72	-	-	-	-	-	-	-	1	1	✓	1	✓	1			
2 Pt100 screw-in thermometers in 3-wire input for bearing (6 terminals)	Q78	-	-	-	-	-	-	-	1	1	✓	✓	✓	1			
2 Pt100 double screw-in thermometers in 3-wire input for bearing (12 terminals)	Q79	-	-	-	-	-	-	-	1	/	✓	1	1	1			
Motor connection and terminal box																	
External grounding	H04	✓	1	1	1	✓	1	✓									
Terminal box on NDE ²⁷⁾	H08	✓	/	1	/	/	/	/	✓	/	✓	✓	✓	✓			
Second external grounding	H70	-	-	-	1	/	/	1	1	✓	✓	✓		1			
Rotation of the terminal box through 90°, entry from DE ⁴¹⁾	R10	0	0	0	0	0	0	0	1	1	✓	1	✓	/			
Rotation of the terminal box through 90°, entry from NDE	R11	0	0	0	0	0	0	0	1	1	1	1	1	✓			

Article No. supplements and special versions SIMOTICS SD 1LE1 standard motors

Options · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

,	Special versions	Additional iden-	Fra	me s	ize											Motor ve	ersion	
		tification code - Z with order	71	80	90						200	225	250	280	315			
		code and plain					E150									IEC	IE4	1
		text if required	311.0	-150	3 Bas			4 Per	form	ance	Lin	е					IE3	(2)
			1100	-150	o Da			3 Per	form	ance	lin	<u> </u>					IES	<u>(3)</u>
			1LE	150	1 Bas			0 1 61	10111	larioc							IE2	(5)
						1LI	E160	1 Per	form	ance	Lin	е						6
							E150		sic L	ine							IE1	
				1LI	E154:	_										APAC Line	IE3	8
						11.	E164	3 Per	torm	ance		e 1 Ba:	oio I	ino		Lino	IE2	(9)
			1113	=152	3 Bas	sic I	ine			1124	154	1 Ба	SIC L	me		Eagle	NPE (NEMA)	(11)
								3 Per	form	ance	Lin	e				Line	= ((12)
	1LE1 Z	Order code				1LI	E152	1 Bas	sic L	ine							NEE (NEMA)	(13)
ı	Motor connection and terminal box (c	ontinued)																
1	Rotation of the terminal box by 180°	R12	0	0	0	0	0	0	0	1	1	1	1	1	/			
_	One EMC cable gland	R14	✓	✓	1	1	✓	✓	✓	1	✓	✓	✓	✓	1			
-	One metal cable gland	R15	✓	/	/	/	/	/	/	/	/	/	/	/	/			
	EMC cable gland, maximum configuration	R16	1	/	/	/	/	/	/	/	/	/	/	/	/			
	Stud terminal for cable connection, accessories pack (3 items)	R17	-	-	-	-	-	-	-	-	-	-	1	1	1			
1	Metal cable gland, maximum configuration	R18	✓	1	1	1	1	1	1	1	1	1	1	1	1			
(Saddle terminal for connection without cable lug, accessories pack	R19	-	-	-	-	-	-	-	-	-	-	1	1	✓			
(3 cables protruding, 0.5 m long	R20	/	/	✓ 	/	/	<i>\</i>	/	✓	-	-	-	-	-			
	3 cables protruding, 1.5 m long	R21	✓	✓	1	/	/	/	✓	O.R	. O. I	₹ O.F	₹ O.F	l. O.F	R. O.R.			
	6 cables protruding, 0.5 m long	R22	✓	✓	✓	1	✓	✓	✓	✓	-	-	-	-	-			
	6 cables protruding, 1.5 m long	R23	1	1	✓	1	1	1	1						1. O.R.			
_	6 cables protruding, 3 m long	R24	✓	1	✓	1	1	1	1	O.R	. O.F	R. O.F	R. O.F	l. O.F	R. O.R.			
ä	Reduction piece for M cable gland in accordance with British Standard, mounted on both cable entries	R30	_	_	_	/	/	•	/	_	-	_	_	-	_			
-	Larger terminal box	R50	✓	✓	✓	1	✓	✓	✓	✓	1	✓	✓	✓	1			
(Terminal box without cable entry opening	R51	-	-	-	0	0	0	0	0	0	0	0	0	0			
-	Drilled removable entry plate	R52	-	-	_	-	_	_	_	1	1	1	1	1	<u>/</u>			
_	Undrilled removable entry plate Cast-iron auxiliary terminal box (small)	R53 R62	_	_	_	-	_	_		1	1	✓ ✓	1	1	1			
	30) 37)	H02	_	-		_			_	_	_	_	_	_	_	Only for:	Motors with order co	de
																- , .	R50 possible	
_	Silicone-free version	R74	-	-			<u> </u>	<u> </u>	<u> </u>				√	√	√			
	Non-standard threaded through hole (NPT or G thread)	Y61 • and customer specifications	_	_	_	,	•	•	/	1	•	•	/	/	,			
	Windings and insulation																	
ě	Temperature class 155 (F), utilized according to 155 (F), with service factor	N01	✓	1	✓	1	✓	✓		✓	1	1	1	✓	✓			
ä	Temperature class 155 (F), utilized acc. to 155 (F), with increased power	N02	/	1	✓	1	✓	✓	1	1	1	✓	1	1	✓			
ä	Temperature class 155 (F), utilized acc. to 155 (F), with increased coolant temperature	N03	✓	/	1	/	/	/	1	/	1	/	/	1	1			
ä	Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %	N05	1	1	✓	1	✓	1	1	1	✓	✓	1	1	1			
	Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %	N06	1	1	✓	1	✓	✓	1	1	1	1	1	1	1			
ä	Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %	N07	1	✓	1	1	✓	✓	✓	1	1	√	✓	✓	1			

For legends and footnotes, see page 2/116.

SIMOTICS SD 1LE1 standard motors

Options · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

Special versions	Additional ider tification code	n- Fra 71	me s 80	ize 90	100	0 112	2 132	2 160	180	200	225	5 250	280	315	Motor ve	rsion	
	Z with order code and plair text if required	ו			1LI	E150	4 Ba	sic L	ine						IEC	IE4	1
	text ii required		=15 0	3 Bas		E160 ine	4 Pei	погш	ance	e Lin	e					IE3	
					_	E160	3 Pei	rform	ance	e Lin	е						4
		1LI	E150	1 Bas												IE2	5
						E160				e Lin	е					154	6
			111	E1543		E150		SIC L	ine						APAC	IE1 IE3	(1) (B)
				_ 10-10	_	E164		rform	ance	e Lin	e				Line	ILO	9
									1LI	E154	1 Bas	sic L	ine			IE2	10
		1LI	E152	3 Bas											Eagle Line	NPE (NEMA)	11)
1LE1 Z	Order code					E162 E152				e Lin	е				LINC	NEE (NEMA)	(12)
	Order code				11-1	L 1 3 2	ГБа	SIC L	IIIC							NEE (NEWA)	(1)
Windings and insulation (continued) Temperature class 155 (F), utilized	N08	./	./	./	1	./	./		./	_/	_/	./	/	/			
acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %		•	•	•	•	•		•	•	•	•	•					
Temperature class 180 (H)	N10	1	1	/	/	/	<u>/</u>	√	1	\ <u></u>	\ <u></u>	√	/	/	Not for:	1, 2, 8, 9, 10, 11), (12), (13)
Temperature class 180 (H) at rated power and max. CT 60 °C ^{4) 5)}	N11	<i>y</i>	/		/	/		<i>\</i>	/	<i>\</i>	<i>\</i>		/		Not for:	①, ②	
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	N30	/	/		/	/	/	/	/	/	/	/	/	/			
Increased air humidity/temperature with 60 to 100 g water per m ³ of air	N31	/			/	/	/	/	/	/	/	/	/	/			
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	Y50 • and spec. power, CT°C or IA m above sea level	_	_	_		,		✓		•	✓	,	•	✓			
Temperature class 155 (F), utilized acc. to 155 (F), other requirements ⁵⁾	y52 • and spec. power, CT°C or IA m above sea level	✓	1	✓	1	1	✓	✓	1	√	1	1	1	√			
Temperature class 180 (H), utilized according to 155 (F)	Y75 • and spec. power, CT°C or IA m above sea level	-	-	_	1	/	√	1	1	√	1	1	1	✓	Not for:	①, ②	
Colors and paint finish																	
Standard paint finish C2 in RAL 7030 stone gray		1	1	√	1	√	√	✓	1	1	✓	√	1	✓	Only for:	1, 3, 5, 7, 8, (3), 10, 11
Unpainted (only cast-iron parts primed)	S00 S01	0	0	0	0	0	0	0	0	0	0	0	0	0			
Unpainted, only primed Special paint finish C3	S02	1	1	1	1	1	✓ ✓	1	1	1	1	1	1	1	Not for:	2, 4, 6, 9, 12	
opedial paint linion do	-		÷	÷	÷	÷	÷	÷	Ö	÷	÷	÷	÷	÷		2, 4, 6, 9, 12	
Special paint finish sea air resistant C4	S03	1	1	1	1	/	/	/	1	/	/	/	1	1	- , -	0,0,0,0,0	
Special paint for use offshore C5	S04	1	1	1	1	/	✓	1	1	1	1	1	1	1			
Internal coating	S05	-	-	_	/	/	/	/	/	/	/	/	/	/			
Top coat polyurethane ³³⁾ Paint finish in other standard RAL	S06 Y53 •	1	1	1	1	1	√	1	/	1	1	1	✓ ✓	1	Onlyfor	00000	
Failt Illish in Order Standard April 1019, colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	and paint finish RAL	•		•	•	•		•		•	•	•	•	•	Only for:	①, ③, ⑤, ⑦, ⑧, ᠖), (W), (II)
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	Y56 • and paint finish RAL	✓	1	1	1	1	1	1	1	1	1	1	1	✓			

Article No. supplements and special versions SIMOTICS SD 1LE1 standard motors

Options · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

Special versions	Additional iden-	Fra	me s	size											Motor ve	ersion	
	tification code - Z with order	71	80	90	100	112	2 132	2 160	180	200	225	250	280	315			
	code and plain							sic L							IEC	IE4	1
	text if required	211	71.7	0 B			4 Pei	rform	anc	e Lin	е					IFO	2
		TLE	=150	3 Bas			2 Do	rform		a I i	_					IE3	① ② ③ ④ ⑤ ⑥
		311.5	=150	1 Bas			3 Pei	riorii	ianc	e Lin	е					IE2	(<u>4</u>)
			_150	n Da.	_		1 Pei	rform	ance	e Lin	e					ILZ	<u>(6)</u>
								sic L								IE1	7
			1L	E1543	Ва	sic L	ine								APAC	IE3	8
					1LI	E164	3 Pei	rform	anc	e Lin	е				Line		8 9 0
									1LI	E154	1 Ba	sic L	ine			IE2	
		1LE	E152	3 Bas											Eagle Line	NPE (NEMA)	11)
					_			rform		e Lin	е				LINE	NEE (NEMA)	12
1LE1 Z					1LI	=152	1 Ba	sic L	ine							NEE (NEMA)	(13)
Modular technology – Basic versions																	
Mounting of holding brake (standard assignment) 7) 31) 32)	F01	-	-	_	1	√	✓	√	1	✓	/	/	/	<i>\</i>	Not for:	Motors in combination vorder code F90	with
Mounting of PRECIMA brake	F04	-	-	-	-	-	-	_	-	-	/	/	/	/			
Mounting of separately driven fan ^{28) 34}		✓	/		/	/	<i></i>	✓	/	/	<i></i>				Not for:	Motors in combination vorder code F90	
Mounting of 1XP8012-10 (HTL) rotary pulse encoder 8) 9)	G01	✓	1	/	1	✓	✓	✓	1	✓	✓	1	1	1	Not for:	Motors in combination vorder code F90	
Mounting of 1XP8012-20 (TTL) rotary pulse encoder ^{8) 9)}	G02	✓	1	1	1	✓	✓	✓	✓	1	1	1	1	1	Not for:	Motors in combination vorder code F90	with
Mounting of Kübler Sendix 5020 HTL, 1024 I rotary pulse encoder	G11	✓	1	✓	1	1	1	1	1	1	1	1	1	1			
Mounting of Kübler Sendix 5020 TTL, 1024 I rotary pulse encoder	G12	/	1	✓	1	✓	/	✓	1	/	/	/	/	✓			
Modular technology – Additional vers																	
Brake supply voltage 24 V DC	F10	-	-	-	/	/	/	/	/	/	/	/	/	/	Not for:	Motors in combination vorder code F90	with
Brake supply voltage 230 V AC, 50/60 Hz	F11	-	-	-	0	0	0	0	0	0	0	0	0	0	Not for:	Motors in combination vorder code F90	with
Brake supply voltage 400 V AC, 50/60 Hz 32)	F12	-	-	-	1	1	1	1	1	1	1	1	1	✓	Not for:	Motors in combination v	with
Backstop, counterclockwise motion blocked, clockwise direction of rotation	F40	-	-	-	-	-	1	✓	1	1	1	/	/	✓			
Backstop, clockwise motion blocked, counterclockwise direction of rotation	F41	-	-	-	-	-	1	✓	1	1	1	1	1	1			
Mechanical manual brake release with lever (no locking)	F50	-	-	-	1	1	/	1	1	1	/	/	/	1	Not for:	Motors in combination vorder code F90	with
Special technology ⁶⁾																	
Mounting of LL 861 900 220 rotary pulse encoder 10)	G04	-	-	-	1	1	✓	1	1	1	1	1	1	1	Not for:	Motors in combination vorder code F90	with
Mounting of HOG 9 DN 1024 I rotary pulse encoder 10)	G05	-	-	-	1	✓	1	✓	1	✓	1	1	1	1	Not for:	Motors in combination vorder code F90	with
Mounting of HOG 10 D 1024 I rotary pulse encoder 10)	G06	-	-	-	1	1	✓	✓	1	1	1	1	1	✓	Not for:	Motors in combination vorder code F90	with
Mounting of POG10D rotary pulse encoder (only in combination with separately driven fan or brake) 11)	G07	-	-	-	-	-	-	-	1	1	/	1	1	1	Not for:	Motors in combination vorder code F90	with
Mounting of POG9 rotary pulse encoder (only in combination with separately driven fan or brake) 11)	G08	-	-	-	-	-	-	-	1	1	1	1	1	1	Not for:	Motors in combination vorder code F90	with
Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box moisture protection	G15	-	-	-	1	1	1	1	1	1	1	1	1	1	Not for:	Motors in combination vorder code F90	with
Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box dust protection	G16	-	-	-	1	1	1	✓	1	1	1	1	1	1	Not for:	Motors in combination vorder code F90	with
Mounting of rotary pulse encoder HOG 10 DN 1024 I + FSL, (integrated centrifugal switch, speed rpm), terminal box moisture protection	Y74 • and spec. speed rpm	-	-	-	-	-	-	-	1	1	1	1	1	1	Not for:	Motors in combination vorder code F90	with
Mounting of rotary pulse encoder HOG 10 DN 1024 I + FSL, (integrated centrifugal switch, speed rpm), terminal box dust protection	Y76 ◆ and spec. speed rpm	-	-	-	-	-	-	-	1	1	1	1	1	✓	Not for:	Motors in combination vorder code F90	with
Mounting of rotary pulse encoder HOG 10 DN 1024 I + ESL 93, (integrated electronic speed switch, speed rpm), terminal box dust protection	Y79 • and spec. speed (max 3) rpm	-	-	-	-	-	-	-	1	1	1	1	1	1	Not for:	Motors in combination vorder code F90	with

For legends and footnotes, see page 2/116.

SIMOTICS SD 1LE1 standard motors

Options · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

Special versions	Additional iden-	Fra	me s												Motor ve	rsion	
	tification code - Z with order	71	80	90						200	0 225	5 250	280	315	i		
	code and plain						4 Ba								IEC	IE4	1
	text if required						4 Per	form	ance	e Lin	ie .						2
		1LE	E150	3 Ba	_											IE3	
							3 Per	form	ance	e Lin	ie						4
		1LE	=150	1 Ba												IE2	(5)
							1 Per			e Lin	ie					15.4	(6)
							2 Ba:	SIC L	ine						1510	IE1	(<u>1</u>)
			115	E154	_			•							APAC Line	IE3	(8)
					115	= 164	3 Per	TORM			ie 1 Ba	-:- 1				IE2	(9)
		311.5	-5150	3 Bas	oio I	ino			-	C 134	Гра	SIC L	.ine		Eagle	NPE (NEMA)	(10)
		11.0	- 152	o Da	_		3 Per	form	0000	o I in					Line	INFE (INEIVIA)	<u> </u>
1LE1 Z	Order code				_		o Per 1 Bas			e LIII	le					NEE (NEMA)	(3)
					1121	-152	ı Da	SIC L	iiie							NEE (NEWA)	(15)
Mechanical version and degrees of pr	F77							,	,	,	,	,	,	/	Not for:	Matara in application wi	ith
Low-noise version for 2-pole motors with clockwise direction of rotation	F//	_	_	_	_	_	•	•	•	•	•	•	•	•	NOUTOF:	Motors in combination wi order code F90	ILII
Low-noise version for 2-pole motors with counterclockwise direction of rotation	F78	-	-	-	-	-	1	1	✓	1	1	1	1	1	Not for:	Motors in combination wi order code F90	ith
Prepared for mountings, center hole only	G40	-	1	1	1	1	1	1	_	_	_	_	_	_	Not for:	Motors in combination wi order code F90	ith
Prepared for mountings with D12 shaft	G41	-	1	1	1	1	1	1	1	1	1	1	1	1	Not for:	Motors in combination wi order code F90	ith
Prepared for mountings with D16 shaft	G42	-	1	1	1	1	1	1	1	1	1	1	1	1	Not for:	Motors in combination wi order code F90	ith
Mechanical protection for encoder	G43	1	1	1	1	1	1	1	1	1	1	1	1	1	Not for:	Motors in combination wi order code F90	ith
Protective cover 8) 10) 12)	H00	1	1	1	1	1	1	✓	1	/	/	/	1	1	Not for:	Motors in combination wi order code F90	ith
Screwed-on (instead of cast) feet	H01	-	-	-	1	/	1	1	1	1	1	1	/	1			
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994 ³⁹⁾	H02	1	1	1	1	1	/	1	1	1	1	1	1	1			
Condensation drainage holes ³⁸⁾	H03	1	1	1													
Rust-resistant screws (externally)	H07	1	1	/	1	/	1	/	1	1	/	1	1	1			
Degree of protection IP65 ¹⁴⁾	H20	1	1	/	1	/	1	/	1	1	/	1	1	1			
Degree of protection IP54	H21	-	-	-	_	-	-	-	1	1	1	1	1	1			
Degree of protection IP56 ¹⁵⁾	H22	1	1	1	1	1	1	1	1	1	1	1	1	1			
Drive-end seal for flange-mounting motors, oil-tight to 0.1 bar ^{13) 29)}	H23	1	1	✓	1	✓	✓	✓	1	1	1	1	1	✓			
Grounding brush for converter operation	L52	-	-	-	-	-	-	-	-	-	-	-	1	1			
Coolant temperature and installation a	altitude																
Coolant temperature -50 to +40 °C	D02	_	_	-	1	1	1	/	1	1	/	1	1	1			
Coolant temperature -40 to +40 °C ¹⁶⁾	D03	1	1	✓	1	1	1	1	1	1	1	1	1	1			
Coolant temperature –30 to +40 °C ¹⁷⁾	D04	1	✓	1	1	1	1	1	1	1	1	1	1	1			
Versions in accordance with standard		tions															
VIK version	C02	-	-	_	1	/	✓	✓	1	/	/	/	/	✓	Not for:	①, ②	
CCC China Compulsory Certification	D01	/	/	/	-	-	_	_	-	_	_	_	_	_			
Motor without CE marking for export outside EEA (see EU Directive 640/2009)	D22	0	0	0	0	0	0	0	0	0	0	0	0	0	Not for:	1), 2	
Electrical according to NEMA MG1-12 ¹⁸⁾	D30	-	-	_	1	/	✓	1	/	1	1	/	/	✓	Not for:	11), 12), 13)	
	_															11, 12, 13	
Design according to UL with "Recognition Mark" 18)	D31	-	✓	<u>/</u>	✓	<u>/</u>	<u>/</u>	<u>/</u>	✓ -	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	<u>/</u>	Not for:	11), 12), 13	
	_ D00													<u> </u>	Only for:	<u> </u>	
KEMCO Korea Energy Efficiency Label	D33	-	-	-	-	-	-	-	-	0	0	0	0	0	Only for:	0,0,0	
China Energy Efficiency Label	D34	J	J	U	U	U	U	J	J	U	U	U	U	U	Not for:	①, ② and motors with increased power	
Canadian regulations (CSA) 17)		_					,	,	,	,	,	/	/	/	Not for:	@ @ @	_
	D40	1	/	✓	/	/	1	/	/	/	/	~	~	•	NOT IOI.	11), 12), 13)	
	D40 -	✓	✓	<i>√</i>	✓	<i>/</i>	√ □	0	0	<i>-</i>	<i>-</i>	_				11), 12), 13	

Article No. supplements and special versions SIMOTICS SD 1LE1 standard motors

Options · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

Special versions	Additional iden-	Fra	me s	ize											Motor ve	rsion		
	tification code - Z with order	71	80	90						200	225	250	280	315				
	code and plain						4 Bas								IEC	IE4	_(1
	text if required						4 Per	form	ance	e Lin	е						(2
		1LE	E150	3 Bas												IE3	_(
							3 Per	form	ance	e Lin	е						(4
		1LE	150	1 Bas												IE2	_(5
							1 Per			e Lin	е						(<u>6</u>
							2 Bas	sic L	ine							IE1	(<u></u>
			1LI	E1543											APAC Line	IE3	_(8
					1LI	E164	3 Per	form							LINE		(9
									1LE	E154	1 Ba	sic L	.ine			IE2	(10
		1LE	152	3 Bas											Eagle Line	NPE (NEMA)	_(11)
							3 Per			e Lin	е				LINE			
1LE1 Z	Order code				1LI	E152	1 Bas	sic L	ine							NEE (NEMA)	((13)
Bearings and lubrication																		
Regreasing device with M10 × 1 grease nipple according to DIN 71412-A	L19	_	_	_	_	_	_	_	1	1	1	1	0	0	Only for:	1, 3, 5, 8,	(10), (11), (13)	
nipple according to DIN 71412-A		_	_	_	_	_	_	_	0	0	0	0	0	0		2, 4, 6, 9,		
Located bearing DE	L20	1	1	1	1	/	/	/	1	/	/	/	/	1				
Located bearing NDE	L21	1	1	1	1	1	1											
<u> </u>	L22	1	1	1	1	/	/	/	1	1		1	_	_				
Bearing design for increased cantilever forces 36)																		
Regreasing device 1)	L23	-	-	-	1	1	✓	1	1	1	1	1			Not for:	2, 4, 6, 9,		
		-	-	-	1	1	✓								Only for:	2, 4, 6, 9,		
Bearings reinforced at both ends for	L25	1	1	1	/	1	✓	1	1	1	1	1			Not for:	2, 4, 6, 9,	(12)	
DE and NDE, bearing size 63 19)	-														Only for:	2, 4, 6, 9,	(2)	
Reinforced bearings at both DE and NDE, DE bearing for increased cantilever forces	L28	-	-	-	-	-	-	-	1	1	1	✓	-	-				
Bearing insulation DE	L50	_	_	_	_	_	_	_	_	_	1	1	/	/				_
Bearing insulation NDE	L51	_	_	_	/	/	/	/	1	/	1	/	1	1				_
Measuring nipple for SPM shock pulse	Q01	_	_	_	1	1	/	1	1	1	1	1	1	1				_
measurement for bearing inspection 1)																		
Balance and vibration severity																		
Vibration severity grade A																		
Vibration severity grade B ²⁰⁾	L00	1	1	1	1	1	1	1	1	1	1	1	1	/				
Half-key balancing (standard)																		
Balancing without feather key	L01	1	1	1	1	1	1	1	1	1	1	1	1	1				
Full-key balancing	L02	1	1	1	1	1	1	1	1	1	1	1	1	1				
Shaft and rotor																		
Shaft extension with standard dimensions, without feather keyway	L04	-	-	-	1	1	✓	✓	1	✓	✓	1	1	✓				
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	L05	1	1	1	1	1	1	1	1	1	1	1	1	1				
Standard shaft made of stainless steel (e.g. 1.4021)	L06	1	1	✓	1	1	✓	✓	1	✓	✓	/	√	✓				
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L07	1	1	1	1	1	1	1	1	1	1	1	1	1				
Concentricity of shaft extension, coaxiality, and linear movement in accordance with DIN 42955 Tolerance R for flange-mounted motors	L08	✓	1	1	1	√	1	1	1	1	1	1	1	1				
Non-standard cylindrical shaft extension, DE ²¹⁾	Y58 • and customer specifications	1	1	1	1	1	1	1	1	1	1	1	1	1				
Non-standard cylindrical shaft extension, NDE ²¹⁾	Y59 • and customer specifications	✓	1	√	1	1	1	1	1	1	1	1	1	1				
Special shaft steel	Y60 • and customer specifications	_	-	-	O.F	R. O.F	R. O.F	l. O.F	l. O.R	R. O.F	R. O.F	R. O.F	R. O.F	R. O.R				

SIMOTICS SD 1LE1 standard motors

Options · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

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Special versions	Additional iden	n- Fra													Motor ve	rsion	
	tification code Z with order	71	80	90						200	225	250	280	315			
	code and plair					E150									IEC	IE4	1
	text if required		-71-7	0 B		E160	4 Per	form	ance	e Lin	е					IFO	(1) (2) (3) (4) (5) (6) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7
		114	E150	3 Bas	_		0 D			- 1 :						IE3	3
		ETT	=150	1 Bas		E160:	3 Per	TOrm	iance	e Lin	e					IE2	(4)
			_ 150	I Da		E160	1 Per	form	ance	e I in	ıe.					ILZ	<u> </u>
						E150				LIII						IE1	7
			11.	E154:											APAC	IE3	(8)
					1L	E164	3 Per	form	ance	e Lin	e				Line		<u>8</u> 9
									1LI	E154	1 Bas	sic L	ine		i	IE2	10
		1LI	E152	3 Bas	sic L	ine.									Eagle	NPE (NEMA)	11)
					_	E162				e Lin	е				Line		(2)
1LE1 Z	Order code				1L	E152	1 Bas	sic L	ine							NEE (NEMA)	(13)
Heating and ventilation																	
Sheet metal fan cover	F74				1	✓	✓	✓	1	✓	✓	✓	✓	1		1, 3, 5, 7, 8,	10, 11, 13
20) 20)	-														Only for:	2, 4, 6, 9, 12	
Metal external fan ^{22) 28)}	F76	✓	1	/	1	/	/	1	1	√	/	1	1	/			
Without external fan and without fan cover		1	1	√	1	/	1	1	/	1	/	1	1	√			
Anti-condensation heating for 230 V (2 terminals)	Q02	•	/	•	/	•	•	•	/	•	•	/	/	/			
Anti-condensation heating for 115 V	Q03	1	1	1	1	1	1	/	1	1	1	1	1	1			
(2 terminals)																	
Separately driven fan with non-standard voltage and/or frequency	Y81 • and customer	-	-	-	-	-	-	-	-	-	/	/	/	/			
voltage ana/or nequency	specifica-																
Deting plate and additional vating plat	tions	_		_		_	_		_	_	_			_	_		
Rating plate and additional rating plate Additional rating plate for voltage	B07	1	1	/	/	,		/	1	/	/	/	/	1	Not for:	8-pole motors	
tolerance ²³⁾	БОТ	•	•	•	•	•	•	•	•	•	•	•	•	•	NOT IOI.	o-pole motors	
Second rating plate, loose	M10	1	1	1	1	1	1	/	1	1	1	/	/	1			
Rating plate, stainless steel	M11	1	1	1	1	1	1	✓	1	✓	1	✓	✓	1	Only for:	1, 3, 5, 7, 8	, 10, 11, 13
					0	0	0	0	0	0	0	0	0	0	Only for:	4, 6, 9, 12	
	_	-	_	_											Only for:	2	
Additional rating plate with deviating rating plate data	Y80 • and customer	1	1	1	1	/	1	1	1	/	/	/	1	/			
raing plate data	specifica-																
Additional rating plata with augtomas	tions	,	,		,	,	,	,	,	,	,	1	,	,			
Additional rating plate with customer specifications	Y82 • and customer	✓	/	•	/	•	•	•	/	•	•	/	/	/			
	specifica- tions																
Additional information on rating plate	Y84 • and	1	/		1				1								
and on package label	customer	•	•	•	ľ	•	•	•	•	•	•	•	•	•			
(max. 20 characters)	specifica- tions																
Adhesive label, supplied loose	Y85 • and	_	_	_	/	/	/		/	/	/	/	/	/			
(printed with: Article No., Serial No.:	customer																
2 lines of text)	specifica- tions																
Extension of the liability for defects																	
Extension of the liability for defects by	Q80	_	-	_	-	_	_	-	1	1	1	1	1	1	Only for:	1, 3, 5, 7, 8	, 10, 11, 13
12 months to a total of 24 months (2 years) from delivery ²⁴⁾	-	-	-	-	-	-	-	-							Only for:	2, 4, 6, 9, 12	36 months
Extension of the liability for defects by	Q82	_	_	_	_	_	_	_	1	/	/	/	/	/	Only for:	1, 3, 5, 7, 8	, (10), (11), (13)
24 months to a total of 36 months (3 years) from delivery ²⁴⁾	_	-	-	-	-	-	-	-				_	_			2, 4, 6, 9, 2	
Packaging, safety notes, documentati	ion and test co	rtifics	tes														
	B02	unce ✓	les ✓	/	1	/	/	1	1	/	/	1	1	/			
Acceptance test certificate 3.1 according to EN 10204 ²⁵⁾	202	Ĭ	ľ		ľ					•		•	•	•			
Printed German/English Operating Instructions enclosed ²⁶⁾	B04	-	-	-	1	1	1	1	1	✓	1	✓	✓	1			
Document - Electrical data sheet	B60	_	_		/	/	/	/	/	/	/	/	/	/			
Document - Order dimensional drawing		_	_		1	1	✓	✓	1	1	✓	1	1	1			
Standard test (routine test) with acceptance	B65	_		_	1	/	√	✓	1	/	✓	✓	✓	√			
Type test with heat run for horizontal	B82	1	1	/	1	/	/	/	1	/	/	/	/	/			
motors, without acceptance																	
Type test with heat run for horizontal	B83	✓	1	1	1	1	1	1	1	1	1	1	1	1			
motors, with acceptance "Basic" documentation package	B90 Neu	//	1	/	/	/	/	/	1	/	/	/	/	/			
"Advanced" documentation package	B90 /Vea		1	<u> </u>	1	<u>/</u>	✓	✓	1	<u>/</u>	✓	1	1	✓			
"Projects" documentation package	B92 Neu	-	1	√	1	1	√	1	1	√	√	1	1	1			
Connected in star for dispatch	M01	1	1	1	1	/	/	1	1	1	√	1	1	1			
Connected in delta for dispatch	M02	1	1	/	1	/	1	1	1	/	/	1	1	1			
E 1 1 1 1 1 1	000 0/110																

For legends and footnotes, see page 2/116.

SIMOTICS SD 1LE1 standard motors

Options · Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line

- Standard version
- Without additional charge
- This order code only determines the price of the version Additional plain text is required.
- ✓ With additional charge
- O.R. Possible on request
- Not possible

- 1) Up to frame size 160 not possible when brake is mounted
- 2) Evaluation with appropriate tripping unit (see Catalog IC 10) is recommended.
- 3) Parallel Whitworth threaded pipe DIN ISO 228 (DIN 259) BSPP (British Standard Pipe Parallel) threaded pipe for connections not sealed in the thread (cylindrical), external = G.
- 4) Cannot be used for motors in UL version (order code **D31**). The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.
- 5) Not possible for 1LE15 and 1LE16 motors with increased power.
- 6) A second shaft extension is not possible. Please inquire for mounted brakes
- 7) For order codes F10, F11, and F12, the brake supply voltage must be specified or ordered.
- 8) The 1XP8 rotary pulse encoders are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.
- 9) In combination with a separately driven fan (order code F70) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.
- 10) The LL and HOG rotary pulse encoders up to frame size 160 are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.
- 11) Option (encoder mounting) is only possible for motors with a mounted separately driven fan or for naturally cooled motors (without an external fan). This option can be used in combination with brakes of type KFB! This option cannot be used in combination with brakes of type 2LM8.
- 12) Order code H00 provides mechanical protection for encoders.
- ¹³⁾ Not possible for type of construction IM V3.
- 14) Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code G05) and/or brake 2LM8 (order code F01).
- 15) Not possible in combination with 2LM8 brake order code F01.
- 16) In connection with mountings, the respective technical specifications must be observed, please inquire before ordering.
- 17) The rated voltage is indicated on the rating plate without voltage range. Order code **D40** does not authorize importing into Canada. The North America export versions Eagle Line 1LE1521 NEMA Energy Efficient and 1LE1523/1LE1623 NEMA Premium Efficient are available for this purpose.
- 18) Possible up to 600 V max. The rated voltage is indicated on the rating plate without voltage range. Order codes D30 and D31 do not authorize importing into USA and Mexico. The North America export versions Eagle Line 1LE1521 NEMA Energy Efficient and 1LE1523/1LE1623 NEMA Premium Efficient are available for this purpose.
- 19) For Performance Line motors (all frame sizes) and Basic Line motors (from frame size 280) in the standard version.
- ²⁰⁾ On request for 2-pole motors (concerns frame sizes 225 to 315).

- 21) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with EN 50347, Form A are used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather key is always supplied. For order codes Y58, Y59 and L05 the following applies:
 - Dimensions D and DA ≤ ball bearing inner diameter
 - (see dimension tables for "Dimensions")
- Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension.
- ²²⁾ Converter operation is permitted for 1LE1 motors with metal external fans.
- ²³⁾ Can be ordered for 230 VΔ/400 VY or 400 VΔ/690 VY (voltage code "22" or "34"). Not possible for 8-pole motors and in combination with order code D34.
- ²⁴⁾ Wearing parts (bearings) are excluded from the warranty extension.
- 25) The delivery time for the factory test certificate may differ from the delivery time for the motor.
- 26) The Operating Instructions (compact) are available in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/40761976.
- 27) With H08, feet dimensions C and CA differ from EN 50347! Further information is available in the DT Configurator (see Appendix, "Tools and engineering").
- ²⁸⁾ Order codes **F70** and **F76** cannot be combined.
- ²⁹⁾ Not possible in combination with order codes **Q72** and **Q78**.
- 30) For frame sizes 100 to 132 only possible in combination with order code R50.
- 31) Not possible in combination with order codes N05, N06, N07, N08, and N11.
- 32) For frame size 315, when combining order codes F01 and F12, the rectifier for the brake will be supplied separately as a single part.
- 33) Order code S06 cannot be combined with order codes S00, S01, and S02. It can be combined with Y53 and Y56 on request.
- 34) Order codes F70 (separately driven fan) and H02 (vibration-proof version) cannot be combined for motors in frame sizes 71, 80, and 90.
- 35) Please note the additional use of order code D22 "Motor without CE marking for export outside EEA (see EU Directive 640/2009)".
- $^{36)}$ A minimum cantilever force $F_{\rm min}$ of $0.5 \cdot F_{\rm max}$ is required for NU bearings (cylindrical roller bearings) in contrast to ball bearings. Cylindrical roller bearings are not suitable for coupling output or for brief periods of no-load operation without cantilever force.
- 37) Order code **R62** only possible in combination with **R50**.
- 38) Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If the condensation drainage holes are required for motors of the IM B6, IM B7, or IM B8 type of construction (feet on side or top), the motors must be ordered in the respective type of construction and with order code H03, so that the condensation drainage holes will be placed in the correct position.
- ³⁹⁾ Not possible in combination with order code **R50**
- 40) Not UL certified. Not in combination with option D31
- 41) With IM B5 flange, only possible in combination with H08.

SIMOTICS GP/SD 1LE1/1PC1 standard motors

Accessories

Overview

Couplings

The motor from Siemens is connected to the machine or gear unit through a coupling. Siemens is an important coupling manufacturer with a wide range of products.

For standard applications, Siemens recommends that flexible couplings, types N-EUPEX and RUPEX or torsionally rigid couplings, types ARPEX and ZAPEX are used. For special applications, FLUDEX and ELPEX-S couplings are recommended.

Available from:

Siemens contact partner - ordering from catalog Siemens MD 10.1 "FLENDER Standard Couplings"

or

Siemens AG Kupplungswerk Mussum Industriepark Bocholt Schlavenhorst 100 46395 Bocholt, Germany Phone +49 (2871) 922185 Fax +49 (2871) 922579

www.siemens.com

Email: flendercouplings@siemens.com

Taper pins according to DIN 258 with threaded ends and constant taper lengths

Taper pins are used for components that are repeatedly removed. The drilled hole is conically ground using a conical reamer until the pin can be pushed in by hand until the cone shoulder lies approx. 3 to 4 mm above the rim of the hole.

It can then be driven in using a hammer until it is correctly seated. The pin is removed from the drilled hole by screwing on the nut and tightening it.

Standardized taper pins are commercially available.

For instance, available from:

Otto Roth GmbH & Co. KG Rutesheimer Strasse 22 70499 Stuttgart, Germany Phone +49 (711) 1388-0 Fax. +49 (711) 1388-233

www.ottoroth.de Email: info@ottoroth.de

Foundation block according to DIN 799

The foundation blocks are inserted into the stone foundation and embedded in concrete. They are used for fixing machines of medium size, slide rails, pedestal bearings, base frames, etc. After the fixing bolts have been unscrewed, the machines can be shifted without them having to be lifted.

When the machine is initially installed, the foundation block that is bolted to the machine (without shims) and fitted with taper pins is not embedded with concrete until the machine has been completely aligned. In this case, the machine is positioned 2 to 3 mm lower. The difference in shaft height is compensated for by inserting shims on final installation. The taper pins safeguard the exact position of the machine when it is repeatedly removed and replaced without the need for realignment.

Available from:

Lütgert & Co. GmbH Postfach 42 51 33276 Gütersloh, Germany Phone +49 (5241) 7407-0 Fax +49 (5241) 7407-90

www.luetgert-antriebe.de Email: info@luetgert-antriebe.de

Slide rails with fixing bolts and tensioning screws according to DIN 42923

Slide rails are used to tension the belt of a machine easily and conveniently when a belt tightener is not available. They are fixed to the base using stone bolts or foundation blocks.

The assignment of slide rails to motor size can be found in DIN 42923.

For motors of frame sizes 355 to 450, there are no standardized slide rails (please inquire).

Available from:

Lütgert & Co. GmbH Postfach 42 51 33276 Gütersloh, Germany Phone +49 (5241) 7407-0 Fax +49 (5241) 7407-90

www.luetgert-antriebe.de Email: info@luetgert-antriebe.de

More information

Spare motors and repair parts

- Supply commitment for spare motors and repair parts following delivery of the motor:
 - For up to 3 years after delivery of the original motor, in the event of total motor failure, Siemens will supply a comparable spare motor with regard to the mounting dimensions and functions. (The type series may vary.)
 - If a spare motor is supplied within the 3-year period, this does not mean that the warranty restarts.
 - Replacement motors delivered after the active production of the machine series are also identified as spare motors on the rating plate.
 - Spare parts are offered only for these spare motors on request; repair and replacement are not possible.
 - After a period of 3 years (after the delivery of the original motor), it is only possible to repair these motors (depending on the availability of the spare parts required).
 - For up to 5 years after the delivery of the original motor, spare parts will be available and for a further 5 years, Siemens will provide information about spare parts and will supply documents when required.

- When repair parts are ordered, the following details must be provided:
 - Designation and part number
 - Article No. and factory number of the motor.

Example for ordering a fan cover 1LE1003, frame size 112 M, 4-pole:

Fan cover No. 7.40, 1LE1003-1BB23-4AA4-Z, part No. E1001/5236197_01_001

- For bearing types, see Catalog Section 1 "Introduction".
 Repair parts for 1MJ6, 1MJ7, 1MJ8, 1MJ1, 1ME8, 1ML8 motors are available on request.
- For standard components, a commitment to supply repaired parts does not apply.
- Support hotline

In Germany

Phone: +49 (180) 5050448

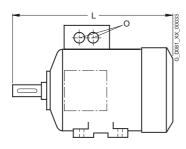
You will find telephone numbers for other countries on our Internet site:

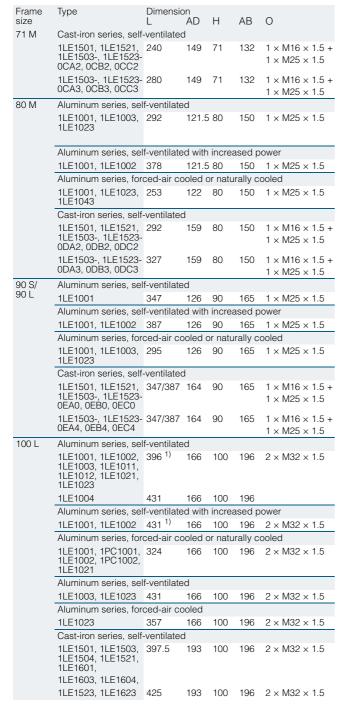
www.siemens.com/automation/service&support

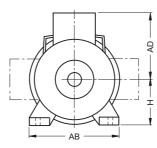
SIMOTICS GP/SD 1LE1/1PC1 standard motors

Overall dimensions

Overview







-:	Туре	Dimensio			4 D	0
size 112 M	Aluminum series, sel	L f vontilato	AD	Н	AB	0
1 12 IVI	1LE1001, 1LE1002, 1LE1003, 1LE1011, 1LE1012, 1LE1021,	389 ¹⁾	177	112	226	2 × M32 × 1.5
	1LE1023		477	440	000	
	1LE1004	414	177	112	226	
	Aluminum series, sel 1LE1001, 1LE1002		177	increa 112	226 2	
	Aluminum series, for					2 × M32 × 1.5
	1LE1001, 1PC1001, 1LE1002, 1PC1002, 1LE1021	311	177	112	226	2 × M32 × 1.5
	Aluminum series, sel	f-ventilate	d			
	1LE1003, 1LE1023	414	177	112	226	2 × M32 × 1.5
	Aluminum series, for	ced-air co	oled			
	1LE1023	336	177	112	226	$2 \times M32 \times 1.5$
	Cast-iron series, self-	-ventilated	t			
	1LE1501, 1LE1503, 1LE1504, 1LE1521, 1LE1601, 1LE1603, 1LE1604	390.5	195	112	226	2 × M32 × 1.5
	1LE1523, 1LE1623	415.5	195	112	226	$2 \times M32 \times 1.5$
132 S/M	Aluminum series, sel	f-ventilate	d			
	1LE1001, 1LE1002, 1LE1003, 1LE1011, 1LE1012, 1LE1021, 1LE1023	465 ¹⁾	202	132	256	2 × M32 × 1.5
	1LE1004	465/515	202	132	256	
	Aluminum series, sel	f-ventilate	d with	increa	sed p	ower
	1LE1001, 1LE1002, 1LE1003	515 ¹⁾	202	132	256	2 × M32 × 1.5
	Aluminum series, for	ced-air co	oled o	r natui	ally co	ooled
	1LE1001, 1PC1001, 1LE1002, 1PC1002, 1LE1021		202	132	256	2 × M32 × 1.5
	1LE1001, 1PC1001, 1LE1002, 1PC1002, 1LE1021 Aluminum series, sel	381			256	
	1LE1021	381 f-ventilate			256	
	Aluminum series, sel 1LE1003-, 1LE1023- 1CA0, 1CC0, 1CC2	381 f-ventilate 465			256 256	
	1LE1021 Aluminum series, sel 1LE1003-, 1LE1023- 1CA0, 1CC0, 1CC2 1CA1, 1CB0, 1CB2,	381 f-ventilate 465	d	132		2 × M32 × 1.5
	1LE1021 Aluminum series, sel 1LE1003-, 1LE1023- 1CA0, 1CC0, 1CC2 1CA1, 1CB0, 1CB2, 1CC3	381 f-ventilate 465 515	202 202	132	256	2 × M32 × 1.5 2 × M32 × 1.5
	1LE1021 Aluminum series, sel 1LE1003-, 1LE1023- 1CA0, 1CC0, 1CC2 1CA1, 1CB0, 1CB2, 1CC3 Aluminum series, for	381 f-ventilate 465 515	202 202	132	256	2 × M32 × 1.5 2 × M32 × 1.5
	Aluminum series, sel 1LE1003-, 1LE1023- 1CA0, 1CC0, 1CC2 1CA1, 1CB0, 1CB2, 1CC3 Aluminum series, for 1LE1023-	381 f-ventilate 465 515 ced-air cc	202 202 202	132 132 132	256 256	2 × M32 × 1.5 2 × M32 × 1.5 2 × M32 × 1.5
	1LE1021 Aluminum series, sel 1LE1003-, 1LE1023- 1CA0, 1CC0, 1CC2 1CA1, 1CB0, 1CB2, 1CC3 Aluminum series, for	381 f-ventilate 465 515 ced-air cc	202 202	132	256	2 × M32 × 1.5 2 × M32 × 1.5
	1LE1021 Aluminum series, sel 1LE1003-, 1LE1023- 1CA0, 1CC0, 1CC2 1CA1, 1CB0, 1CB2, 1CC3 Aluminum series, for 1LE1023- 1CA0, 1CC0, 1CC2 1CA1, 1CB0, 1CB2,	381 f-ventilate 465 515 ced-air cc 381 431	202 202 202 poled 202 202	132 132 132	256 256 256	$2 \times M32 \times 1.5$ $2 \times M32 \times 1.5$ $2 \times M32 \times 1.5$ $2 \times M32 \times 1.5$
	1LE1021 Aluminum series, sel 1LE1003-, 1LE1023-1CA0, 1CC0, 1CC2 1CA1, 1CB0, 1CB2, 1CC3 Aluminum series, for 1LE1023-1CA0, 1CC0, 1CC2 1CA1, 1CB0, 1CB2, 1CC3 Cast-iron series, self 1LE1501, 1LE1504, 1LE1521, 1LE1601, 1LE1603	381 f-ventilate 465 515 ced-air cc 381 431	202 202 202 poled 202 202	132 132 132 132	256 256 256	$2 \times M32 \times 1.5$ $2 \times M32 \times 1.5$ $2 \times M32 \times 1.5$ $2 \times M32 \times 1.5$
	1LE1021 Aluminum series, sel 1LE1003-, 1LE1023- 1CA0, 1CC0, 1CC2 1CA1, 1CB0, 1CB2, 1CC3 Aluminum series, for 1LE1023- 1CA0, 1CC0, 1CC2 1CA1, 1CB0, 1CB2, 1CC3 Cast-iron series, self 1LE1501, 1LE1504, 1LE1504, 1LE1521, 1LE1601, 1LE1603 1LE1523-, LE1623-	f-ventilated 465 515 ced-air cc 381 431 -ventilated 466.5	202 202 201 202 202 202 214.5	132 132 132 132 132	256 256 256 256 256	2 × M32 × 1.5 2 × M32 × 1.5 2 × M32 × 1.5 2 × M32 × 1.5 2 × M32 × 1.5
	1LE1021 Aluminum series, sel 1LE1003-, 1LE1023- 1CA0, 1CC0, 1CC2 1CA1, 1CB0, 1CB2, 1CC3 Aluminum series, for 1LE1023- 1CA0, 1CC0, 1CC2 1CA1, 1CB0, 1CB2, 1CC3 Cast-iron series, self 1LE1501, 1LE1504, 1LE1504, 1LE1521, 1LE1601, 1LE1603 1LE1523-, LE1623-	381 f-ventilated 465 515 ceed-air cc 381 431 -ventilated	202 202 202 202 202 202	132 132 132 132 132	256 256 256 256	2 × M32 × 1.5 2 × M32 × 1.5 2 × M32 × 1.5 2 × M32 × 1.5 2 × M32 × 1.5

¹⁾ The length is specified as far as the tip of the fan cover.

SIMOTICS GP/SD 1LE1/1PC1 standard motors

Overall dimensions

Overview (continued)

Overvie	w (continued)					
Frame size	Туре	Dimension L A	DН	AB	0	Fran
160 M/L	Aluminum series, se	If-ventilated				200
	1LE1001, 1LE1002, 1LE1003, 1LE1011, 1LE1012, 1LE1021, 1LE1023	604 ^{1) 2)} 23	37 160	300	2 × M40 × 1.5	
	Aluminum series, se	If-ventilated	with incre	ased p	ower	
	1LE1001, 1LE1002, 1LE1003		37 160	300	2 × M40 × 1.5	_
	Aluminum series, for					
	1LE1001, 1PC1001, 1LE1002, 1PC1002, 1LE1021		37 160	300	2 × M40 × 1.5	_
	Cast-iron series, self	f-ventilated				
	1LE1501, 1LE1503, 1LE1504, 1LE1521, 1LE1601, 1LE1603, 1LE1604	606 26	65 160	300	2 × M40 × 1.5	
160 M	Aluminum series, se	lf-ventilated				
	1LE1003, 1LE1023	604 23	37 160	300	$2 \times M40 \times 1.5$	
	1LE1004	604 23	37	300		_
	Aluminum series, for	rced-air cool	ed			225
	1LE1023, 1LE1043	510 23	37 160	300	2 × M40 × 1.5	
	Cast-iron series, self	f-ventilated				
	1LE1523, 1LE1623	596 26	61 160	300	$2 \times M40 \times 1.5$	_
160 L	Aluminum series, se	If-ventilated				
	1LE1003, 1LE1023	664 23	37 160	300	$2 \times M40 \times 1.5$	
	1LE1004	664 23	37 160	300		
	Aluminum series, for					225
	1LE1023, 1LE1043		37 160	300	2 × M40 × 1.5	-
	Cast-iron series, self					
100.11	1LE1523, 1LE1623		37 160	300	2 × M40 × 1.5	-
180 M	Aluminum series, se	If-ventilated				
	1LE1001, 1LE1003, 1LE1023					
	1EA2, 1EB2	699 2	59 180	339	2 × M40 × 1.5	
	Aluminum series, for					•
	1LE1001, 1LE1021		59 180	339	2 × M40 × 1.5	050
	Cast-iron series, self					250
	1LE15.1-, 1LE16.1-,					
	1LE1504					
	1EA2, 1EB2	668 28	86 180	339	$2 \times M40 \times 1.5$	
	1EA6	698				
	1LE15.3-, 1LE16.3-,					
	1LE1604 1EB2	668 28	86 180	339	2 × M40 × 1.5	
	1EA2	698	50 100	559	2 X W40 X 1.5	
180 L	Aluminum series, se					280
100 L	1LE1001	ii vontilatoa				
	1EB4, 1EC4, 1ED4	699 25	59 180	339	2 × M40 × 1.5	
	1EA6, 1EB6, 1EC6,	698		000	2 / 11110 / 110	
	1ED6	000				
	Aluminum series, for		ed or natu 96 180	urally c 378	ooled 2 × M40 × 1.5	
	Aluminum series, se					
	1LE1001, 1LE1002,		59 180	339	owei	280
	1LE1003					
	Cast-iron series, self	r-ventilated				
	1LE15.1-, 1LE16.1-, 1LE1504					
	1EC4, 1EC6	668 28	86 180	339	2 × M40 × 1.5	
	1EB6	698		200		
	1LE15.3-, 1LE16.3-,	300				
	1LE1604					
	1EC4	668 28	86 180	339	$2 \times M40 \times 1.5$	
	1EB4	698				

Frame size	Туре	Dimensio L	on AD	Н	AB	0
200 L	Aluminum series, sel	lf-ventilate	ed			
	1LE1001, 1LE1003, 1LE1023					
	2AA4, 2AA5, 2AB5,	746	296	200	378	2 × M50 × 1.5
	2AC4, 2AC5, 2AD5					
	2AA6, 2AB6, 2AC6, 2AD6	746				
	Aluminum series, sel	lf-ventilate	ed with	increa	ased p	ower
	1LE1001, 1LE1002,	746	296	180	378	
	1LE1003 Cast-iron series, self	-ventilate	d			
	1LE15.1-, 1LE16.1-, 1LE1504	Vontilation	a			
	2AA4, 2AA5, 2AB5, 2AC4, 2AC5	721	315	200	378	2 × M50 × 1.5
	2AA6	746				
	1LE15.3-, 1LE16.3-, 1LE1604					
	2AA4, 2AC4	721	315	200	378	$2 \times M50 \times 1.5$
225 S	2AA5, 2AB5, 2AC5 Cast-iron series, self	746 -ventilate	d			
2200	1LE15.1-, 1LE16.1-, 1LE1504	ventilate	u .			
	2BB0, 2BD0	788	338	225	436	$2 \times M50 \times 1.5$
	1LE15.3-, 1LE16.3-, 1LE1604					
	2BB0	788	338	225	436	$2 \times M50 \times 1.5$
225 M	Cast-iron series, self	-ventilate	d			
	1LE15.1-, 1LE16.1-, 1LE1504					
	2BA2, 2BA6	818	338	225	436	$2 \times M50 \times 1.5$
	2BB2, 2BB6, 2BC2, 2BC6, 2BD6	848				
	1LE15.3-, 1LE16.3-,					
	1LE1604 2BA2	818	338	225	436	2 × M50 × 1.5
	2BB2, 2BC2	848	550	220	400	2 × 10100 × 1.5
250 M	Cast-iron series, self	-ventilate	d			
	1LE15.1-, 1LE16.1-, 1LE1504					
	2CA2, 2CA6, 2CB2, 2CC2, 2CC6, 2CD2, 2CD6	887	410	250	490	2 × M63 × 1.5
	2CB6	957				
	1LE15.3-, 1LE16.3-, 1LE1604					
000.0	2CA2, 2CB2, 2CC2		410	250	490	2 × M63 × 1.5
280 S	Cast-iron series, self	-ventilate	d			
	1LE15.1-, 1LE16.1-, 1LE1504					
	2DA0, 2DB0, 2DC0, 2DD0	960	433	280	540	2 × M63 × 1.5
	1LE15.3, 1LE16.3, 1LE1604					
000.11	2DA0, 2DB0, 2DC0		433	280	540	2 × M63 × 1.5
280 M	Cast-iron series, self	-ventilate	d			
	1LE15.1-, 1LE16.1-, 1LE1504					
	2DA2, 2DB2, 2DC2, 2DC6, 2DD2, 2DD6	960	433	280	540	$2 \times M63 \times 1.5$
	2DA6, 2DB6	1070				
	1LE15.3-, 1LE16.3-, 1LE1604					
	2DC2	960	433	280	540	2 × M63 × 1.5
	2DA2, 2DB2	1070				

 $^{^{\}rm 1)}$ The length is specified as far as the tip of the fan cover.

 $^{^{2)}\,}$ Only for pole-changing types 1LE1011-1DP6 and 1LE1012-1DQ6 the dimension L is 664 mm.

SIMOTICS GP/SD 1LE1/1PC1 standard motors

Overall dimensions

Overview (continued)

315 S Cast-iron series, self-ventilated 1LE15.1-, 1LE16.1-, 1LE1504 3AA0 1052 515 315 610 2 × M63 × 3AB0, 3AC0, 3AD0 1082 1LE15.3-, 1LE16.3-, 1LE1604 3AA0 1052 515 315 610 2 × M63 × 3AB0, 3AC0 1082 315 M Cast-iron series, self-ventilated 1LE15.1-, 1LE16.1-, 1LE1504 3AC2, 3AD2 1082 515 315 610 2 × M63 × 3AA2 1217 3AB2 1247 1LE15.3-, 1LE16.3-, 1LE1604 3AA2 1217 515 315 610 2 × M63 ×	
1LE1504 3AA0 1052 515 315 610 2 × M63 × 3AB0, 3AC0, 3AD0 1082 1LE15.3-, 1LE16.3-, 1LE1604 3AA0 1052 515 315 610 2 × M63 × 3AB0, 3AC0 1082 315 M Cast-iron series, self-ventilated 1LE15.1-, 1LE16.1-, 1LE15.04 3AC2, 3AD2 1082 515 315 610 2 × M63 × 3AB2 1217 3AB2 1247 1LE15.3-, 1LE16.3-, 1LE16.3-, 1LE1604	
3AB0, 3AC0, 3AD0 1082 1LE15.3-, 1LE16.04 3AA0 1052 515 315 610 2 × M63 × 3AB0, 3AC0 1082 1082 315 M Cast-iron series, self-ventilated 1LE15.1-, 1LE16.1-, 1LE15.04 3AC2, 3AD2 1082 515 315 610 2 × M63 × 3AB2 1217 3AB2 1247 1LE15.3-, 1LE16.3-, 1LE16.04	
1LE15.3-, 1LE16.3-, 1LE16.3-, 1LE1604 3AA0 1052 515 315 610 2 × M63 × 3AB0, 3AC0 1082 315 M Cast-iron series, self-ventilated 1LE15.1-, 1LE16.1-, 1LE15.04 3AC2, 3AD2 1082 515 315 610 2 × M63 × 3AA2 1217 3AB2 1247 1LE15.3-, 1LE16.3-, 1LE16.3-, 1LE1604	.5
1LE1604 3AA0 1052 515 315 610 2 × M63 × 3AB0, 3AC0 1082 315 M Cast-iron series, self-ventilated 1LE15.1-, 1LE16.1-, 1LE1504 3AC2, 3AD2 1082 515 315 610 2 × M63 × 3AA2 1217 3AB2 1247 1LE15.3-, 1LE16.3-, 1LE1604	.5
3AB0, 3AC0 1082 315 M Cast-iron series, self-ventilated 1LE15.1-, 1LE16.1-, 1LE1504 3AC2, 3AD2 1082 515 315 610 2 × M63 × 3AA2 1217 3AB2 1247 1LE15.3-, 1LE16.3-, 1LE1604	.5
315 M Cast-iron series, self-ventilated 1LE15.1-, 1LE16.1-, 1LE1504 3AC2, 3AD2 1082 515 315 610 2 × M63 × 3AA2 1217 3AB2 1LE15.3-, 1LE16.3-, 1LE1604	
1LE15.1-, 1LE16.1-, 1LE1504 3AC2, 3AD2 1082 515 315 610 2 × M63 × 3AA2 1217 3AB2 1247 1LE15.3-, 1LE16.3-, 1LE1604	
1LE1504 3AC2, 3AD2 1082 515 315 610 2 × M63 × 3AA2 1217 3AB2 1247 1LE15.3-, 1LE16.3-, 1LE1604	
3AA2 1217 3AB2 1247 1LE15.3-, 1LE16.3-, 1LE1604	
3AB2 1247 1LE15.3-, 1LE16.3-, 1LE1604	.5
1LE15.3-, 1LE16.3-, 1LE1604	
1LE1604	
3AA2 1217 515 315 610 2 x M63 x 1	
1217 010 010 2 × 11100 ×	.5
3AB2, 3AC2 1247	
315 L Cast-iron series, self-ventilated	
1LE15.1-, 1LE16.1-, 1LE1504	
3AA4 1217 515 315 610 2 × M63 ×	.5
3AB4, 3AC4, 3AC5, 1247 3AD4, 3AD5, 3AD6	
3AA5, 3AA6 1372	
3AB5, 3AB6, 3AC6 1402	
1LE15.3-, 1LE16.3-, 1LE1604	
3AA4 1217 515 315 610 2 × M63 ×	.5
3AB4, 3AC4 1247 515 315 610 2 × M63 ×	.5
3AA5 1372	
3AB5, 3AC5, 3AC6 1402	

SIMOTICS GP/SD 1LE1/1PC1 standard motors

Notes on the dimensions

Overview

■ Dimensional drawings according to EN 50347 and IEC 60072.

Fits

The shaft extensions specified in the dimension tables (DIN 748) and centering spigot diameters (EN 50347) are machined with the following fits:

Dimension designation	ISO fit DIN ISO 286-2	
D, DA	to 30	j6
	over 30 to 50	k6
	over 50	m6
N	to 250	j6
	over 250	h6
F, FA		h9
K		H17
S	Flange (FF)	H17

The drilled holes of couplings and belt pulleys should have an ISO fit of at least H7.

■ Dimension tolerances

For the following dimensions, the admissible deviations are given below:

Dimension designation	Dimension	Admissible deviation
Н	to 250 over 250	- 0.5 - 1.0
E, EA		- 0.5
1/	/ - ! : : - :	\ OO F

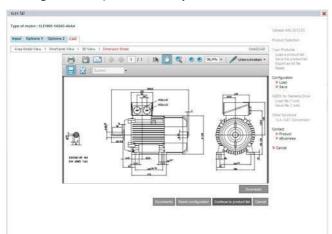
Keyways and feather keyways (dimensions GA, GC, F, and FA) are made in compliance with DIN 6885 Part 1.

■ All dimensions are specified in mm.

Dimension sheet generator (within the DT Configurator)

Overview

A dimensional drawing can be created in the Drive Technology (DT) Configurator for every configurable motor. A dimensional drawing can be requested for every other motor.



When a complete Article No. is entered or configured with or without order codes, a dimensional drawing can be called up under the "Documentation" tab.

These dimensional drawings can be presented in different views and sections and printed.

The corresponding dimension sheets can be exported, saved and processed further in DXF format (interchange/import format for CAD systems) or as bitmap graphics.

Online access in the Siemens Industry Mall

The DT Configurator is integrated into the Siemens Industry Mall and can be used on the Internet without installation.

German: www.siemens.de/dt-konfigurator English: www.siemens.com/dt-configurator

Offline access in the Interactive Catalog CA 01

The DT Configurator is also integrated on the DVD of the Interactive Catalog CA 01 – the offline version of Siemens Industry Mall. CA 01 can be ordered from the relevant Siemens sales office or via the Internet:

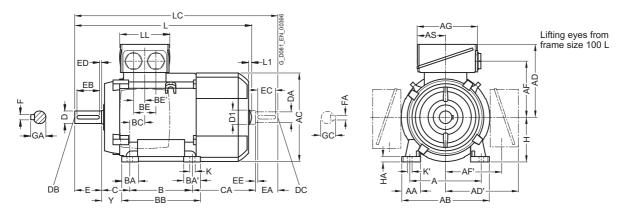
www.siemens.com/automation/CA01

SIMOTICS GP 1LE1 standard motors

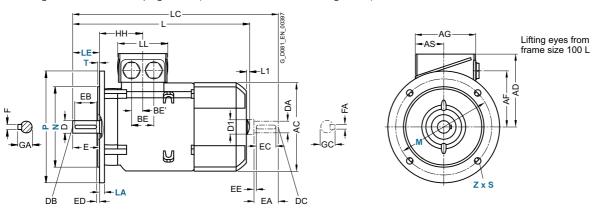
Aluminum series, self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing · Frame sizes 63 M to 200 L

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1



For mo	tor		Dime	ensior	n desi	gnatio	on acc.	to IEC	;															
Frame size	Motor type 1LE100. 1LE101. 1LE1021	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	ВА	BA'	BB	BC	BE	BE'	С	CA	Н	НА	Υ
63 M	1LE1000B.2 1LE1002-0B.3	, ,	100	27	120	124	101	101	78	78	75	37.5	80	27	-	96	30	32	32	40	66	63	7	26.5
	1LE1001-0B.3 1LE1002-0B.6	2, 4																			92			
71 M	1LE1001, 1LE1002	2, 4, 6, 8	112	27	132	145	111	111	88	88	75	37.5	90	27	-	106	18	18	18	45	83	71	7	31.5
80 M	1LE1001	2, 4, 6	125	30.5	150	159	121.5	121.5	96.5	96.5	93	43	100	32	32	118	23	-	18 ¹⁾	50	113	80	8	41
90 S	1LE1041	2, 4, 6	140	30.5	165	178	126	126	101.5	101.5	93	43	100	33	54	143	22.5	-	18 ¹⁾	56	174	90	10	47
90 L		2, 4, 6	140	30.5	165	178	126	126	101.5	101.5	93	43	125	33	54	143	22.5	-	18 ¹⁾	56	174	90	10	47
100 L	All	2, 4, 6, 8	160	42	196	198	166	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	141	100	12	45
112 M	All	2, 4, 6, 8	190	46	226	222	177	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	130	112	12	52
132 S	All	2, 4, 6, 8	216	53	256	262	202	202	159.5	159.5	155	70.5	140	38	76 ³⁾	218 ⁴⁾	26.5	48	24	89	167	132	15	69
132 M	All	2, 4, 6, 8	216	53	256	262	202	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	179	132	15	69
160 M	All	2, 4, 6, 8	254	60	300	314	236.5	236.5	190	190	175	77.5	210	44	89 ⁵⁾	300 ⁶⁾	47	57	28.5	108	192	160	18	85
160 L	All	2, 4, 6, 8	254	60	300	314	236.5	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	148 ²⁾	160	18	85
180 M	All	2, 4, 6, 8	279	65	339	356	259	259	212.5	212.5	175	77.5	241	80	100	328	30	57	28.5	121	232	180	20	95
180 L	All	2, 4, 6, 8	279	65	339	356	259	259	212.5	212.5	175	77.5	279	80	100	328	30	57	28.5	121	194	180	20	95
200 L	All	2, 4, 6, 8	318	70	378	396	296	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	202	200	25	108

¹⁾ Only one termination hole available.

²⁾ Only for pole-changing types 1LE1011-1DP6 and 1LE1012-1DQ6 the dimension CA* is 208 mm.

³⁾ With screwed-on feet, dimension BA' is 38 mm.

⁴⁾ With screwed-on feet, dimension BB is 180 mm.

⁵⁾ With screwed-on feet, dimension BA' is 44 mm.

⁶⁾ With screwed-on feet, dimension BB is 256 mm.

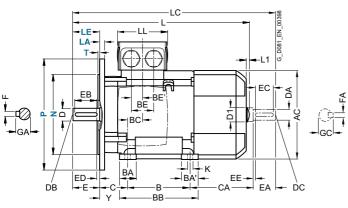
SIMOTICS GP 1LE1 standard motors

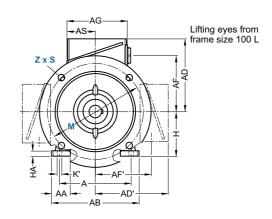
Aluminum series, self-ventilated – IE1, IE2, NEMA Energy Efficient and pole-changing · Frame sizes 63 M to 200 L

Dimensional drawings (continued)

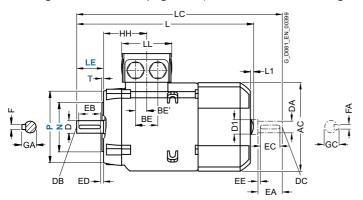
Type of construction IM B35

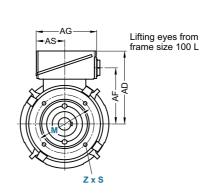
For flange dimensions, see page 1/53 (Z = the number of retaining holes)





Type of construction IM B14





For mot	tor		Dimen	sion d	lesign	ation acc	to II	EC			DE	shaft e	extens	sion				ND	E shaf	t exte	nsion			
Frame size	Motor type 1LE100. 1LE101. 1LE1021	No. of poles	HH	K	K'	L ¹⁾	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
63 M	1LE1000B.2 1LE1002-0B.3 1LE1001-0B.3	2, 4, 6 2, 4	69.5	7	10	202.5 ⁴⁾ 228.5	-	-	232 ⁴⁾ 258	75	11	M4	23	16	3.5	4	12.5	11	M4	23	16	3.5	4	12.5
	1LE1002-0B.6																							
71 M	1LE1001, 1LE1002	2, 4, 6, 8	63.5	7	10	240	-	-	278	75	14	M5	30	22	4	5	16	14	M5	30	22	4	5	16
80 M	1LE1001	2, 4, 6	73	9.5	13.5	292	-	-	342.5	79	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S	1LE1041	2, 4, 6	78.5	10	14	347	-	-	405	79	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
90 L	-	2, 4, 6	78.5	10	14	347	-	-	405	79	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
100 L	All	2, 4, 6, 8	96.5	12	16	395.5	7	32	454	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4, 6, 8	96	12	16	389 414	7	32	450 475	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	2, 4, 6, 8	115.5	12	16	465	8.5	39	535.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	2, 4, 6, 8	115.5	12	16	465	8.5	39	535.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	2, 4, 6, 8	155	15	19	604	10	45	730	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6, 8	155	15	19	604 ²⁾	10	45	730 ³⁾	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 M	All	2, 4, 6, 8	151	14.5	19	698	-	-	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
180 L	All	2, 4, 6, 8	151	14.5	19	698	-	-	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
200 L	All	2, 4, 6, 8	178	18.5	25	746	-	-	860	185	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

¹⁾ The length is specified as far as the tip of the fan cover.

²⁾ Only for pole-changing types 1LE1011-1DP6 and 1LE1012-1DQ6 the dimension L is 664 mm.

³⁾ Only for pole-changing types 1LE1011-1DP6 and 1LE1012-1DQ6 the dimension LC is 790 mm.

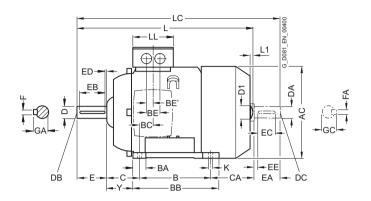
⁴⁾ For 1LE1002-0B.3 with the type of construction code letters (14th position of the article number) F, G, H (IM B5, IM V1 without protective cover, IM V3) is dimension L 228.5 mm. Dimension LC is 258 mm.

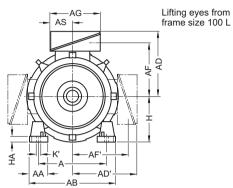
SIMOTICS GP 1LE1 standard motors

Aluminum series, self-ventilated with increased power – IE1, IE2 · Frame sizes 80 M to 200 L

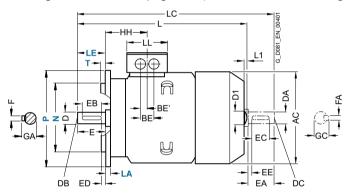
Dimensional drawings

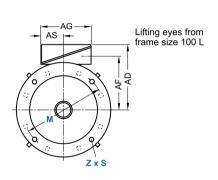
Type of construction IM B3





Types of construction IM B5 and IM V1





			Г.																					
For mot	or		Dime	ensio	n desi	gnatio	on acc.	to IEC																
Frame size	Motor type 1LE1001 1LE1002 1LE1041	No. of poles	A	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	BA	BA'	BB	BC	BE	BE'	С	CA	Н	HA	Υ
80 M	All	2, 4	125	30.5	150	159	121.5	121.5	96.5	96.5	93	43	100	32	32	118	23	-	18 ¹⁾	50	148	80	8	41
90 L	All	2, 4	140	30.5	165	178	126	126	101.5	101.5	93	43	125	33	54	143	22.5	-	18 ¹⁾	56	174	90	10	47
100 L	All	2, 4, 6, 8	160	42	196	198	166	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	176	100	12	45
112 M	All	2, 4, 6, 8	190	46	226	222	177	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	155	112	12	52
132 M	All	2, 4, 6, 8	216	53	256	262	202	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	179	132	15	69
160 L	All	2, 4, 6, 8	254	60	300	314	236.5	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	208	160	18	85
180 L	1LE1001 1LE1002	2, 4, 6, 8	279	65	339	356	259	259	212.5	212.5	175	77.5	279	80	100	328	30	57	28.5	121	194	180	20	95
200 L	1LE1001 1LE1002	2, 4, 6, 8	318	70	378	396	296	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	202	200	25	108

¹⁾ Only one termination hole available.

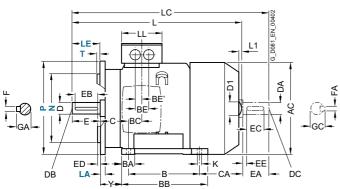
SIMOTICS GP 1LE1 standard motors

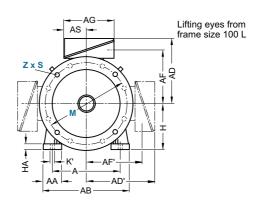
Aluminum series, self-ventilated with increased power - IE1, IE2 · Frame sizes 80 M to 200 L

Dimensional drawings (continued)

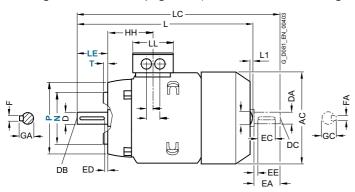
Type of construction IM B35

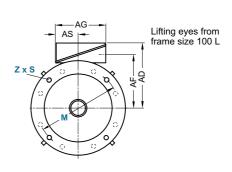
For flange dimensions, see page 1/53 (Z = the number of retaining holes)





Type of construction IM B14





For mot	or		Dimen	sion o	desig	nation a	cc. to	IEC			DE	shaft e	ktensio	on				NDE	shaft	extens	sion			
Frame size	Motor type 1LE1001 1LE1002 1LE1041	No. of poles	HH	K	K'	L 1)	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	All	2, 4	73	9.5	13.5	327	327	-	378	79	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 L	All	2, 4	78.5	10	14	387	-	-	445	79	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
100 L	All	2, 4, 6, 8	96.5	12	16	430.5	7	32	489	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4, 6, 8	96	12	16	414	7	32	475	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 M	All	2, 4, 6, 8	115.5	12	16	515	8.5	39	585.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 L	All	2, 4, 6, 8	155	15	19	664	10	45	790	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 L	1LE1001 1LE1002	2, 4, 6	151	14.5	19	698	-	-	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
200 L	1LE1001 1LE1002	2, 4, 6	178	18.5	25	746	-	-	860	185	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

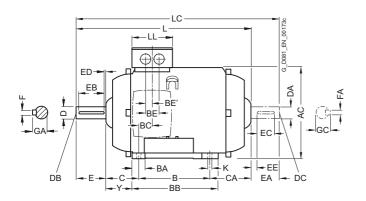
¹⁾ The length is specified as far as the tip of the fan cover.

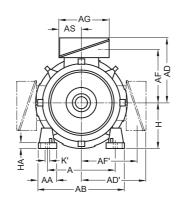
SIMOTICS GP 1LE1/1PC1 standard motors

Aluminum series, forced-air/naturally cooled – IE1, IE2 · Frame sizes 80 M to 200 L

Dimensional drawings

Type of construction IM B3





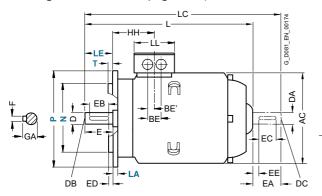
Lifting eyes from frame size 100 L

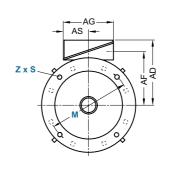
Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/53 (Z = the number of retaining holes)





Lifting eyes from frame size 100 L

For mot	tor		Dime	ension	desig	gnatio	n acc. t	to IEC																
Frame size	Motor type 1LE100. 1PC100. 1LE1021	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	BA	BA'	BB	BC		BE'	С	CA	Н	НА	Υ
80 M	1LE1001	2, 4, 6	125	30.5	150	159	121.5	121.5	96.5	96.5	93	43	100	32	32	118	23	-	18 ⁵⁾	50	70.5	80	8	41
	1LE1021	2, 4, 6					149.5	149.5	112.5	112.5	119.5	61.5												
90 S	1LE1001	2, 4, 6	140	30.5	165	178	126	126	101.5	101.5	93	43	100	33	54	143	22.5	_5)	18 ⁵⁾	56	103	90	10	47
	1LE1021	2, 4, 6					154.5	154.5	117.5	117.5	119.5	61.5												
90 L	1LE1001	2, 4, 6	140	30.5	165	178	126	126	101.5	101.5	93	43	125	33	54	143	22.5	_5)	18 ⁵⁾	56	78	90	10	47
	1LE1021	2, 4, 6					154.5	154.5	117.5	117.5	119.5	61.5												
100 L	All	2, 4, 6, 8	160	42	196	198	166	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	63	100	12	45
112 M	All	2, 4 6, 8	190	46	226	222	177	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	45 70	112	12	52
132 S	All	2, 4, 6, 8	216	53	256	261	202	202	159.5	159.5	155	70.5	140	38	76 ¹⁾	218 ²⁾	26.5	48	24	89	77	132	15	69
132 M	All	2, 4, 6, 8	216	53	256	261	202	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	39	132	15	69
160 M	All	2, 4, 6, 8	254	60	300	314	236.5	236.5	190	190	175	77.5	210	44	89 ³⁾	300 ⁴⁾	47	57	28.5	108	92	160	18	85
160 L	All	2, 4, 6, 8	254	60	300	314	236.5	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	48	160	18	85
180 M	1LE1001 1LE1021	2, 4, 6, 8	279	65	339	356	259	259	212.5	212.5	175	77.5	241	80	100	328	30	57	28.5	121	124	180	20	95
200 L	1LE1001 1LE1021	2, 4, 6, 8	318	70	378	396	296	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	101	200	25	108

¹⁾ With screwed-on feet, dimension BA' is 38 mm.

²⁾ With screwed-on feet, dimension BB is 180 mm.

 $^{^{\}rm 3)}$ With screwed-on feet, dimension BA' is 44 mm.

⁴⁾ With screwed-on feet, dimension BB is 256 mm.

⁵⁾ Only one termination hole available, except for 1LE1021. In this case, dimension BE is 32 mm.

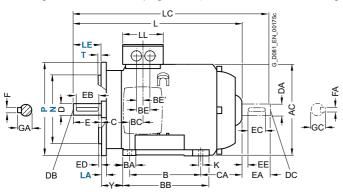
SIMOTICS GP 1LE1/1PC1 standard motors

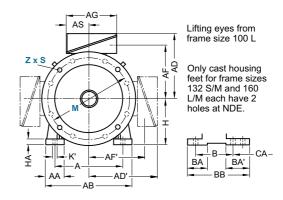
Aluminum series, forced-air/naturally cooled - IE1, IE2 · Frame sizes 80 M to 200 L

Dimensional drawings (continued)

Type of construction IM B35

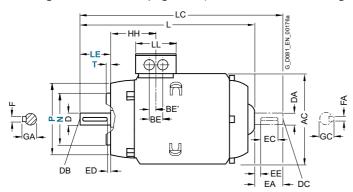
For flange dimensions, see page 1/53 (Z = the number of retaining holes)

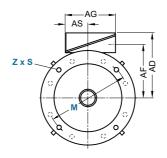




Type of construction IM B14

For flange dimensions, see page 1/53 (Z = the number of retaining holes)





Lifting eyes from frame size 100 L

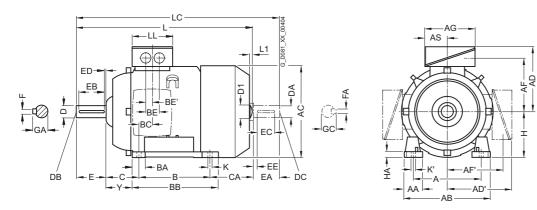
For mot	tor		Dimen	sion d	esigna	tion acc	. to IE	С	DE s	haft ex	tensio	n				NDE	shaft e	xtensi	on			
Frame size	Motor type 1LE100. 1PC100. 1LE1021	No. of poles	НН	K	K'	L	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	1LE1001 1LE1021	2, 4, 6 2, 4, 6	73	9.5	13.5	253	300.5	79 123	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S	1LE1021 1LE1021	2, 4, 6 2, 4, 6	78.5	10	14	294.5	349	79 123	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
90 L	1LE1021 1LE1021	2, 4, 6 2, 4, 6	78.5	10	14	294.5	349	123 123	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
100 L	All	2, 4, 6, 8	96.5	12	16	324	376	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4 6, 8	96	12	16	311 336	365 390	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	2, 4, 6, 8	115.5	12	16	380.5	446	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	2, 4, 6, 8	115.5	12	16	380.5	446	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	2, 4, 6, 8	155	15	19	510	630	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6, 8	155	15	19	510	630	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 M	1LE1001 1LE1021	2, 4, 6, 8	151	14.5	19	698	706	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	51.5
200 L	1LE1001 1LE1021	2, 4, 6, 8	178	18.5	25	746	759	185	55	M20	110	100	5	16	59	55	M20	110	100	100	16	59

SIMOTICS GP 1LE1 standard motors

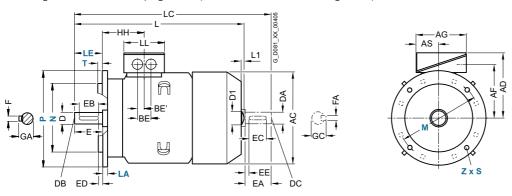
Aluminum series, self-ventilated – IE3, NEMA Premium Efficient · Frame sizes 80 M to 90 L

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1



For mo	tor		Dime	ension	desig	natio	n acc. 1	to IEC														
Frame size	Motor type	No. of poles	Α		_		AD		AF	AF'	AG	AS	В	ВА	BB	ВС		BE' C	CA	Н	НА	Υ
80 M	1LE1003-0DA2, -0DB2, -0DC2 -0DA3, -0DB3, -0DC3	2, 4, 6	125	30.5	150	159	121.5	121.5	96.5	96.5	93	43	100	32	118	23	_1)	18 ¹⁾ 50	113 148	80	8	41
	1LE1043-0DA2,	2																				
	1LE1023-0DA2, -0DB2, -0DC2	2, 4, 6					149.5	149.5	112	112	119.5	61.5							113			
	-0DA3, -0DB3, -0DC3																		148			
90 S	1LE1003-0EA0, -0EB0, -0EC0	2, 4, 6	140	30.5	165	178	126	126	101.5	101.5	93	43	100	33	143	22.5	_1)	18 ¹⁾ 56	159	90	10	47
	1LE1043-0EA0,	2																				
	1LE1023-0EA0, -0EB0, -0EC0	2, 4, 6					154.5		117.5	117	119.5	61.5										
90 L	1LE1003-0EA4, -0EB4, -0EC4	2, 4, 6	140	30.5	165	178	126	126	101.5	101.5	93	43	125	33	143	22.5	_1)	18 ¹⁾ 56	154	90	10	47
	1LE1043-0EA4, -0EB4	2, 4																				
	1LE1023-0EA4, -0EB4, -0EC4	2, 4, 6					154.5		117.5	117.5	119.5	61.5										

¹⁾ Only one termination hole available, except for 1LE1023. In this case, dimension BE is 32 mm.

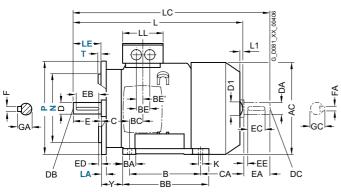
SIMOTICS GP 1LE1 standard motors

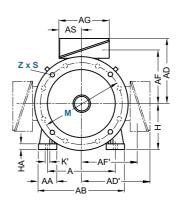
Aluminum series, self-ventilated – IE3, NEMA Premium Efficient · Frame sizes 80 M to 90 L

Dimensional drawings (continued)

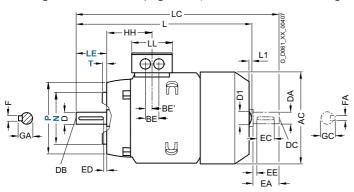
Type of construction IM B35

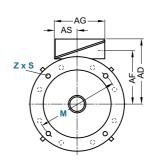
For flange dimensions, see page 1/53 (Z = the number of retaining holes)





Type of construction IM B14





For mo	tor		Dime	nsion	design		acc. to	IEC			DE	shaft	exter	nsion	1			NDE	E shaf	t exte	nsion			
Frame size	Motor type	No. of poles	НН	K	K'	L ¹⁾	L1	D1	LC	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	1LE1003-0DA2, -0DB2, -0DC2, -0DA3, -0DB3, -0DC3	2, 4, 6	73	9.5	13.5	292 327	-	-	343 378	79	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
	1LE1043-0DA2,	2				292																		
	1LE1023-0DA2, -0DB2, -0DC2,	2, 4, 6				292			343	123														
	-0DA3, -0DB3, -0DC3					327			378															
90 S	1LE1003-0EA0, -0EB0, -0EC0	2, 4, 6	78.5	10	14	347	-	-	405	79	24	M8	50	40	5	8 :	27	19	M6	40	32	4	6	21.5
	1LE1043-0EA0,	2																						
	1LE1023-0EA0, -0EB0, -0EC0	2, 4, 6								123														
90 L	1LE1003-0EA4, -0EB4, -0EC4	2, 4, 6	78.5	10	14	387	-	-	445	79	24	M8	50	40	5	8 :	27	19	M6	40	32	4	6	21.5
	1LE1043-0EA4, -0EB4	2, 4																						
	1LE1023-0EA4, -0EB4, -0EC4	2, 4, 6								123														

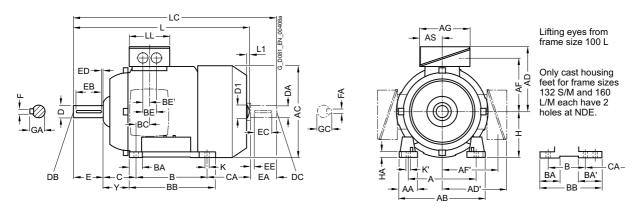
¹⁾ The length is specified as far as the tip of the fan cover.

SIMOTICS GP 1LE1 standard motors

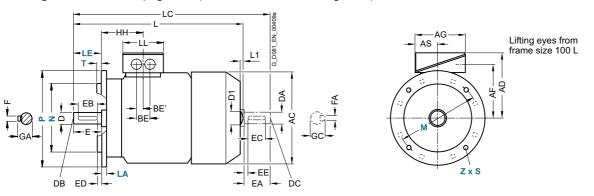
Aluminum series, self-ventilated – IE3, NEMA Premium Efficient · Frame sizes 100 L to 200 L

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1



For most			Dim		- n da		tion ook	. to IE	^															
For mot	101		חוח	ensio	ווע מפי	signa	tion acc																	
Frame size	Motor type 1LE1003- 1LE1023- 1LE1043	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	BA	BA'	BB	BC	BE	BE'	С	CA	Н	НА	Υ
100 L	1AA4, 1AB4, 1AB5, 1AC3	2, 4, 6	160	42	196	198	166	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	176	100	12	45
112 M	1BA2, 1BB2	2, 4, 6	190	46	226	222	177	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	155	112	12	52
132 S	1CA0, 1CC0, 1CD0	2, 6, 8	216	53	256	262	202	202	159.5	159.5	155	70.5	140	38	76 ¹⁾	218 ²⁾	26.5	48	24	89	167	132	15	69
	1CA1, 1CB0	2, 4																			217			
132 M	1CC2	6	216	53	256	262	202	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	129	132	15	69
	1CB2, 1CC3, 1CD2	4, 6, 8																			179			
160 M	1DA2, 1DA3, 1DB2, 1DC2, 1DD2, 1DD3	2, 4, 6, 8	254	60	300	314	236.5	236.5	190	190	175	77.5	210	44	89 ³⁾	300 ⁴⁾	47	57	28.5	108	192	160	18	85
160 L	1DA4, 1DB4, 1DC4, 1DD4	2, 4, 6, 8	254	60	300	314	236.5	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	208	160	18	85
180 M	1EA2 1EB2	2, 4	279	65	339	356	259	259	212.5	212.5	175	77.5	241	80	100	328	30	57	28.5	121	232	180	20	95
180 L	1EB4, 1EC4, 1ED4	4, 6, 8	279	65	339	356	259	259	212.5	212.5	175	77.5	279	80	100	328	30	57	28.5	121	194	180	20	95
200 L	2AA4, 2AA5, 2AB5, 2AC4, 2AC5, 2AD5	2, 4, 6, 8	318	70	378	396	296	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	202	200	25	108

¹⁾ With screwed-on feet, dimension BA' is 38 mm.

 $^{^{2)}\,}$ With screwed-on feet, dimension BB is 180 mm.

 $^{^{\}rm 3)}$ With screwed-on feet, dimension BA' is 44 mm.

⁴⁾ With screwed-on feet, dimension BB is 256 mm.

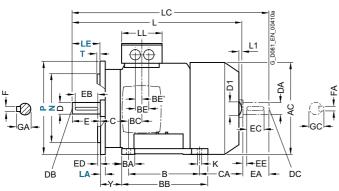
SIMOTICS GP 1LE1 standard motors

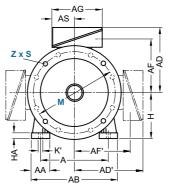
Aluminum series, self-ventilated - IE3, NEMA Premium Efficient · Frame sizes 100 L to 200 L

Dimensional drawings (continued)

Type of construction IM B35

For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)



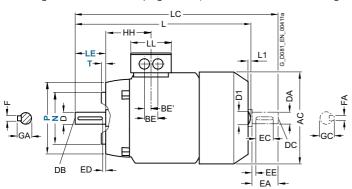


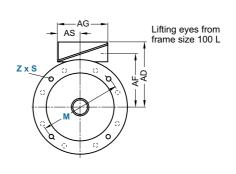
Lifting eyes from frame size 100 L

Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Type of construction IM B14





For mot	tor		Dimen	sion d	lesig	nation a	cc. to	IEC			DE	shaft e	extens	sion				ND	E shaft	exten	sion			
Frame size	Motor type 1LE1003- 1LE1023- 1LE1043	No. of poles	HH	K	K'	L ¹⁾	L1	D1	LC	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
100 L	1AA4, 1AB4, 1AB5, 1AC3	2, 4, 6	96.5	12	16	430.5	7	32	489	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	1BA2, 1BB2	2, 4, 6	96	12	16	414	7	32	475	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0, 1CC0, 1CD0	2, 6, 8	115.5	12	16	465	8.5	39	535.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CA1, 1CB0	2, 4				515			585.5															
132 M	1CC2	6	115.5	12	16	465	8.5	39	535.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CB2, 1CC3, 1CD2	4, 6, 8				515			585.5															
160 M	1DA2, 1DA3, 1DB2, 1DC2, 1DD2, 1DD3	2, 4, 6, 8	155	15	19	604	10	45	730	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	1DA4, 1DB4, 1DC4, 1DD4	2, 4, 6, 8	155	15	19	664	10	45	790	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 M	1EA2 1EB2	2, 4	151	14.5	19	698	-	-	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
180 L	1EB4, 1EC4, 1ED4	4, 6, 8	151	14.5	19	698	-	-	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
200 L	2AA4, 2AA5, 2AB5, 2AC4, 2AC5, 2AD5	2, 4, 6, 8	178	18.5	25	746	-	-	860	185	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

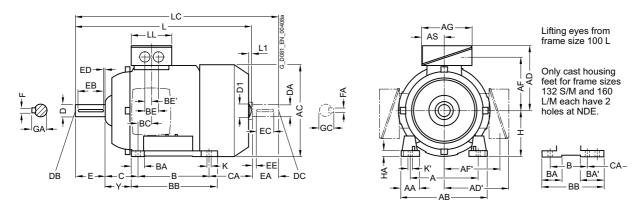
¹⁾ The length is specified as far as the tip of the fan cover.

SIMOTICS GP 1LE1 standard motors

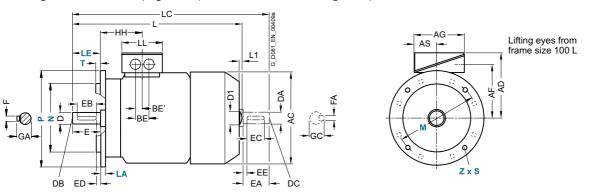
Aluminum series, self-ventilated with increased power - IE3 · Frame sizes 100 L to 200 L

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1



For mo	tor		Dime	ensic	on des	signat	ion acc	. to IEC	;															
Frame size	Motor type	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA	Н	НА	Υ
132 M	1LE1003-1CA6 1LE1043-1CA6	2	216	53	256	262	202	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	179	132	15	69
160 L	1LE1003-1DA6 -1DB6 1LE1043-1DA6	2, 4	254	60	300	314	236.5	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	268	160	18	85
180 L	1LE1003-1EA6 -1EB6 -1EC6	2, 4, 6	279	65	339	356	259	259	212.5	212.5	175	77.5	279	80	100	328	30	57	28.5	121	194	180	20	95
200 L	1LE1003-2AA6 -2AB6 -2AC6	2, 4, 6	318	70	378	396	296	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	202	200	25	108

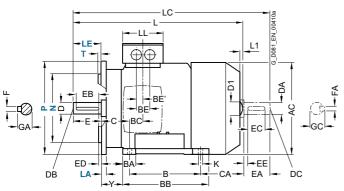
SIMOTICS GP 1LE1 standard motors

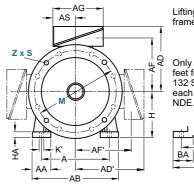
Aluminum series, self-ventilated with increased power – IE3 · Frame sizes 100 L to 200 L

Dimensional drawings (continued)

Type of construction IM B35

For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)



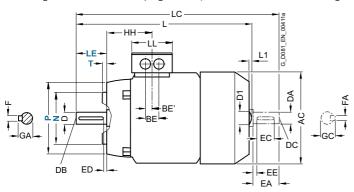


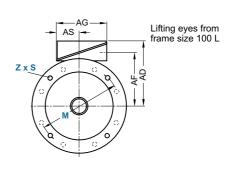
Lifting eyes from frame size 100 L

Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at



Type of construction IM B14





For mo	tor		Dimens	sion de	signa	ation a	acc. to	o IEC	;		DE	shaft e	xtensi	on				ND	E shaft	exter	nsion			
Frame size	Motor type	No. of poles	HH	K	K'	L ¹⁾	L1	D1	LC	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
132 M	1LE1003-1CA6 1LE1043-1CA6	2	115.5	12	16	515	8.5	39	585.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 L	1LE1003-1DA6 -1DB6 1LE1043-1DA6	2, 4	155	15	19	664	10	45	790	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 L	1LE1003-1EA6 -1EB6 -1EC6	2, 4, 6	151	14.5	19	698	-	-	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
200 L	1LE1003-2AA6 -2AB6 -2AC6	2, 4, 6	178	18.5	25	746	-	-	860	185	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

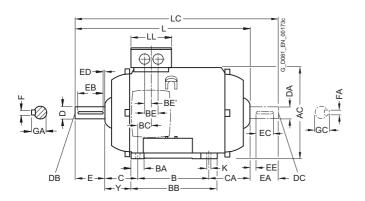
¹⁾ The length is specified as far as the tip of the fan cover.

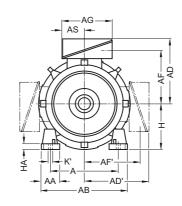
SIMOTICS GP 1LE1 standard motors

Aluminum series, forced-air cooled - IE3 · Frame sizes 80 M to 90 L

Dimensional drawings

Type of construction IM B3





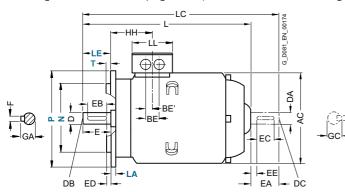
Lifting eyes from frame size 100 L

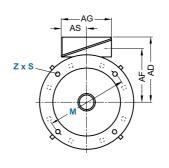
Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/53 (Z = the number of retaining holes)





Lifting eyes from frame size 100 L

For mo	tor		Dime	ension	desig	gnatio	n acc. t	o IEC																
Frame size	Motor type 1LE1023- 1LE1043-	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA	Н	НА	Υ
80 M	0DA2, 0DB2, 0DC2	2, 4, 6	125	30.5	150	159	121.5	121.5	96.5	96.5	93	43	100	32	32	118	23	-	18 ¹⁾	50	70	80	8	4
	0DA3, 0DB3, 0DC3	2, 4, 6																			105.5			
90 S	0EA0, 0EB0, 0EC0	2, 4, 6	140	30.5	165	178	126	126	101.5	101.5	93	43	100	33	54	143	22.5	-	18 ¹⁾	56	113	90	10	47
90 L	0EA4, 0EB4, 0EC4	2, 4, 6	140	30.5	165	178	126	126	101.5	101.5	93	43	100	33	54	143	22.5	-	18 ¹⁾	56	153	90	10	47

¹⁾ Only one termination hole available.

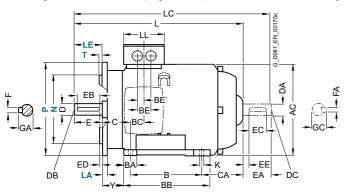
SIMOTICS GP 1LE1 standard motors

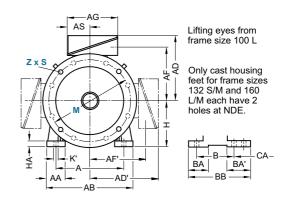
Aluminum series, forced-air cooled - IE3 · Frame sizes 80 M to 90 L

Dimensional drawings (continued)

Type of construction IM B35

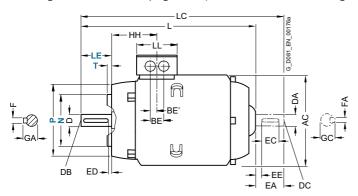
For flange dimensions, see page 1/53 (Z = the number of retaining holes)

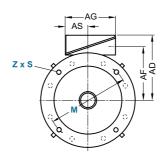




Type of construction IM B14

For flange dimensions, see page 1/53 (Z = the number of retaining holes)





Lifting eyes from frame size 100 L

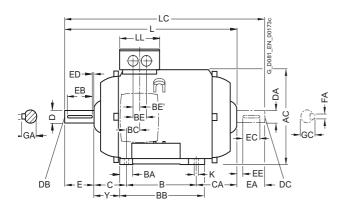
For mo	tor		Dime	nsion (designa	ation acc	c. to IEC	•	DE s	haft ex	tensio	n				NDE	shaft e	extens	ion			
Frame size	Motor type 1LE1023- 1LE1043-	No. of poles	НН	K	K'	L	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	0DA2, 0DB2, 0DC2	2, 4, 6	73	9.5	13.5	253.5	300.5	79	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
	0DA3, 0DB3, 0DC3	2, 4, 6				288	335.5															
90 S	0EA0, 0EB0, 0EC0	2, 4, 6	78.5	10	14	294.5	349	79	19	M6	40	32	5	8	27	19	M6	40	32	4	6	21.5
90 L	0EA4, 0EB4, 0EC4	2, 4, 6	78.5	10	14	334.5	389	79	19	M6	40	32	5	8	27	19	M6	40	32	4	6	21.5

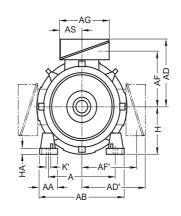
SIMOTICS GP 1LE1 standard motors

Aluminum series, forced-air cooled - IE3 · Frame sizes 100 L to 200 L

Dimensional drawings

Type of construction IM B3





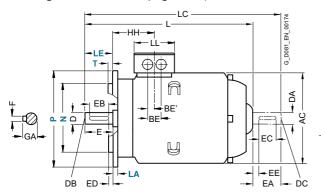
Lifting eyes from frame size 100 L

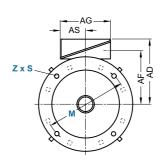
Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/53 (Z = the number of retaining holes)





Lifting eyes from frame size 100 L

For mot	tor		Dime	ension	desig	gnatio	n acc.	to IEC																
Frame size	Motor type 1LE1023- 1LE1043-	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	ВА	BA'	BB	BC	BE	BE'	С	CA	Н	НА	Υ
100 L	1AA4, 1AB4, 1AB5 1AC3	2, 4	160	42	196	198	166	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	-	100	12	45
112 M	1BA2, 1BB2	2, 4	190	46	226	222	177	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	-	112	12	52
132 S	1CA0, 1CC0	2, 6	216	53	256	262	202	202	159.5	159.5	155	70.5	140	38	76 ¹⁾	218 ²⁾	26.5	48	24	89	-	132	15	69
	1CA1, 1CB0	2, 4																						
132 M	1CC2	6	216	53	256	262	202	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	-	132	15	69
	1CB2, 1CC3	4, 6																						
160 M	1DA2, 1DA3, 1DB2, 1DC2	2, 4, 6	254	60	300	314	236.5	236.5	190	190	175	77.5	210	44	89 ³⁾	300 ⁴⁾	47	57	28.5	108	-	160	18	85
160 L	1DA4, 1DB4, 1DC4	2, 4, 6	254	60	300	314	236.5	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	-	160	18	85
180 M	1EA2, 1EB2,	2, 4	279	65	339	356	259	259	212.5	212.5	175	77.5	241	80	100	328	30	57	28.5	121	-	180	20	95
180 L	1EB4, 1EC4	4, 6	279	65	339	356	259	259	212.5	212.5	175	77.5	279	80	100	328	30	57	28.5	121	-	180	20	95
200 L	2AA4, 2AA5, 2AB5, 2AC4, 2AC5	2, 4, 6	318	70	378	396	296	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	-	200	25	108

¹⁾ With screwed-on feet, dimension BA' is 38 mm.

 $^{^{2)}}$ With screwed-on feet, dimension BB is 180 mm.

³⁾ With screwed-on feet, dimension BA' is 44 mm.

⁴⁾ With screwed-on feet, dimension BB is 256 mm.

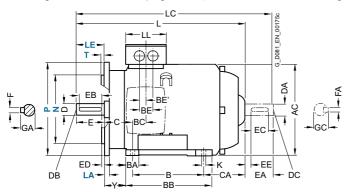
SIMOTICS GP 1LE1 standard motors

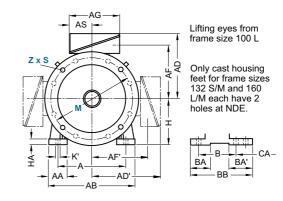
Aluminum series, forced-air cooled - IE3 · Frame sizes 100 L to 200 L

Dimensional drawings (continued)

Type of construction IM B35

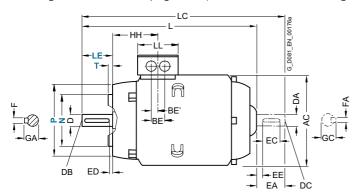
For flange dimensions, see page 1/53 (Z = the number of retaining holes)

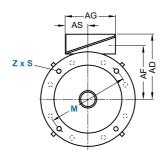




Type of construction IM B14

For flange dimensions, see page 1/53 (Z = the number of retaining holes)





Lifting eyes from frame size 100 L

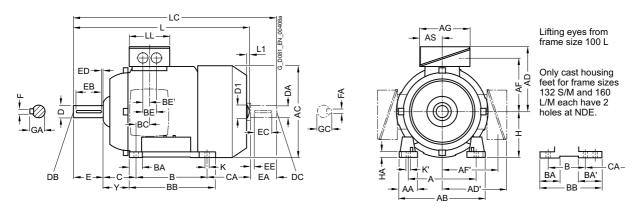
For mot	tor		Dimens	ion des	signa	tion acc.	to IEC	;	DE	shaft e	xtensi	on				NDE	shaft	exten	sion			
Frame size	Motor type 1LE1023- 1LE1043-	No. of poles	НН	K	K'	L	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
100 L	1AA4, 1AB4, 1AB5 1AC3	2, 4	96.5	12	16	356.5	411	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	1BA2, 1BB2	2, 4	96	12	16	336	390	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0, 1CC0	2, 6	115.5	12	16	380.5	446	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CA1, 1CB0	2, 4				430.5	496									-	-	-	-	-	-	-
132 M	1CC2	6	115.5	12	16	380.5	446	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CB2, 1CC3	4, 6				430.5	496									-	_	_	_	_	_	-
160 M	1DA2, 1DA3, 1DB2, 1DC2	2, 4, 6	155	15	19	510	630	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	1DA4, 1DB4, 1DC4	2, 4, 6	155	15	19	570	690	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 M	1EA2, 1EB2	2, 4	151	14.5	19	698	706	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
180 L	1EB4, 1EC4	4, 6	151	14.5	19	698	706	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
200 L	2AA4, 2AA5, 2AB5, 2AC4, 2AC5	2, 4, 6	178	18.5	25	746	759	185	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

SIMOTICS GP 1LE1 standard motors

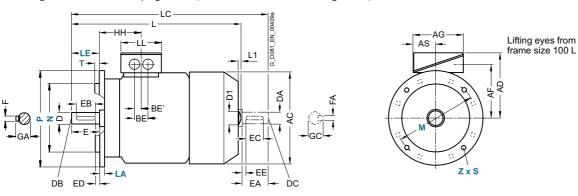
Aluminum series, self-ventilated – IE4 · Frame sizes 100 L to 160 L

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1



For mo	tor		Dime	ensic	n des	signat	ion acc	. to IEC	;															
Frame size	Motor type 1LE1004-	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA	Н	НА	Υ
100 L	1AA4 1AB4 1AB5	2 4 4	160	42	196	198	166	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	176	100	12	45
112 M	1BA2 1BB2	2 4	190	46	226	222	177	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	155	112	12	52
132 S	1CA0 1CA1 1CB0	2 2 4	216	53	256	262	202	202	159.5	159.5	155	70.5	140	38	76 ¹⁾ -	218 ²⁾	26.5	48	24	89	128.5 178.5	132	15	69
132 M	1CB2	4	216	53	256	262	202	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	178.5	132	15	69
160 M	1DA2 1DA3 1DB2	2 2 4	254	60	300	314	236.5	236.5	190	190	175	77.5	210	44	89 ³⁾	300 ⁴⁾	47	57	28.5	108	148 ⁵⁾	160	18	85
160 L	1DA4 1DB4	2 4	254	60	300	314	236.5	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	208	160	18	85

¹⁾ With screwed-on feet, dimension BA' is 38 mm.

²⁾ With screwed-on feet, dimension BB is 180 mm.

³⁾ With screwed-on feet, dimension BA' is 44 mm.

⁴⁾ With screwed-on feet, dimension BB is 256 mm.

⁵⁾ With screwed-on feet, dimension CA is 192 mm.

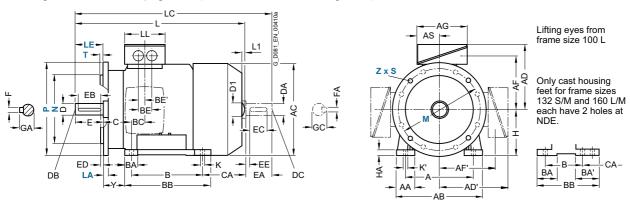
SIMOTICS GP 1LE1 standard motors

Aluminum series, self-ventilated – IE4 · Frame sizes 100 L to 160 L

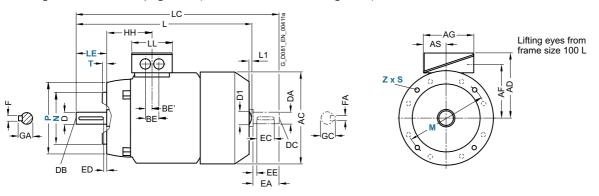
Dimensional drawings (continued)

Type of construction IM B35

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



Type of construction IM B14



For mo	tor		Dimens	sion	desi	gnation a	acc. t	o IE	С		DE	shaft e	extens	ion				ND	E shaft	extens	sion			
Frame size	Motor type 1LE1004-	No. of poles	НН	K	K'	L ¹⁾	L1	D1	LC	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
100 L	1AA4 1AB4 1AB5	2 4 4	96.5	12	16	430.5 480.5	7	32	489 529	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	1BA2 1BB2	2 4	96	12	16	414 464	7	32	475 520	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0 1CA1 1CB0	2 2 4	115.5	12	16	465 515	8.5	39	535.5 585.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	1CB2	4	115.5	12	16	515	8.5	39	585.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	1DA2 1DA3 1DB2	2 2 4	155	15	19	604 664	10	45	730	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	1DA4 1DB4	2 4	155	15	19	664	10	45	790	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

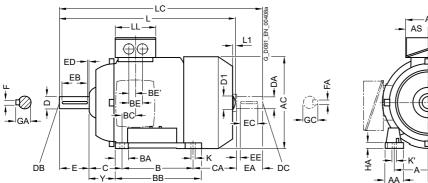
¹⁾ The length is specified as far as the tip of the fan cover.

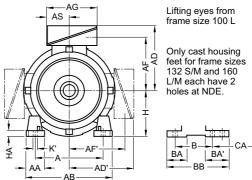
SIMOTICS SD 1LE1 standard motors

Cast-iron series, self-ventilated - IE1, IE2, NEMA Energy Efficient · Frame sizes 71 M to 160 L

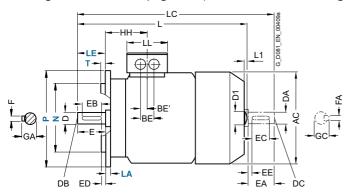
Dimensional drawings

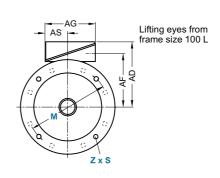
Type of construction IM B3





Types of construction IM B5 and IM V1





For mot	or		Dime	ension	desig	gnation	acc. to	IEC																
Frame size	Motor type 1LE15.1, 1LE16.1 1LE1502	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	BA	BA'	BB	BC	BE	BE'	С	CA	Н	НА	Υ
71 M	1LE15.1	2, 4, 6	112	30.5	132	145	149	149	112	112	126	62	90	32	32	106	21	36	18	45	83	71	7	37
80 M	1LE15.1	2, 4, 6	125	30.5	150	162	159	159	122	122	126	62	100	32	32	118	22.5	36	18	50	112.5	80	8	41
90 S	1LE15.1	2, 4, 6	140	30.5	165	180	164	164	127	127	126	62	100	33	54	143	24.5	36	18	56	159	90	11	47
90 L	1LE15.1	2, 4, 6	140	30.5	165	180	164	164	127	127	126	62	125	33	54	143	24.5	36	18	56	134	90	11	47
100 L	All	2, 4, 6, 8	160	42	196	217	193	193	147	147	163	80.5	140	48	48	176	37.5	48	24	63	141	100	12	45
112 M	All	2, 4, 6 8	190	46	226	239	195	195	150	150	163	80.5	140	48	48	176	30	48	24	70	130 155	112	12	52
132 S	All	2, 4, 6, 8	216	53	256	281	214.5	214.5	169	169	163	80.5	140	52 ⁵⁾	89 ¹⁾	218 ³⁾	26.5	48	24	89	166.5	132	15	69
132 M	All	2, 4, 6, 8	216	53	256	281	214.5	214.5	169	169	163	80.5	178	52 ⁵⁾	89 ¹⁾	218	26.5	48	24	89	128.5	132	15	69
160 M	All	2, 4, 6, 8	254	60	300	333.5	265	265	213	213	190	92	210	73 ⁶⁾	117 ²⁾	300 ⁴⁾	37	60	30	108	192	160	18	85
160 L	All	2, 4, 6, 8	254	60	300	333.5	265	265	213	213	190	92	254	73 ⁶⁾	117 ²⁾	300	37	60	30	108	148	160	18	85

¹⁾ With screwed-on feet, dimension BA' is 41 mm.

 $^{^{2)}\,}$ With screwed-on feet, dimension BA' is 51 mm.

³⁾ With screwed-on feet, dimension BB is 180 mm.

⁴⁾ With screwed-on feet, dimension BB is 256 mm.

⁵⁾ With screwed-on feet, dimension BA is 41 mm.

⁶⁾ With screwed-on feet, dimension BA is 51 mm.

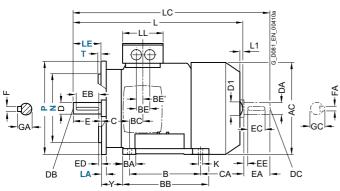
SIMOTICS SD 1LE1 standard motors

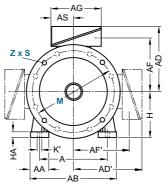
Cast-iron series, self-ventilated - IE1, IE2, NEMA Energy Efficient · Frame sizes 71 M to 160 L

Dimensional drawings (continued)

Type of construction IM B35

For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)



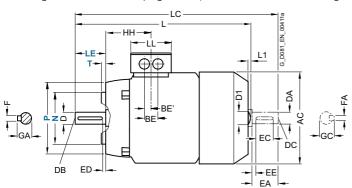


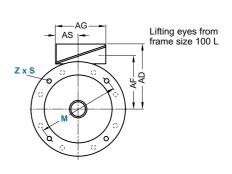
Lifting eyes from frame size 100 L

Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Type of construction IM B14





For mot	or		Dimen	sion o	desigr	nation ac	c. to I	IEC			DE :	shaft e	xtensi	on				NDE	E shaft	exten	sion			
Frame size	Motor type 1LE15.1, 1LE16.1 1LE1502	No. of poles	НН	K	K'	L ¹⁾	L1 ²⁾	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
71 M	1LE15.1	2, 4, 6	64.5	7.5	7.5	240	-	-	278	102	14	M5	30	22	4	5	16	14	M5	30	22	4	5	16
80 M	1LE15.1	2, 4, 6	71.5	10	10	292	-	-	342.5	102	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S	1LE15.1	2, 4, 6	79.5	10	10	347	-	-	405	102	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
90 L	1LE15.1	2, 4, 6	79.5	10	10	347	-	-	405	102	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
100 L	All	2, 4, 6, 8	100.5	12	16	397.5	7	32	454	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4, 6 8	100.5	12	16	390.5 415.5	7	32	450 475	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	2, 4, 6, 8	115.5	12	16	466.5	8.5	39	535.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	2, 4, 6, 8	115.5	12	16	466.5	8.5	39	535.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	2, 4, 6, 8	145	14.5	18	606	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6, 8	145	14.5	18	606	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

¹⁾ For 1LE16 motors less dimension L1.

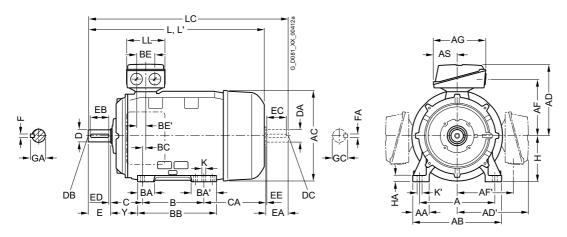
²⁾ Only for 1LE15 motors.

SIMOTICS SD 1LE1 standard motors

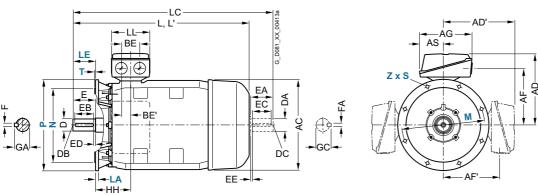
Cast-iron series, self-ventilated – IE1, IE2, NEMA Energy Efficient · Frame sizes 180 M to 250 M

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1 For flange dimensions, see page 1/53 (Z = the number of retaining holes)



For mot	tor		Dime	ensio	n des	ignati	on acc	c. to II	EC												
Frame size	Motor type 1LE1501-, 1LE1521-, 1LE1541- 1LE1601- 1LE1502-	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA
180 M/	1EB2 ¹⁾ , 1EA2, 1EB2, 1EC4	2, 4, 6	279	65	339	356	286	286	234	234	189	91	241	85	120	328	34	60	30	121	202
180 L	1EB4, 1EA6, 1EB6, 1EC6	2, 4, 6											279								
200 L	2AA4, 2AA5, 2AB5, 2AC4, 2AC5, 2AD5	2, 4, 6, 8	318	70	378	396	315	315	258.5	258.5	265	112	305	104	104	355	31	85	42.5	133	177
	2AA6, 2AB6, 2AC6, 2AD6	2, 4, 6, 8																			
225 S/	2BB0, 2BD0,	4, 8	356	80	436	449	338	338	282	282	266	112	311	92	117	361	15	85	42.5	149	253
225 M	2BB2, 2BC2, 2BD2, 2BB6, 2BC6, 2BD6	4, 6, 8											286 ¹⁾								
	2BA2, 2BA6	2											286 ¹⁾								
250 M	2CA2, 2CA6	2	406	100	490	497	410	410	322	322	319	145	349	102	102	409	24	110	55	168	230
	2CB2, 2CC2, 2CD2, 2CC6, 2CD6,	4, 6, 8																			
	2CB6	4																			300

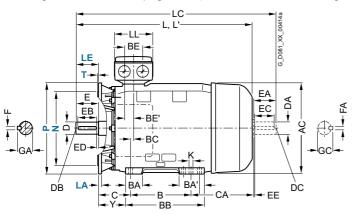
¹⁾ Only applicable for 1LE1502.

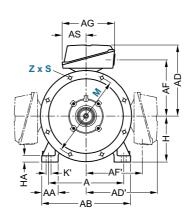
SIMOTICS SD 1LE1 standard motors

Cast-iron series, self-ventilated – IE1, IE2, NEMA Energy Efficient · Frame sizes 180 M to 250 M

Dimensional drawings (continued)

*Type of construction IM B35*For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)





For motor	Dim	ensi	on de	signa	tion	acc.	to IEC			DE s	shaft ex	xtensi	on				NDE	E shaft	exten	sion			
Motor type 1LE1501-, 1LE1521-, 1LE1541- 1LE1601- 1LE1502-	Н	НА	Υ	НН	K	K'	L	LC ¹⁾	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
1EB2 ²⁾ , 1EA2, 1EB2, 1EC4	180	20	95	155	15	19	668	784	164	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
1EB4, 1EA6, 1EB6, 1EC6							698	814															
2AA4, 2AA5, 2AB5, 2AC4, 2AC5, 2AD5	200	25	108	164	19	25	721	835	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
2AA6, 2AB6, 2AC6, 2AD6							746	860															
2BB0, 2BD0	225	34	124	164	19	25	788	903	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
2BB2, 2BC2, 2BD2, 2BB6, 2BC6, 2BD6							848	963															
2BA2, 2BA6							818	933		55		110	100	5	16	59	48	M16				14	51.5
2CA2, 2CA6	250	40	138	192	24	30	887	1002	233	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
2CB2, 2CC2, 2CD2, 2CC6, 2CD6								1032		65						69	60		140	125	10	18	64
2CB6							957	1072															

¹⁾ In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

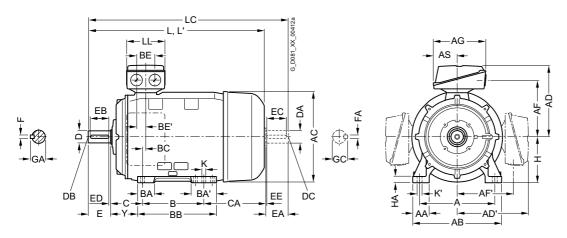
²⁾ Only applicable for 1LE1502.

SIMOTICS SD 1LE1 standard motors

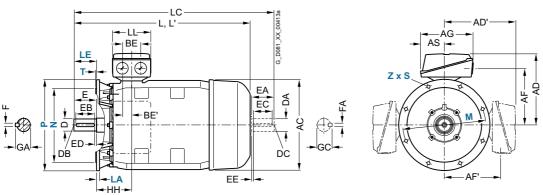
Cast-iron series, self-ventilated - IE1, IE2, NEMA Energy Efficient · Frame sizes 280 S to 315 L

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1 For flange dimensions, see page 1/53 (Z = the number of retaining holes)



For mote	or		Dime	ension	desi	gnatio	n acc	. to IE	С												
Frame size	Motor type 1LE1501-, 1LE1521-, 1LE1541- 1LE1601- 1LE1502-	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA
280 S	2DA0	2	457	100	540	551	433	433	345	345	319	145	368	101	152	479	20	110	55	190	267
	2DB0, 2DC0, 2DD0	4, 6, 8																			267
280 M	2DA6	2											419								326
	2DA2																				216
	2DB2, 2DC2, 2DD2, 2DC6, 2DD6	4, 6, 8																			
	2DB6	4																			326
315 S	3AA0, 3AA2 ²⁾	2	508	120	610	616	515	515	404	404	374	164	406	113	170	527	22	110	55	216	295
	3AB0, 3AC0, 3AD0	4, 6, 8																			
315 M	3AA2 ¹⁾ , 3AA5 ²⁾	2											457			578					409
	3AB2 ¹⁾	4																			
	3AC2, 3AD2	6, 8																			
315 L ¹⁾	3AA4	2											508			578					358
	3AB4, 3AC4, 3AD4, 3AC5, 3AD5, 3AD6	4, 6, 8																			
	3AA5, 3AA6	2											508	176	227	648					
	3AB5, 3AB6, 3AC6	4, 6																			

¹⁾ For orders with screwed-on feet (order code **H01**), these screwed-on feet have 3 drilled holes on the NDE side with the dimension B 406 mm, 457 mm, and 508 mm respectively; the dimension BB is 666 mm.

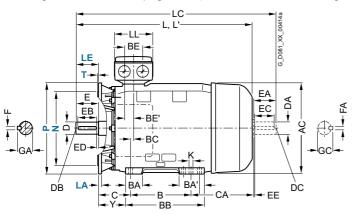
²⁾ Only applicable for 1LE1502.

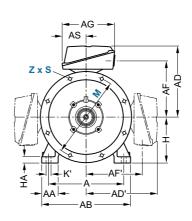
SIMOTICS SD 1LE1 standard motors

Cast-iron series, self-ventilated - IE1, IE2, NEMA Energy Efficient · Frame sizes 280 S to 315 L

Dimensional drawings (continued)

*Type of construction IM B35*For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)





For motor	Dim	ensio	on de	signation	acc	to IEC	;		DE:	shaft e	xtensi	on				NDE	shaft	extens	sion			
Motor type 1LE1501-, 1LE1521-, 1LE1541 1LE1601- 1LE1502-	Н	НА		нн к			LC ¹⁾	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
2DA0	280	40	160	210 24	30	960	1105	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
2DB0, 2DC0, 2DD0									75					20	79.5	65						69
2DA6						1070	1215		65					18	69	60						64
2DA2						960	1105															
2DB2, 2DC2, 2DD2, 2DC6, 2DD6									75					20	79.5	65						69
2DB6						1070	1215															
3AA0, 3AA2 ²⁾	315	50	181	238 28	35	1052	1197	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
3AB0, 3AC0, 3AD0						1082	1227		80		170	140	25	22	85	70					20	74.5
3AA2, 3AA5 ²⁾						1217	1362		65		140	125	10	18	69	60					18	64
3AB2						1247	1392		80		170	140	25	22	85	70					20	74.5
3AC2, 3AD2						1082	1227															
3AA4						1217	1362		65		140	125	10	18	69	60					18	64
3AB4, 3AC4, 3AD4, 3AC5, 3AD5, 3AD6						1247	1392		80		170	140	25	22	85	70					20	74.5
3AA5, 3AA6			146			1372	1517		65		140	125	10	18	69	60					18	64
3AB5, 3AB6, 3AC6						1402	1547		80		170	140	25	22	85	70					20	74.5

¹⁾ In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

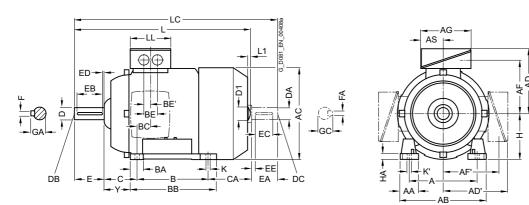
²⁾ Only applicable for 1LE1502.

SIMOTICS SD 1LE1 standard motors

Cast-iron series, self-ventilated - IE3, NEMA Premium Efficient · Frame sizes 71 M to 160 L

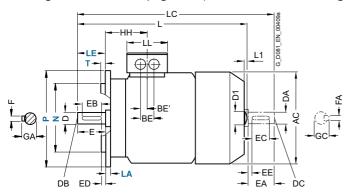
Dimensional drawings

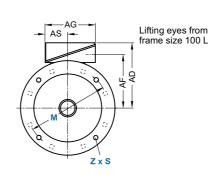
Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/53 (Z = the number of retaining holes)





Lifting eyes from frame size 100 L

Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.

F	.		D:					- 150																
For mo						_	n acc. t																	
Frame size	Motor type 1LE15.3- 1LE16.3-	No. of poles	А	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA	Н	HA	Υ
71 M	1LE15.3- 00, 02 03	2, 4, 6	112	30.5	132	145	149	149	112	112	126	62	90	32	32	106	21	36	18	45	83	71	7	37
80 M	1LE15.3- 00, 02 03	2, 4, 6	125	30.5	150	162	159	159	122	122	126	62	100	32	32	118	22.5	36	18	50	112.5	80	8	41
90 S	1LE15.3- 00, 02 03	2, 4, 6	140	30.5	165	180	164	164	127	127	126	62	100	33	54	143	24.5	36	18	56	159	90	11	47
90 L	1LE15.3	2, 4, 6	140	30.5	165	180	164	164	127	127	126	62	125	33	54	143	24.5	36	18	56	134	90	11	47
100 L	1AA4, 1AB4, 1AB5 1AC4	2, 4	160	42	196	217	193	193	147	147	163	80.5	140	48	48	176	37.5	48	24	63	141	100	12	45
112 M	All	2, 4, 6	190	46	226	239	195	195	150	150	163	80.5	140	48	48	176	30	48	24	70	130	112	12	52
132 S	1CA0, 1CC0	2, 6	216	53	256	281	214.5	214.5	169	169	163	80.5	140	52 ⁵⁾	89 ¹⁾	218 ²⁾	26.5	48	24	89	166.5	132	15	69
	1CA1, 1CB0	2, 4													-						178.5			
132 M	1CC2	6	216	53	256	281	214.5	214.5	169	169	163	80.5	178	52 ⁵⁾	89 ¹⁾	218	26.5	48	24	89	128.5	132	15	69
	1CB2, 1CC3	4, 6													-						178.5			
	1CB6	4																						
160 M	All	2, 4, 6	254	60	300	333.5	261	261	213	213	190	92	210	73 ⁶⁾	117 ³⁾	300 ⁴⁾	37	60	30	108	192	160	18	85
160 L	All	2, 4, 6	254	60	300	333.5	261	261	213	213	190	92	254	73 ⁶⁾	117 ³⁾	300	37	60	30	108	148	160	18	85

¹⁾ With screwed-on feet, dimension BA' is 41 mm.

²⁾ With screwed-on feet, dimension BB is 180 mm.

³⁾ With screwed-on feet, dimension BA' is 51 mm.

⁴⁾ With screwed-on feet, dimension BB is 256 mm.

 $^{^{5)}\,}$ With screwed-on feet, dimension BA is 41 mm.

⁶⁾ With screwed-on feet, dimension BA is 51 mm.

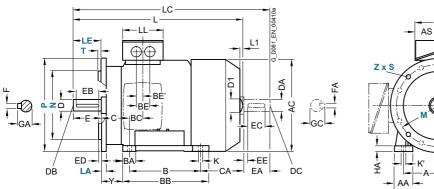
SIMOTICS SD 1LE1 standard motors

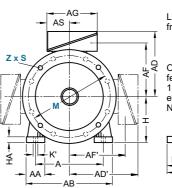
Cast-iron series, self-ventilated - IE3, NEMA Premium Efficient · Frame sizes 71 M to 160 L

Dimensional drawings (continued)

Type of construction IM B35

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



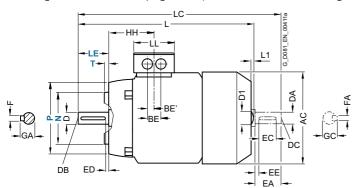


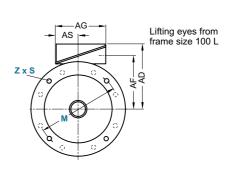
Lifting eyes from frame size 100 L

Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Type of construction IM B14





For mo	tor		Dimen	sion (desig	nation ad					DE	shaft	exten	nsion				NDE	E shaft	exten	sion			
Frame size	Motor type 1LE15.3- 1LE16.3-	No. of poles	HH	K	K'	L ¹⁾	L1 ²	D1	LC	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
71 M	1LE15.3- 00, 02 03	2, 4, 6	64.5	7.5	7.5	240 280	-	-	278 318	102	14	M5	30	22	4	5	16	14	M5	30	22	4	5	16
80 M	1LE15.3- 00, 02 03	2, 4, 6	71.5	10	10	292 327	-	-	343 378	102	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S	1LE15.3- 00, 02 03	2, 4, 6	79.5	10	10	347	-	-	405	102	24	M8	50	40	5	8	27	19	M6	40	27	4	6	21.5
90 L	1LE15.3	2, 4, 6	79.5	10	10	387	-	-	445	102	24	M8	50	40	5	8	27	19	M6	40	27	4	6	21.5
100 L	1AA4, 1AB4, 1AB5	2, 4	100.5	12	16	432.5	7	32	489	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
	1AC4	6				397			342.5															
112 M	All	2, 4, 6	100.5	12	16	415.5	7	32	475	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0, 1CC0	2, 6	115.5	12	16	466.5	8.5	39	535.5	134	38	M12	2 80	70	5	10	41	28	M10	60	50	5	8	31
	1CA1, 1CB0	2, 4				516.5			585.5															
132 M	1CC2	6	115.5	12	16	466.5	8.5	39	535.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CB2, 1CC3	4, 6				516.5			585.5															
	1CB6	4				567.5	-		630.5															
160 M	All	2, 4, 6	145	14.5	18	606	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6	145	14.5	18	666	10	45	790	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

¹⁾ For 1LE16 motors less dimension L1.

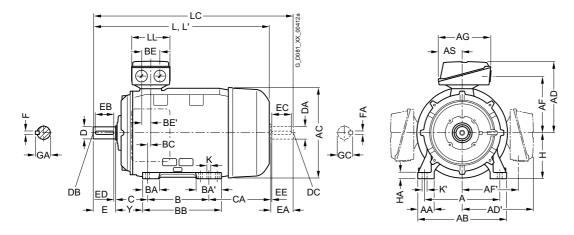
²⁾ Only for 1LE15 motors.

SIMOTICS SD 1LE1 standard motors

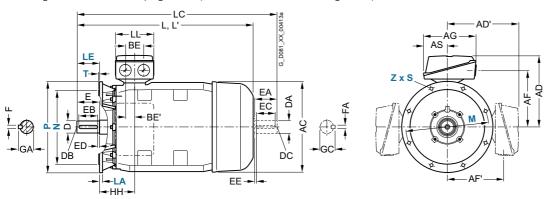
Cast-iron series, self-ventilated – IE3, NEMA Premium Efficient · Frame sizes 180 M to 315 L

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1 For flange dimensions, see page 1/53 (Z = the number of retaining holes)



For mote	or.		Dimo	nsion	dociar	ation	acc to	IEC													
Frame	Motor type	No. of	А	AA	AB	AC	AD. IC	AD'	AF	AF'	AG	AS	В	ВА	BA'	ВВ	ВС	BE	BE'	С	CA
size	1LE1503-, 1LE1523- 1LE1543- 1LE1603-, 1LE1623- 1LE1643-	, poles	A	AA	AD	AC	AD	AD	Ai	AI	AG	AS	Ь	DA	DA	DD	ВС	DL	DL	C	OA
180 M/ 180 L	1EB2, 1EC4 1EA2, 1EB4	4, 6 2, 4	279	65	339	356	286	286	234	234	190	92	241	85	120	328	34	60	30	121	202
200 L	2AA4, 2AC4 2AA5, 2AB5, 2AC5	2, 6 2, 4, 6	318	70	378	396	315	315	259	259	266	112	305	104	104	355	31	85	42.5	133	177
225 S	2BB0	4	356	80	436	449	338	338	282	282	266	112	286	92	117	361	15	85	42.5	149	218
225 M	2BA2 2BB2, 2BC2	2 4, 6	356	80	436	449	338	338	282	282	266	112	311	92	117	361	15	85	42.5	149	253
250 M	2CA2 2CB2, 2CC2	2 4, 6	406	100	490	497	410	410	322	322	319	145	349	102	102	409	24	110	55	168	230
280 S	2DA0 2DB0, 2DC0	2 4, 6	457	100	540	551	433	433	345	345	319	145	368	101	152	479	20	110	55	190	267
280 M	2DC2 2DA2 2DB2	6 2 4	457	100	540	551	433	433	345	345	319	145	419	101	152	479	20	110	55	190	216 326
315 S	3AA0 3AB0, 3AC0	2 4, 6	508	120	610	616	515	515	404	404	374	164	406	113	170	527	22	110	55	216	295
315 M ¹⁾		2 4, 6	508	120	610	616	515	515	404	404	374	164	457	113	170	578	22	110	55	216	409
315 L ¹⁾	3AA4 3AB4, 3AC4	2 4, 6	508	120	610	616	515	515	404	404	374	164	508	113	170	578	22	110	55	216	358
	3AA5 3AB5, 3AC5, 3AC6	2 4, 6												176	227	648					513

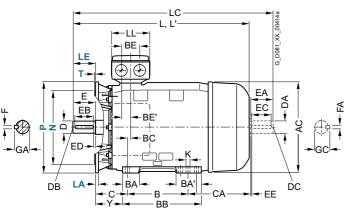
With terminal box position right, terminal box left, and with order code H01 only screwed-on feet with 3 drilled holes with dimension "B" (406, 457, and 508 mm). The dimension "BB" will then be 666 mm.

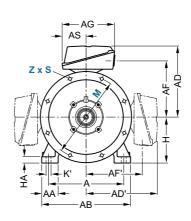
SIMOTICS SD 1LE1 standard motors

Cast-iron series, self-ventilated – IE3, NEMA Premium Efficient · Frame sizes 180 M to 315 L

Dimensional drawings (continued)

*Type of construction IM B35*For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)





For motor	Dim	ensio	n desi	gnatio	on ac	c. to I	EC			DE :	shaft e	xtens	ion				NDE	shaft e	xtensi	on			
Motor type 1LE1503-, 1LE1523-, 1LE1543- 1LE1603-, 1LE1623-, 1LE1643-		НА	Y	HH	K	K'	L	LC ¹⁾	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
1EB2, 1EC4 1EA2, 1EB4	180	20	95	155	15	19	668 698	784 814	164	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
2AA4, 2AC4 2AA5, 2AB5, 2AC5	200	25	108	164	19	25	721 746	835 860	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
2BB0 2BA2 2BB2, 2BC2	225	34	124	164	19	25	788 818 848	903 933 963	197 197	60 55 60	M20	140 110 140	125 100 125	10 5 10	18 16 18	64 59 64	55 48 55	M20 M16 M20	110	100	5	16 14 16	59 51.5 59
2CA2 2CB2, 2CC2	250	40	138	192	24	30	887	1002 1032	233	60 65	M20	140	125	10	18	64 69	55 60	M20	110 140	100 125	5 10	16 18	59 64
2DA0 2DB0, 2DC0	280	40	160	210	24	30	960	1105	233	65 75	M20	140	125	10	18 20	69 79.5	60 65	M20	140	125	10	18	64 69
2DC2 2DA2 2DB2							960 1070	1105 1215	233	75 65 75		140	125	10	20 18 20	79.5 69 79.5	65 60 65				10	18	69 64 69
3AA0 3AB0, 3AC0	315	50	181	238	28	35	1052 1082	1197 1227	299	65 80	M20	140 170	125 140	10 25	18 22	69 85	60 70	M20	140	125	10	18 20	64 74.5
3AA2 3AB2, 3AC2								1362 1392		65 80		140 170	125 140	10 25	18 22	69 85	60 70				10	18 20	64 74.5
3AA4 3AB4, 3AC4							1217 1247		299	65 80		140 170	125 140	10 25	18 22	69 85	60 70				10	18 20	64 74.5
3AA5 3AB5, 3AC5, 3AC6			146				1372 1402	1517 1547		65 80		140 170	125 140	10 25	18 22	69 85	60 70					18 20	64 74.5

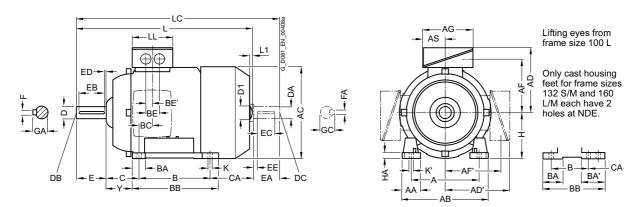
¹⁾ In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

SIMOTICS SD 1LE1 standard motors

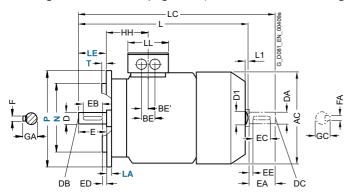
Cast-iron series, self-ventilated - IE4 · Frame sizes 100 L to 160 L

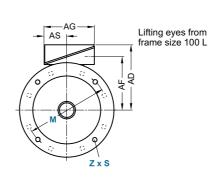
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1





For mot	tor		Dim	ensio	n des	ignatio	on acc.	to IEC																
Frame size	Motor type 1LE1504- 1LE1604-	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA	Н	HA	Υ
100 L	1AA4 1AB4 1AB5	2 4 4	160	42	196	217	193	193	147	147	163	80.5	140	48	48	176	37.5	48	24	63	176	100	12	45
112 M	1BA2 1BB2	2 4	190	46	226	239	195	195	150	150	163	80.5	140	48	48	176	30	48	24	70	155	112	12	52
132 S	1CA0 1CA1, 1CB0	2 2, 4	216	53	256	281	214.5	214.5	169	169	163	80.5	140	52 ¹⁾	89 ⁵⁾ -	218 ²⁾	26.5	48	24	89	130 178.5	132	15	69
132 M	1CB2	4	216	53	256	281	214.5	214.5	169	169	163	80.5	178	52 ¹⁾	$89^{6)}$	218	26.5	48	24	89	178.5	132	15	69
160 M	1DA2 1DA3, 1DB2	2 2, 4	254	60	300	333.5	261	261	213	213	190	92	210	73 ³⁾	117 ^{/)}	300 ⁴⁾	37	60	30	108	148	160	18	85
160 L	1DA4 1DB4	2 4	254	60	300	333.5	261	261	213	213	190	92	254	73 ³⁾	117 ⁸⁾	300	37	60	30	108	208	160	18	85

¹⁾ With screwed-on feet, dimension BA is 41 mm.

²⁾ With screwed-on feet, dimension BB is 180 mm.

 $^{^{3)}}$ With screwed-on feet, dimension BA is 51 mm.

⁴⁾ With screwed-on feet, dimension BB is 256 mm.

 $^{^{5)}\,}$ With screwed-on feet, dimension BA' is 41 mm.

⁶⁾ With screwed-on feet, dimension BA' is 79 mm.

⁷⁾ With screwed-on feet, dimension BA' is 51 mm.

⁸⁾ With screwed-on feet, dimension BA' is 95 mm.

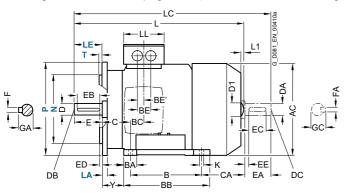
SIMOTICS SD 1LE1 standard motors

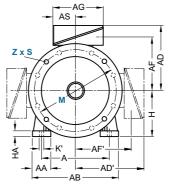
Cast-iron series, self-ventilated – IE4 · Frame sizes 100 L to 160 L

Dimensional drawings (continued)

Type of construction IM B35

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



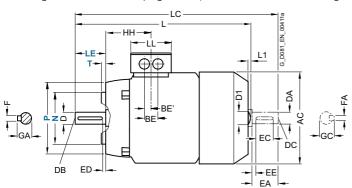


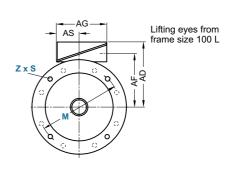
Lifting eyes from frame size 100 L

Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Type of construction IM B14





For mo	tor		Dimens	sion c	desig	nation ac	c. to I	EC			DE	shaft e	xtensi	on				ND	E shaft	exten	sion			
Frame size	Motor type 1LE1504- 1LE1604-	No. of poles	HH	K	K'	L ¹⁾	L1 ²⁾	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
100 L	1AA4 1AB4 1AB5	2 4 4	100.5	12	16	432.5 482.5	7 7	32	489 529	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	1BA2 1BB2	2 4	100.5	12	16	415.5 465.5	7	32	475 515	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0 1CA1, 1CB0	2 2, 4	115.5	12	16	466.5 516.5	8.5	39	535.5 585.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	1CB2	4	115.5	12	16	516.5	8.5	39	585.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	1DA2 1DA3, 1DB2	2 2, 4	145	15	19	606 666	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	1DA4 1DB4	2 4	145	15	19	666	10	45	790	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

¹⁾ For 1LE16 motors less dimension L1.

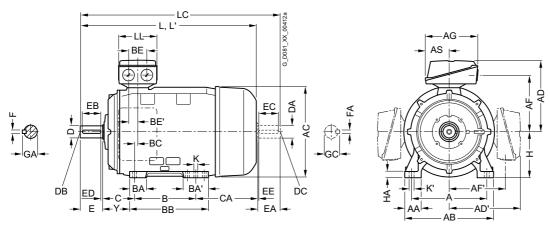
²⁾ Only for 1LE15 motors.

SIMOTICS SD 1LE1 standard motors

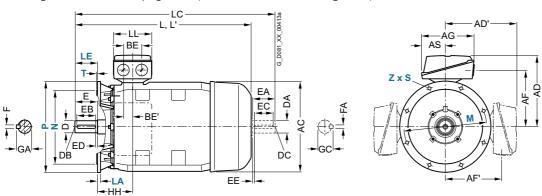
Cast-iron series, self-ventilated - IE4 · Frame sizes 180 M to 315 L

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1



For moto	or		Dime	nsion c	designa	ation ac	c. to IE	C													
Frame size	Motor type 1LE1504- 1LE1604-	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	B*	BA	BA'	BB	ВС	BE	BE'	С	CA*
180 M 180 M 180 L	1EA2 1EB2 1EB4	2 4 4	279	65	339	356	286	286	234	234	189	92	241/ 279	85	120	328	34	60	30	121	202
200 L	2AA4 2AA5, 2AB5	2 2, 4	318	70	378	396	315	315	258.5	258.5	265	112	305	104	104	355	31	85	42.5	133	177
225 S	2BB0	4	356	80	436	449	338	338	282	282	266	112	286	92	117	361	15	85	42.5	149	218
225 M	2BA2 2BB2	2 4	356	80	436	449	338	338	282	282	266	112	311	92	117	361	15	85	42.5	149	253
250 M	2CA2 2CB2	2 4	406	100	490	497	410	410	322	322	319	145	349	102	102	409	24	110	55	168	230
280 S	2DA0 2DB0	2 4	457	100	540	551	433	433	345	345	319	145	368	101	152	479	20	110	55	190	267
280 M	2DA2 2DB2	2 4	457	100	540	551	433	433	345	345	319	145	419	101	152	479	20	110	55	190	216 326
315 S	3AA0	2	508	120	610	616	515	515	404	404	374	164	406	113	170	527	22	110	55	216	295
315 M ²)	3AB0	4	508	120	610	616	515	515	404	404	374	164	457	113	170	578	22	110	55	216	295
315 M ¹⁾	3AA2 3AB2	2 4																			409
315 L ¹⁾	3AA4 3AB4	2 4	508	120	610	616	515	515	404	404	374	164	508	113	170	578	22	110	55	216	358
	3AA5 3AB5	2 4												176	227	648					513

^{*} Please note that version 3AB0 does not comply with EN 50347 with respect to assignment of this dimension to the frame size.

With terminal box position right, terminal box left, and with order code H01 only screwed-on feet with 3 drilled holes with dimension "B" (406, 457, and 508 mm). The dimension "BB" will then be 666 mm.

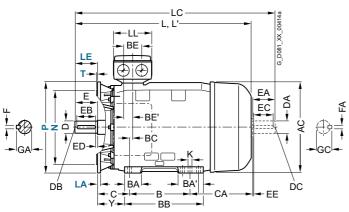
^{2) 1}LE1504-3AB0 and 1LE1604-3AB0 4-pole motors cannot be constructed in standard frame size 315 S because they require the longer housing of frame size 315 M in order to achieve the requisite efficiency levels. The foot clearance dimension "B" therefore changes from 406 to 457 mm. The motors comply with standard IEC 60034, but not with standard EN 50347 in this respect.

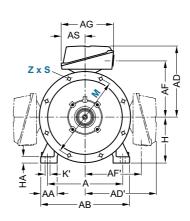
SIMOTICS SD 1LE1 standard motors

Cast-iron series, self-ventilated – IE4 · Frame sizes 180 M to 315 L

Dimensional drawings (continued)

*Type of construction IM B35*For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)





For motor		Dime	ension	n desi	gnatio	n acc	c. to	IEC			DE	shaft e	extens	ion				NDF	E shaft	exten	sion			
Motor type 1LE1504- 1LE1604-	No. of poles	Н	НА		HH	K	K'	L	LC ¹⁾	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
1EA2 1EB2	2	180	20	95	155	15	19	698 668	814 784	164	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
1EB4 2AA4 2AA5, 2AB5	2 2, 4	200	25	108	164	19	25	746 746	814 860	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
2BB0	4	225	34	124	164	19	25	848	903	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
2BA2 2BB2	2 4	225	34	124	164	19	25	818 928	933 963	197	55 60	M20	110 140	100 125	5 10	16 18	59 64	48 55	M16 M20	110	100	5	14 16	51.5 59
2CA2 2CB2	2 4	250	40	138	192	24	30	887 957	1002 1032	233	60 65	M20	140	125	10	18	64 69	55 60	M20	110 140	100 125	5 10	16 18	59 64
2DA0 2DB0	2 4	280	40	160	210	24	30	1070	1105	233	65 75	M20	140	125	10	18 20	69 79.5	60 65	M20	140	125	10	18	64 69
2DA2 2DB2	2 4	280	40	160	210	24	30	1070	1215	233	65 75	M20	140	125	10	18 20	69 79.5	60 65	M20	140	125	10	18	64 69
3AA0	2	315	50	181	238	28	35	1052	1197	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
3AB0	4	315	50	181	238	28	35	1247	1392	299	80	M20	170	140	25	22	85	70	M20	140	125	10	20	74.5
3AA2 3AB2	2 4								1362 1392		65 80		140 170	125 140	10 25	18 22	69 85	60 70					18 20	64 74.5
3AA4 3AB4 3AA5 3AB5	2 4 2 4	315	50	181 146	238	28	35	1372	1362 1392 1517 1547	299	65 80 65 80	M20	140 170 140 170	125 140 125 140	10 25 10 25	18 22 18 22	69 85 69 85	60 70 60 70	M20	140	125	10	18 20 18 20	64 74.5 64 74.5

¹⁾ In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

3

SIMOTICS SD standard motors next generation



3/2	Orientation
3/2	Overview, benefits, application, configuration, technical specifications, more information
3/7	Article number code
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3/8	SIMOTICS SD self-ventilated or forced-air cooled motors – cast-iron series
3/8	• 1LE5504 Basic Line
3/9 3/10	1LE5604 Performance Line CIMOTICS SD Add ask ventilated as
3/10	SIMOTICS SD Add self-ventilated or forced-air cooled motors – cast-iron series
3/10	• 1LE5534 Basic Line
3/11	• 1LE5634 Performance Line
3/12	Motors with IE3 Premium Efficiency
3/12	SIMOTICS SD self-ventilated or forced-air cooled motors – cast-iron series
3/12	1LE5503 Basic Line
3/13	1LE5603 Performance Line
3/14	SIMOTICS SD Add self-ventilated or forced-air cooled motors – cast-iron series
3/14	• 1LE5533 Basic Line
3/15	• 1LE5633 Performance Line
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	special versions
3/16	Voltages
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3/28	Accessories
3/30	Dimensions
3/30	Overall dimensions
3/31	Notes on the dimensions
3/31	Dimension sheet generator
3/32	SIMOTICS SD self-ventilated motors –
	cast-iron series

1LE5504/1LE5503 Basic Line
 1LE5604/1LE5603 Performance Line
 SIMOTICS SD Add self-ventilated motors –

1LE5534/1LE5533 Basic Line1LE5634/1LE5633 Performance Line

cast-iron series

Orientation

Overview



The SIMOTICS SD next generation is a new scalable generation of low-voltage motors. With their impressive performance and the additional versatility in their range of applications, this new motor series offers entry into a future-proof drive technology.

In addition to the future topics of digitalization and energy efficiency, this motor generation was developed with the focus on design optimization, which has resulted in a very compact motor design with a high power density. A standardized option range and the variable terminal box concept also enable flexible use of the motors in different system configurations and applications. The fact that the motors can run either on the line or on a converter is part of their versatility.

The following versions are available in the new 1LE5 motor series, differentiated by their performance features and functionality:

SIMOTICS SD

These motors are characterized by reliable and powerful performance even in the toughest environmental conditions. The characteristics with higher torques ensure that higher starting and breakaway torques are available.

SIMOTICS SD Add

The characteristic product feature of the SIMOTICS SD Add are the low starting currents. These not only meet industry-specific specifications, above all, in process industries, but also have a positive impact on the operating quality (higher power system stability, lower thermal load, increased motor lifetime). Through the availability of country-specific certificates, these motors can be used in all the important global regions and markets.

One decisive advantage of these SIMOTICS SD next generation motors is the possibility of digital communication. This results in many advantages not just for engineering but throughout the product lifecycle.

SIMOTICS Digital Data App – Access to motor data at any time

The freely available SIMOTICS Digital Data App enables access to all motor-specific data and documents (electrical and mechanical data, dimensional drawings, operating instructions, spare part information, etc.) by reading in the data matrix codes present on every motor as standard. This increases transparency and makes commissioning and servicing easier.

SIMOTICS SD Next Generation – The first motors to have an interface with the digital world

The SIMOTICS SD next generation motors will be the first low-voltage motors to support cloud-based condition data analysis via MindSphere and MindApp with SIMOTICS CONNECT in the near future. The motors are therefore ready for preventive maintenance and fast service, which further increases the availability and productivity of your system.

Orientation

Benefits

- Rugged design in the cast-iron housing increases reliability and availability.
- Compact dimensions/high power density enable use even in confined space conditions.
- High energy efficiency on the line (IE3, IE4) and on a converter (IES2) enable energy-saving operation.
- A standardized range of options and a variable terminal box concept increase the flexible adaptation to the requirements of the application.
- Support of line and converter operation reduces the variety.
- Provision of comprehensive CAD data simplifies the design and engineering phase.
- Digital features, such as the data matrix code and support by the cloud-based condition data analysis via MindSphere as part of SIMOTICS IQ permit efficient service and preventive maintenance.

Application

SIMOTICS SD 1LE5 motors are ideal for use in a large number of standard applications, such as

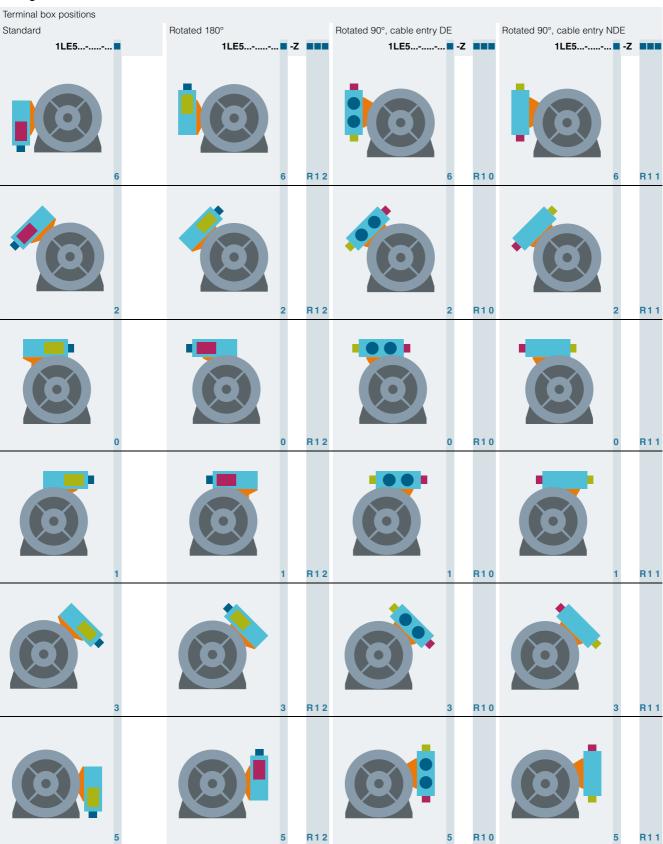
- Pumps, fans, compressors
- Conveyors
- Winders
- Mixers
- Extruders
- Cranes

They are preferably used in industries such as

- Mining, cement
- · Chemical industry
- Oil and gas
- Steel industry
- Water, waste water
- Heating, ventilation, and air-conditioning (HVAC)
- Pulp and paper industry
- Marine engineering

Orientation

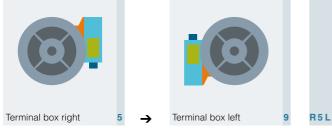
Configuration



Orientation

Configuration (continued)





Types of construction



Legend



Cable entry

Siemens D 81.1 · 05/2018

Orientation

Technical specifications

Overview of technical specifications

This table lists the most important technical specifications. For more information and details, see Catalog Section 1 "Introduction".

This table lists the most important	technical specifications. For more information and details, see Catalog Section 1 "Introduction".
Type of motor	SIMOTICS SD 1LE5 IEC Low-Voltage Motors
Connection types	Star/delta connection
	The connection type to be used can be established from the Article No. supplements for the required motor.
Number of poles	2, 4, 6, 8
Frame sizes	315 L 355 L
Rated power	200 500 kW
Frequencies	50 Hz and 60 Hz
Versions	• IE3 (Premium Efficiency)
	IE4 (Super Premium Efficiency)
Marking	IEC 60034-30-1 IE3, IE4: 2, 4 and 6-pole
Rated speed (synchronous speed)	1000 3600 rpm
Rated torque	670 3850 Nm
Insulation of the stator winding in accordance with EN 60034-1 (IEC 60034-1)	Temperature class 155 (F), utilized to temperature class 130 (B) DURIGNIT IR 2000 insulation system
Degree of protection according to EN 60034-5 (IEC 60034-5)	IP55 as standard
Cooling	Self-ventilated (IC 411)
in accordance with EN 60034-6 (IEC 60034-6)	Forced-air cooled (IC 416)
Permissible coolant temperature and installation altitude	 -20 +40 °C as standard, installation altitude up to 1000 m above sea level. See "Coolant temperature and installation altitude" in Catalog Section 1 "Introduction".
Standard voltages according to EN 60038 (IEC 60038)	50 Hz: 400 V, 500 V, 690 V The voltage used can be found in the "Selection and ordering data" for the required motor.
Type of construction	Without flange: IM B3, IM B6, IM B7, IM B8, IM V5, IM V6
according to EN 60034-7 (IEC 60034-7)	With flange: IM B5, IM V1, IM V3, IM B35
Paint finish	Standard: color RAL 7030 stone gray
	See "Paint finish" in Catalog Section 1 "Introduction".
Vibration severity grade according to EN 60034-14 (IEC 60034-14)	Grade A (normal – without special vibration requirements) Optionally: Grade B (with special vibration requirements) See "Balance and vibration severity" in Catalog Section 1 "Introduction".
Shaft extension according to DIN 748 (IEC 60072)	Balancing type: Half-key balancing as standard See "Balance and vibration severity" in Catalog Section 1 "Introduction".
Sound pressure level according to EN ISO 1680 (tolerance +3 dB)	The sound pressure level is listed in the selection and ordering data for the required motor.
Weights	The weight is listed in the selection and ordering data for the required motor.
Modular mounting concept	Rotary pulse encoder, brake, separately driven fan or prepared for mountings
Consistent series concept	• Terminal box obliquely partitioned and rotatable through 4 x 90°
	Bearings at DE and NDE are of identical design, reinforced bearings available as an option
Options	See "Article No. supplements and special versions"

More information

For further information, please get in touch with your local Siemens contact and use the DT Configurator.

Contacts: www.siemens.com/automation/partner DT Configurator: www.siemens.com/dt-configurator

You can find out about certain technologies through Siemens contact partners worldwide.

Wherever possible, you will find a local contact for:

- Technical support
- Spare parts/repairs
- Service
- Training
- Marketing & Sales
- Technical consultation/engineering

You start by selecting a:

- country
- product or
- sector.

Orientation

Article number code

Selection and ordering data

The article number consists of a combination of digits and letters and is divided into three hyphenated blocks to provide a better overview, e.g.:

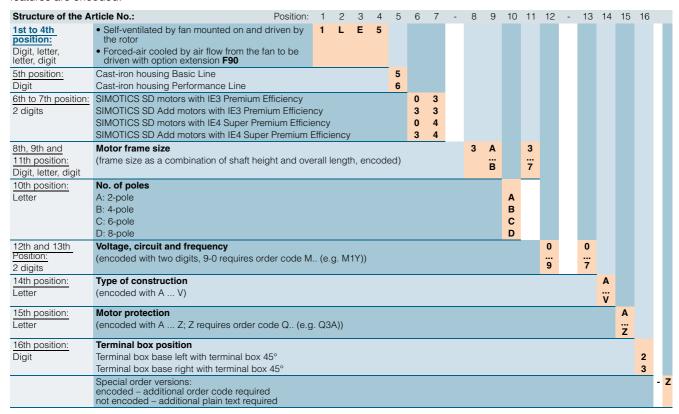
1LE5504-3AA63-4AA2-Z

The first block (positions 1 to 7) identifies the motor type. The second block (positions 8 to 12) defines the motor frame size and length, the number of poles and in some cases the frequency/voltage. In the third block (positions 13 to 16), the frequency/voltage, type of construction and further design features are encoded.

For deviations in the second and third block from the catalog codes either **Z** or **90** should be used as appropriate.

Ordering data:

- Complete Article No. and order code(s) or plain text
- If a quotation has been requested, please specify the quotation number in addition to the Article No.
- When ordering a complete motor as a spare part, please specify the works serial No. for the previously supplied motor as well as the Article No.



Ordering example

Selection criteria	Requirement	Structure of the Article No.
Motor type 1LE5	Standard motor with IE4 Super Premium Efficiency, self-ventilated, IP55 degree of protection, cast-iron version, Performance Line	1LE5604-
Motor frame size/No. of poles/Speed	315 L/2-pole/3000 rpm	1LE5604-3AA6M-WWW
Rated power	250 kW	
Voltage and frequency	400 VΔ/690 VY, 50 Hz	1LE5604-3AA63-4
Type of construction with special version	IM V5 with protective cover 1)	1LE5604-3AA63-4C■■-Z H00
Motor protection	1 or 3 PTC thermistors – for tripping (2 terminals)	1LE5604-3AA63-4CB■-Z H00
Terminal box position	Terminal box base left with terminal box 45°	1LE5604-3AA63-4CB2-Z H00

Without protective cover as standard – the protective cover is defined with order code **H00** and must be ordered in addition to the Article No. with -Z and this order code.

Motors with IE4 Super Premium Efficiency



SIMOTICS SD self-ventilated or forced-air cooled motors - cast-iron series 1LE5504 Basic Line

Selection and ordering data Operating values at rated power Cast-iron series 1LE5504 $extbf{\emph{P}}_{ extbf{rated}}$ Frame $n_{ ext{rated}}$ $T_{ ext{rated}}$ $\eta_{ ext{rated}}$, $\eta_{ ext{rated}}$, $\eta_{ ext{rated}}$, cos J Irated I_{LR} L_{pfA} L_{WA} $m_{\rm IM~B3}$ size φ_{rated} I_{rated} Article No. 4/4 kW Nm dB(A) dB(A) ▲ New kgm² rpm kg Cooling: Self-ventilated (IC411) Efficiency according to IEC 60034-30: IE4 Super Premium Efficiency, service factor (SF) 1.15 Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) **315 L** 2986 800 96.5 96.4 95.7 0.88 425 3 9.3 4.2 80 94 ▲ 1LE5504-3AA6■-■■■■ 1340 2.82 250 **315 L** 2986 315 1007 96.5 96.3 95.5 0.87 540 3.5 9.9 4.2 81 96 ▲ 1LE5504-3AA7■-■■■ 1520 3.27 4-pole: 1500 rpm at 50 Hz ▲ 1LE5504-3AB6■-■■■ 1500 250 **315 L** 1490 1602 96.7 96.8 96.5 0.86 435 28 7.9 32 75 90 4 98 **315** L 1490 315 2019 96.7 96.7 96.3 0.83 570 32 8.5 3.5 75 90 ▲ 1LE5504-3AB7 ■-■■■ 1560 5.39 6-pole: 1000 rpm at 50 Hz 200 **315 L** 992 96.4 96.1 0.82 3.2 68 ▲ 1LE5504-3AC7 ■-■■■ 1410 6.28 96.3 365 7.5 83 **315 L** 992 ▲ 1LE5504-3AC8 ■-■■■ 1700 250 2407 96.5 96.6 96.3 0.81 460 32 8 2 3.3 69 84 8 00 8-ро e: 750 rpm at 50 ▲ 1LE5504-3AD7■-■■■ 1420 160 **315 L** 741 2062 95.1 95.5 95.5 0.79 305 2.5 6.3 2.5 67 82 6.78 200 **315 L** 742 2574 95.4 2.7 6.7 2.9 72 ▲ 1LE5504-3AD8■-■■■ 1660 8.60 95.6 95.3 0.78 390 87 Voltages 1) Version Order code 50 Hz 400 VΔ/690 VY 60 Hz ¹⁾ 460 VΔ Standard 3 4 4 4 0 7 50 Hz 500 VΔ Without additional charge 50 Hz 690 VΔ With additional charge For other voltages 1) and more information, see from page 3/16 Types of construction Version Order code IM B3²⁾ Without flange Standard IM B5 2) With flange With additional charge For other types of construction and more information, see from page 3/17 Motor protection Version Order code Without Standard PTC thermistor with 3 temperature sensors With additional charge В For other motor protection and more information, see from page 3/19 **Terminal box position** Version Order code Terminal box base left with terminal box 45° Without additional charge Terminal box base right with terminal box 45° Standard For other terminal box positions and more information, see from page 3/20 Order code(s) 1LE5504- ■-■■■ -Z F90+. . . + . . . + . . Forced-air cooled motors w/o ext. fan/fan cover (IC418) 1LE5504-.... For options, see from page 3/21

Order code R50 alters the motor dimensions.

Parallel supply lines are required, except in the case of connection to 690 V.

For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code R50) due to the magnitude of the current



Motors with IE4 Super Premium Efficiency

SIMOTICS SD self-ventilated or forced-air cooled motors - cast-iron series 1LE5604 Performance Line

Selection and ordering data Operating values at rated power Cast-iron series 1LE5604 $m_{\rm IM~B3}$ P_{rated} Frame n_{rated} T_{rated} η_{rated} , η_{rated} , η_{rated} , cos-Irated /1 R/ L_{pfA} LWA J Performance Line size φ_{rated} I_{rated} Article No. 4/4 kW Nm dB(A) dB(A) ▲ New kgm² rpm kg Cooling: Self-ventilated (IC411) Efficiency according to IEC 60034-30: IE4 Super Premium Efficiency, service factor (SF) 1.15 Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) **315 L** 2986 800 96.5 96.4 95.7 0.88 425 3 9.3 4.2 80 94 ▲ 1LE5604-3AA6■-■■■■ 1340 250 ▲ 1LE5604-3AA7■-■■■ 1520 315 315 L 2986 1007 96.5 96.3 95.5 0.87 540 3.5 9.9 4.2 81 96 3.27 355 **355 M** 2988 1135 96.5 96.3 95.5 0.89 600 2.6 8.9 4 84 99 ▲ 1LE5604-3BA3 ■-■■■ 2100 4.74 ٩R 400 355 L 2986 1279 96.5 96.4 95.9 0.02 650 26 8.5 34 83 ▲ 1LE5604-3BA4 ■-■■■ 2240 5.36 500 355 L 2988 1598 96.5 96.4 95.8 ი გ9 840 3 89 3.8 84 98 ▲ 1LE5604-3BA5 ■-■■■ 2340 5.76 e: 1500 rpm at 50 Hz 4-ро 1490 ▲ 1LE5604-3AB6■-■■■ 1500 4.98 250 315 L 1602 96.7 96.8 96.5 0.86 435 2.8 3.2 90 ▲ 1LE5604-3AB7■-■■■ 1560 315 315 L 1490 2019 96.7 96.7 96.3 0.83 570 3.2 8.5 3.5 75 90 5.39 **355 M** 1492 7.9 2.8 96 ▲ 1LE5604-3BB3 ■-■■■ 2050 355 2272 96.7 96.7 96.2 0.83 640 28 81 6.76 400 **355 L** 1492 2560 96.7 96.7 96.2 0.82 730 3.2 7.9 2.9 81 96 ▲ 1LE5604-3BB4 ■-■■■ 2080 7.16 **355 L** 1491 3.3 96 ▲ 1LE5604-3BB5■-■■■ 2290 500 3202 96.7 96.8 96.6 0.86 870 3.1 8.1 80 8.36 6-ро **315 L** 992 96.3 96.4 0.82 32 ▲ 1LE5604-3AC7 ■-■■■ 1410 6 28 200 1925 96.1 365 3 7.5 68 83 250 315 L 992 2407 96.5 96.6 96.3 0.81 460 3.2 8.2 3.3 69 84 ▲ 1LE5604-3AC8 ■-■■■ 1700 8.00 315 **355 M** 993 96.6 96.6 96.1 0.82 570 2.9 7.8 3.2 75 90 ▲ 1LE5604-3BC2 - ■ ■ 2040 3029 11.6 ▲ 1LE5604-3BC3 ■-■■■ 2250 355 355 M 993 3414 96.6 96.7 96.3 0.83 640 2.9 8.4 3.3 74 89 13.7 400 355 L 993 3847 96.6 96.7 96.5 0.84 710 28 8 1 3 90 ▲ 1LE5604-3BC4 ■-■■■ 2240 13 4 8-pole: 750 rpm at 50 Hz 160 **315 L** 741 2062 95.1 95.5 95.5 0.79 305 2.5 6.3 2.5 67 82 ▲ 1LE5604-3AD7■-■■■ 1420 6.78 ▲ 1LE5604-3AD8■-■■■ 1660 200 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 8.60 Voltages 1) Version Order code 60 Hz ¹⁾ 460 VΔ 3 4 0 50 Hz 400 VΔ/690 VY Standard 50 Hz 500 VA Without additional charge 4 50 Hz 690 VΔ With additional charge For other voltages 1) and more information, see from page 3/16 Types of construction Version Order code IM B3²⁾ Without flange Standard IM B5 ²⁾ With flange With additional charge For other types of construction and more information, see from page 3/17 Motor protection Version Order code PTC thermistor with 3 temperature sensors Standard For other motor protection and more information, see from page 3/19 Version **Terminal box position** Order code Terminal box base left with terminal box 45° Without additional charge

Standard

For other terminal box positions and more information, see from page 3/20

Terminal box base right with terminal box 45°

For options, see from page 3/21

Forced-air cooled motors w/o ext. fan/fan cover (IC418)

Order code(s)

1LE5604-.... **B-BBB**-Z F90+...+...+... 1LE5604-.... **B-BBB**-Z ...+...+...+...

Parallel supply lines are required, except in the case of connection to 690 V.

For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code **R50**) due to the magnitude of the current. Order code **R50** alters the motor dimensions.

Motors with IE4 Super Premium Efficiency



1LE5534- ■-■■■■ -Z . . . +. . . +. . . +. . .

SIMOTICS SD Add self-ventilated or forced-air cooled motors - cast-iron series 1LE5534 Basic Line

Selection and ordering data Operating values at rated power Cast-iron series 1LE5534 $extbf{\emph{P}}_{ extbf{rated}}$ Frame $n_{ ext{rated}}$ $T_{ ext{rated}}$ $\eta_{ ext{rated}}$, $\eta_{ ext{rated}}$, $\eta_{ ext{rated}}$, cos-J I_{rated} I_{LR} L_{pfA} L_{WA} $m_{\rm IM~B3}$ $\varphi_{\rm rated}$ size Article No. 4/4 kW Nm dB(A) dB(A) ▲ New kgm² rpm kg Cooling: Self-ventilated (IC411) Efficiency: IE4 Super Premium Efficiency, service factor (SF) 1.15 Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) **315 L** 2982 801 96.5 96.6 96.4 0.91 410 2.6 7.5 80 95 ▲ 1LE5534-3AA6■-■■■■ 1340 2.82 250 3 **315 L** 2980 315 1009 96.5 96.7 96.5 0.91 520 2.4 7.5 2.9 81 96 ▲ 1LE5534-3AA7■-■■■ 1490 3.11 4-pole: 1500 rpm at 50 Hz 250 **315 L** 1488 1604 96.7 97 97 0.86 435 23 6.5 26 75 90 ▲ 1LE5534-3AB6 ■-■■■ 1520 5.09 **315** L 1488 315 2022 96.7 96.9 96.8 0.85 550 22 72 28 75 90 ▲ 1LE5534-3AB7■-■■■ 1530 5 28 6-pole: 1000 rpm at 50 Hz **315 L** 992 96.5 2.8 ▲ 1LE5534-3AC7 ■-■■■ 1410 6.28 200 96.3 96.3 0.81 370 68 83 **315 L** 992 ▲ 1LE5534-3AC8 ■-■■■ 1640 250 2407 96.5 96.6 96.3 0.81 460 29 7.3 3 68 83 8 10 8-pol e: 750 rpm at 50 ▲ 1LE5534-3AD7■-■■■ 1420 **315 L** 741 2062 95.1 95.5 95.5 0.79 305 2.4 6.2 2.4 67 82 6.78 160 200 **315 L** 742 2574 95.4 2.7 6.7 2.9 72 ▲ 1LE5534-3AD8■-■■■ 1660 8.60 95.6 95.3 0.78 390 87 Voltages 1) Version Order code 50 Hz 400 VΔ/690 VY 60 Hz ¹⁾ 460 VΔ Standard 4 0 50 Hz 500 VΔ Without additional charge 50 Hz 690 VΔ With additional charge For other voltages 1) and more information, see from page 3/16 Types of construction Order code Version IM B3²⁾ Without flange Standard IM B5²⁾ With flange With additional charge For other types of construction and more information, see from page 3/17 Version Order code Without Standard With additional В PTC thermistor with 3 temperature sensors charge For other motor protection and more information, see from page 3/19 Terminal box position Version Order code Terminal box base left with terminal box 45° Without additional charge Terminal box base right with terminal box 45° Standard For other terminal box positions and more information, see from page 3/20 Order code(s) Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC418) 1LE5534- ■-■■■ -Z F90+. . . + . . . + . . .

Order code R50 alters the motor dimensions.

For options and information, see from page 3/21

Parallel supply lines are required, except in the case of connection to

For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code R50) due to the magnitude



Motors with IE4 Super Premium Efficiency

SIMOTICS SD Add self-ventilated or forced-air cooled motors – cast-iron series 1LE5634 Performance Line

Selection and ordering data

Continue Frame F	00.00.			icinig (
Size Fractal	_	_		_						- ,		- ,			Cast-iron series		
Co-collings-Septemble Collings-Septemble Coll	P _{rated}	Frame size	n _{rated}	rated				φ_{rated}	^I rated				L _{pfA}	L _{WA}	Performance Line	m _{IM B3}	J
 Cooling: Self-ventilated (IC411)	kW	FS	rpm	Nm	%	%	%	., .	Α				dB(A)	dB(A)	▲ New	ka	kam ²
Filtrice large large Filtrice large Filtrice large Filtrice Filtri	• Cooli	ng: Sel	f-venti	lated (IC	411)								()			9	9
2-pole; 3000 rpm at 50 Hz 250 315 L 2980 1009 96.5 96.6 96.4 0.91 410 2.6 7.5 3 80 96	 Effici 	ency: II	E4 Sup	er Prem	ium Eff	iciency	service	factor	(SF) 1.	15	te etien		ion in o		an with they mad along 100 (wa alaaa D\
250 315 L 2982 801 96.5 96.6 96.4 0.91 410 2.6 7.5 3 80 95					oo (tem	iperatur	e class	r), iPsa	aegre	e or pro	lection,	uunzau	ion in ac	cordan	ce with thermal class 130 (.emperau	ire class b)
315 L 2880 1009 86.5 96.7 96.5 0.91 520 2.4 7.5 2.9 81 96					96.5	96.6	96.4	0.01	410	26	7.5	3	80	95	▲ 11 F563/L3AA6■L■■■■	1340	2.82
355 S55 M 2984 1136 96.5 96.5 96.6 98.9 0.9 90.0 2.3 8.4 3.1 83 98 1 1 1 1 1 1 1 2 2																	
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Sepole 1500 ppm at 50 Hz 1500 ppm at 50 Hz 1520 ppm at 50																	
315 L 1488 1604 96.7 97 97 97 0.86 435 2.3 6.5 26 75 90 ▲ 1LE5634-SAB6 ■ ■■ 1520 5.09 315 131 L 1488 2022 96.7 96.9 96.8 0.85 500 2.2 7.2 2.8 75 90 ▲ 1LE5634-SAB6 ■ ■■ 1530 5.28 335 355 M 1491 2274 96.7 96.8 96.5 0.85 620 2.2 7.5 3.2 78 93 ▲ 1LE5634-SAB6 ■ ■■ 1960 6.26 400 355 L 1491 2662 96.7 96.9 96.8 0.85 700 2.3 7.3 3.2 79 95 ▲ 1LE5634-SBB6 ■ ■■ 2080 7.06 500 355 L 1491 2662 96.7 96.9 96.8 0.86 70 8.70 2.3 7.3 3.2 79 95 ▲ 1LE5634-SBB6 ■ ■■ 2080 7.06 500 355 L 1491 3202 96.7 96.8 96.6 0.86 870 3.1 7.9 3.3 80 96 ▲ 1LE5634-SBB6 ■ ■■ 2080 7.06 500 355 L 1991 265 96.3 96.5 96.3 0.81 370 2.8 7.7 3 68 83 ▲ 1LE5634-SBB6 ■ ■■ 2080 7.06 500 355 L 992 1925 96.3 96.5 96.3 0.81 370 2.8 7.7 3 68 83 ▲ 1LE5634-SBB6 ■ ■■ 2080 7.06 501 355 L 992 1925 96.3 96.5 96.3 0.81 370 2.8 7.7 3 68 83 ▲ 1LE5634-SBB6 ■ ■■ 2080 7.06 503 355 L 992 2407 96.5 96.6 96.3 0.81 400 2.9 7.3 3 68 83 ▲ 1LE5634-SBB6 ■ ■■ 2080 7.06 505 315 L 992 3032 96.6 96.7 96.5 0.84 710 2.7 7.3 2.9 7.3 3 68 83 ▲ 1LE5634-SBC2 ■ ■■ 1640 8.10 315 355 M 992 3032 96.6 96.7 96.5 0.84 710 2.7 7.7 2.9 75 90 ▲ 1LE5634-SBC2 ■ ■■ 2250 13.8 400 355 L 994 3843 96.6 96.7 96.5 0.84 710 2.7 7.7 2.9 75 90 ▲ 1LE5634-SBC2 ■ ■■ 1640 8.10 ***Poler-For pre at 50 Hz 160 315 L 741 206 251 96.5 96.5 0.79 305 2.4 6.2 2.4 6.7 8.2 ▲ 1LE5634-SBC2 ■ ■■ 1600 8.60 ***Voltages¹¹																	
315	•				96.7	97	97	0.86	435	2.3	6.5	2.6	75	90	▲ 1LE5634-3AB6■-■■■■	1520	5.09
## 400 355 L 1491 2562 96.7 96.9 96.6 0.85 700 2.3 7.3 3.2 79 95 A LE5634-3BB 10 2290 3.56 500 355 L 1491 3202 96.7 96.8 96.6 0.86 870 3.1 7.9 3.3 80 96 A LE5634-3BB 10 2290 3.56	315	315 L	1488	2022	96.7	96.9	96.8	0.85	550	2.2	7.2	2.8	75	90			5.28
Solid Soli	355	355 M	1491	2274	96.7	96.8	96.5	0.85	620	2.2	7.5	3.2	78	93	▲ 1LE5634-3BB3■-■■■	1960	6.26
Sepole: 1000 rpm at 50 Hz 1000 rpm at 50 Hz 1200 315 L 992 1925 96.3 96.5 96.8 0.81 400 2.9 7.3 3 68 83 1 LE5634-3AC7	400	355 L	1491	2562	96.7	96.9	96.6	0.85	700	2.3	7.3	3.2	79	95	▲ 1LE5634-3BB4■-■■■	2080	7.06
200 315 L 992 1925 96.3 96.5 96.3 0.81 370 2.8 7 3 68 83 ▲ 1_E5634-3AC7 ■ ■ 1410 6.39 250 315 L 992 2407 96.5 96.6 96.9 0.80 9.80 9.80 2.4 6.8 2.8 75 90 ▲ 1_E5634-3AC8 ■ ■ 1640 8.10 315 355 M 992 302 96.6 96.7 96.4 0.84 630 2.6 7.4 3.2 76 91 ▲ 1_E5634-3BC4 ■ ■ 2240 13.4 400 355 L 994 3843 96.6 96.7 96.5 0.84 710 2.7 7.7 2.9 75 90 ▲ 1_E5634-3BC4 ■ ■ 2240 13.4 400 355 L 994 3843 96.6 95.7 96.5 0.84 710 2.7 7.7 2.9 75 90 ▲ 1_E5634-3BC4 ■ ■ 2240 13.4 400 355 L 994 3843 96.6 95.7 96.5 0.84 710 2.7 7.7 2.9 75 90 ▲ 1_E5634-3BC4 ■ ■ 2240 13.4 400 355 L 994 3843 96.6 95.7 95.5 95.5 0.79 305 2.4 6.2 2.4 6.7 82 ▲ 1_E5634-3BC4 ■ ■ 1420 6.78 200 315 L 741 2062 95.1 95.5 95.5 0.79 305 2.4 6.2 2.4 6.7 82 ▲ 1_E5634-3AD7 ■ ■ 1420 6.78 200 315 L 742 2574 95.4 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 ▲ 1_E5634-3AD8 ■ ■ 1420 6.78 50 Hz 400 VA/690 VY 60 Hz 1 40 VA/690 VY 60 Hz	500	355 L	1491	3202	96.7	96.8	96.6	0.86	870	3.1	7.9	3.3	80	96	▲ 1LE5634-3BB5■-■■■	2290	8.36
1640 8.10	6-pole:	1000 r	pm at 5	50 Hz													
315 355 M 992 3032 96.6 96.9 96.9 0.86 550 2.4 6.8 2.8 75 90 1 1 1 1 1 2 3 3 3 3 4 96.6 96.7 96.4 0.84 630 2.6 7.4 3.2 76 91 1 1 1 1 1 2 2 3 3 3 3 3 3 6 8 6 96.7 96.5 0.84 710 2.7 7.7 2.9 75 90 1 1 1 1 1 2 2 3 3 3 3 3 3 3 3	200	315 L	992	1925	96.3	96.5	96.3	0.81	370				68	83	▲ 1LE5634-3AC7 ■-■■■■	1410	6.39
355 M 993 3414 96.6 96.7 96.4 0.84 630 2.6 7.4 3.2 76 91 4 1 1 1 1 250 13.8	250	315 L			96.5										▲ 1LE5634-3AC8 ■-■■■	1640	
## 400 355 L 994 3843 96.6 96.7 96.5 0.84 710 2.7 7.7 2.9 75 90 1 1 1 1 1 1 1 1 1	315	355 M	992	3032	96.6	96.9	96.9	0.86	550	2.4				90			12.9
Sepole																	
1420 6.78 150 315 L 741 2062 95.1 95.5 95.5 95.5 0.79 305 2.4 6.2 2.4 67 82 1 LE5634-3AD7 ■ 1420 6.78 200 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 1 LE5634-3AD8 ■ 1660 8.60 201 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 1 LE5634-3AD8 ■ 1660 8.60 202 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 1 LE5634-3AD8 ■ 1660 8.60 203 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 1 LE5634-3AD8 ■ 1660 8.60 204 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 1 LE5634-3AD8 ■ 1660 8.60 205 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 1 LE5634-3AD8 ■ 1660 8.60 205 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 1 LE5634-3AD8 ■ 1660 8.60 205 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 1 LE5634-3AD8 ■ 1660 8.60 205 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 1 LE5634-3AD8 ■ 1660 8.60 205 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 1 LE5634-3AD8 ■ 1660 8.60 205 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 1 LE5634-3AD8 ■ 1660 8.60 205 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 1 LE5634-3AD8 ■ 1660 8.60 205 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 87 1 LE5634-3AD8 ■ 1660 8.60 205 315 L 742 2574 95.4 95.6 95.3 0.7 9 30.0 0.7					96.6	96.7	96.5	0.84	710	2.7	7.7	2.9	75	90	▲ 1LE5634-3BC4■-■■■	2240	13.4
200 315 L 742 2574 95.4 95.6 95.3 0.78 390 2.7 6.7 2.9 72 87 ▲ 1LE5634-3AD8 ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■																	
Voltages ¹) Version Standard With additional charge For other voltages ¹) and more information, see from page 3/16 Types of construction With additional charge With additional charge With additional charge With additional charge For other types of construction and more information, see from page 3/17 Motor protection PTC thermistor with 3 temperature sensors Standard For other motor protection and more information, see from page 3/19 Terminal box position Version Order code Order code Terminal box base left with terminal box 45° Without additional charge Standard Standard Standard Standard Standard Order code Order code Order code Standard Standard Standard Order code Order code(s)																	
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So Hz 500 VA Without additional charge With additional charge With additional charge For other voltages ¹⁾ and more information, see from page 3/16 Types of construction Without flange IM B3 ²⁾ With additional charge With additional charge With additional charge For other types of construction and more information, see from page 3/17 Wotor protection PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 3/19 Terminal box position Terminal box base left with terminal box 45° Terminal box base right with terminal box 45° Terminal box positions and more information, see from page 3/20 Special versions For coded air cooled motors w/o ext. fan/fan cover (IC418) Without additional charge Standard Terminal box base right with terminal box 45° Standard Terminal box base right with terminal box 45° Standard Terminal box positions and more information, see from page 3/20 Special versions Order code(s) Forced-air cooled motors w/o ext. fan/fan cover (IC418)					1)											Orde	r code
charge With additional charge For other voltages ¹¹) and more information, see from page 3/16 Types of construction Without flange IM B3 ²¹) With glange IM B5 ²¹) For other types of construction and more information, see from page 3/17 Motor protection PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 3/19 Terminal box position Terminal box base left with terminal box 45° Terminal box base right with terminal box 45° Terminal box positions and more information, see from page 3/20 Special versions For coled motors w/o ext. fan/fan cover (IC418) Terminal box diditional charge Tender coled motors w/o ext. fan/fan cover (IC418) Terminal diditional charge Tender coled motors w/o ext. fan/fan cover (IC418)			590 VY	60	Hz ') 46	60 VΔ										-	
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For other voltages 1) and more information, see from page 3/16 Types of construction Without flange IM B3 2) With flange IM B5 2) With additional charge For other types of construction and more information, see from page 3/17 Motor protection PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 3/19 Terminal box position Terminal box base left with terminal box 45° Terminal box base right with terminal box 45° Standard Without additional charge Standard Terminal box positions and more information, see from page 3/20 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC418) LE5634- Order code Order code Order code Order code Without additional charge Standard 3 Corder code 1LE5634- Terminal box base right with terminal box 45° Standard 3 Terminal box base right with terminal box 45° Standard 3 Terminal box base right with terminal box 45° Standard 3 Terminal box base right with terminal box 45° Standard 3 Terminal box base right with terminal box 45° Standard 3 Terminal box base right with terminal box 45° Standard 3 Terminal box base right with terminal box 45° Standard 3 Terminal box base right with terminal box 45° Standard 3 Terminal box base right with terminal box 45° Standard 3 Terminal box base right with terminal box 45° Standard 3 Terminal box base right with terminal box 45° Standard 3 Terminal box base right with terminal box 45° Standard 3 Terminal box base right with terminal box 45° Standard 3 Terminal box base right with terminal box 45° Standard 3 Terminal box base right with terminal box 45° Standard 2 Terminal box base right with terminal box 45° Standard 2 Terminal box base right with terminal box 45° Standard 2 Terminal box base right with terminal box 45° Standard Terminal box base right with terminal box 45° Standard Terminal box base right with termina	50 Hz 6	590 VA											•	ional	4 7	_	
Types of construction Without flange IM B3 ²⁾ With flange IM B5 ²⁾ With additional charge For other types of construction and more information, see from page 3/17 Motor protection PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 3/19 Terminal box position Terminal box base left with terminal box 45° Terminal box base right with terminal box 45° Standard Order code Version Order code Order code Order code Version Order code Order code Standard Order code Order code Standard Order code Order code Order code Terminal box base left with terminal box 45° Standard Standard ILE5634 For other code(s)	00112	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,													11111		
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With flange IM B5 ²⁾ With additional charge For other types of construction and more information, see from page 3/17 Motor protection Version Order code PTC thermistor with 3 temperature sensors Standard For other motor protection and more information, see from page 3/19 Terminal box position Version Order code Terminal box base left with terminal box 45° Without additional charge Terminal box positions and more information, see from page 3/20 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC418) With additional charge Standard	Types	of cons	tructio									V	ersion			Orde	r code
charge For other types of construction and more information, see from page 3/17 Motor protection PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 3/19 Terminal box position Terminal box base left with terminal box 45° Without additional charge Terminal box positions and more information, see from page 3/20 Special versions For other terminal box positions and more information, see from page 3/20 Special versions TLE5634	Without	flange										S	tandard		A	-	
For other types of construction and more information, see from page 3/17 Motor protection PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 3/19 Terminal box position Terminal box base left with terminal box 45° Without additional charge Terminal box base right with terminal box 45° Standard Special versions For other terminal box w/o ext. fan/fan cover (IC418) TESSA4 For other types of construction and more information, see from page 3/19 Wersion Order code Version Without additional charge Standard Terminal box base right with terminal box 45° Standard Terminal box positions and more information, see from page 3/20 Special versions TLE5634 For other terminal box w/o ext. fan/fan cover (IC418)	With fla	nge		IM	B5 ²⁾									ional	F	-	
Motor protection Version Order code PTC thermistor with 3 temperature sensors Standard B For other motor protection and more information, see from page 3/19 Terminal box position Version Order code Terminal box base left with terminal box 45° Without additional charge 2 Terminal box base right with terminal box 45° Standard 3 For other terminal box positions and more information, see from page 3/20 Special versions Order code(s) Forced-air cooled motors w/o ext. fan/fan cover (IC418) 1LE5634	For oth	er tynes	of con	struction	and m	ore infor	mation	see from	n nage	3/17		CI	larye				
PTC thermistor with 3 temperature sensors For other motor protection and more information, see from page 3/19 Terminal box position Version Order code Terminal box base left with terminal box 45° Without additional charge Terminal box base right with terminal box 45° Standard 3 - For other terminal box positions and more information, see from page 3/20 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC418) Standard 1LE5634 Foreign page 3/19 LIE5634 Foreign page				ion donor	and III	ore illiol	mation,	000 11011	n page	O/ 11		V	ersion				r code
For other motor protection and more information, see from page 3/19 Terminal box position Terminal box base left with terminal box 45° Terminal box base right with terminal box 45° Terminal box base right with terminal box 45° Standard Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC418) Special versions Terminal box base left with terminal box 45° Standard Terminal box base right with terminal box 45° Standard Terminal box base left with terminal box 45° Standard Terminal box base left with terminal box 45° Standard Terminal box base left with terminal box 45° Standard Terminal box base left with terminal box 45° Standard Terminal box base left with terminal box 45° Standard Terminal box base left with terminal box 45° Standard Terminal box base left with terminal box 45° Standard Terminal box base left with terminal box 45° Standard Terminal box base left with terminal box 45° Standard Terminal box base left with terminal box 45° Standard Terminal box base left with terminal box 45° Standard Terminal box base left with terminal box 45° Standard Terminal box base left with terminal box 45° Standard				tempera	ture ser	nsors									В	-	. 3003
Terminal box position Version Order code Terminal box base left with terminal box 45° Without additional charge Terminal box base right with terminal box 45° Standard Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC418) Order code 1LE5634							on, see	from pag	ge 3/19			J					
Terminal box base left with terminal box 45° Terminal box base right with terminal box 45° Terminal box base right with terminal box 45° Standard Standard Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC418) Without additional charge Standard 3 — Order code(s) LE5634 Forced-air cooled motors w/o ext. fan/fan cover (IC418)							,	1				V	ersion				r code
Terminal box base right with terminal box 45° For other terminal box positions and more information, see from page 3/20 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC418) Standard Order code(s) 1LE5634					minal bo	ox 45°								dditional	2		
For other terminal box positions and more information, see from page 3/20 Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC418) Creder code(s) 1LE5634													_				
Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC418) Order code(s) 1LE5634 F90+++			_									S	tandard		3	-	
Forced-air cooled motors w/o ext. fan/fan cover (IC418)				position	s and n	nore info	rmation	, see fro	m page	3/20							
· · ·	•																
For options and information, see from page 3/21							,	8)									
	For opt	ions and	d inforn	nation, se	ee trom	page 3/	21								1LE5634	-Z+.	++

Parallel supply lines are required, except in the case of connection to 690 V.

²⁾ For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code **R50**) due to the magnitude of the current.
Order code **R50** alters the motor dimensions.

Motors with IE3 Premium Efficiency



SIMOTICS SD self-ventilated or forced-air cooled motors - cast-iron series 1LE5503 Basic Line

Selection and ordering data (continued) Operating values at rated power Cast-iron series 1LE5503 $extbf{\emph{P}}_{ extbf{rated}}$ Frame $n_{ ext{rated}}$ $T_{ ext{rated}}$ $\eta_{ ext{rated}}$, $\eta_{ ext{rated}}$, $\eta_{ ext{rated}}$, cos- L_{WA} J Irated I_{LR} L_{pfA} $m_{\rm IM~B3}$ size φ_{rated} I_{rated} Article No. 4/4 kW Nm dB(A) dB(A) ▲ New kgm² rpm kg Cooling: Self-ventilated (IC411) Efficiency according to IEC 60034-30: IE3 Premium Efficiency, service factor (SF) 1.15 Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) **315 L** 2986 800 95.8 95.7 95 0.88 430 3 9.3 4.2 80 94 ▲ 1LE5503-3AA6■-■■■■ 1340 2.82 250 **315 L** 2986 315 1007 95.8 95.6 94.8 0.87 550 3.5 9.9 4.2 81 96 ▲ 1LE5503-3AA7■-■■■ 1520 3.27 4-pole: 1500 rpm at 50 Hz ▲ 1LE5503-3AB6■-■■■ 1290 250 **315 L** 1490 1602 96 96.1 95.7 0.85 440 28 7.9 32 75 91 4 27 **315** L 1490 315 2019 96 96 95.6 0.83 570 32 8.5 3.5 75 90 ▲ 1LE5503-3AB7■-■■■ 1560 5.39 6-pole: 1000 rpm at 50 Hz 200 **315 L** 992 95.9 95.6 0.82 3.2 68 ▲ 1LE5503-3AC7 ■-■■■ 1410 6.28 95.8 365 7.5 83 **315 L** 992 ▲ 1LE5503-3AC8 ■-■■■ 1700 250 2407 95.8 95.9 95.6 0.81 465 32 8 2 3.3 69 84 8 00 8-pol e: 750 rpm at 50 ▲ 1LE5503-3AD7■-■■■ 1420 **315 L** 741 2062 94.3 94.7 94.7 0.79 310 2.5 6.3 2.5 82 6.78 160 67 200 **315 L** 742 2574 94.6 94.5 2.7 6.7 2.9 72 ▲ 1LE5503-3AD8■-■■■ 1660 8.60 94.8 0.78 390 87 Voltages 1) Version Order code 50 Hz 400 VΔ/690 VY 60 Hz ¹⁾ 460 VΔ Standard 3 4 4 0 50 Hz 500 VΔ Without additional charge 50 Hz 690 VΔ With additional charge For other voltages 1) and more information, see from page 3/16 Types of construction Order code Version IM B3²⁾ Without flange Standard IM B5²⁾ With flange With additional charge For other types of construction and more information, see from page 3/17 Motor protection Version Order code Without Standard With additional В PTC thermistor with 3 temperature sensors charge For other motor protection and more information, see from page 3/19 Terminal box position Version Order code Terminal box base left with terminal box 45° Without additional charge Terminal box base right with terminal box 45° Standard For other terminal box positions and more information, see from page 3/20 Order code(s) Special versions 1LE5503- ■-■■■■-Z . . . +. . . +. For options, see from page 3/21

Parallel supply lines are required, except in the case of connection to 690 V.

For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code **R50**) due to the magnitude of the current. Order code **R50** alters the motor dimensions.



Motors with IE3 Premium Efficiency

SIMOTICS SD self-ventilated or forced-air cooled motors – cast-iron series 1LE5603 Performance Line

Select	tion an	nd ord	ering (data (d	continu	ied)										
		Opera	ting valu	ues at ra	ited pov	ver								Cast-iron series		
Prated	Frame size	n _{rated}	T _{rated}	$\eta_{ m rated,}$ 4/4	$\eta_{\rm rated}$, 3/4	$\eta_{\rm rated,}$ 2/4	COS- φ _{rated} , 4/4	I _{rated}	T_{LR}/T_{rated}	I _{LR} / I _{rated}	$T_{\rm B}/T_{\rm rated}$	L_{pfA}	L_{WA}	1LE5603 Performance Line Article No.	m _{IM B3}	J
kW	FS	rpm	Nm	%	%	%	., .	Α				dB(A)	dB(A)	▲ New	kg	kgm ²
• Cool	ing: Sel	f-ventil	ated (IC	411)	00. 150	Durant	F#:-				\E\ 4 4 F		. ,		Ü	<u> </u>
• Insul	ation: T	herma	g to iEt	55 (tem	-งบ: เ⊏ง ıperatuı	re class	F), IP55	degre	service t e of pro	tection,	utilizat	ion in ac	cordan	ce with thermal class 130 (t	emperat	ure class B)
2-pole	: 3000 rj	pm at 5	0 Hz													
250	315 L	2986	800	95.8	95.6	95.0	0.88	430	3.0	9	4.2	80	94	▲ 1LE5603-3AA6■-■■■■	1340	2.82
315	315 L	2986	1007	95.8	95.6	94.8	0.87	550	3.5	9.9	4.2	81	96	▲ 1LE5603-3AA7■-■■■■	1520	3.27
355	355 M	2988	1135	95.8	95.6	94.8	0.89	600	2.6	8.9	4.0	84	99	▲ 1LE5603-3BA3 ■-■■■■	2100	4.74
400	355 L	2986	1279	95.8	95.7	95.2	0.92	660	2.6	8.5	3.4	83	98	▲ 1LE5603-3BA4 ■-■■■■	2240	5.36
500	355 L	2988	1598	95.8	95.7	95.1	0.89	850	3.0	8.9	3.8	84	98	▲ 1LE5603-3BA5 ■-■■■■	2340	5.76
4-pole	: 1500 r _l	pm at 5	0 Hz													
250	315 L	1490	1602	96.0	96.1	95.7	0.85	440	2.8	7.9	3.2	75	91	▲ 1LE5603-3AB6■-■■■■	1290	4.27
315	315 L	1490	2019	96.0	96.0	95.6	0.83	570	3.2	8.5	3.5	75	90	▲ 1LE5603-3AB7■-■■■■	1560	5.39
355	355 M	1492	2272	96.0	96.0	95.4	0.86	620	2.9	7.9	2.8	81	96	▲ 1LE5603-3BB3■-■■■■	2290	6.76
400	355 L	1492	2560	96.0	96.0	95.5	0.84	720	3.4	8.4	3.0	81	96	▲ 1LE5603-3BB4■-■■■■	2110	7.16
500	355 L	1491	3202	96.0	96.1	95.9	0.86	870	3.0	8.1	3.3	82	96	▲ 1LE5603-3BB5■-■■■	2290	8.36
	: 1000 r															
200	315 L	992	1925	95.8	95.9	95.6	0.82	365	3	7.5	3.2	68	83	▲ 1LE5603-3AC7 ■-■■■		6.28
250	315 L	992	2407	95.8	95.9	95.6	0.81	465	3.2	8.2	3.3	69	84	▲ 1LE5603-3AC8 ■-■■■		8.00
315	355 M		3029	95.8	95.8	95.3	0.82	580	2.9	7.8	3.2	75	90	▲ 1LE5603-3BC2■-■■■		11.6
355	355 M		3414	95.8	95.9	95.5	0.83	640	2.9	8.4	3.3	74	89	▲ 1LE5603-3BC3■-■■■		13.7
400		994	3843	95.8	96	95.8	0.84	720	2.8	8.1	3	75	90	▲ 1LE5603-3BC4■-■■■	2240	13.4
	750 rp															
160	315 L		2062	94.3	94.7	94.7	0.79	310	2.5	6.3	2.5	67	82	▲ 1LE5603-3AD7■-■■■■		6.78
200	315 L	742	2574	94.6	94.8	94.5	0.78	390	2.7	6.7	2.9	72	87	▲ 1LE5603-3AD8■-■■■■	1660	8.60
Voltage	es ¹⁾										Ve	ersion			Orde	er code
	400 V∆/6	590 VY	60	Hz ¹⁾ 46	0 VΔ						S	tandard		3 4	-	
50 Hz	500 V∆											ithout ac	dditiona	4 0	-	
50 Hz (200 \/ 4											narge Iith addit	ional	4 7		
30 HZ (590 VΔ											nin addii narge	ioriai	4 /	_	
For oth	er voltad	ges ¹⁾ a	nd more	e informa	ation, se	e from p	age 3/1	6				Ü				
Types	of cons	tructio	n								Ve	ersion			Orde	er code
Withou	t flange		IM	B3 ²⁾							S	tandard		A	-	
With fla	inge		IM	B5 ²⁾								ith addit	ional	F	-	
For oth	ar tua a a	of oon	atri i ati ar		ara infa	mation	aaa fram		0/17		Cl	narge				
	protecti		Struction	i anu m	ore irrior	mation,	see non	page	3/17		\//	ersion			Ordo	er code
	ermistor		tomnero	tura car	neore							tandard		В	Orde	er code
						on, see	from no	ne 3/10			3	tanuaru		B		
	al box			THOIGH	normali	ori, see	nom pa	Je 3/ 19			1//	ersion				er code
	al box p			minal b	nx 45°							rsion Ithout ac	ditional	2	Olde _	code
	al box b										cl	narge tandard	aditiona	3	_	
		_				ormation	see fro	m page	3/20		J					
	l versio		POOILIOI	.o and I		ation	, 555 110	page	0,20							er code(s)
-	ions, se		nage 3/	21										1LE5603 ■-■■■		. ,
1 01 0p1		0 110111	Jage 0/2	- 1											T	

¹⁾ Parallel supply lines are required, except in the case of connection to 690 V.

²⁾ For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code **R50**) due to the magnitude of the current.
Order code **R50** alters the motor dimensions.

Motors with IE3 Standard Efficiency



SIMOTICS SD Add self-ventilated or forced-air cooled motors - cast-iron series 1LE5533 Basic Line

Selection and ordering data (continued) Operating values at rated power Cast-iron series 1LE5533 $extbf{\emph{P}}_{ extbf{rated}}$ Frame $n_{ ext{rated}}$ $T_{ ext{rated}}$ $\eta_{ ext{rated}}$, $\eta_{ ext{rated}}$, $\eta_{ ext{rated}}$, cos-J Irated I_{LR} L_{pfA} L_{WA} $m_{\rm IM~B3}$ size φ_{rated} I_{rated} Article No. 4/4 kW Nm dB(A) dB(A) ▲ New kgm² rpm kg Cooling: Self-ventilated (IC411) Efficiency: IE3 Premium Efficiency, service factor (SF) 1.15 Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) **315 L** 2982 95.6 801 95.8 95.9 0.91 415 2.8 7.2 3 80 94 ▲ 1LE5533-3AA6■-■■■■ 1340 2.82 250 **315 L** 2980 315 1009 95.8 96 95.8 0.91 520 2.4 7.5 2.9 81 96 ▲ 1LE5533-3AA7■-■■■ 1490 3.11 4-pole: 1500 rpm at 50 Hz 250 **315 L** 1490 1602 96 96.2 95.9 0.87 430 21 72 28 75 91 ▲ 1LE5533-3AB6■-■■■■ 1400 4 55 **315** L 1488 315 2022 96 96.2 96 1 0.85 560 22 72 28 75 90 ▲ 1LE5533-3AB7■-■■■ 1530 5 28 6-pole: 1000 rpm at 50 Hz **315 L** 992 96 2.8 ▲ 1LE5533-3AC7 ■-■■■ 1410 6.39 200 95.8 95.8 0.81 370 68 83 **315 L** 992 ▲ 1LE5533-3AC8 ■-■■■ 1640 250 2407 95.8 95.9 95.6 0.81 465 29 72 3 68 83 8 10 8-pol e: 750 rpm at 50 ▲ 1LE5533-3AD7■-■■■ 1420 **315 L** 741 2062 94.3 94.7 94.7 0.79 310 2.4 6.2 2.4 67 82 6.78 160 200 **315 L** 742 2574 94.6 94.5 2.7 6.7 2.9 72 ▲ 1LE5533-3AD8■-■■■ 1660 8.60 94.8 0.78 390 87 Voltages 1) Version Order code 50 Hz 400 VΔ/690 VY 60 Hz ¹⁾ 460 VΔ Standard 3 4 4 0 50 Hz 500 VΔ Without additional charge 50 Hz 690 VΔ With additional charge For other voltages 1) and more information, see from page 3/16 Types of construction Order code Version IM B3²⁾ Without flange Standard IM B5 ²⁾ With flange With additional charge For other types of construction and more information, see from page 3/17 Version Order code Without Standard With additional В PTC thermistor with 3 temperature sensors charge For other motor protection and more information, see from page 3/19 Terminal box position Version Order code Terminal box base left with terminal box 45° Without additional charge Terminal box base right with terminal box 45° Standard For other terminal box positions and more information, see from page 3/20 Order code(s) Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC418) 1LE5533- ■-■■■■-Z F90+. . . + . . . + . . . 1LE5533- ■-■■■■ -Z . . . +. . . +. . . +. . . For options and information, see from page 3/21

Order code R50 alters the motor dimensions.

Parallel supply lines are required, except in the case of connection to

For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code R50) due to the magnitude



Motors with IE3 Standard Efficiency

SIMOTICS SD Add self-ventilated or forced-air cooled motors - cast-iron series 1LE5633 Performance Line

Selection and ordering data (continued) Operating values at rated power Cast-iron series 1LE5633 P_{rated} Frame n_{rated} T_{rated} η_{rated} , η_{rated} , η_{rated} , cos-Irated /1 R/ L_{pfA} LWA $m_{\rm IM~B3}$ J Performance Line size φ_{rated} I_{rated} Article No. 4/4 kW Nm dB(A) dB(A) ▲ New kgm² rpm kg Cooling: Self-ventilated (IC411) Efficiency: IE3 Premium Efficiency, service factor (SF) 1.15 Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) **315 L** 2982 801 95.8 95.9 95.6 0.91 415 2.8 7.2 3 80 94 ▲ 1LE5633-3AA6■-■■■■ 1340 250 ▲ 1LE5633-3AA7■-■■■■ 1490 315 **315 L** 2980 1009 95.8 96 95.8 0.91 520 2.4 7.5 2.9 81 96 3.11 355 **355 M** 2984 1136 95.8 95.7 95.2 0.9 590 2.3 8.4 3.1 83 98 ▲ 1LE5633-3BA3 ■-■■■ 2170 5.07 ٩R 400 355 L 2986 1279 95.8 95.8 95.3 0.91660 23 7 7 3 1 83 ▲ 1LE5633-3BA4 ■-■■■ 2240 5 46 500 355 L 2988 1598 95.8 95.7 95.1 ი გ9 850 2.8 8.5 37 83 98 ▲ 1LE5633-3BA5 ■-■■■ 2340 5.76 e: 1500 rpm at 50 Hz 4-ро ▲ 1LE5633-3AB6■-■■■■ 1400 4.55 250 315 L 1490 96 96.2 95.9 0.87 430 2.8 91 ▲ 1LE5633-3AB7■-■■■ 1530 315 315 L 1488 2022 96 96.2 96.1 0.85 560 22 2.8 75 90 5.28 **355 M** 1491 2.2 7.5 3.1 95 ▲ 1LE5633-3BB3 ■-■■■ 2070 355 2274 96 96 1 95.8 0.88 610 81 6.36 400 1491 2562 96 96.1 95.9 0.87 690 2.1 7.3 3 80 95 ▲ 1LE5633-3BB4 ■-■■■ 2100 7.06 355 L **355 L** 1491 7.9 3.3 ▲ 1LE5633-3BB5 ■-■■■ 2290 500 3202 96 96.1 95.9 0.86 870 3.1 80 96 8.36 6-ро 95.8 96 0.81 ▲ 1LE5633-3AC7 ■-■■■ 1410 6.39 200 **315 L** 992 1925 95.8 370 28 3 68 83 250 315 L 992 2407 95.8 95.9 95.6 0.81 465 2.9 7.2 3 68 83 ▲ 1LE5633-3AC8 ■-■■■ 1640 8.10 315 95.8 96.1 96.1 0.86 550 2.4 6.8 2.8 75 90 ▲ 1LE5633-3BC2 - ■ 2150 12.9 **355 M** 992 3032 ▲ 1LE5633-3BC3 ■-■■■ 2250 355 355 M 993 3414 95.8 95.9 95.6 0.84 640 2.6 7 4 3.2 76 91 13.8 400 355 L 994 3843 95.8 96 95.8 0.84 720 27 7.7 29 75 90 ▲ 1LE5633-3BC4 ■-■■■ 2240 13 4 8-pole: 750 rpm at 50 Hz 160 **315 L** 741 2062 94.3 94.7 94.7 0.79 310 24 6.2 2.4 67 82 ▲ 1LE5633-3AD7■-■■■ 1420 6.78 200 315 L 742 2574 94 6 94.8 94 5 0.78 390 2.7 6.7 2.9 72 87 ▲ 1LE5633-3AD8■-■■■ 1660 8.60 Voltages 1) Version Order code 60 Hz ¹⁾ 460 VΔ 50 Hz 400 VΔ/690 VY Standard 4 0 50 Hz 500 VΔ Without additional charge 50 Hz 690 VΔ With additional charge For other voltages 1) and more information, see from page 3/16 Types of construction Version Order code IM B3 ²⁾ Without flange Standard IM B5 2) With flange With additional charge For other types of construction and more information, see from page 3/17 Motor protection Version Order code PTC thermistor with 3 temperature sensors Standard For other motor protection and more information, see from page 3/19 Terminal box position Version Order code Terminal box base left with terminal box 45° Without additional charge Terminal box base right with terminal box 45° Standard For other terminal box positions and more information, see from page 3/20 Special versions Order code(s)

Forced-air cooled motors w/o ext. fan/fan cover (IC418)

For options and information, see from page 3/21

1LE5633-.... -- -- -Z F90+...+...+...

1LE5633- ■-■■■■-Z . . . +. . . +. . . +. .

¹⁾ Parallel supply lines are required, except in the case of connection to 690 V

For a power rating of 315 kW, 2-pole, 60 Hz and 315 kW, 4-pole, 50 Hz, a larger terminal box can be used (order code R50) due to the magnitude of the current.
Order code R50 alters the motor dimensions.

Article No. supplements and special versions

Voltages · Cast-iron series 1LE55 Basic Line, 1LE56 Performance Line

Selection and ordering data

Voltages		rticle No. supple oltage code	Additional identification code with order code	Frame size 315	355	Motor vers	ion
		2th and 13th osition of		1LE55.4 Basic Line		IEC	IE4
	th	e Article No.	and plain text, if required	1LE56.4 Performance	e Line		IEO.
1LE5		_	Order code	1LE55.3 Basic Line	- 1 Sec		IE3
		-	Order code	1LE56.3 Performance	e Line		
Voltage at 50 Hz or 60 Hz							
50 Hz 400 VΔ/690 VY, 60 Hz 460 VΔ	3	4	-	0	0		
50 Hz 400 VΔ, 60 Hz 460 VΔ				0	0		
50 Hz 500 VΔ, 60 Hz 575 VΔ	4	0	-	0	0		
50 Hz 690 VΔ	4	7	-	✓	✓		
50 Hz 380 VΔ/660 VY, 60 Hz 440 VΔ	3	3	-	✓	1		
50 Hz 380 VΔ				1	✓		
50 Hz 415 VΔ, 60 Hz 480 VΔ	3	5	-	✓	1		
60 Hz 380 VΔ/660 VY	3	0	-	✓	✓		
60 Hz 380 VΔ				1	✓		
60 Hz 400 VΔ/690 VY	3	1	-	✓	✓		
60 Hz 400 VΔ				✓	✓		
Voltage at 60 Hz and required power							
380 VΔ/660 VY; 50 Hz power	9	0	M2B	✓	✓		
380 V∆; 50 Hz power				✓	✓		
440 VΔ; 50 Hz power		0	M2D	✓	✓		
460 V∆; 50 Hz power	9		M2F	✓	✓		
575 V∆; 50 Hz power	9	0	M2H	✓	✓		
400 V∆/690 VY; 50 Hz power	9	0	M2J	✓	✓		
400 V∆; 50 Hz power				✓	✓		
480 VΔ; 50 Hz power		0	M2L	✓	✓		
Non-standard voltage and/or frequencies							
Non-standard winding 1)	9	0	M1Y • and customer specifications	√	✓		

- Standard version
 Without additional charge
 This order code only determines the price of the version –
 Additional plain text is required.
 With additional charge

¹⁾ Plain text must be specified in the order: Voltage between 200 and 690 V (voltages outside this range are available on request), frequency, circuit, for 60 Hz additionally required rated power in kW.

Article No. supplements and special versions

Types of construction · Cast-iron series 1LE55 Basic Line, 1LE56 Performance Line

Selection and ordering data						
Types of construction	Article No. suppl	ement	Frame size		Motor version	
	Type of	For types of	315	355		
	construction code letter	construction with order code(s)	1LE55.4 Basic Line		IEC	IE4
	14th position of	Article No.	1LE56.4 Performanc	e Line		
	the Article No.	with additional identification	1LE55.3 Basic Line			IE3
		code -Z	1LE56.3 Performanc	e Line		
1LE5	· . 🔳 (-Z)	Order code				
Without flange						
IM B3 ^{1) 2)}	1	-	0			
IM B6 ²⁾	T	-	0	0		
IM B7 ²⁾	U	-	0	0		
IM B8 ²⁾	v	-	0	0		
IM V6 ²⁾	D	-	0	0		
IM V5 without protective cover ²⁾	С	-	0	0		
IM V5 with protective cover ^{2) 3) 4)}	С	H00	√	√		

Article No. supplements and special versions

Types of construction · Cast-iron series 1LE55 Basic Line, 1LE56 Performance Line

Types of construction	Article No. supple		Frame size	0.55	Motor version
	Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No.	315 1LE55.4 Basic Line 1LE56.4 Performance	355 Line	IEC IE4
	the Article No.	with additional identification code -Z	1LE55.3 Basic Line 1LE56.3 Performance	e Line	IE3
1LE5	. ■ (-Z)	Order code			
With flange	EN 50347 DIN 42948		FF600 A 660	FF600 A 660	
IM B5 ^{2) 5)}	F	-	V	/	
IM V1 without protective cover ²⁾	G	-	/	/	
IM V1 with protective cover ^{2) 3) 4)}	G	H00	/	/	
IM V3 ⁴⁾	Н	-	/	/	
IM B35 ³⁾	J	-	✓	✓	

- Standard version
- o Without additional charge
- ✓ With additional charge

The types of construction IM B6/7/8, IM V6 and IM V5 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B3 is then stamped on the rating plate. With type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code H00. The protective cover is not stamped on the rating plate.

The type of construction is stamped on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

³⁾ In combination with an encoder, it is not necessary to order the protective cover (order code **H00**), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard design (without additional charge).

⁴⁾ The "Standard cylindrical shaft extension (second shaft extension)" option (order code L05) is not possible.

⁵⁾ The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code H00. The protective cover is not stamped on the rating plate.

Article No. supplements and special versions

Motor protection · Cast-iron series 1LE55 Basic Line, 1LE56 Performance Line

Selection and ordering data

•						
Motor protection	Article No. supple	ement	Frame size		Motor ve	rsion
		Additional iden-	315	355		
	code letter 15th position	tification code with order code	1LE55.4 Basic Line		IEC	IE4
	of the	and plain text,	1LE56.4 Performanc	e Line		
	Article No.	if required	1LE55.3 Basic Line			IE3
1LE5	■.	Order code	1LE56.3 Performanc	e Line		
Motor protection						
Without (standard) 1)	A	-			Only for:	1LE55.4, 1LE55.3
1 or 3 PTC thermistors – for tripping (2 terminals) 1) 2)	В	-	1	1	Only for:	1LE55.4, 1LE55.3
(2 terminals) 1) 2)					Only for:	1LE56.4, 1LE56.3
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) ²⁾	С	-	1	1		
1 KTY84-130 temperature sensor (2 terminals) ²⁾	F	-	1	1		
2 KTY84-130 temperature sensor (4 terminals) ²⁾	G	-	✓	✓		
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	Н	-	✓	✓		
6 Pt100 resistance thermometers – 2-wire input (12 terminals)	J	-	1	1		
1 Pt1000 resistance thermometer (2 terminals) ²⁾	К	-	1	1		
2 Pt1000 resistance thermometers (4 terminals) ²⁾	L	-	1	1		
1 Pt100 resistance thermometers – 2-wire input (2 terminals) ²⁾	P	-	1	1		
3 Pt100 resistance thermometers – 3-wire input (9 terminals) ²⁾	Q	-	/	/		
6 Pt100 resistance thermometers – 3-wire input (18 terminals) ²⁾	R	-	1	1		
3 bimetal sensors (NC contacts) – for tripping (2 terminals) ²⁾	Z	Q3A	1	1		
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals) ²⁾	Z	Q9A	1	1		

□ Standard version✓ With additional charge

Note:

Options are available specifically for bearing protection – for order codes and descriptions, see from page 3/21.

For the Performance Line, motor protection by means of PTC thermistors with 3 built-in temperature sensors for tripping (motor protection code letter B) is already included in the basic price. For the Performance Line, the option "without motor protection" (motor protection code letter A) is not possible.

²⁾ Evaluation with associated tripping unit (see Catalog IC 10) is recommended.

Article No. supplements and special versions

Terminal box position · Cast-iron series 1LE55 Basic Line, 1LE56 Performance Line

Selection and ordering data

Terminal box position	Article No. supple	ement	Frame size		Motor version	
	Terminal box	Additional iden-	315	355		
	position code 16th position of	tification code with order code	1LE55.4 Basic Line		IEC	IE4
	the Article No.	and plain text,	1LE56.4 Performanc	e Line		
		if required	1LE55.3 Basic Line			IE3
			1LE56.3 Performanc	e Line		
1LE5		Order code				
Terminal box position						
Terminal box base left with terminal box at the top	0	-	✓	1		
Terminal box base right with terminal	1	_	✓	/		
box at the top						
Terminal box base left with oblique terminal box 45°	2	-	0	0		
Terminal box base right with oblique terminal box 45°	3	-				
Terminal box right-hand side 1)	5	_	√	✓		
Terminal box left-hand side 1)	6	-	✓	✓		
Terminal box left-hand side (base below) 2)	9	R5L	1	1		
Terminal box right-hand side (base below) ²⁾	9	R6R	1	1		
Terminal box bottom left ²⁾	9	R7L	✓	✓		
Terminal box bottom right ²⁾	9	R7R	✓	✓		

- Standard version
- Without additional charge With additional charge

¹⁾ For types of construction with feet and flange-mounted with feet, cast feet are standard. Screwed-on feet are available on request.

²⁾ Only possible in combination with type of construction IM B5.

Article No. supplements and special versions

Options · Cast-iron series 1LE55 Basic Line, 1LE56 Performance Line

Selection and ordering data Special versions Additional identification code -Z Frame size Motor version with order code and plain text if required 355 315 1LE55.4 Basic Line **IEC** IE4 1LE56.4 Performance Line 1LE55.3 Basic Line IE3 1LE5...- Order code 1LE56.3 Performance Line Motor protection 1 or 3 PTC thermistors – for tripping (2 terminals) 1) Q11 / Not for: Combination with motor protection code letter B (15th position of the Article No.) 2 or 6 PTC thermistors – for alarm and tripping (4 terminals) 1) Combination with motor Q12 Not for: protection code letter C (15th position of the Article No.) Combination with motor protection code letter F 1 KTY84-130 temperature sensor (2 terminals) 1) Q23 Not for: (15th position of the Article No.) 2 KTY84-130 temperature sensors Combination with motor Q25 / Not for: / protection code letter G (4 terminals) (15th position of the Article No.) 3 bimetal sensors (NC contacts) for Q31 tripping (2 terminals) 6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals) Q32 / / 3 bimetal sensors (NC contacts) for Q33 / tripping (6 terminals) 6 bimetal sensors (NC contacts) for Q34 / / alarm and tripping (12 terminals) 1 Pt1000 resistance thermometer Q35 1 / (2 terminals) 2 Pt1000 resistance thermometers Q36 (4 terminals) 3 Pt100 resistance thermometers – 2-wire input (6 terminals) 1) Combination with motor Q60 Not for: / 1 protection code letter H (15th position of the Article No.) 6 Pt100 resistance thermometers – Combination with motor Q61 Not for: 2-wire input (12 terminals) protection code letter J (15th position of the Article No.) 1 Pt100 resistance thermometer -Q62 1 1 2-wire input (2 terminals) 3 Pt100 resistance thermometers -Q63 3-wire input (9 terminals) 6 Pt100 resistance thermometers -Q64 / / 3-wire input (18 terminals) 2 Pt100 screw-in thermometers in Q72 /

basic configuration for bearings (2 terminals) 2 Pt100 screw-in thermometers in 3-wire input for bearing (6 terminals)

Terminal box on NDE ²³⁾

90°, entry from DE

90°, entry from NDE

Second external grounding

2 Pt100 double screw-in thermometers

in 3-wire input for bearing (12 terminals)
Motor connection and terminal box

Rotation of the terminal box through

Rotation of the terminal box through

Q78

Q79

H08

H70

R10

R11

Combination with type of construction code letters F, G, H, J

(14th position of the Article No.)

Not for:

Article No. supplements and special versions

Options · Cast-iron series 1LE55 Basic Line, 1LE56 Performance Line

Special versions	Additional identification code -Z with order code and plain text		355	Motor ve	ersion
	if required	1LE55.4 Basic Line		IEC	IE4
		1LE56.4 Performan 1LE55.3 Basic Line			IE3
1LE5 Z	Order code	1LE56.3 Performan			ILO
Motor connection and terminal box (c				_	
Rotation of the terminal box through 180°		√	1	_	
One EMC cable gland	R14	✓	√	Only for:	Combination with order
One metal cable gland	R15	1	✓	Only for:	codes R51, R53 Combination with order
EMC cable gland, maximum configuration	R16	✓	✓	Only for:	codes R51, R53 Combination with order codes R51, R53
Stud terminal for cable connection, accessories pack (3 items)	R17	✓	-	Only for:	Combination with order codes R51, R53
Metal cable gland, maximum configuration	R18	1	✓	Only for:	Combination with order codes R51, R53
Saddle terminal for connection without cable lug, accessories pack	R19	1	1	Only for:	Combination with order codes R21, R23, R24
3 cables protruding, 1.5 m long	R21	O. R.	O. R.	Only for:	Combination with order codes R17, R19, R50
6 cables protruding, 1.5 m long	R23	O. R.	O. R.	Only for:	Combination with order codes R17, R19, R50
6 cables protruding, 3 m long	R24	O. R.	O. R.		Combination with order codes R17, R19, R50
Larger terminal box	R50	✓	-	,	Combination with order codes R21, R23, R24
Terminal box without cable entry opening	R51	0	0	Only for:	Combination with order codes R14, R15, R16, R18
Drilled removable entry plate	R52	/	✓	0 1 1	0 11 11 11
Undrilled removable entry plate	R53	✓	✓	Only for:	Combination with order codes R14, R15, R16, R18
Cast-iron auxiliary terminal box (small)	R62	✓	✓		
Larger cast-iron terminal box	R63	✓	✓		
Silicone-free version	R74	✓	✓		
Non-standard threaded through hole (NPT or G thread) 2)	Y61 • and customer specifications	✓	√		
Windings and insulation					
Temperature class 155 (F), utilized according to 155 (F), with service factor	N01	1	√		
Temperature class 155 (F), utilized acc. to 155 (F), with increased power	N02	✓	✓		
Temperature class 155 (F), utilized acc. to 155 (F), with increased coolant temperature	N03	✓	√		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %	N05	✓	✓		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %	N06	/	1		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %	N07	✓	√		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	N08	/	1		
Temperature class 180 (H)	N10	✓	1		
Temperature class 180 (H) at rated power and max. CT 60 °C 3) 4)	N11	✓	✓		
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	N30	1	1		
Increased air humidity/temperature with 60 to 100 g water per m ³ of air	N31	✓	✓		
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	Y50 • and spec. power, CT°C or IA m above sea level	1	/		
Temperature class 155 (F), utilized acc. to 155 (F), other requirements ⁴⁾	Y52 • and spec. power, CT °C or IA m above sea level	1	1		
Temperature class 180 (H), utilized according to 155 (F)	Y75 • and spec. power, CT°C or IA m above sea level	/	✓		

For legends and footnotes, see page 3/27.

Article No. supplements and special versions

Special versions	Additional identification code -Z with order code and plain text if required	Frame size 315	355	Motor ve	rsion
		1LE55.4 Basic Line 1LE56.4 Performance	e Line	IEC	IE4
41.55		1LE55.3 Basic Line			IE3
1LE5 Z	Order code	1LE56.3 Performance	e Line		
Colors and paint finish					
Standard paint finish C2 in RAL 7030 stone gray		0	-	Only for:	Basic Line
Unpainted (only cast-iron parts primed)		0	0		
Unpainted, only primed	S01	✓	✓		
Special paint finish C3					Performance Line
	S02	✓	-	Only for:	Basic Line
Special paint finish sea air resistant C4	\$03	✓	✓		
Special paint finish for use offshore C5	S04	√	√		
Internal coating	\$05	/	√		
Top coat polyurethane ²⁷⁾	S06	/	√		
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	Y53 • and paint finish RAL	✓	1		
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")		1	/		
Modular technology – Basic versions	5)				
Mounting of holding brake (standard assignment) 6) 25) 26)	F01	✓	✓		4-pole motors
(standard assignment)		-	-	Only for:	Combination with order codes D02, F40, F41, L05, L30, L52
Mounting of separately driven fan	F70	1	1	Not for:	Combination with order codes L05, Y59
Mounting of 1XP8012-10 (HTL) rotary pulse encoder 7) 8)	G01	1	✓	Not for:	Combination with order codes D02, L05
Mounting of 1XP8012-20 (TTL) rotary pulse encoder 7 8)	G02	✓	1	Not for:	Combination with order codes D02, L05
Mounting of Kübler Sendix 5020 HTL, 1024 I rotary pulse encoder	G11	1	✓	Not for:	Combination with order codes D02, L05
Mounting of Kübler Sendix 5020 TTL, 1024 I rotary pulse encoder	G12	✓	✓	Not for:	Combination with order codes D02, L05
Modular technology – Additional vers	ions				
Brake supply voltage 24 V DC	F10	✓	✓		4-pole motors
		-	-	Only for:	Combination with order codes D02, F40, F41, L05, L30, L52
Brake supply voltage 230 V AC,	F11	✓	✓	Only for:	4-pole motors
50/60 Hz		-	-	Only for:	Combination with order codes D02, F40, F41, L05, L30, L52
Brake supply voltage 400 V AC,	F12	√	√	Only for:	4-pole motors
50/60 Hz		-	_	Only for:	Combination with order codes D02, F40, F41, L05, L30, L52
Backstop, counterclockwise motion blocked, clockwise direction of rotation	F40	/	1	Not for:	Combination with order codes F01, F10, F11, F12
Backstop, clockwise motion blocked, counterclockwise direction of rotation	F41	✓	1	Not for:	Combination with order codes F01, F10, F11, F12

Article No. supplements and special versions

Special versions	Additional identification code -Z with order code and plain text	Frame size	355	Motor ve	rsion
	if required '	1LE55.4 Basic Line		IEC	IE4
		1LE56.4 Performand	e Line		IE3
1LE5 Z	Order code	1LE56.3 Performance	ce Line		ILO
Special technology ⁵⁾	_				
Mounting of LL 861 900 220	G04	√	1	Not for:	Combination with
rotary pulse encoder 9)		•	·	1401101.	order codes D02, L05
Mounting of HOG 9 DN 1024 I rotary pulse encoder ⁹⁾	G05	✓	1	Not for:	Combination with order codes D02, L05
Mounting of HOG 10 D 1024 I rotary pulse encoder 9)	G06	✓	✓	Not for:	Combination with order codes D02, L05
Mounting of POG10D rotary pulse encoder (only in combination with separately driven fan or brake) 10)	G07	✓	✓	Not for:	Combination with order codes D02, L05
Mounting of POG9 rotary pulse encoder (only in combination with separately driven fan or brake) 10)	G08	✓	✓	Not for:	Combination with order codes D02, L05
Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box moisture protection	G15	✓	/	Not for:	Combination with order codes D02, L05
Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box dust protection	G16	✓	1	Not for:	Combination with order codes D02, L04, L05
Mounting of rotary pulse encoder HOG 10 DN 1024 I + FSL, (integrated centrifugal switch, speed rpm), terminal box moisture protection	Y74 • and spec. speed rpm	✓	1	Not for:	Combination with order codes D02, L05
Mounting of rotary pulse encoder HOG 10 DN 1024 I + FSL, (integrated centrifugal switch, speed rpm), terminal box dust protection	Y76 • and spec. speed rpm	1	1	Not for:	Combination with order codes D02, L05
Mounting of rotary pulse encoder HOG 10 DN 1024 I + ESL 93, (integrated electronic speed switch, speed rpm), terminal box dust protection	Y79 • and spec. speed (max 3) rpm	/	1	Not for:	Combination with order codes D02, L05
Mechanical version and degrees of p	rotection				
Low-noise version for 2-pole motors with clockwise direction of rotation	F77	✓	✓		2-pole motors
with clockwise direction of folation		-	-	Only for:	Combination with order codes L05, F90
Low-noise version for 2-pole motors	F78	1	1	Only for:	2-pole motors
with counterclockwise direction of rotation		_	-		Combination with order codes L05, F90
Prepared for mountings with D12 shaft	G41	✓	1	Not for:	Combination with order codes D02, L05
Prepared for mountings with D16 shaft	G42	1	1	Not for:	Combination with order code L05
Mechanical protection for encoder	G43	1	1	Not for:	Combination with order code L05
Protective cover ^{7) 9) 11)}	H00	✓	✓	Not for:	Combination with order code L05
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	H02	√	✓		
Condensation drainage holes			0		
Rust-resistant screws (externally)	H07	✓	1		
IP65 degree of protection ¹³⁾	H20	✓	✓		
IP54 degree of protection	H21	✓	1		
IP56 degree of protection ¹⁴⁾	H22	✓	1		
Drive-end seal for flange-mounting motors, oil-tight to 0.1 bar ^{12) 24)}	H23	√	✓	Not for:	Combination with type of construction code letters T, U, V (14th position of the Article No.)
Viton sealing ring	H25	√	V	Not for:	Combination with order codes D02, D03, D04
Grounding brush for converter operation	L52	√	/	Not for:	Combination with order codes F01, F10, F11, F12

Article No. supplements and special versions

Special versions	Additional identification code	Frame size		Motor ve	rsion
	with order code and plain tex if required	^(t) 315	355		
	ii required	1LE55.4 Basic I	Line	IEC	IE4
		1LE56.4 Perform	mance Line		
		1LE55.3 Basic I			IE3
1LE5 Z	Order code	1LE56.3 Perform	mance Line		
Coolant temperature and installation	altitude				
Coolant temperature -50 to +40 °C	D02	✓	✓	Not for:	Combination with order codes F01, F10, F11, F12, G01, G02, G04, G05, G06, G07, G11, G12, G15, G16; H25, Y74, Y76, Y79
Coolant temperature -40 to +40 °C ¹⁵⁾	D03	1	√	Not for:	Combination with order code H25
Coolant temperature –30 to +40 °C ¹⁶⁾	D04	1	✓	Not for:	Combination with order code H25
Versions in accordance with standard	s and specifications				
Motor without CE marking for export outside EEA (see EU Directive 640/2009)	D22	0	0		
Motor exclusively for use in transportation equipment for passenger and freight transportation corresponding to EVPG §1 dated February 27, 2008	D23	0	0		
Electrical according to NEMA MG1-12 173	D30	✓	✓		
Design according to UL with "Recognition Mark" 17)	D31	1	√		1LE5504, 1LE5604, 1LE5503, 1LE5603
Canadian regulations (CSA) 6)	D40	✓	✓	Only for:	1LE5504, 1LE5604, 1LE5503, 1LE5603
TR CU product safety certificate EAC for Eurasian customs union	D47	✓	√		
Bearings and lubrication					
Regreasing device with M10 × 1 grease nipple according to DIN 71412-A		0	0		
Located bearing DE	L20	✓	√		
Bearing design for increased cantilever forces ²⁸⁾		✓	√		
Hot bearing grease	L24	O. R.	O. R.		
Drainage for used grease					Performance Line
	L30	✓	-	Only for:	Basic Line
Special version with higher speeds	L37	O. R.	O. R.		
Bearing insulation DE	L50	✓	√		
Bearing insulation NDE	L51	√	√		
Measuring nipple for SPM shock pulse measurement for bearing inspection	Q01	1	/		
Balance and vibration severity			_		
Vibration severity grade A	100			0 1 (4 1 1
Vibration severity grade B ¹⁸⁾ Half-key balancing (standard)	L00	✓ □	✓ □	Only for:	4-pole motors
	1.04	<i>/</i>		Not for	Cambination with
Balancing without feather key	L01	/	<i>y</i>	Not for:	Combination with order code L04
Full-key balancing Shaft and rotor	L02	<u> </u>	, , , , , , , , , , , , , , , , , , ,	NOUTOT:	Combination with order code L04
Shaft extension with standard	L04	1	1	Not for:	Combination with
dimensions, without feather keyway	LOT	•	ľ	NOT IOI.	order codes L01, L02
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	L05	/	V	Not for:	Combination with order codes F01, F10, F11, F12, F70, F77, F78, G01, G02, G04, G05, G06, G07, G15, G16, G41, G42, G43, H00, Y74, Y76, Y79
Standard shaft made of stainless steel (e.g. 1.4021)	L06	✓	√		
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L07	✓	✓		
Concentricity of shaft extension, coaxiality, and linear movement in accordance with DIN 42955 Tolerance R for flange-mounted motors	L08	/	1	Not for:	Combination with type of construction code letters A, T, U, V (14th position of the Article No.)

Article No. supplements and special versions

Options · Cast-iron series 1LE55 Basic Line, 1LE56 Performance Line

Special versions	Additional identification code -Z with order code and plain text if required	Frame size 315 1LE55.4 Basic Line	355	Motor ve	rsion
		1LE56.4 Performanc	e Line		
1LE5 Z	Order code	1LE55.3 Basic Line 1LE56.3 Performanc	e Line		IE3
Shaft and rotor (continued)				_	
Non-standard cylindrical shaft extension, DE ¹⁹	Y58 • and customer specifications	1	1		
Non-standard cylindrical shaft extension, NDE 19)	Y59 • and customer specifications	✓	✓	Not for:	Combination with order code F70
Special shaft steel	Y60 • and customer specifications	O. R.	O. R.		
Heating and ventilation					
Sheet metal fan cover					Performance Line
Without external fan and without	F74 F90	<i>J</i>	<i>-</i> ✓	Only for:	Basic Line Combination with order
fan cover				NOTION.	codes F74, F77, F78
Anti-condensation heating for 230 V (2 terminals)	Q02	✓	✓		
Anti-condensation heating for 115 V (2 terminals)	Q03	✓	✓		
Anti-condensation heating for 400 V (2 terminals)	Q06	✓	/		
Separately driven fan with non-standard voltage and/or frequency	specifications	1	1		
Rating plate and additional rating plate	B07	✓	_		
Additional rating plate for voltage tolerance 20)					
Second rating plate, loose Rating plate, stainless steel	M10 M11	✓ ✓	✓ ✓		
Additional rating plate with deviating rating plate data	Y80 • and customer specifications	✓	✓		
Additional rating plate with customer specifications	Y82 • and customer specifications	√	✓		
Additional information on rating plate and on package label (max. 20 characters)	Y84 • and customer specifications	✓	1		
Adhesive label, supplied loose (printed with: Article No., Serial No.: 2 lines of text)	Y85 • and customer specifications	1	1		
Extension of the liability for defects					
Extension of the liability for defects by 12 months to a total of 24 months (2 years) from delivery ²¹⁾	Q80	✓	✓		
Extension of the liability for defects by 18 months to a total of 30 months (2.5 years) from delivery ²¹⁾	Q81	1	1		
Extension of the liability for defects by 24 months to a total of 36 months (3 years) from delivery ²¹⁾	Q82	1			
Extension of the liability for defects by 30 months to a total of 42 months (3.5 years) from delivery ²¹⁾	Q83	1	1		
Extension of the liability for defects by 36 months to a total of 48 months (4 years) from delivery ²¹⁾	Q84	1	1		
Extension of the liability for defects by 42 months to a total of 60 months (5 years) from delivery ²¹⁾	Q85	1	1		
Packaging, safety notes, documentation					
Acceptance test certificate 3.1 according to EN 10204 21)	B02	✓	✓		
Printed German/English Operating Instructions enclosed ²²⁾	B04	✓	✓		
Without "Made in manufacturing country" marking	B13	0	0		
Equivalent circuit diagram	B51	1	√		
Starting diagram (torque vs. speed and current vs. speed)	B52	/	√		
Document - Electrical datasheet	B60	1	√		
Document - Order dimensional drawing Standard test (routine test)	B65	√ ✓	✓ ✓		
with acceptance Temperature test without acceptance	B67	✓	√		
Temperature test with acceptance	B68	✓	✓		

For legends and footnotes, see page 3/27.

Article No. supplements and special versions

Special versions Additional identification code -Z with order code and plain text if required		Frame size 315 1LE55.4 Basic Line	355	Motor ve		
				o Lino	IEC	IE4
			1LE56.4 Performance 1LE55.3 Basic Line	e Lille		IE3
1LE5 Z	2 Order code		1LE56.3 Performance	e Line		
Packaging, safety notes, documentat	ion and test certificates	(continued)			
Type test with heat run for vertical motors, without acceptance	B80		1	1		
Type test with heat run for vertical motors, with acceptance	B81		1	1		
Type test with heat run for horizontal motors, without acceptance	B82		1	1		
Type test with heat run for horizontal motors, with acceptance	B83		1	1		
"Basic" documentation package	B90		✓	✓		
"Advanced" documentation package	B91		✓	✓		
"Projects" documentation package	B92		✓	✓		
Connected in star for dispatch	M01		✓	✓		
Connected in delta for dispatch	M02		✓	✓		

- Standard version
- Without additional charge 0
- This order code only determines the price of the version Additional plain text is required.
- With additional charge
- Possible on request O.R.
- Not possible

- Evaluation with associated tripping unit (see Catalog IC 10) is recommended
- Parallel Whitworth threaded pipe DIN ISO 228 (DIN 259) BSPP (British Standard Pipe Parallel) threaded pipe for connections not sealed in the thread (cylindrical), external = G.
- The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.
- 4) Not possible for 1LE5 motors with increased power.
- A second shaft extension is not possible. Please inquire for mounted
- For order codes F10, F11, and F12, the brake supply voltage must be specified or ordered
- The 1XP8 rotary pulse encoders are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.
- In combination with a separately driven fan (order code F70) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.
- For frame sizes 315 and 355, LL and HOG rotary pulse encoders are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover. Protective cover (order code G43) possible.
- $^{10)}$ Option (encoder mounting) is only possible for motors with a mounted separately driven fan or for naturally cooled motors (without an external fan). This option can be used in combination with brakes of type KFB and SFB. This option cannot be used in combination with brakes of type 2LM8.
- 11) Order code **H00** provides mechanical protection for encoders
- ¹²⁾ Not possible for type of construction IM V3
- ¹³⁾ Not possible in combination with HOG 9 D 1024l rotary pulse encoder (order code G05) and/or 2LM8 brake (order code F01)
- ¹⁴⁾ Not possible in combination with 2LM8 brake (order code **F01**).
- ¹⁵⁾ In connection with mountings, the respective technical specifications must be observed, please inquire before ordering
- ¹⁶⁾ The rated voltage is indicated on the rating plate without voltage range.

- 17) Possible up to 600 V max. The rated voltage is indicated on the rating plate without voltage range. Order codes D30 does not authorize importing into USA and Mexico.
- ¹⁸⁾ On request for 2-pole motors
- 19) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with EN 50347 are used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Tapered shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes Y58, Y59 and L05 the following applies
 - Dimensions D and DA ≤ ball bearing inner diameter
 - (see dimension tables for 'Dimensions')

 Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension.
- ²⁰⁾ Can be ordered for 400VA/690VY (voltage code "34").
- ²¹⁾ The delivery time for the factory test certificate may differ from the delivery time for the motor.
- ²²⁾ The Operating Instructions (Compact) are available in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/10803948/133300
- ²³⁾ With H08, feet dimensions C and CA differ from EN 50347! Further information is available in the DT Configurator (see Appendix, "Tools and engineering").
- ²⁴⁾ Not possible in combination with order codes Q72 and Q78.
- ²⁵⁾ Not possible in combination with order codes N05, N06, N07, N08 and N11.
- $^{26)}$ When order codes **F01** and **F12** are combined, the rectifier for the brake will be supplied separately as a single part.
- ²⁷⁾ Order code **S06** cannot be combined with order code **S00** and **S01**. It can be combined with Y53 on request.
- $^{28)}$ A minimum cantilever force $F_{\rm min}$ of 0.5 · $F_{\rm max}$ is required for NU bearings (cylindrical roller bearings) in contrast to ball bearings. Cylindrical roller bearings are not suitable for coupling output or for brief periods of no-load operation without cantilever force.

Article No. supplements and special versions

Accessories

Overview

Couplings

The motor from Siemens is connected to the machine or gear unit through a coupling. Siemens is an important coupling manufacturer with a wide range of products.

For standard applications, Siemens recommends that flexible couplings, types N-EUPEX and RUPEX or torsionally rigid couplings, types ARPEX and ZAPEX are used. For special applications, FLUDEX and ELPEX-S couplings are recommended.

Available from:

Siemens contact partner - ordering from catalog Siemens MD 10.1 "FLENDER Standard Couplings"

or

Siemens AG Kupplungswerk Mussum Industriepark Bocholt Schlavenhorst 100 46395 Bocholt, Germany Phone +49 (2871) 922185 Fax +49 (2871) 922579

www.siemens.com

Email: flendercouplings@siemens.com

Taper pins according to DIN 258 with threaded ends and constant taper lengths

Taper pins are used for components that are repeatedly removed. The drilled hole is conically ground using a conical reamer until the pin can be pushed in by hand until the cone shoulder lies approx. 3 to 4 mm above the rim of the hole.

It can then be driven in using a hammer until it is correctly seated. The pin is removed from the drilled hole by screwing on the nut and tightening it.

Standardized taper pins are commercially available.

For instance, available from:

Otto Roth GmbH & Co. KG Rutesheimer Strasse 22 70499 Stuttgart, Germany Phone +49 (711) 1388-0 Fax. +49 (711) 1388-233

www.ottoroth.de Email: info@ottoroth.de

Foundation block according to DIN 799

The foundation blocks are inserted into the stone foundation and embedded in concrete. They are used for fixing machines of medium size, slide rails, pedestal bearings, base frames, etc. After the fixing bolts have been unscrewed, the machines can be shifted without them having to be lifted.

When the machine is initially installed, the foundation block that is bolted to the machine (without shims) and fitted with taper pins is not embedded with concrete until the machine has been completely aligned. In this case, the machine is positioned 2 to 3 mm lower. The difference in shaft height is compensated for by inserting shims on final installation. The taper pins safeguard the exact position of the machine when it is repeatedly removed and replaced without the need for realignment.

Available from:

Lütgert & Co. GmbH Postfach 42 51 33276 Gütersloh, Germany Phone +49 (5241) 7407-0 Fax +49 (5241) 7407-90

www.luetgert-antriebe.de Email: info@luetgert-antriebe.de

Slide rails with fixing bolts and tensioning screws according to DIN 42923

Slide rails are used to tension the belt of a machine easily and conveniently when there is no belt-tensioning pulley. They are fixed to the base using stone bolts or foundation blocks.

The assignment of slide rails to motor size can be found in DIN 42923. For motors of frame sizes 355 to 450, there are no standardized slide rails (please inquire).

Available from:

Lütgert & Co. GmbH Postfach 42 51 33276 Gütersloh, Germany Phone +49 (5241) 7407-0 Fax +49 (5241) 7407-90

www.luetgert-antriebe.de Email: info@luetgert-antriebe.de

Article No. supplements and special versions

Accessories

More information

Replacement motors and repair parts

- Commitment to provide replacement motors and repair parts following delivery of the motor:
 - For up to 3 years after delivery of the original motor, in the event of total motor failure, Siemens will supply a comparable replacement motor with regard to the mounting dimensions and functions. (The type series may vary.)
 - If a replacement motor is supplied within the 3-year period, this does not mean that the warranty restarts.
 - Replacement motors delivered after the active production of the motor series are also identified as spare motors on the rating plate.
 - Spare parts are offered only for these spare motors on request; repair and replacement are not possible.
 - After a period of 3 years (after the delivery of the original motor), it is only possible to repair these motors (depending on the availability of the spare parts required).
 - For up to 5 years after the delivery of the original motor, spare parts will be available and for a further 5 years, Siemens will provide information about spare parts and will supply documents when required.
- When repair parts are ordered, the following details must be provided:
 - Designation and part number
 - Article No. and factory number of the motor.
- For bearing types, see Catalog Section 1 "Introduction".
- For standard components, a commitment to supply repaired parts does not apply.
- Support hotline In Germany Phone +49 (180) 5050448

You will find telephone numbers for other countries on our Internet site:

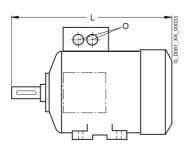
www.siemens.com/automation/service&support

Dimensions

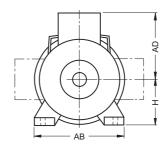
Overall dimensions

Overview

Overall dimensions



Frame		Dimer	nsions			
size	Type	L	AD	Н	AB	0
315 L	Cast-iron series, self-vent	tilated				
	1LE5503-, 1LE5603-, 1LE5504-, 1LE5604-					
	3AA6	1282	590	315	610	$2 \times M63 \times 1.5$
	3AB6	1312				
	3AA7	1362				
	3AB7	1422				
	3AC7		542			
	3AC8	1512	590			
	3AD7	1422	543			
	3AD8	1512				
	1LE5533-, 1LE5633-, 1LE5534-, 1LE5634-					
	3AA6	1282	590	315	610	$2 \times M63 \times 1.5$
	3AB6, 3AB7, 3AC7,	1422				
	3AD7		543			
	3AA7	1362				
	3AC8, 3AD8	1512				



Frame		Dimer	sions			
size	Туре	L	AD	Н	AB	0
355 M/L	Cast-iron series, self-vent	ilated				
	1LE5503-, 1LE5603-, 1LE5504-, 1LE5604-					
	3BA3, 3BA4	1577	620	355	780	$2 \times M80 \times 2$
	3BB3, 3BB4, 3BC., 3BD.	1607				
	3BA5	1577				$4 \times M63 \times 1.5$
	3BB5	1607				
	1LE5533-, 1LE5633-,					
	1LE5534-, 1LE5634-					
	3BA3, 3BA4	1577	620	355	780	$2 \times M80 \times 2$
	3BB3, 3BB4, 3BC., 3BD.	1607				
	3BA5	1577				$4\times \text{M63}\times 1.5$
	3BB5	1607				

Dimensions

Notes on the dimensions

Overview

■ Dimension designations according to EN 50347 and IEC 60072.

Fits

The shaft extensions specified in the dimension tables (DIN 748) and centering spigot diameters (EN 50347) are machined with the following fits:

Dimension designation	ISO fit DIN ISO 286-2	
D, DA	to 30	j6
	over 30 to 50	k6
	over 50	m6
N	to 250	j6
	over 250	h6
F, FA		h9
K		H17
S	flange (FF)	H17

The drilled holes of couplings and belt pulleys should have an ISO fit of at least H7.

■ Dimension tolerances

For the following dimension designations, the admissible deviations are given below:

Dimension designation	Dimension	Admissible deviation
Н	to 250 over 250	- 0.5 - 1.0
E, EA		- 0.5

Keyways and feather keyways (dimensions GA, GC, F, and FA) are made in compliance with DIN 6885 Part 1.

■ All dimensions are specified in mm.

Dimension sheet generator (within the Drive Technology Configurator)

Overview

A dimensional drawing can be created in the Drive Technology (DT) Configurator for every configurable motor. A dimensional drawing can be requested for every other motor.



When a complete Article No. is entered or configured with or without order codes, a dimensional drawing can be called up under the "Documentation" tab.

These dimensional drawings can be presented in different views and sections and printed.

The corresponding dimension sheets can be exported, saved and processed further in DXF format (interchange/import format for CAD systems) or as bitmap graphics.

Online access in the Siemens Industry Mall

The DT Configurator is integrated into the Siemens Industry Mall and can be used on the Internet without installation.

German: www.siemens.de/dt-konfigurator English: www.siemens.com/dt-configurator

Offline access in the Interactive Catalog CA 01

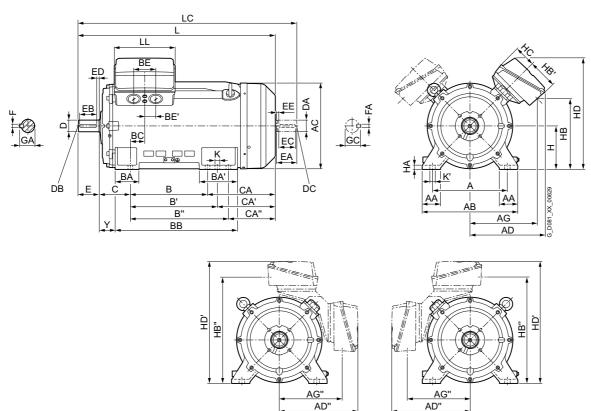
The DT Configurator is also integrated on the DVD of the Interactive Catalog CA 01 – the offline version of Siemens Industry Mall. CA 01 can be ordered from the relevant Siemens sales office or via the Internet: www.siemens.com/automation/CA01

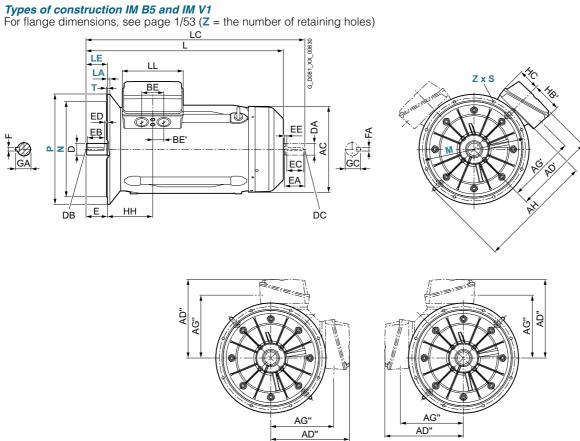
Dimensions

SIMOTICS SD self-ventilated motors – cast-iron series 1LE550. Basic Line, 1LE560. Performance Line

Dimensional drawings

Type of construction IM B3



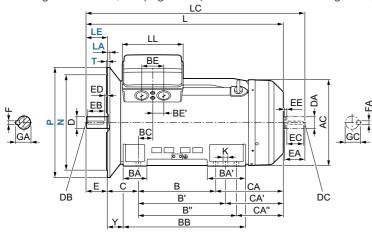


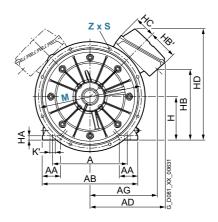
Dimensions

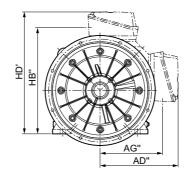
SIMOTICS SD self-ventilated motors – cast-iron series 1LE550. Basic Line, 1LE560. Performance Line

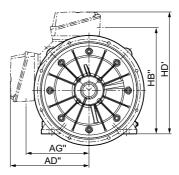
Dimensional drawings (continued)

*Type of construction IM B35*For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)









For mo	tor	Dimens	sion (desig	natio	n ac	c. to l	IEC																					
Frame size	Motor type 1LE5.0	No. of poles	Α	AA	AB	AC	AD	AD'	AD"	AG	AG'	AG"	АН	В	B'	В"	ВА	BA'	BB	ВС	BE	BE'	С	CA	CA'	CA"	Н	HA	НВ
315 L	3AA6	2	508	120	610	641	590	565	540	553	459	434	890	457	508	-	176	227	648	139	120	60	216	469	418	-	315	50	412
	3AB6	4														-										-			
	3AA7	2												508	560	630		298	770					498	446	376			
	3AB7	4																						528	476	406			
	3AC7	6					542			491	473	448									135	67.5							491
	3AC8	6					590			553	459	434									120	60		618	566	496			412
	3AD7	8					543			491	473	448									135	67.5		528	476	406			491
	3AD8	8																						618	566	496			
355 M, 355 L	3BA3, 3BA4, 3BA5	2	610	150	780	718	620	657	644	550	542	530	940	630	710	800	198	315	998	116	240	120	254	553	473	383	355	49	574
	3BB., 3BC., 3BD.	4, 6 8															194	311										35	

For mo	tor	Dimens	sion d	oolar	action	2 000	to IE	_					DE sh	oft o	vton	oion				NIDE	= abat	ft ovt	ensior					
1 01 1110	lOI	Dillielle	sion u	esigi	ialiUi	1 acc	. 10 IL	C							XIEII	151011				INDL	_ Silai	i exi	6112101					
Frame size	Motor type 1LE5.0	No. of poles	HB'	HB''	HC	HD	HD' I	НН	Υ	K	K'	L	LC 1)	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
315 L	3AA6	2	336	749	167	800	855 3	355	146	28	35	1282	1427	327	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB6	4										1312	1457		85		170	140	25	22	90	70					20	74.5
	3AA7	2										1362	1507		65		140	125	10	18	69	60					18	64
	3AB7	4										1422	1567		85		170	140	25	22	90	70					20	74.5
	3AC7	6	225	763																								
	3AC8	6	336	749								1512	1657															
	3AD7	8	225	763								1422	1567															
	3AD8	8										1512	1657															
355 M, 355 L	3BA3, 3BA4, 3BA5	2	247	885	188	911	999 3	370	130	35	42	1577	1722	519	75	M20	140	125	10	20	79.5	60	M20	140	125	10	18	64
	3BB., 3BC., 3BD.	4, 6 8										1607	1782		95	M24	170	140	25	25	100	80		170	140	25	22	85.5

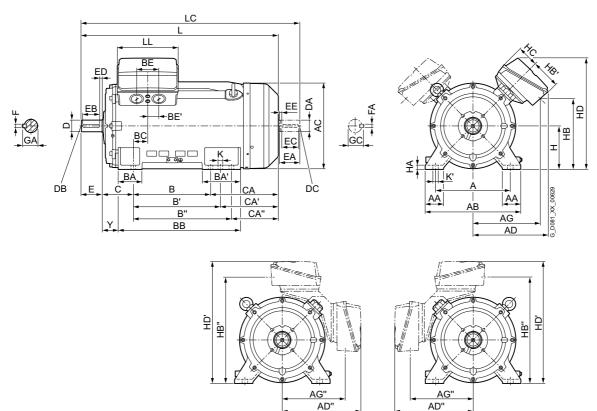
¹⁾ In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

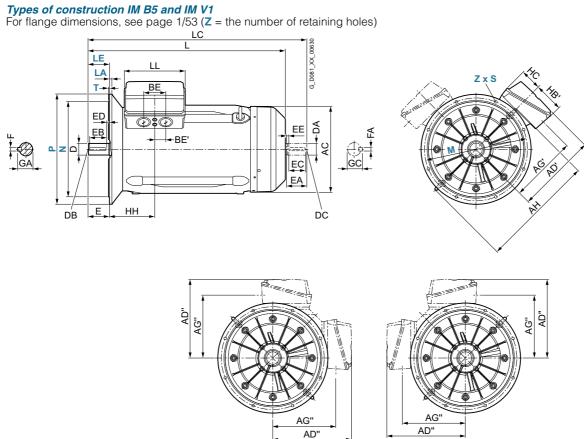
Dimensions

SIMOTICS SD Add self-ventilated motors – cast-iron series 1LE553. Basic Line, 1LE563. Performance Line

Dimensional drawings

Type of construction IM B3



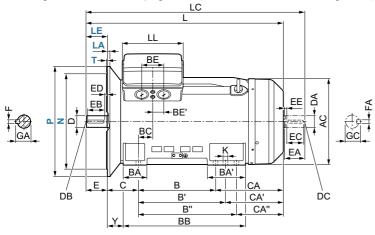


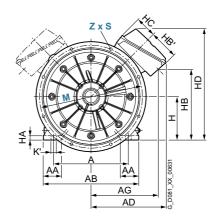
Dimensions

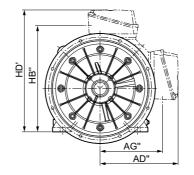
SIMOTICS SD Add self-ventilated motors - cast-iron series 1LE553. Basic Line, 1LE563. Performance Line

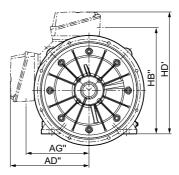
Dimensional drawings (continued)

*Type of construction IM B35*For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)









For mot	tor	Dimens	sion c	gisəb	natio	on ac	c. to	IEC																					
Frame size	Motor type 1LE5.3	No. of poles	Α	AA	AB	AC	AD	AD'	AD"	AG	AG'	AG"	АН	В	B'	B"	ВА	BA'	BB	ВС	BE	BE'	С	CA	CA'	CA"	Н	НА	НВ
315 L	3AA6	2	508	120	610	641	590	565	540	553	459	434	890	457	508	-	176	227	648	139	120	60	216	469	418	_	315	50	412
	3AB6, 3AB7	4												508	560	630		298	770					528	476	406			
	3AA7	2																						498	446	376			
	3AC8	6																						618	566	496			
	3AC7, 3AD7	6					543			491	473	448									135	67.5		528	476	406			491
	3AD8	8																						618	566	496			
355 M, 355 L	3BA3, 3BA4, 3BA5	2	610	150	780	718	620	657	644	550	542	530	940	630	710	800	198	315	998	116	240	120	254	553	473	383	355	49	574
	3BB., 3BC., 3BD.	4, 6 8															194	311										35	

For mo	tor	Dimens	sion d	lesigr	nation	n acc	. to II	EC					DE sh	aft e	xten	sion			ND	E sha	aft ex	tensi	on					
Frame size	Motor type 1LE5.3	No. of poles	HB'	HB"	НС	HD	HD'	НН	Υ	K	K'	L	LC 1)	LL	D	DB	Ε	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
315 L	3AA6	2	336	749	167	800	855	355	146	28	35	1282	1427	327	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB6, 3AB7	4										1422	1567		85		170	140	25	22	90	70					20	74.5
	3AA7	2										1362	1507		65		140	125	10	18	69	60					18	64
	3AC8	6										1512	1657		85		170	140	25	22	90	70					20	74.5
	3AC7, 3AD7	6, 8	225	763								1422	1567															
	3AD8	8										1512	1657															
355 M, 355 L	3BA3, 3BA4, 3BA5	2	247	885	188	911	999	370	130	35	42	1577	1722	519	75	M20	140	125	10	20	79.5	60	M20	140	125	10	18	64
	3BB., 3BC., 3BD.	4, 6 8										1607	1782		95	M24	170	140	25	25	100	80		170	140	25	22	85.5

¹⁾ In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

Dimensions

Notes

4

SIMOTICS VSD motors for converter operation



4/2 4/2 4/2 4/2 4/3 4/4	Introduction Overview Application Design Technical specifications SIMOTICS GP/SD VSD4000 line reluctance motors for SINAMICS converters	4/60	SIMOTICS GP/SD VSD10 line standard motors for converter operation
4/4 4/4 4/4 4/5 4/5 4/6 4/25	Orientation Overview Benefits Application Design Technical specifications Article number code	4/60 4/60 4/60 4/61 4/61 4/61 4/61 4/68	Orientation Overview Benefits Application Design Technical specifications Article number code
4/26 4/26 4/26 4/28	Selection and ordering data Self-ventilated, enclosed motors Motors with Super Premium Efficiency 1FP10.4 aluminum series 1FP15.4 cast-iron series	4/70 4/70 4/70 4/76	Selection and ordering data Self-ventilated, enclosed motors Motors with Standard Efficiency 1LE1092 aluminum series 1LE1592 cast-iron series
4/30 4/30 4/31 4/32 4/32 4/35 4/37 4/37 4/38 4/39 4/40 4/41 4/41 4/45 4/50	Article No. supplements and special versions Voltages 1FP10.4 aluminum series 1FP15.4 cast-iron series Types of construction 1FP10.4 aluminum series 1FP15.4 cast-iron series Motor protection 1FP10.4 aluminum series 1FP15.4 cast-iron series Terminal box position 1FP10.4 aluminum series 1FP15.4 cast-iron series 0ptions 1FP10.4 aluminum series 1FP15.4 cast-iron series Options 1FP10.4 aluminum series 1FP15.4 cast-iron series Accessories	4/86 4/86 4/87 4/88 4/88 4/91 4/93 4/93 4/95 4/95 4/95 4/97 4/97 4/101 4/106	Article No. supplements and special versions Voltages 1LE1092 aluminum series 1LE1592 cast-iron series Types of construction 1LE1092 aluminum series 1LE1592 cast-iron series Motor protection 1LE1092 aluminum series 1LE1592 cast-iron series Terminal box position 1LE1092 aluminum series 1LE1592 cast-iron series 0ptions 1LE1092 aluminum series 1LE1592 cast-iron series Options 1LE1092 aluminum series 1LE1592 cast-iron series Accessories
4/52 4/52 4/53 4/53 4/54 4/56	Dimensions Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series, self-ventilated – Super Premium Efficiency Cast-iron series, self-ventilated – Super Premium Efficiency	4/108 4/108 4/109 4/109 4/110 4/112	Overall dimensions Overall dimensions Notes on the dimensions Dimension sheet generator Aluminum series, self-ventilated – Standard Efficiency Cast-iron series, self-ventilated – Standard Efficiency

SIMOTICS VSD motors for converter operation

Introduction

Overview

SIMOTICS GP/SD VSD motors optimized for converter operation (VSD = Variable Speed Drive)

In addition to the standard motors optimized for line operation, Siemens also offers two motor lines optimized for converters for variable-speed operation on a frequency converter.

- SIMOTICS VSD10 line induction motors for converter operation
- SIMOTICS VSD4000 line reluctance motors for operation with SINAMICS G120/S120 converters

efficiency, especially in the partial-load range.

The motors are optionally available with an aluminum housing (SIMOTICS GP) or with a rugged cast-iron housing (SIMOTICS SD).

SIMOTICS VSD motors are characterized by the following features:

· High energy efficiency

Because the SIMOTICS VSD motors are optimized for operation with SINAMICS converters, the system power losses are low and the energy efficiency therefore high. In particular, the SIMOTICS VSD4000 line synchronous reluctance motors in conjunction with optimized control algorithms result in excellent loss-optimized operation in the speed setting range with a full and partial load and are superior to an induction motor system that has comparable nominal

• Optimized investment costs:

Optimizing the assignment of the motor active part to the Power Module results in low capital investment costs. The motors and frequency converters are optimally harmonized and coordinated with one another. No power unit upgrade is therefore required.

This applies in particular to the SIMOTICS VSD10 line motors on account of their optimized motor design.

Low space requirement, low weight:
 The high power density and compact design ensure low space requirements combined with low weight.

· Very rugged and reliable:

High availability using the standard protection functions for converter operation (KTY84-130 temperature sensors). As a result of the optimized insulation system, a high degree of reliability is obtained for four-quadrant operation with SINAMICS converters. SIMOTICS VSD10 motors also have insulated bearings at the non-drive end (NDE) in frame sizes 280 and 315.

- Fast and simple commissioning by transferring a motor code on the frequency converter.
- · Flexible in use:

SIMOTICS VSD line motors are designed as standard for operation with a 50 Hz, 60 Hz and 87 Hz characteristic.

· Wide range of options:

By consistently utilizing the 1LE1 standard motor platform, almost all options of the 1LE1 line motors can also be used for the SIMOTICS VSD line motors.

- High level of compatibility:
 Line and converter motors can be easily interchanged due
 to their identical dimensions and customer interfaces. The
 connection and operating philosophy is exactly the same as
 for 1LE1 line motors.
- International applicability:
 The motors are not subject to any minimum efficiency requirements for specific countries.

Application

The SIMOTICS GP/SD VSD motors can be deployed in all industries and sectors, e.g. paper, steel, energy, chemistry, water/waste water.

The wide field of applications that can be addressed includes, for example, the following:

- Pumps
- Fans
- Compressors
- Cranes
- Conveyor belts

Design

The SIMOTICS GP/SD VSD motors are based on the platform of the SIMOTICS 1LE1 motor type series. For this reason, the principal design is the same as for the 1LE1 line motors – the mechanical parts are identical.

The motors are adapted to the converter by appropriately dimensioning the active part and VSD-specific rating plate data.

Moreover, a large number of the variations available in the SIMOTICS 1LE1 motors (types of construction, motor protection, terminal box position, and options) are also available for the VSD motors.

SIMOTICS VSD4000 line	SIMOTICS VSD10 line
Use in VSD applications with high dynamic requirements	Use in VSD applications
Focus on low operating costs	Focus on low investment costs
Very low system power losses due to the reluctance principle and optimum coordination of the motor with the converter	Low system power losses due to optimum coordination of the motor with the converter
Optimized for operation with SINAMICS G120 and S120	Optimized for use with SINAMICS G120, G130, G150
36 month warranty	12 month warranty for SIMOTICS GP 24 month warranty for SIMOTICS SD (optionally expandable)

SIMOTICS VSD motors for converter operation

Introduction

Technical specifications

Brief overview of the general technical specifications for SIMOTICS VSD4000 line reluctance motors

Air-cooled, enclosed versi	on with self-ventilation 1)
Operation	Converter operation – VSD
Power at 50 Hz 2)	0.55 37 kW
Rated speed	1500 rpm, 1800 rpm and 2610 rpm 3000 rpm, 3600 rpm
Voltages	50 Hz line supplies: 400 V 60 Hz line supplies: 460 V
Cooling method	IC411, self-ventilated
Frame size	SIMOTICS GP: 80/112 200 SIMOTICS SD: 80/112 200
Degree of protection 3)	IP55
Housing	Aluminum or cast-iron version
Load characteristic	$T \sim n^2$, $T = \text{const.}$
Motor type	SIMOTICS GP: 1FP10.4 SIMOTICS SD: 1FP15.4

Brief overview of the general technical specifications for SIMOTICS VSD10 line standard motors for converter operation

Air-cooled, enclosed version	on with self-ventilation 1)
Operation	Converter operation – VSD
Power at 50 Hz	2.2 200 kW (1500 rpm) 3 90 kW (3000 rpm)
Rated speed	1500 rpm, 1800 rpm and 2610 rpm ⁴⁾ 3000 rpm, 3600 rpm and 5220 rpm ⁴⁾
Voltages	50 Hz line supplies: 400 V, 500 V, 690 V 60-Hz supply systems: 460 V, 600 V
Cooling method	IC411, self-ventilated
Frame size	SIMOTICS GP: 100 160 SIMOTICS SD: 100 315
Degree of protection 3)	IP55
Housing	Aluminum or cast-iron version
Load characteristic	$T \sim n^2$, $T = \text{const.}$
Motor type	SIMOTICS GP: 1LE1092 SIMOTICS SD: 1LE1592

¹⁾ Forced ventilation optionally available.

²⁾ Rated speed 1500 rpm.

³⁾ Other degrees of protection optionally available.

^{4) 87} Hz characteristic not available for all frame sizes.

Orientation

Overview

SIMOTICS GP/SD VSD4000 line motor series: 1FP10, 1FP15



As a result of their flexibility and the wide range of versions, SIMOTICS GP/SD VSD4000 line motors are especially suitable for sectors and industries, where the focus is on minimum lifecycle costs (TCO) and/or operation with a high dynamic performance

Versions of the

SIMOTICS GP/SD VSD4000 line motors: 1FP10, 1FP15

The motors have compact dimensions in a surface-cooled, enclosed version with self-ventilation. They have been specifically designed for converter operation.

1FP10 General Purpose for converter operation

- Four-quadrant converter operation, optimally harmonized with the SINAMICS G120, PM240-2 and S120 (ALM, BLM) drive system.
- IP55 degree of protection
- IC411 cooling method, self-ventilated (IC416 cooling method, force-ventilated version optional)
- Housing: Aluminum
- Frame sizes: 80/112 to 200 ¹⁾

1FP15 Severe Duty for converter operation

- Four-quadrant converter operation, optimally harmonized with the SINAMICS G120, PM240-2 and S120 (ALM, BLM) drive system.
- Degree of protection IP55
- IC411 cooling method, self-ventilated (IC416 cooling method, force-ventilated version optional)
- · Housing: Cast iron
- Frame sizes: 80/112 to 200

Benefits

The SIMOTICS GP/SD VSD4000 line has been specifically developed for operation with SINAMICS G120 converters.

- The synchronous-reluctance motors in conjunction with optimized closed-loop control algorithms result in an excellent, loss-optimized operating behavior in the speed control range at full and partial load. This system is superior to an induction motor-based system with comparable nominal efficiencies, especially in the partial load range.
- As a result of their low intrinsic moment of inertia, synchronousreluctance motors are also especially suitable for operating modes demanding a high dynamic performance.
- Optimizing the assignment of the motor active part to the Power Module results in low capital investment costs.
- The high power density and compact design ensure low space requirements combined with low weight.
- The motors and converters are optimally harmonized and coordinated with one another. It is not therefore necessary to upgrade the power unit.
- SIMOTICS GP motors with aluminum housing or SIMOTICS SD motors with rugged cast-iron housing are available.
- High availability using the standard protection functions for converter operation (KTY84-130 temperature sensors, Pt100/Pt1000 resistance thermometers).
- As a result of the optimized insulation system, a high degree of reliability is obtained for four-quadrant operation with SINAMICS converters.
- Fast and simple commissioning by transferring a motor code into the converter.
- Standard warranty period for synchronous-reluctance motors 36 months.

More power ratings

SIMOTICS GP/SD VSD4000 line motors are designed as standard for operation with a 50-Hz, 60-Hz, and 87-Hz characteristic ²⁾. No special ordering option is required.

Optimized for converter operation

The new motor series has been optimized for operation with SINAMICS G120 converters with regard to converter output currents and voltage utilization. Four-quadrant operation is possible with the SINAMICS G120, PM240-2, and S120 (ALM, BLM) converter families (for line voltages up to 480 V 3 AC).

High degree of flexibility

By consistently utilizing the 1LE1 standard motor platform, almost all options of the 1LE1 line motors can also be used for the SIMOTICS GP/SD VSD4000 line.

Known and established design

Line and converter motors can be easily interchanged due to their identical dimensions and customer interfaces. The connection and operating philosophy is exactly the same as for 1LE1 line motors.

International applications

The motors are not subject to any minimum efficiency requirements for specific countries. As a consequence, they can be operated without additional MEPS certificates, also in the USA, for example.

System components

System components required:

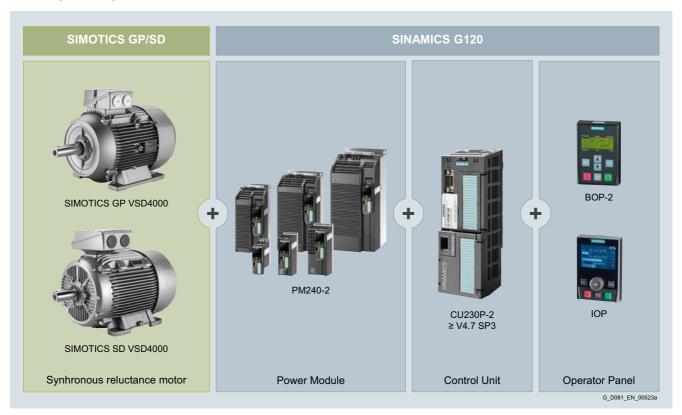
- SIMOTICS 1FP1 synchronous-reluctance motor
- SINAMICS G120 converter PM240-2 Power Module or SINAMICS S120 (ALM, BLM) converter

¹⁾ For the motor type 1FP10 of the SIMOTICS GP series, frame sizes 180 and 200 on request.

²⁾ With firmware V4.7 SP3, only 1500 rpm can be programmed.

Orientation

Benefits (continued)



Example configuration SIMOTICS GP/SD VSD4000 with SINAMICS G120 $\,$

Application

As a result of the wide range of options, the SIMOTICS GP/SD VSD4000 line motor series can be used in all industrial areas and sectors. Paper, steel, energy, chemical, water/waste water are examples of some typical sectors.

Various flange and foot-mounted designs according to EN 60034-7 are available. IP55 is the standard degree of protection (other degrees of protection optionally available).

The wide field of applications that can be addressed includes, for example, the following:

- Pumps
- Fans
- Compressors
- Cranes
- Conveyor belts
- Processing machines that require synchronous operation (e.g. in the textile industry)

Design

The SIMOTICS GP/SD VSD4000 line motors are based on the 1LE1 platform. The basic design of the SIMOTICS GP/SD VSD4000 line motors therefore corresponds to the 1LE1 line motors. The mechanical parts are identical. The motors are adapted to the converter by appropriately dimensioning the active part.

Orientation

Technical specifications

Overview of technical specifications

This table lists the most important technical specifications.

Type of motor	IEC low-voltage three-phase synchronous-reluctance motors
Connection types	Star/delta connection The connection used depends on the particular load characteristic.
No. of poles	4
Frame sizes	80/112 200
Rated power	4-pole: 0.55 30 kW (50 Hz characteristic); 0.63 34.5 kW (60 Hz characteristic), 0.9 48 kW (87 Hz characteristic)
Frequencies	Characteristics for 50 Hz, 60 Hz and 87 Hz
Versions	Air-cooled, enclosed version
	with self ventilation with forced ventilation (optional) SIMOTICS GP motors in an aluminum version, frame sizes 80/112 200 SIMOTICS SD motors in a cast-iron version, frame sizes 80/112 200
System efficiency	IES2 in accordance with EN 50598 (system with SINAMICS G120 converter, PM240-2)
Marking	Only permitted for converter operation.
	As converter motors, IE classification according to IEC 60034-30-1 is not required.
Rated speed	1500 rpm, 1800 rpm and 2610 rpm (up to frame size 200) 3000 rpm, 3600 rpm (frame sizes 180 and 200)
Rated torque	3.5 191 Nm (50 Hz characteristic); 3.3 183 Nm (60 Hz characteristic), 3.3 176 Nm (87 Hz characteristic)
Insulation of the stator winding in accordance with EN 60034-1 (IEC 60034-1)	Temperature class F, utilized acc. to B Reinforced insulation system (Advanced)
Degree of protection according to EN 60034-5 (IEC 60034-5)	IP55 as standard Air-cooled, enclosed version
Cooling	Standard: Self-ventilated (IC411)
according to EN 60034-6 (IEC 60034-6)	Optional: Forced-air cooled (IC416) (132 200)
Permissible coolant temperature and installation altitude	-20 +40 °C as standard, installation altitude up to 1000 m above sea level
Standard voltages according to EN 60038 (IEC 60038)	50-Hz line supplies: 400 V, 60-Hz line supplies: 480 V The rated motor voltage required is listed in the "Selection and ordering data" for the required motor.
Type of construction according to EN 60034-7 (IEC 60034-7)	Without flange: IM B3, IM B6, IM B7, IM B8, IM V5, IM V6 With flange: IM B35, IM V1, IM V3
Paint finish Suitability of paint finish for climate group according to IEC 60721, Part 2-1	As standard: color RAL 7030 stone gray
Vibration severity grade according to EN 60034-14 (IEC 60034-14)	Grade A (normal)
Shaft extension according to DIN 748 (IEC 60072)	Balancing type: half-key balancing as standard
Sound pressure level according to EN ISO 1680 (tolerance +3 dB)	The sound pressure level is listed in the "Selection and ordering data" for the required motor.
Weights	The weight is listed in the "Selection and ordering data" for the required motor.
Modular mounting concept	Optional brake and separately driven fan according to ordering data
Options	See "Article No. supplements and special versions"

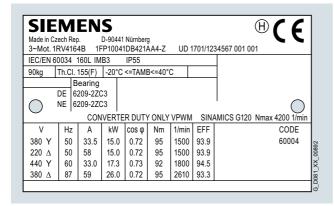
Orientation

Technical specifications (continued)

Rating plate

In accordance with EN 60034-1, the approximate total weight is specified on the rating plate. As standard, the rating plate is in English.

For straightforward and fast commissioning with SINAMICS G converters, a motor code number is stamped on the rating plate (CODE).



Example of a SIMOTICS GP VSD4000 line rating plate, 1FP10

Motors specially designed for converter operation

These motors have been specifically designed for converter operation. The catalog data is applicable for operation on the converter of the SINAMICS G120 series (PM240-2/PM240P-2) and SINAMICS S120 (PM240-2 and Booksize Motor Modules).

SINAMICS G120 system requirements:

- SINAMICS G120, PM240-2/PM240P-2 Power Module, CU230P-2 Control Unit
- V4.7.6 and higher
- The converter is operated with a rated pulse frequency of at least 4 kHz.
- The converter can provide the rated voltage as listed in the catalog.

For SINAMICS G120 converters (from firmware version 4.7) the SIMOTICS GP/SD VSD4000 line can be selected in the SINAMICS converter via the STARTER software or the operator panel at the converter (Basic Operator Panel (BOP), Intelligent Operator Panel (IOP)) as motor category and can be addressed using the motor code number.

SINAMICS S120 system requirements:

- SINAMICS S120, PM240-2 Power Module and CU310
- SINAMICS S120 Booksize Motor Module and CU320-2
- FW 4.8 and higher

Rated voltage

The tolerance for the rated voltage is in accordance with EN 60034-1. A rated voltage is not specified. The rated motor voltages are selected so that when operated with a SINAMICS G120 converter, the available voltage is optimally utilized.

Insulation

The motors can be operated with SINAMICS G/S converters up to line voltages of 480 V when the permissible voltage peaks are complied with ($\hat{U}_{LL} \le 3200 \text{ V}$, $\hat{U}_{LE} \le 2800 \text{ V}$).

For converter operation with the power ratings specified in the catalog, the motors can be utilized corresponding to thermal class 155 (F) (service factor 1.2).

Preferred supply system configurations are TT systems and TN systems with neutral-point grounding. In the case of a fault when connected to an IT system (ground fault), the insulation is excessively stressed. In this case, the process should be terminated as quickly as possible ($t < 2 \, \mathrm{h}$), and the fault resolved. We do not recommend operation in corner-grounded TN systems.

Noise

The maximum sound pressure levels should be taken from the selection and ordering data.

Orientation

Technical specifications (continued)

Separately driven fan

For the technical specifications of the separately driven fans, see page 1/80 "Technical specifications of separately driven fans".

Bearings

For converter operation, as a result of the basic principle employed, electrical bearing stress is created through the bearing lubricant film due to a voltage that is capacitively coupled in.

The physical cause of this is the common-mode voltage at the converter output that is inherent in the control method for a converter:

The sum of the three phase voltages is – in contrast to pure line operation – not equal to zero at every point in time.

In order to apply currents to the motor which are sinusoidal as far as possible (resulting in smoother running, lower oscillation torques, and lower stray losses), a high pulse frequency is required for the converter's output voltage. The related (very steep) switching edges of the converter output voltage (and also, therefore, of the common-mode voltage) cause correspondingly high capacitive currents and voltages on the machine's internal capacitances.

In the worst-case scenario, the capacitive voltage induced via the bearing can lead to random arcing through the bearing lubricating film, thus causing premature bearing aging or damage.

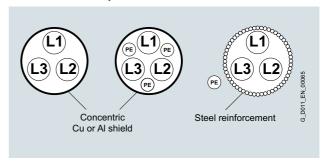
This physical effect, which occurs in isolated cases, has mostly been observed in connection with larger motors.

EMC-compliant installation of the drive system is a basic prerequisite for preventing premature bearing damage via bearing currents The most important measures for reducing bearing currents:

• Insulated motor bearing at the NDE

Recommended from frame size 225 and higher:

• Use cables with a symmetrical cable cross-section:



- Preference given to a line supply with isolated neutral point (IT system).
- Using grounding cables with low impedance over a wide frequency range (DC up to approximately 70 MHz): for example, braided copper ribbon cables, HF finely stranded wires.
- Separate HF equipotential-bonding cable between motor housing and driven machine.
- Separate HF equipotential-bonding cable between motor housing and converter PE busbar.
- 360° HF contacting of the cable shield on the motor housing and the converter PE busbar. This can be achieved using EMC screwed glands on the motor side and EMC shield clips on the converter side, for example.

Orientation

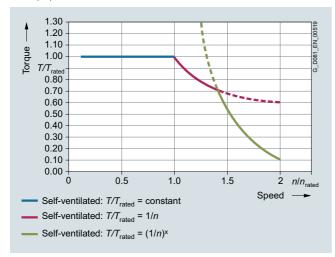
Technical specifications (continued)

Torque limits (continuous duty)

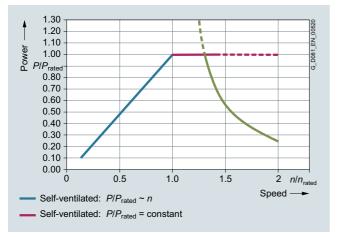
The thermal torque limit characteristics of the SIMOTICS GP/SD VSD4000 line define the maximum load torque for uninterrupted duty (S1) over the complete speed control range. The characteristics are different for all of the cooling methods. The speed control range is limited by the mechanical speed limit, which depends on the motor's mechanical design.

The following statements are valid for the following diagrams:

- Thermally, from ¹/₁₀ of the rated speed up to the full rated speed, the rated torque and the curve of the suitable power unit are possible, utilizing the thermal class 155 (temperature class F).
- At rated speed, SF 1.2 is possible.
- The curves of the next largest power unit and the maximum power curve can be achieved in continuous-operation periodic duty (S6 - x %), and briefly in S9 duty, provided that P_{2 (S9)} = P_{2 N} is not exceeded.



Torque limit for SIMOTICS GP/SD VSD4000 line self-ventilated

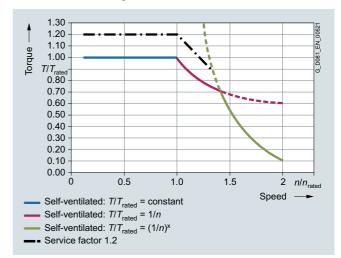


Power limit for SIMOTICS GP/SD VSD4000 line self-ventilated

Maximum overload torques/thermal limit characteristic

The maximum overload torque output from the motor is defined by the limit characteristic and the available converter output current.

Thermally, the motors can have a continuous overload with service factor 1.2 (SF 1.2). However, in this case, the limit torque characteristic must be observed. The speed control range is limited by the mechanical speed limit, which depends on the motor's mechanical design.

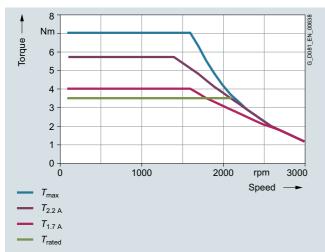


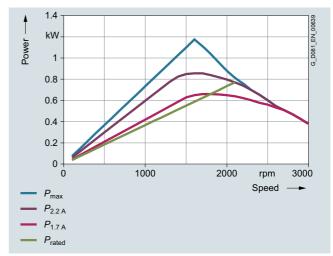
Overload torque characteristic SIMOTICS GP/SD VSD4000 line

Orientation

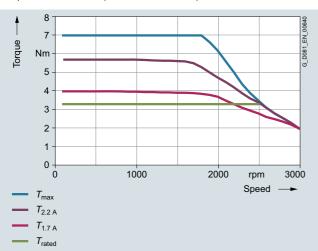
Technical specifications (continued)

The torque and power characteristics for converter configuration for the SIMOTICS GP/SD 1FP1.04-0DB2 motor, frame size 80 with the particular motor voltage and circuit:

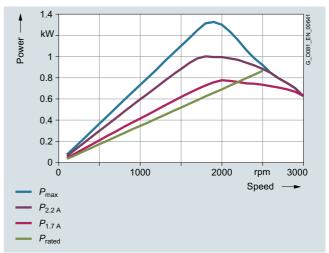




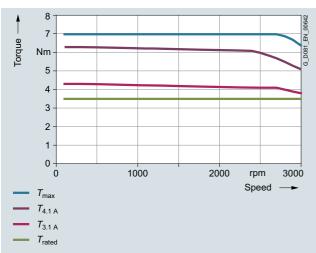
Torque limit for 380 VY (50-Hz characteristic)



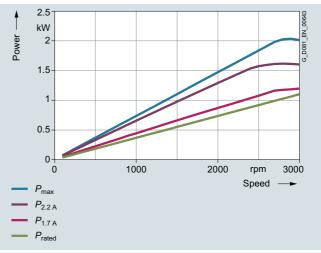
Power limit for 380 VY (50-Hz characteristic)



Torque limit for 440 VY (60-Hz characteristic)



Power limit for 440 VY (60-Hz characteristic)



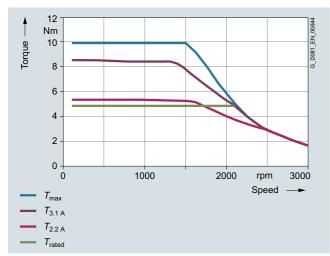
Torque limit for 380 V Δ (87-Hz characteristic)

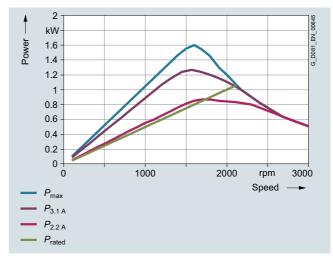
Power limit for 380 Va (87-Hz characteristic)

Orientation

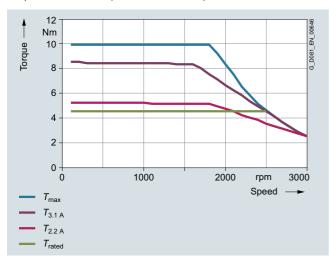
Technical specifications (continued)

The torque and power characteristics for converter configuration for the SIMOTICS GP 1FP1.04-0DB3 motor, frame size 80 with the particular motor voltage and circuit:

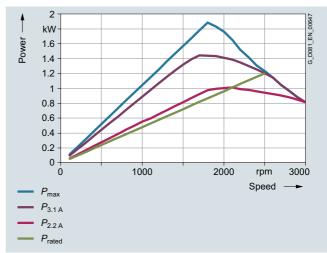




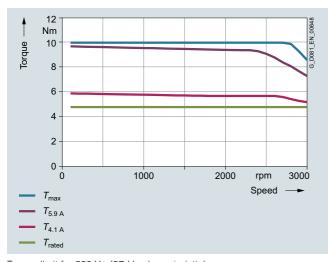
Torque limit for 380 VY (50-Hz characteristic)



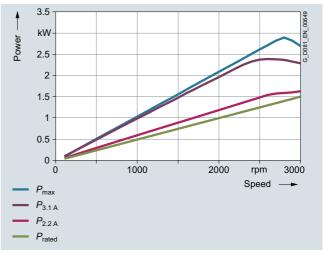
Power limit for 380 VY (50-Hz characteristic)



Torque limit for 440 VY (60-Hz characteristic)



Power limit for 440 VY (60-Hz characteristic)



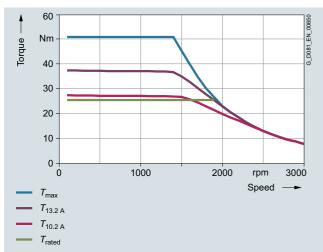
Torque limit for 380 V Δ (87-Hz characteristic)

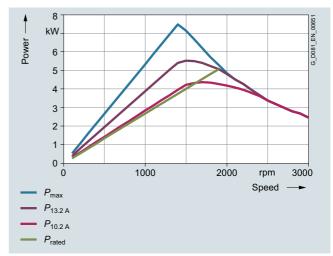
Power limit for 380 Va (87-Hz characteristic)

Orientation

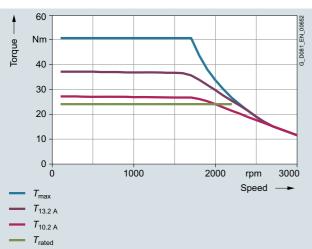
Technical specifications (continued)

The torque and power characteristics for converter configuration for the SIMOTICS GP 1FP1.04-1BB2 motor, frame size 112 with the particular motor voltage and circuit:

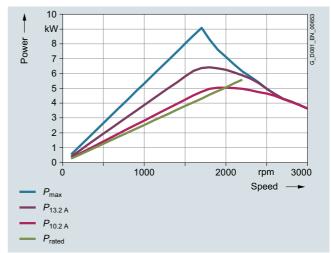




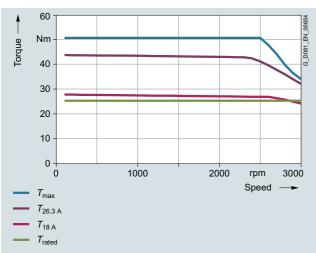
Torque limit for 380 VY (50-Hz characteristic)



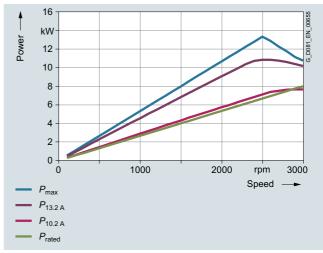
Power limit for 380 VY (50-Hz characteristic)



Torque limit for 440 VY (60-Hz characteristic)



Power limit for 440 VY (60-Hz characteristic)



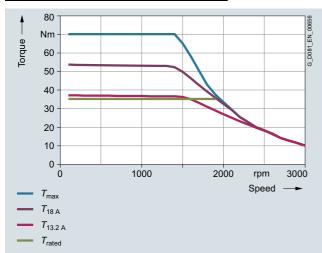
Torque limit for 380 VΔ (87-Hz characteristic)

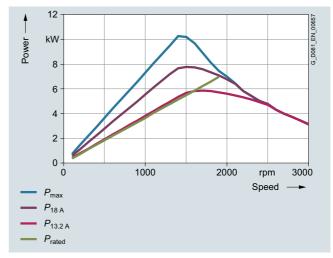
Power limit for 380 Va (87-Hz characteristic)

Orientation

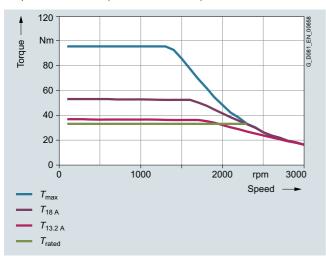
Technical specifications (continued)

The torque and power characteristics for converter configuration for the SIMOTICS GP 1FP1.04-1CB0 motor, frame size 132 with the particular motor voltage and circuit:

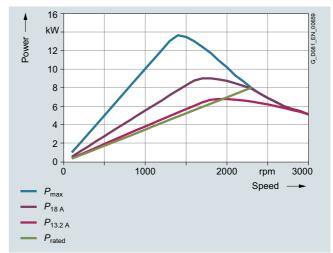




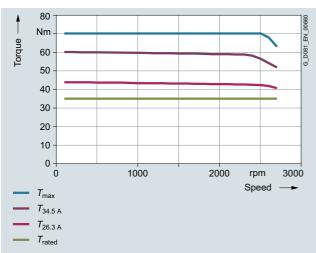
Torque limit for 380 VY (50-Hz characteristic)



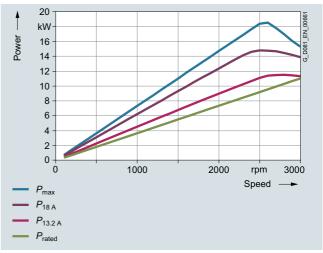
Power limit for 380 VY (50-Hz characteristic)



Torque limit for 440 VY (60-Hz characteristic)



Power limit for 440 VY (60-Hz characteristic)



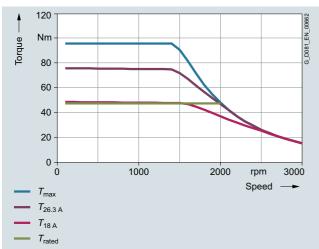
Torque limit for 380 V Δ (87-Hz characteristic)

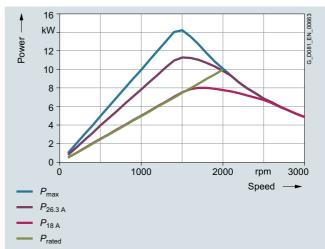
Power limit for 380 Va (87-Hz characteristic)

Orientation

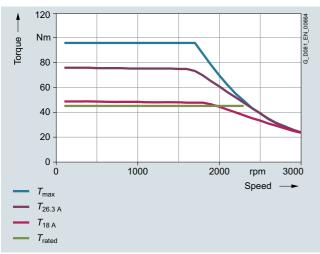
Technical specifications (continued)

The torque and power characteristics for converter configuration for the SIMOTICS GP 1FP1.04-1CB2 motor, frame size 132 with the particular motor voltage and circuit:

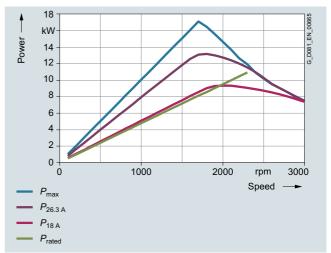




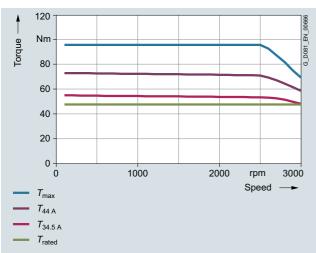
Torque limit for 380 VY (50-Hz characteristic)



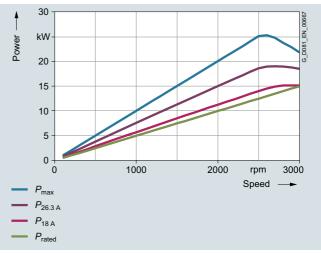
Power limit for 380 VY (50-Hz characteristic)



Torque limit for 440 VY (60-Hz characteristic)



Power limit for 440 VY (60-Hz characteristic)



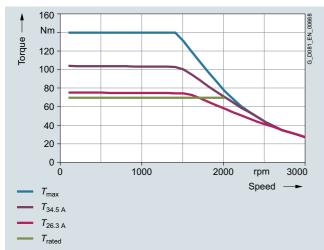
Torque limit for 380 V Δ (87-Hz characteristic)

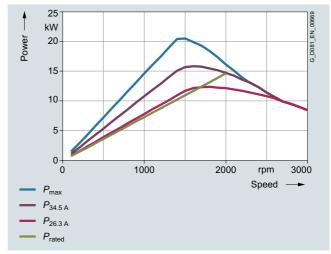
Power limit for 380 Va (87-Hz characteristic)

Orientation

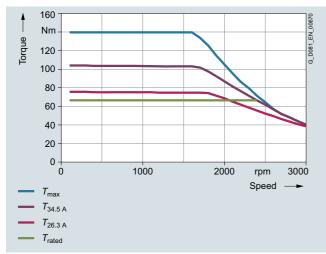
Technical specifications (continued)

The torque and power characteristics for converter configuration for the SIMOTICS GP 1FP1.04-1DB2 motor, frame size 160 with the particular motor voltage and circuit:

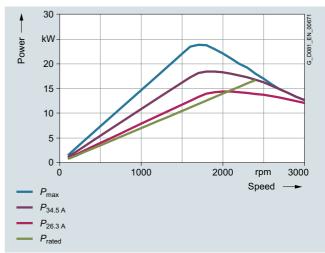




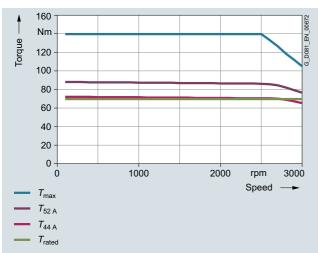
Torque limit for 380 VY (50-Hz characteristic)



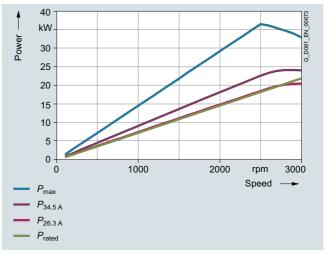
Power limit for 380 VY (50-Hz characteristic)



Torque limit for 440 VY (60-Hz characteristic)



Power limit for 440 VY (60-Hz characteristic)



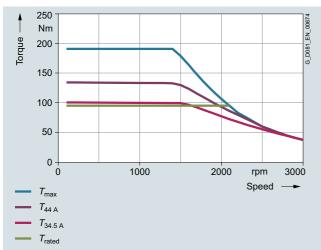
Torque limit for 380 V Δ (87-Hz characteristic)

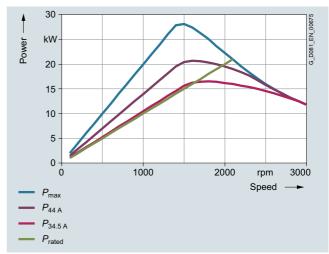
Power limit for 380 Va (87-Hz characteristic)

Orientation

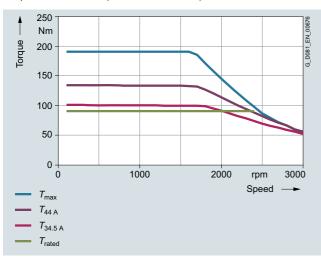
Technical specifications (continued)

The torque and power characteristics for converter configuration for the SIMOTICS GP 1FP1.04-1DB4 motor, frame size 160 with the particular motor voltage and circuit:

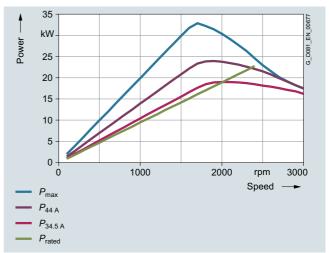




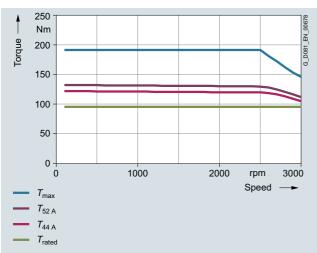
Torque limit for 380 VY (50-Hz characteristic)



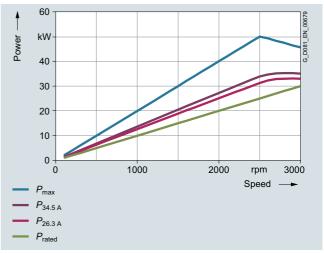
Power limit for 380 VY (50-Hz characteristic)



Torque limit for 440 VY (60-Hz characteristic)



Power limit for 440 VY (60-Hz characteristic)



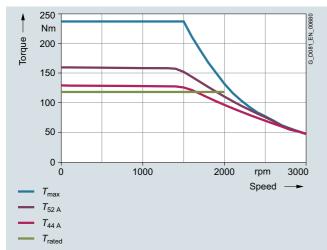
Torque limit for 380 V Δ (87-Hz characteristic)

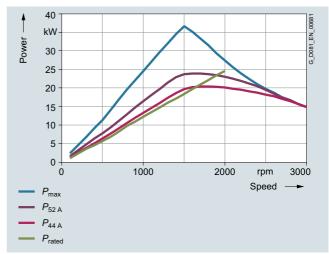
Power limit for 380 Va (87-Hz characteristic)

Orientation

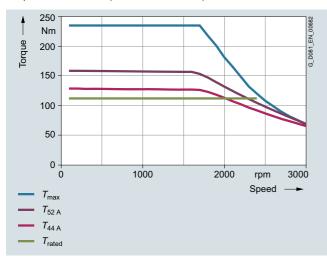
Technical specifications (continued)

The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1.14-1EB2 motor, frame size 180 with the particular motor voltage and circuit:

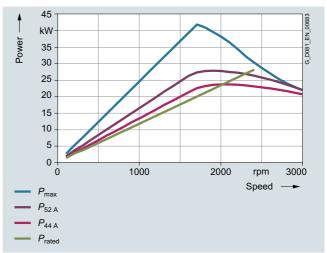




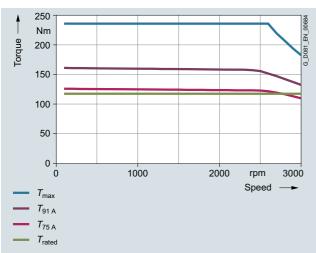
Torque limit for 380 VY (50-Hz characteristic)



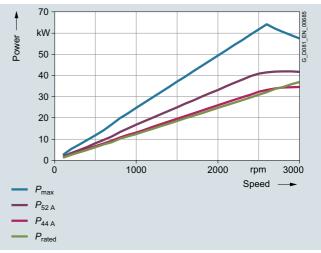
Power limit for 380 VY (50-Hz characteristic)



Torque limit for 440 VY (60-Hz characteristic)



Power limit for 440 VY (60-Hz characteristic)



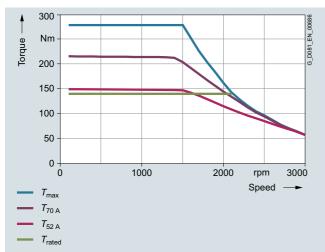
Torque limit for 380 V Δ (87-Hz characteristic)

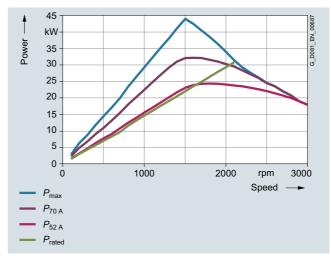
Power limit for 380 Va (87-Hz characteristic)

Orientation

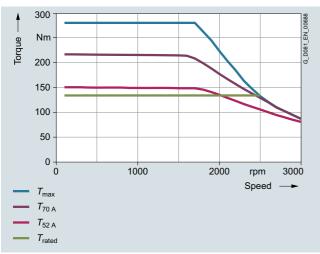
Technical specifications (continued)

The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1.14-1EB4 motor, frame size 180 with the particular motor voltage and circuit:

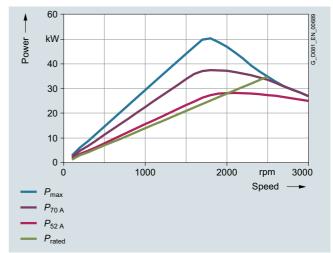




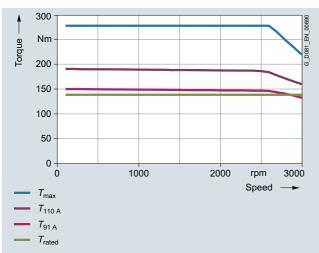
Torque limit for 380 VY (50-Hz characteristic)



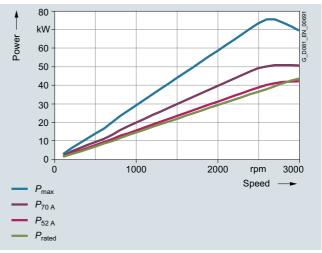
Power limit for 380 VY (50-Hz characteristic)



Torque limit for 440 VY (60-Hz characteristic)



Power limit for 440 VY (60-Hz characteristic)



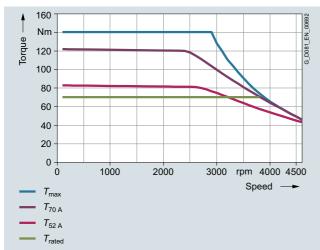
Torque limit for 380 V Δ (87-Hz characteristic)

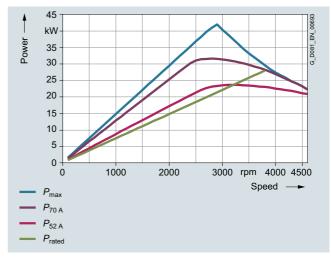
Power limit for 380 Va (87-Hz characteristic)

Orientation

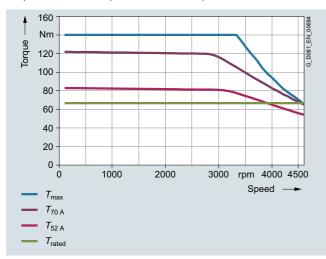
Technical specifications (continued)

The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1.14-1EF2 motor, frame size 180 with the particular motor voltage and circuit:

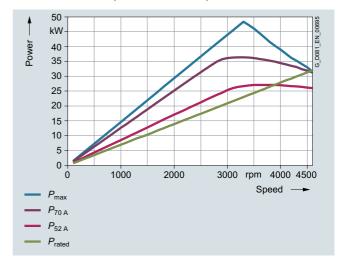




Torque limit for 380 VY (50-Hz characteristic)



Power limit for 380 VY (50-Hz characteristic)



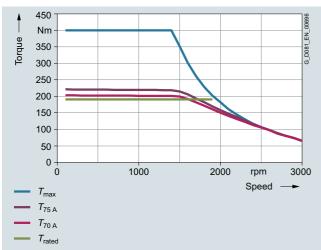
Torque limit for 440 VY (60-Hz characteristic)

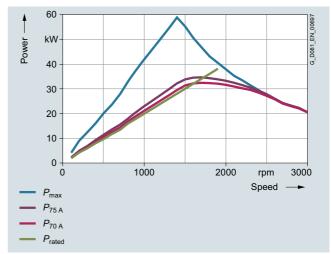
Power limit for 440 VY (60-Hz characteristic)

Orientation

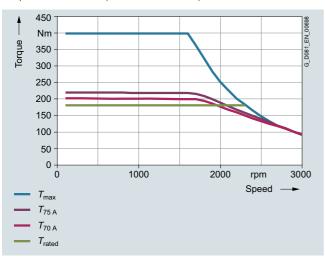
Technical specifications (continued)

The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1.14-2AB5 motor, frame size 200 with the particular motor voltage and circuit:

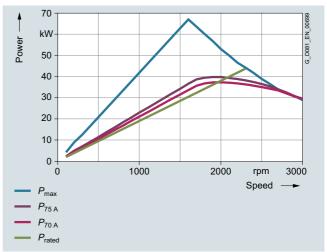




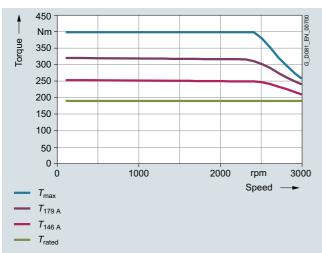
Torque limit for 380 VY (50-Hz characteristic)



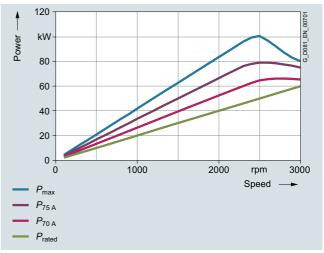
Power limit for 380 VY (50-Hz characteristic)



Torque limit for 440 VY (60-Hz characteristic)



Power limit for 440 VY (60-Hz characteristic)



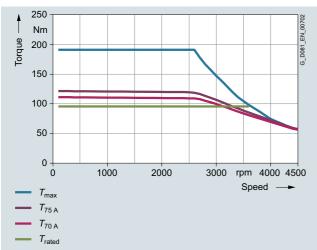
Torque limit for 380 V Δ (87-Hz characteristic)

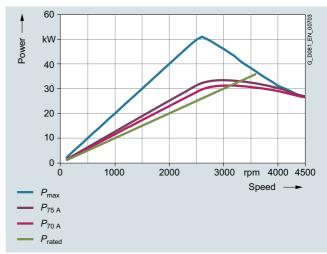
Power limit for 380 Va (87-Hz characteristic)

Orientation

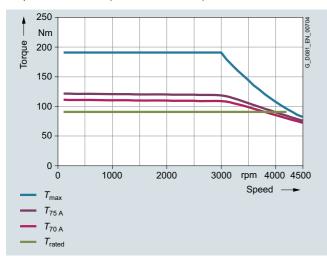
Technical specifications (continued)

The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1.14-2AF4 motor, frame size 200 with the particular motor voltage and circuit:

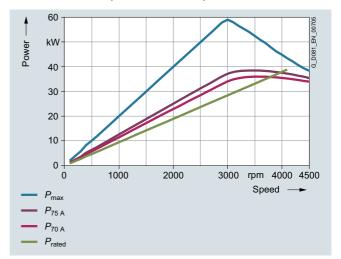




Torque limit for 380 VY (50-Hz characteristic)



Power limit for 380 VY (50-Hz characteristic)



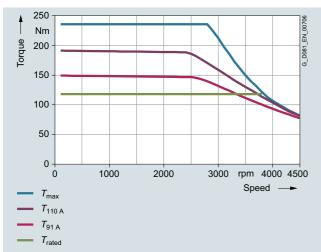
Torque limit for 440 VY (60-Hz characteristic)

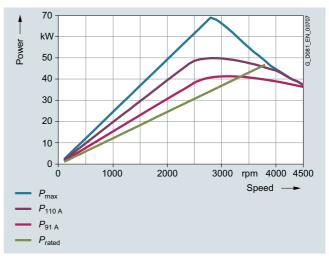
Power limit for 440 VY (60-Hz characteristic)

Orientation

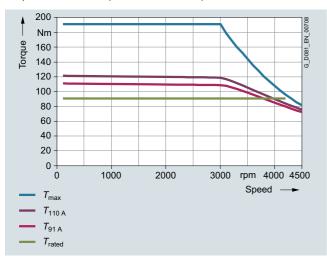
Technical specifications (continued)

The torque and power characteristics for converter configuration for the SIMOTICS SD 1FP1.14-2AF5 motor, frame size 200 with the particular motor voltage and circuit:

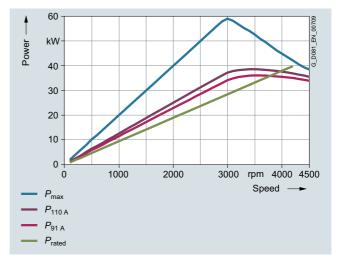




Torque limit for 380 VY (50-Hz characteristic)



Power limit for 380 VY (50-Hz characteristic)



Torque limit for 440 VY (60-Hz characteristic)

Power limit for 440 VY (60-Hz characteristic)

Orientation

Technical specifications (continued)

Additional information

Mechanical stress and grease lifetime

When motors are operated at speeds above the rated speed, the mechanical smooth running operation and the bearings are subjected to greater mechanical stress. This reduces the grease lifetime and the bearing lifetime.

Above 100 Hz, the motors must be balanced for twice the rated frequency; it can be expected that the lubrication intervals and bearing lifetime are significantly reduced.

Motor protection

A motor protection function can be implemented using the I^2t sensing function implemented in the converter software. If required, more precise motor protection can be afforded by direct temperature measurement using KTY84 sensors (standard scope of delivery) or PTC thermistors in the motor winding. Some converters from Siemens determine the motor temperature using the resistance of the temperature sensor. They can be set to a required temperature for alarm and tripping. When ordering PTC thermistors or other temperature sensors to monitor the cooling temperature, the KTY84 sensors, otherwise provided as standard, are eliminated. As described above, KTY84 sensors are evaluated in the SINAMICS converters.

Motor connection

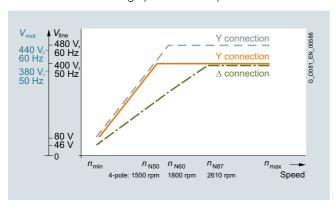
When connecting the motors, it is important to consider the restrictions for 1LE1 line motors as well as the maximum conductor cross-sections permitted for the converter.

Operating data for 50 Hz/60 Hz/87 Hz characteristics

SIMOTICS GP/SD VSD4000 line motors are designed for operation with 50-Hz, 60-Hz and 87-Hz characteristics (87-Hz characteristic up to frame size 200).

Operation with the 50-/60-Hz characteristic requires Y (star or wye) connection; operation with the 87-Hz characteristic requires Δ connection.

The corresponding power data are stamped on the rating plate as standard. An ordering option is not required.



Operating characteristics of SIMOTICS GP/SD VSD4000 line motors 1)

Maximum operating speed

The maximum operating speed is limited by the mechanical speed limit of the motors as well as the available converter output frequency.

A significant increase in the sound pressure level can be expected when operating the motor above its rated speed (field weakening range).

Mechanical speed limits SIMOTICS GP/SD VSD4000 line:

Rated power	Frame size	Mechanic	al speed lin	nit
		50 Hz		100 Hz
		SIMOTICS	3	SIMOTICS
		GP	SD	SD
		n_{max}	$n_{\rm max}$	n_{max}
kW		rpm	rpm	rpm
0.55	80	3200	3200	_
0.75	80	3200	3200	-
4	112	3200	3200	-
5.5	132	3200	3200	-
7.5	132	3200	3200	-
11	160	3000	3200	-
15	160	3000	3200	-
18.5	180	2610	3000	4600
22	180	2610	3000	4500
30	200	2610	3000	4500

International use

As special converter motors, SIMOTICS GP/SD VSD4000 line motors are presently not subject to any minimum efficiency requirements in the EU and USA/Canada. However, other national certificates may be required (e.g. CSA-S safety in Canada).

¹⁾ With V4.7 SP3, only a 50 Hz characteristic is possible.

Orientation

Technical specifications (continued)

Load characteristics for the line supply voltage: 3 AC 50 Hz 400 V

Load characteristic				SIMOTICS GP/SD VSD4000 line	SINAMICS G120
$T \sim n^2$	T = const.			motors	converters
	Speed control rang	je			
	1:2	1:4	1:10		
P_{max}	P_{max}	P_{max}	P_{max}		
kW	kW	kW	kW	Motor type	Converter type
Rated speed 1500	rpm				
	from 750 rpm	from 375 rpm	from 150 rpm		
0.55	0.27	0.13	0.05	1FP1.04-0DB2	6SL3210-1PE11-8.L0
0.75	0.37	0.18	0.07	1FP1.04-0DB3	6SL3210-1PE12-3.L0
4	2	1	0.4	1FP1.04-1BB2	6SL3210-1PE21-1.L0
5.5	2.65	1.07	0.33	1FP1.04-1CB0	6SL3210-1PE21-4.L0
7.5	3.6	1.45	0.45	1FP1.04-1CB2	6SL3211PE21-8.L0
11	5.31	2.14	0.66	1FP1.04-1DB2	6SL3210-1PE22-7.L0
15	7.2	2.91	0.9	1FP1.04-1DB4	6SL3211PE23-3.L0
18.5	8.94	3.61	1.11	1FP1.04-1EB2	6SL3210-1PE23-8.L0
22	10.61	4.29	1.32	1FP1.04-1EB4	6SL3210-1PE24-5.L0
30	14.48	5.85	1.8	1FP1.04-2AB5	6SL3210-1PE26-0.L0
Rated speed 3000	rpm				
	from 1500 rpm	from 750 rpm	from 300 rpm		
22	11	5.5	2.2	1FP1514-1EF2	6SL3210-1PE24-5.L0
30	15	7.5	3	1FP1514-2AF4	6SL3210-1PE26-5.L0
37	18.5	9.2	3.7	1FP1514-2AF5	6SL3210-1PE28-8.L0

Note:

The converter recommendation applies to standard ambient conditions (40 °C; 1000 m above sea level).

If, as a result of different ambient conditions, the rated motor power is significantly reduced, under certain circumstances, another converter is the optimum solution. Here, please use the configuration options for converters in the DT Configurator.

System power loss according to EN 50598-2 (draft)

The drive system comprising SIMOTICS GP/SD VSD4000 line synchronous-reluctance motors and SINAMICS G120 converters is, as a result of the minimal system power losses, especially suitable for applications in the full and partial load range that are optimized to achieve minimum lifecycle costs.

General conditions:

- CU230P-2 Control Unit
- Line voltage: 400 V 3 AC 50/60 Hz
- Output voltage: Up to 0.95 x line supply input voltage
- Inverter pulse frequency:
 4 kHz to 90 kW; 2 kHz from 110 kW
- In the standby mode, the converter does not supply any power to the motor (the inverter pulses are inhibited)
- In the standby operating mode, the Control Unit is operated from the internal or external 24 V DC electronics power supply
- Converters with vector control for synchronous-reluctance motors and flux reduction
- The operating points defined in the subsequent table already take into account the standby portions

SIMOTICS GP/SD VSD4000 line synchronous-reluctance motors with SINAMICS G120 PM240-2 Power Modules

_					_								
Rated	SIMOTICS GP/SD VSD4000	Frame size	PM240-2 Power Module	Frame size	-			ative $P_{V,r}$	el as a '	% referre	ed to P _{ra}	ted	IES class acc. to
powor	1FP10/1FP15	0.20		0.20		ting poir	แร						EN 50598-2
					at partial	load 1)						at rated load 1)	
					0/25	0/50	0/100	50/25	50/50	50/100	100/50		
kW	Type		Type		%	%	%	%	%	%	%	%	
	Itage 400 V 3 AC, 50/	60 H= ×0			70	70	/0	70	70	/0	/0	76	
		•		E0.4	44.00	40.50	00.00	10.01	10.00	00.00	45.04	04.40	150.0
0.55	1FP1.04-0DB2	80 M	6SL3210-1PE11-8.L0	FSA	11.30	13.50	20.38	10.31	13.90	22.00	15.24	24.43	IES 2
0.75	1FP1.04-0DB3	80 M	6SL3210-1PE12-3.L0	FSA	8.91	10.69	16.43	8.50	11.61	18.50	13.15	20.38	IES 2
4	1FP1.04-1BB2	112 M	6SL3210-1PE21-1.L0	FSA	3.31	4.99	10.59	3.81	6.04	12.07	7.31	13.83	IES 2
5.5	1FP1.04-1CB0	132 S	6SL3210-1PE21-4.L0	FSB	2.63	3.91	8.08	2.82	4.61	9.63	5.95	11.61	IES 2
7.5	1FP1.04-1CB2	132 M	6SL321■-1PE21-8.L0	FSB	2.24	3.47	7.82	2.73	4.39	9.22	5.90	11.32	IES 2
11	1FP1.04-1DB2	160 M	6SL3210-1PE22-7.L0	FSC	1.97	3.01	6.57	2.16	3.63	7.81	4.68	9.26	IES 2
15	1FP1.04-1DB4	160 L	6SL321■-1PE23-3.L0	FSC	1.65	2.67	5.76	1.77	2.97	6.79	3.77	8.01	IES 2
18.5	1FP1.04-1EB2	180 M	6SL3210-1PE23-8.L0	FSD	1.71	2.44	4.83	1.91	3.10	6.10	4.17	7.55	IES 2
22	1FP1.04-1EB4	180 L	6SL3210-1PE24-5.L0	FSD	1.66	2.37	4.71	1.85	3.09	5.97	4.19	7.46	IES 2
30	1FP1.04-2AB5	200 L	6SL3210-1PE26-0.L0	FSD	1.57	2.34	4.78	1.75	2.88	5.93	3.72	7.19	IES 2
Line vo	Itage 400 V 3 AC, 50/	60 Hz, ra	ted speed 3000 rpm										
22	1FP1514-1EF4	180 L	6SL3210-1PE24-5.L0	FSD	1.46	2.01	3.88	2.02	3.14	5.49	5.53	8.49	IES 2
30	1FP1514-2AF4	200 L	6SL3210-1PE26-0.L0	FSD	1.3	1.88	3.91	1.83	2.89	5.36	4.77	7.95	IES 2
37	1FP1514-2AF5	200 L	6SL3210-1PE28-8.L0	FSD	1.29	1.76	3.26	1.8	2.77	4.73	4.72	7.15	IES 2
	Standard		0	_									
	Push-through		1										
	r usii-tiiiougii		•										

 $^{^{1)}}$ Output frequency, rel. [%] referred to the rated speed/ Torque, rel. [%] referred to the rated torque $\mathcal{T}_{\rm rated}.$

Orientation

Article number code

Selection and ordering data

The article number consists of a combination of digits and letters and is divided into three hyphenated blocks to provide a better overview, e.g.:

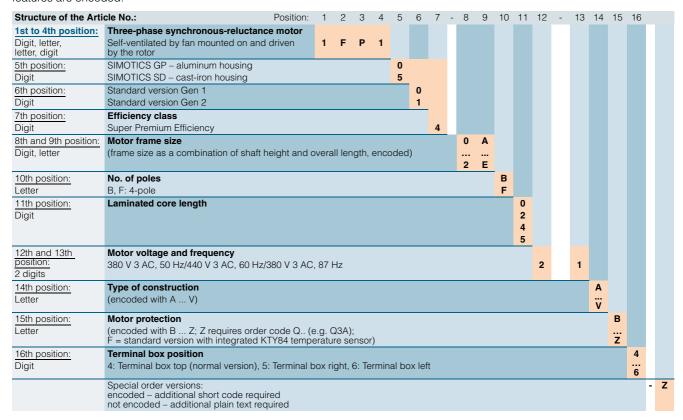
1FP1504-1DB42-1GF4-Z H00

The first block (positions 1 to 7) identifies the motor type. The second block (positions 8 to 12) defines the motor frame size and length, the number of poles and in some cases the frequency/voltage. In the third block (positions 13 to 16), the frequency/voltage, type of construction and further design features are encoded.

For deviations in the second and third block from the catalog codes either **Z** or **90** should be used as appropriate.

Ordering data:

- Complete Article No. and order code(s) or plain text
- If a quotation has been requested, please specify the quotation number in addition to the Article No.
- When ordering a complete motor as a spare part, please specify the works serial No. for the previously supplied motor as well as the Article No.



Ordering example:

Selection criteria	Requirement	Structure of the Article No.
1FP10 motor type	Standard motor for converter operation SIMOTICS GP VSD4000 line, aluminum version, rated power at $P_{\rm rated}$ 50 with 15 kW, $P_{\rm rated}$ 60 with 17.3 kW or $P_{\rm rated}$ 67 with 23.5 kW	1FP1004-
Motor frame size	160 L	1FP1004-1D E 4 E-EEEE
No. of poles	4-pole	1FP1004-1DB4 E-EEEE
Motor voltage and frequency	380 V 3 AC, 50 Hz/440 V 3 AC, 60 Hz/380 V 3 AC, 87 Hz	1FP1004-1DB42-1
Type of construction with special version	IM V5 with protective cover 1)	1FP1004-1DB42-1C■■-Z H00
Motor protection	Motor protection with PTC thermistors with 1 or 3 embedded temperature sensors for tripping	1FP1004-1DB42-1CB■-Z H00
Terminal box position	Terminal box right (viewed from DE)	1FP1004-1DB42-1CB5-Z H00

¹⁾ Standard without protective cover – the protective cover is defined with order code H00 and must be ordered in addition to the Article No. with -Z and this order code.

1FP10.4 aluminum series – Super Premium Efficiency

Self-ventilated, enclosed motors – line voltage 400 V, 50 Hz/480 V, 60 Hz/400 V, 87 Hz

Selection and ordering data Operating values at rated power 1F

					Operatin	g values at ra	ated power		1FP10.4 aluminum series		
rated 60 Hz, 900 V	P _{rated} 60 Hz, 480 V	P _{rated} 87 Hz, 400 V	Frame size	Connection	f _{rated}	T _{rated}	η _{rated, 4/4} for converter operation	$\cos arphi_{ m rated, \ 4/4}$	I _{rated}	Version specifically for converter operation	
										Article No.	
(W	kW	kW			Hz	Nm	%		Α		
			•							nal class F according to B	
Operatio				with uncon	trolled inf	eed – rated	voltage 380 V,	50 Hz/440 V, 6	0 Hz/380 \	/, 87 Hz	
1500 rpm	1800 rpm	2610 rpm									
).55			80 M	Υ	50	3.5	83.9	0.63	1.6	1FP1004-0DB2	
	0.63		_	Υ	60	3.4	84.0	0.62	1.6		
		0.95		Δ	87	3.5	87.4	0.62	2.7		
.75			80 M	Υ	50	4.8	85.7	0.62	2.2	1FP1004-0DB3	
	0.86		_	Υ	60	4.6	85.5	0.62	2.2		
		1.3		Δ	87	4.8	88.8	0.62	3.6		
4			112 M	Υ	50	25.5	91.1	0.67	10.0	1FP1004-1BB2	
	4.55		_	Υ	60	24.0	91.0	0.68	9.6		
		6.9	_	Δ	87	25.5	92.0	0.67	17.0	_	
.5			132 S	Υ	50	35.0	91.9	0.70	13.0	1FP1004-1CB0 ■-■■■■	
	6.3		_	Υ	60	33.5	92.4	0.70	12.8	_	
		9.5	_	Δ	87	35.0	91.3	0.70	22.5	_	
.5			132 M	Υ	50	47.5	92.6	0.72	17.1	1FP1004-1CB2	
	8.6		_	Υ	60	45.5	92.4	0.73	16.7	_	
		13	_	Δ	87	47.5	92.0	0.72	30.0	_	
1			160 M	Υ	50	70.0	93.3	0.73	24.5	1FP1004-1DB2	
	12.6		_	Υ	60	67.0	93.6	0.73	24.0	-	
		19	_	Δ	87	70.0	92.7	0.73	43.0	-	
5			160 L	Y	50	95.0	93.9	0.72	33.5	1FP1004-1DB4	
-	17.3			Y	60	92.0	94.5	0.73	33.0		
	-	26	_	Δ	87	95.0	93.3	0.72	59.0		
8.5			180 M ¹⁾	Y	50	118.0	94.2	0.71	42.0	1FP1014-1EB2	
	21.3			Y	60	113.0	94.2	0.72	41.0		
	•	32	_	Δ	87	118.0	94.5	0.71	73.0		
2			180 L ¹⁾	Y	50	140.0	93.6	0.72	49.0	1FP1014-1EB4	
_	25.3			Y	60	134.0	94.5	0.73	48.0		
	_5.0	38.1	_	$\frac{1}{\Delta}$	87	140.0	94.5	0.72	48.0		
0		55.1	200 L ¹⁾	Y	50	191.0	93.9	0.72	68.0	1FP1014-2AB5	
	34.5		_ 200 L ′	Y	60	183.0	95.9	0.71	66.0	11 1- 1014-2AD3	
	J-1.J	52	_	Λ	87			0.72	118.0		
				Δ pecial version		191.0	94.4	U./ I	110.0	1.1111	

All technical specifications refer to converter operation.

1FP10.4 aluminum series – Super Premium Efficiency

Self-ventilated, enclosed motors – line voltage 400 V, 50 Hz/480 V, 60 Hz/400 V, 87 Hz

Motor type	m _{IM B3}	J	L _{pfA} , tolerance +3 dB(A) load	L _{WA} , tolerance +3 dB(A) load	Mech. speed limit	Terminal box	Converter SINAMICS G120 – PM240-2 Operating mode: Low overload	Frame size	IES class acc. to EN 50598-2
	kg	kgm ²	dB(A)	dB(A)	rpm	Type	Type ²⁾		
1FP1004-0DB2	11	0.0019	69.0	81.0	3200	TB1E00	6SL3210-1PE11-8.L0	FSA	IES 2
IFP 1004-0DB2	11	0.0019	69.0	81.0	3200	IBIEUU	6SL3210-1PE11-8.L0	FSA	IES 2
							6SL3210-1PE11-6.L0	FSA	IES 2
1FP1004-0DB3	14	0.0025	69.0	81.0	3200	TB1E00	6SL3210-1PE12-3.L0	FSA	IES 2
1FP 1004-0DB3	14	0.0025	69.0	81.0	3200	IBIEUU	6SL3210-1PE12-3.L0	FSA	IES 2
							6SL3210-1PE12-3.L0 6SL3210-1PE14-3.L0	FSA	IES 2
1FP1004-1BB2	36	0.0100	64.0	76.0	3200	TB1F00	6SL3210-1PE14-3.L0 6SL3210-1PE21-1.L0	FSA	IES 2
IFP 1004-1662	30	0.0108	64.0	76.0	3200	IBIFUU	6SL3210-1PE21-1.L0	FSA	IES 2
							6SL3210-1PE21-1.L0	FSB	IES 2
1FP1004-1CB0	51	0.0210	68.0	81.0	3200	TB1H00	6SL3210-1PE21-8.L0	FSB	IES 2
IFP 1004-10B0	51	0.0210	72.0	86.0	3200	161000	6SL3210-1PE21-4.L0	FSB	IES 2
			72.0	00.0			6SL3210-1PE21-4.L0	FSC	IES 2
1FP1004-1CB2	62	0.0255	64.0	77.0	3200	TB1H00	6SL3210-1PE22-7.L0 6SL3210-1PE21-8.L0	FSB	IES 2
IFF 1004-10b2	02	0.0255	68.0	82.0	3200	1611100	6SL3210-1PE21-8.L0	FSB	IES 2
			08.0	82.0			6SL3210-1PE21-8.L0 6SL3210-1PE23-3.L0	FSC	IES 2
1FP1004-1DB2	72	0.0430	75.0	88.0	3000	TB1J00	6SL3210-1PE23-3.L0	FSC	IES 2
IFF 1004-1DB2	12	0.0430	79.0	93.0	3000	161300	6SL3210-1PE22-7.L0	FSC	IES 2
			79.0	93.0			6SL3210-1PE23-8.L0	FSD	IES 2
1FP1004-1DB4	90	0.0564	77.0	90.0	3000	TB1J00	6SL3210-1PE23-3.L0	FSC	IES 2
IFF 1004-1DB4	90	0.0564	81.0	95.0	3000	161300	6SL3210-1PE23-8.L0	FSC	IES 2
			01.0	95.0			6SL3210-1PE26-0.L0	FSD	IES 2
1FP1014-1FB2	132	0.1164	71.0	83.0	2610	TB1J00	6SL3210-1PE23-8.L0	FSD	IES 2
III 1014-1LD2	102	0.1104	73.0	85.0		101300	6SL3210-1PE24-5.L0	FSD	IES 2
			73.0	05.0			6SL3210-1PE27-5.L0	FSE	IES 2
1FP1014-1EB4	144	0.1325	71.0	83.0	2610	TB1J00	6SL3210-1PE24-5.L0	FSD	IES 2
11 10 14-1LD4.*	144	0.1020	73.0	85.0		101000	6SL3210-1PE26-0.L0	FSD	IES 2
			70.0	55.5			6SL3210-1PE28-8.L0	FSE	IES 2
1FP1014-2AB5	171	0.1764	76.3	88.3	2610	TB1L00	6SL3210-1PE26-0.L0	FSE	IES 2
11 10 14-2AD0.4	17.1	0.1704	77.7	89.7		IDILOO	6SL3210-1PE27-5.L0	FSD	IES 2
			11.1	55.1			6SL3210-1PE31-5.L0	FSF	IES 2

 $^{^{\}rm 1)}$ For the motor type 1FP10 of the SIMOTICS GP series, frame sizes 180 and 200 on request.

²⁾ In addition to the Power Module, a CU230P-2 Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

1FP15.4 cast-iron series – Super Premium Efficiency

Self-ventilated, enclosed motors – line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz

Selection and ordering data

					Operatin	ng values at r	ated power			1FP15.4 cast-iron series
rated 0 Hz, 00 V	P _{rated} 60 Hz, 480 V	P _{rated} 87 Hz, 400 V	Frame size	Connection	f _{rated}	$T_{\rm rated}$	$\eta_{ m rated, 4/4}$ for converter operation	COS $\phi_{\text{rated}, 4/4}$	I _{rated}	Version specifically for converter operation
										Article No.
:W	kW	kW			Hz	Nm	%		Α	▲ New
			•		_					mal class F according to B
Operati	on with a SIN	IAMICS G12	0 converte	r with uncon	itrolled in	feed – rated	voltage 380 V,	, 50 Hz/440 V, 6	0 Hz/380	V, 87 Hz
000 rpm	3600 rpm		4-pole							
2			180 M	Υ	100	70	94.0	0.71	50	▲ 1FP1514-1EF2 ■-■■■
	25.3			Υ	120	67	93.0	0.71	50	
0			200 L	Υ	100	96	94.5	0.72	67	▲ 1FP1514-2AF4 ■-■■■
	34.5			Υ	120	91	94.1	0.72	67	
7			200 L	Υ	100	118	94.8	0.72	82	▲ 1FP1514-2AF5 ■-■■■
	42.5			Υ	120	112	94.5	0.73	81	
500 rpm	1800 rpm	2610 rpm	4-pole							
.55			80 M	Υ	50	3.5	83.9	0.63	1.6	1FP1504-0DB2 ■-■■■
	0.63		_	Υ	60	3.4	84.0	0.62	1.6	
		0.95	_	Δ	87	3.5	87.4	0.62	2.7	
.75			80 M	Υ	50	4.8	85.7	0.62	2.2	1FP1504-0DB3 ■-■■■
	0.86		_	Υ	60	4.6	85.5	0.62	2.2	
		1.3	_	Δ	87	4.8	88.8	0.62	3.6	
			112 M	Υ	50	25.5	91.1	0.67	10.0	1FP1504-1BB2 ■-■■■
	4.55			Υ	60	24.0	91.0	0.68	9.6	
		6.9		Δ	87	25.5	92.0	0.67	17.0	
.5			132 S	Υ	50	35.0	91.9	0.70	13.0	1FP1504-1CB0 ■-■■■
	6.3			Υ	60	33.5	92.4	0.70	12.8	
		9.5		Δ	87	35.0	91.3	0.70	22.5	
.5			132 M	Υ	50	47.5	92.6	0.72	17.1	1FP1504-1CB2 ■-■■■
	8.6			Υ	60	45.5	92.4	0.73	16.7	_
		13		Δ	87	47.5	92.0	0.72	30.0	
1			160 M	Υ	50	70.0	93.3	0.73	24.5	1FP1504-1DB2
	12.6		_	Υ	60	67.0	93.6	0.73	24.0	
		19	_	Δ	87	70.0	92.7	0.73	43.0	
5			160 L	Υ	50	95.0	93.9	0.72	33.5	1FP1504-1DB4
	17.3		_	Υ	60	92.0	94.5	0.73	33.0	
		26	_	Δ	87	95.0	93.3	0.72	59.0	
8.5			180 M	Υ	50	118.0	94.2	0.71	42.0	1FP1514-1EB2
	21.3		_	Υ	60	113.0	94.5	0.72	41.0	
		32	_	Δ	87	118.0	93.6	0.71	73.0	
2			180 L	Υ	50	140.0	94.5	0.72	49.0	1FP1514-1EB4 ■-■■■
	25.3		_	Υ	60	134.0	94.5	0.73	48.0	
		38.1	_	Δ	87	140.0	93.9	0.72	86.0	
0			200 L	Y	50	191.0	94.9	0.71	68.0	1FP1514-2AB5
	34.5			Y	60	183.0	95.4	0.72	66.0	
		52	_	Δ	87	191.0	94.4	0.71	118.0	_

All technical specifications refer to converter operation.

1FP15.4 cast-iron series – Super Premium Efficiency

Self-ventilated, enclosed motors – line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz

Motor type	m _{IM B3}	J	L _{pfA} , tolerance +3 dB(A) load	L _{WA} , tolerance +3 dB(A) load	Mech. speed limit	Terminal box	Converter SINAMICS G120 – PM240-2 Operating mode: Low overload	Frame size	IES class acc. to EN 50598-2
	kg	kgm ²	dB(A)	dB(A)	rpm	Type	Type 1)		
	ng	Ngili	GD(71)	GB(/T)	тртт	туро	1,500		
1FP1514-1EF2	144	0.0873	73.0	86.0	4600	TB1J00	6SL3210-1PE24-5.L0	FSD	IES 2
			75	88	_		6SL3210-1PE24-5.L0	FSD	IES 2
1FP1514-2AF4	187	0.1277	73.0	86.0	4500	TB1L01	6SL3210-1PE26-0.L0	FSD	IES 2
			76	89	_		6SL3210-1PE26-0.L0	FSD	IES 2
1FP1514-2AF5	222	0.1884	73.0	86.0	4500	TB1L01	6SL3210-1PE28-8.L0	FSE	IES 2
			76	89	_		6SL3210-1PE28-8.L0	FSE	IES 2
1FP1504-0DB2	19	0.0019	69.0	81.0	3200	TB1D01	6SL3210-1PE11-8.L0	FSA	IES 2
							6SL3210-1PE11-8.L0	FSA	IES 2
							6SL3210-1PE13-2.L0	FSA	IES 2
1FP1504-0DB3	23	0.0025	69.0	81.0	3200	TB1D01	6SL3210-1PE12-3.L0	FSA	IES 2
							6SL3210-1PE12-3.L0	FSA	IES 2
							6SL3210-1PE14-3.L0	FSA	IES 2
1FP1504-1BB2	46	0.0108	64.0	76.0	3200	TB1F01	6SL3210-1PE21-1.L0	FSA	IES 2
							6SL3210-1PE21-1.L0	FSA	IES 2
							6SL3210-1PE21-8.L0	FSB	IES 2
1FP1504-1CB0	68	0.0210	68.0	81.0	3200	TB1H01	6SL3210-1PE21-4.L0	FSB	IES 2
			72.0	86.0			6SL3210-1PE21-4.L0	FSB	IES 2
							6SL3210-1PE22-7.L0	FSC	IES 2
1FP1504-1CB2	80	0.0255	64.0	77.0	3200	TB1H01	6SL3210-1PE21-8.L0	FSB	IES 2
			68.0	82.0			6SL3210-1PE21-8.L0	FSB	IES 2
							6SL3210-1PE23-3.L0	FSC	IES 2
1FP1504-1DB2	100	0.0430	75.0	88.0	3200	TB1J01	6SL3210-1PE22-7.L0	FSC	IES 2
			79.0	93.0			6SL3210-1PE22-7.L0	FSC	IES 2
							6SL3210-1PE23-8.L0	FSD	IES 2
1FP1504-1DB4	122	0.0564	77.0	90.0	3200	TB1J01	6SL3210-1PE23-3.L0	FSC	IES 2
			81.0	95.0			6SL3210-1PE23-8.L0	FSC	IES 2
							6SL3210-1PE26-0.L0	FSD	IES 2
1FP1514-1EB2	166	0.1155	69.0	82.0	3000	TB1J01	6SL3210-1PE23-8.L0	FSD	IES 2
			70.0	83.0			6SL3210-1PE24-5.L0	FSD	IES 2
			76.0	89.0			6SL3210-1PE27-5.L0	FSE	IES 2
1FP1514-1EB4	182	0.1315	69.0	82.0	3000	TB1J01	6SL3210-1PE24-5.L0	FSD	IES 2
			70.0	83.0			6SL3210-1PE26-0.L0	FSD	IES 2
			76.0	89.0			6SL3210-1PE28-8.L0	FSE	IES 2
1FP1514-2AB5	220	0.1884	68.0	81.0	3000	TB1L01	6SL3210-1PE26-0.L0	FSE	IES 2
			70.0	83.0			6SL3210-1PE27-5.L0	FSD	IES 2
			73.0	86.0			6SL3210-1PE31-5.L0	FSF	IES 2

¹⁾ In addition to the Power Module, a CU230P-2 Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

Article No. supplements and special versions

Voltages - 1FP10.4 aluminum series

Selection and ordering data Voltages Article No. supplement Frame size Motor version Article No. supplement Voltage code 12th and 13th position of the Article No. Additional identification order code and plain text if required Additional identifi-112 132 160 180 200 1FP10.4 Super Premium Efficiency **1FP10.4-....** □ **-** ■ **...** Order code Voltage at 50 Hz or 60 Hz Line voltage: 50 Hz, 400 V 60 Hz, 480 V

Standard version

Article No. supplements and special versions

Voltages - 1FP15.4 cast-iron series

Selection and ordering data Voltages Article No. supplement Frame size Motor version Voltage code 12th and 13th position of the Article No. Additional identifi-112 132 160 180 200 1FP15.4 Super Premium Efficiency cation code with order code and plain text if required **1FP15.4-...** □ **-** ■ **...** Order code Voltage at 50 Hz or 60 Hz Line voltage: 50 Hz, 400 V 60 Hz, 480 V

Standard version

Article No. supplements and special versions

Types of construction – 1FP10.4 aluminum series

Selection and order	_									
Types of construction		Article No. s		Frame siz						Motor version
		Type of construc-	For types of construc-	80 1ED10.4	112	132	160	180	200	Super Premium Efficiency
		tion code letter 14th	tion with order	1FP10.4						Super Premium Eniciency
		position	code(s)							
		of the Article No.	Article No. with addi-							
			tional iden- tification							
			code -Z							
1FP10).4	■ (-Z)	Order code							
Without flange										
IM B3 ^{1) 2)}	т П	A	-							
IM B6 ²⁾		Т	-				_			
	(()									
IM B7 ²⁾		U	_	0	-	_	_	_	0	
IIVI D/		U	_	_	_		_		u	
	()									
IM B8 ²⁾		V	-	0	0					
IM V6 ²⁾	ТД	D	-	0	_					
IM V5		С	_	0	0					
without protective cover ²⁾										
protective cover										
IM V5		С	H00	1	/	/	/	/	1	
with protective cover ^{2) 3) 4)}		Ĭ		ľ	·	·	·	•	·	
protective cover 7 7 7										
	T I									
With flange		Acc. to EN		FF165	FF215	FF265	FF300	FF300	FF350	
IM B5 ^{2) 5)}		Acc. to DIN	42948	A 200	A 250	A 300	A 350	A 350	A 400	
IM B5 ² / ³ /	лні і і	F	_	✓	1	1	1	✓	1	
IM V1		G	-	1	1	1	1	1	1	
without protective cover ²⁾										
	#									
IM V1		G	H00	1	√	✓	/	✓	✓	
with		-	1100	•	•	•	•	•	•	
protective cover ^{2) 4)}										
IM V3 ³⁾		н	_	1	√	✓	√	✓	√	
IIVI VO				•	•	•	•	•	•	
IM B35	al T	J	-	1	1	1	1	1	1	

Article No. supplements and special versions

Types of construction – 1FP10.4 aluminum series

Types of construction	Article No. :	supplement For types	Frame siz	⊻e 112	132	160	180	200	Motor version
	construc-	of construc-	1FP10.4	112	102	100	100	200	Super Premium Efficiency
	tion code letter 14th position of the Article No.	tion with order code(s) Article No. with addi- tional iden- tification code -Z							
1FP10.4	. ■ (-Z)	Order code							
With flange	Acc. to EN		FT100	FT130	FT165	FT215			
	Acc. to DIN	42948	C 120	C 160	C 200	C 250	-	_	
IM B14 ^{2) 6)}	K	-	✓	√	√	√	_	_	
IM V19 ²⁾		-	√	V	V	✓	-	-	
IM V18 without protective cover ²⁾	М	-	√	V	V	√	-	-	
IM V18 with protective cover ^{2) 3) 4)}	M	H00	✓	√	√	✓ ·	-	-	
IM B34	N	-	✓	√	√	1	-	-	
With special flange next largest	Acc. to EN Acc. to DIN		FT130 C 160	FT165 C 200	FT215 C 250				
IM B14 ^{2) 6)}	K	P01	✓	√	√	-	-	-	
IM V19 ²⁾		P01	V	V	1	-	-	-	
IM V18 without protective cover ²⁾	М	P01	√	V	1	-	-	-	
IM V18 with protective cover ^{2) 4) 5)}	M	P01+H00	1	√	√	-	-	-	
IM B34 ³⁾	N	P01	-	-	√	-	-	_	

Article No. supplements and special versions

Types of construction - 1FP10.4 aluminum series

Types of construction	Article No. s	supplement	Frame siz	ze					Motor version
	Type of	For types	80	112	132	160	180	200	
	construc- tion code	of construc- tion with	1FP10.4						Super Premium Efficiency
	letter 14th position of the Article No.	order code(s) Article No. with additional identification code -Z							
1FP10.4	■ (-Z)	Order code							
With special flange	Acc. to EN	50347	-	FT130	FT130	FT165	-	-	
next smallest	Acc. to DIN	1 42948		C 160	C 160	C 200			
쒭	K	P02	-	O. R.	O. R.	O. R.	_	-	
IM V19 ²⁾	L	P02	-	O. R.	O. R.	O. R.	-	-	
IM V18 without protective cover ²⁾	М	P02	-	O. R.	O. R.	O. R.	-	-	
IM V18 with protective cover 2) 3) 4) 5)	М	P02+H00	-	O. R.	O. R.	O. R.	-	-	
IM B34	N	P02	-	O. R.	O. R.	O. R.	-	-	

Standard version With additional charge O.R. Possible on request

Not possible

¹⁾ The types of construction IM B6/7/8, IM V6, and IM V5 with/without protective cover are also possible as long as no condensation drainage holes (order code **H03**) and no stamping of these types of construction on the rating plate are required. As standard the type of construction IM B3 is then stamped on the rating plate. With type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

²⁾ The type of construction is stamped on the rating plate. For orders with condensation drainage holes (order code H03), if mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

³⁾ The "Second shaft extension" option (order code **L05**) is not possible

⁴⁾ In combination with an encoder, it is not necessary to order the protective cover (order code **H00**), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard version (without additional charge).

⁵⁾ The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as no condensation drainage holes (order code H03) and no stamping of these types of construction on the rating plate are required. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

⁶⁾ The types of construction IM V19 and IM V18 with/without protective cover are also possible as long as no condensation drainage holes (order code H03) and no stamping of these types of construction on the rating plate are required. As standard the type of construction IM B14 is then stamped on the rating plate. With type of construction IM V18 with protective cover, the protective cover has to be additionally ordered with order code H00. The protective cover is not stamped on the rating plate

Article No. supplements and special versions

Types of construction – 1FP15.4 cast-iron series

					•				
Selection and ordering data									
Types of construction	Article No. :	supplement	Frame siz	ze					Motor version
	Type of	For types	80	112	132	160	180	200	
	construc- tion code	of construc- tion with	1FP15.4						Super Premium Efficiency
	letter 14th	order							
	position of the	code(s) Article No.							
	Article No.	with addi-							
		tional iden-							
		tification code -Z							
1FP15.4	(-7)	Order code							
Without flange	(2)	Oraci coac							
IM B3 ^{1) 2)}	A	_	0	_	_	_	_		
				_	_	_	_	_	
IM B6 ²⁾	Т	-							
IM B7 ²⁾	U	-							
IM B8 ²⁾	V	_							
IM V6 ²⁾	D		0	_			0		
IIVI Vo =/	D	_	u	ч	Ц		Ц	Ц	
3									
IM V5	С	_	0						
without									
protective cover ²⁾									
T 1									
IM V5	С	H00	1	✓	✓	✓	✓	✓	
with protective cover ^{2) 3) 4)}									
T									
With flange	Acc. to EN	50347	FF165	FF215	FF265	FF300	FF300	FF350	
	Acc. to DIN	42948	A 200	A 250	A 300	A 350	A 350	A 400	
IM B5 ^{2) 6)}	F	-	1	1	✓	✓	✓	✓	
IM V1	G	_	1	/	/	/	/	✓	
without	G	_	•	•	•	•	•	•	
without protective cover ²⁾									
-									
IM V1	G	H00	1	/	/	/	1	√	
with	ŭ	1100	•	•	•	•	•	•	
protective cover ^{2) 3) 4)}									
IM V3 ⁴⁾	Н	-	1	1	✓	✓	✓	✓	
IM B35	J	-	1	1	1	1	1	√	
" "									

Article No. supplements and special versions

Types of construction - 1FP15.4 cast-iron series

Types of construction	Article No. s	supplement For types	Frame siz	te 112	132	160	180	200	Motor version
	construc-	of construc-	1FP15.4	112	102	100	100	200	Super Premium Efficiency
	tion code letter 14th position of the Article No.	tion with order code(s) Article No. with addi- tional iden- tification code -Z							<u> </u>
1FP15.4		Order code							
With flange	Acc. to EN		FT100	FT130	FT165	FT215			
	Acc. to DIN	42948	C 120	C 160	C 200	C 250	_	_	
IM B14 ^{2) 6)}	K	-	√	√	√	√	-	-	
IM V19 ²⁾	_	_	√	√	√	√	-	-	
IM V18 without protective cover ²⁾	M	_	✓	√	√	√	-	-	
IM V18 with protective cover ^{2) 3) 4)}	M	H00	✓	√	✓	✓	-	-	
IM B34	N	-	✓	√	/	/	-	-	
With special flange next largest	Acc. to EN Acc. to DIN				FT215 C 250				
IM B14 ^{2) 6)}	K	P01	-	-	1	-	-	-	
IM V19 ²⁾		P01	-	-	1	-	-	-	
IM V18 without protective cover ²⁾	М	P01	-	-	1	-	-	-	
IM V18 with protective cover ^{2) 3) 4)}	М	P01+H00	_	-	1	-	-	-	
IM B34	N	P01	-	-	1	-	_	-	

- Standard version
- ✓ With additional charge
- Not possible

¹⁾ The types of construction IM B6/7/8, IM V6 and IM V5 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B3 is then stamped on the rating plate. With type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code H00. The protective cover is not stamped on the rating plate.

²⁾ The type of construction is stamped on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

³⁾ In combination with an encoder, it is not necessary to order the protective cover (order code **H00**), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard design (without additional charge).

⁴⁾ The "Second shaft extension" option (order code **L05**) is not possible.

⁵⁾ The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code H00. The protective cover is not stamped on the rating plate.

⁶⁾ The types of construction IM V19 and IM V18 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B14 is then stamped on the rating plate. With type of construction IM V18 with protective cover, the protective cover has to be additionally ordered with order code H00. The protective cover is not stamped on the rating plate.

Article No. supplements and special versions

Motor protection – 1FP10.4 aluminum series

Selection and ordering data

Motor protection	Article No. su	pplement	Frame siz	:e					Motor version
	Motor	Additional	80	112	132	160	180	200	
	protection code letter	identifica- tion code	1FP10.4						Super Premium Efficiency
	15th position	with order							
	of the Article No.	code and plain text if required							
1FP10.4	•.	Order code							
Motor protection									
1 or 3 PTC thermistors – for tripping (2 terminals) 1)	В	-	✓	✓	✓	✓	✓	✓	
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) 1)	С	-	✓	✓	✓	✓	✓	✓	
1 KTY84-130 temperature sensor (2 terminals) 1)	F	-	0	0	_	0	_	0	
2 KTY84-130 temperature sensors (4 terminals) 1)	G	-	✓	✓	✓	✓	✓	✓	
3 Pt100 resistance thermometers 2-wire input (6 terminals) 1)	H New!	-	-	✓	✓	✓	✓	✓	
1 Pt1000 resistance thermometer (2 terminals) ²⁾	K	-	✓	✓	✓	✓	✓	✓	
2 Pt1000 resistance thermometers (4 terminals) ²⁾	L	-	1	1	1	1	✓	✓	
1 Pt100 resistance thermometer 2-wire input (2 terminals)	P New!	-	-	-	1	1	✓	✓	
3 Pt100 resistance thermometers 3-wire input (9 terminals)	Q New!	-	_	_	✓	✓	✓	✓	
6 Pt100 resistance thermometers 3-wire input (18 terminals) 1)	R New!	-	-	-	✓	✓	✓	✓	
3 bimetal sensors (NC contacts) for tripping (2 terminals) 1)	Z	Q3A	✓	✓	✓	✓	✓	✓	

Standard version

[□] **✓** With additional charge

¹⁾ Evaluation with associated tripping unit (see Catalog IC 10) is recommended.

²⁾ Not UL-certified. Not in combination with option D39.

Article No. supplements and special versions

Motor protection – 1FP15.4 cast-iron series

Selection and ordering data

Motor protection	·	pplement	Frame siz	e					Motor version
	Motor	Additional	80	112	132	160	180	200	
	protection code letter	identifica- tion code	1FP15.4						Super Premium Efficiency
	15th position of the Article No.	with order code and plain text if required							
1FP15.4	•	Order code							
Motor protection									
1 or 3 PTC thermistors – for tripping (2 terminals) 1)	В	-	1	1	1	1	✓	✓	
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) 1)	С	-	1	1	1	1	✓	✓	
1 KTY84-130 temperature sensor (2 terminals) 1)	F	-						0	
2 KTY84-130 temperature sensors (4 terminals) 1)	G	-	1	1	1	1	✓	1	
1 Pt1000 resistance thermometer (2 terminals) ²⁾	K	-	1	1	1	1	✓	1	
2 Pt1000 resistance thermometers (4 terminals) ²⁾	L	-	1	1	1	1	✓	1	
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	P	-	-	1	1	1	✓	1	
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	Q	-	-	1	1	1	✓	1	
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	R	-	-	1	1	1	✓	1	
3 bimetal sensors (NC contacts) for tripping (2 terminals) 1)	Z	Q3A	1	✓	✓	✓	✓	✓	
6 × bimetal sensors (NC contacts) for alarm and tripping (4 terminals) 1)	Z	Q9A	-	✓	1	√	✓	✓	

Standard version With additional charge Not possible

¹⁾ Evaluation with associated tripping unit (see Catalog IC 10) is recommended.

²⁾ Not UL-certified. Not in combination with option D39.

Article No. supplements and special versions

Terminal box position – 1FP10.4 aluminum series

Selection and ordering data

Terminal box position	Article No. s	supplement	Frame siz	ze					Motor version
4	Terminal	Additional	80	112	132	160	180	200	
	box position	identifica- tion code with order code and plain text if required	1FP10.4						Super Premium Efficiency
6 6 7	code 16th position of the Article No.								
1FP10.4	•	Order code							
Terminal box position									
Terminal box top 1)	4	-							
Terminal box right-hand side ²⁾	5	_	1	✓	✓	✓	✓	✓	
Terminal box left-hand side ²⁾	6	-	1	✓	✓	✓	✓	✓	
Terminal box bottom ²⁾	7 New!	-	-	✓	1	✓	-	-	

■ Standard version✓ With additional charge

¹⁾ For types of construction with feet, cast feet are standard. Screwed-on feet are available with order code **H01**.

²⁾ For foot-mounted designs, screwed-on feet are standard.

Article No. supplements and special versions

Terminal box position – 1FP15.4 cast-iron series

Selection and ordering data

Terminal box position	Article No. s	supplement	Frame siz	:e					Motor version
4	Terminal	Additional	80	112	132	160	180	200	
	box position	identifica- tion code	1FP15.4						Super Premium Efficiency
6 (5	code 16th position	with order code and plain text if required							
1FP15.4	•	Order code							
Terminal box position									
Terminal box top 1)	4	_							
Terminal box right-hand side ²⁾	5	_	1	✓	✓	✓	✓	✓	
Terminal box left-hand side ²⁾	6	-	1	✓	✓	✓	✓	✓	
Terminal box bottom ²⁾	7 New!	-	-	/	/	/	-	-	

■ Standard version✓ With additional charge

¹⁾ For types of construction with feet, cast feet are standard. Screwed-on feet are available with order code H01.

²⁾ For foot-mounted designs, screwed-on feet are standard.

Article No. supplements and special versions

Options – 1FP10.4 aluminum series

								Ориона	TFF 10.4 aluminum series
Selection and ordering data									
Special versions	Additional i		Frame siz	:e					Motor version
	fication cod with order of	code	80	112	132	160	180	200	0
	and plain to	ext	1FP10.4						Super Premium Efficiency
1FP10.4 Z		Э							
Motor protection									
1 or 3 PTC thermistors – for tripping (2 terminals) ^{2) 3)}	Q11		✓	✓	✓	1	✓	✓	
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) ³⁾	Q12		✓	1	✓	1	✓	✓	
1 KTY84-130 temperature sensor (2 terminals) ³⁾	Q23		✓	✓	✓	√	✓	√	
2 KTY84-130 temperature sensor (4 terminals) ³⁾	Q25		✓	✓	✓	√	✓	√	
3 bimetal sensors (NC contacts) for tripping (2 terminals) 3)	Q31		✓	✓	✓	√	✓	√	
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)	Q32		✓	✓	✓	√	✓	√	
3 bimetal sensors (NC contacts) for tripping (6 terminals)	Q33		-	_	_	_	√	✓	
6 bimetal sensors (NC contacts) for alarm and tripping (12 terminals)	Q34		-	-	_	-	/	/	
1 Pt1000 resistance thermometer (2 terminals) ¹⁹⁾	Q35		/	<i>'</i>	/	✓	<i>\</i>	<i>'</i>	
2 Pt1000 resistance thermometers (4 terminals) ¹⁹⁾	Q36	4/ /	✓	<i>'</i>	/	✓	<i>V</i>	<i>'</i>	
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	Q60	New!		<i>'</i>	/	✓	<i>V</i>	<i>'</i>	
6 Pt100 resistance thermometers – 2-wire input (12 terminals)	Q61	New!		<i>'</i>	/	✓	<i>V</i>	<i>'</i>	
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	Q62	New!		<i>'</i>	/	✓	<i>V</i>	<i>'</i>	
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	Q63	New!		<i>'</i>	<i>'</i>	✓	<i>\</i>	<i>✓</i>	
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	Q64	New!		✓	/	✓ 0.5	<i>\</i>	_	
2 Pt100 screw-in thermometers in basic configuration for bearings (2 terminals)	Q72	New!		O. R.	O.R.	O.R.	/	√	
2 Pt100 screw-in thermometers in 3-wire input for bearing (6 terminals)	Q78	New!		O.R.	O.R.	O.R.	✓	√	
2 Pt100 double screw-in thermometers in 3-wire input for bearing (12 terminals)	Q79	New!	-	O. R.	O.R.	O.R.	✓	√	
Motor connection and terminal box	110.4			,	,	•		,	
External grounding Terminal box on NDE 1)	H04 H08		√ √	1	✓ ✓	✓ ✓	1	✓ ✓	
Rotation of the terminal box through 90°, entry from DE ²⁾	R10		0	0	0	0	✓	✓	
Rotation of the terminal box through 90°, entry from NDE	R11		0	0	0	0	✓	1	
Rotation of the terminal box through 180°	R12		0	0	0	0	✓	1	
Terminal box in position 0°, connection from right ²⁰⁾	R13	New!	✓	1	1	-	-	-	
One metal cable gland	R15		1	1	✓	✓	1	✓	
Metal cable gland, maximum configuration	R18		-	-	-	-	✓	✓	
3 cables protruding, 0.5 m long	R20		1	1	1	1	O.R.	O.R.	
3 cables protruding, 1.5 m long	R21		✓	1	✓	✓	O.R.	O.R.	
6 cables protruding, 0.5 m long	R22		✓	1	O.R.	O.R.	O.R.	O.R.	
6 cables protruding, 1.5 m long	R23		✓	1	✓	✓	O.R.	O.R.	
6 cables protruding, 3 m long	R24		✓	1	✓	✓	O.R.	O.R.	
Larger terminal box	R50		1	1	✓	1	✓	✓	
Motor connector Han-Drive 10e for 230 VΔ/400 VY	R70		✓	/	1	-	-	-	
Motor connector EMC Han-Drive 10e for 230 VΔ/400 VY	R71		✓	1	√	-	-	-	

For legends and footnotes, see page 4/44.

Article No. supplements and special versions

Options – 1FP10.4 aluminum series

Special versions	Additional ide	enti-	Frame siz	e					Motor version
	fication code with order code		80	112	132	160	180	200	
	and plain text if required		1FP10.4						Super Premium Efficiency
1FP10.4 Z									
	01401 0040			_	_	_	_	_	
Windings and insulation Temperature class 180 (H) at rated	N11		1	/	1	/	1	1	
Temperature class 180 (H) at rated power and max. CT 60 °C ³⁾									
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	N30		1	✓	✓	1	✓	1	
Increased air humidity/temperature with 60 to 100 g water per m ³ of air	N31		1	1	1	1	1	1	
Colors and paint finish									
Standard paint finish C2 in RAL 7030 stone gray			_		_	_	_	_	
Unpainted (only cast-iron parts primed)	S00		0	0	0	0	0	0	
Unpainted, only primed	S01		✓	✓	✓	✓	✓	✓	
Special paint finish C3	S02		✓	1	1	✓	✓	✓	
Special paint finish sea air resistant C4	S03		1	/	✓	✓	✓	✓	
Internal coating	S05		/	/	/	√	1	√	
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction") Modular technology – Basic versions	ish RAL		1	/	✓	/	,	<i>'</i>	
Mounting of holding brake	F01		1	/	/	/	/	1	
(standard assignment) 5) Mounting of brake for higher switching	F02		O. R.	O. R.	O. R.	O. R.	O. R.	O. R.	
frequency (operating brake)									
Mounting of 1XP9012 10 (HTL)	F70 G01		<i>-</i> ✓	<u>-</u> ✓	✓ ✓	1	1	<i>J</i>	
Mounting of 1XP8012-10 (HTL) rotary pulse encoder ^{6) 7)}									
Mounting of 1XP8012-20 (TTL) rotary pulse encoder ^{6) 7)}	G02		✓	1	✓	✓	✓	✓	
Modular technology – Additional vers									
Brake supply voltage 24 V DC	F10		√	<u>✓</u>	✓ 	✓	<u>✓</u>	<u>/</u>	
Brake supply voltage 230 V AC, 50/60 Hz	F11		1	0	0	0	0	0	
Brake supply voltage 400 V AC, 50/60 Hz	F12		1	1	✓	1	1	1	
Mechanical manual brake release with lever (no locking)	F50		1	1	✓	1	1	1	
Special technology 3)									
Mounting of LL 861 900 220 rotary pulse encoder ⁶⁾	G04		-	1	✓	✓	✓	✓	
Mounting of HOG 9 DN 1024 I rotary pulse encoder ⁶⁾	G05		-	1	✓	1	1	1	
Mounting of HOG 10 D 1024 I rotary pulse encoder ⁶⁾	G06		-	1	1	✓	✓	1	
Mechanical version and degrees of pr	otection								
Prepared for mountings, centering hole only 7)	G40		✓	✓	✓	✓	_	0	
Prepared for mountings with D12 shaft ¹²⁾	G41		1	√	√	✓	✓	√	
Prepared for mountings with D16 shaft ¹²⁾	G42		1	1	✓	1	1	✓	
Mechanical protection for encoder	G43		1	1	1	1	√	1	
Protective cover ^{6) 8)}	H00		✓	✓	✓	✓	✓	✓	
Screwed-on (instead of cast) feet	H01		✓	✓	✓	✓			
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	H02		✓	✓	✓	✓	✓	✓	
Condensation drainage holes 9)	H03		✓	✓	✓	✓	✓	✓	
Rust-resistant screws (externally)	H07		/	✓	✓	✓	√	✓	
Housing with screw mounting	H10		1	_	-	-	√	✓	
IP65 degree of protection ¹⁰⁾	H20		1	/	1	√	√	√	
IP56 degree of protection ¹¹⁾ Drive-end seal for flange-mounted	H22 H23		1	1	√ √	1	1	1	
motors, oil-tight to 0.1 bar 8)			•	1	·	V	'	'	
Coolant temperature and installation and Coolant temperature –40 to +40 °C ¹³⁾	altitude D03		1	-	,	,	,	,	
Coolant temperature –40 to +40 °C ¹³	D03		1	1	1	1	1	1	
Occident temperature -30 to +40 °C "	D04		•	•	•	•	•	•	

For legends and footnotes, see page 4/44.

Article No. supplements and special versions

Options – 1FP10.4 aluminum series

Special versions	Additional identification code -Z	Frame siz	ze 112	132	160	180	200	Motor version
	with order code and plain text	1FP10.4						Super Premium Efficiency
4FD40.4	if required							
1FP10.4 Z								
Versions in accordance with standard			_	_				
Version according to UL and CSA (Canadian regulation)	D39	1	1	1	✓	✓	✓	
Bearings and lubrication		_						
Located bearing DE	L20	/	/	1	1	/	/	
Located bearing NDE	L21	1	1	✓				
Bearing design for increased cantilever forces	L22	1	1	1	1	1	1	
Regreasing device ¹⁴⁾	L23	_	1	√	1	1	1	
Bearings reinforced at both ends for DF and NDF, bearing size 63	L25	✓	✓	✓	1	✓	1	
Measuring nipple for SPM shock pulse measurement for bearing inspection ¹⁴⁾	Q01	-	1	1	1	1	1	
Balance and vibration severity								
Half-key balancing (standard)								
Balancing without feather key	L01	✓	✓	✓	✓	✓	✓	
Full-key balancing	L02	1	1	✓	✓	1	✓	
Shaft and rotor								
Shaft extension with standard dimensions, without feather keyway	L04	-	✓	✓	✓	✓	√	
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	L05	✓	✓	1	✓	✓	✓	
Standard shaft made of stainless steel (e.g. 1.4021)	L06	✓	-	✓	✓	✓	1	
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L07	✓	1	✓	✓	✓	✓	
Concentricity of shaft extension, coaxiality and linear movement in accordance with DIN 42955 Tolerance R for flange-mounted motors	L08	✓	✓	✓	1	✓	1	
Non-standard cylindrical shaft extension, DE ¹⁵⁾	Y58 • and customer specifications	√	√	✓	/	√	√	
Non-standard cylindrical shaft extension, NDE ¹⁵⁾	Y59 • and customer specifications	✓	✓	✓	1	✓	√	
Heating and ventilation								
Sheet metal fan cover	F74	✓	✓	✓	✓	✓	✓	
Fan cover for textile industry ¹⁶⁾	F75	1	/	✓	/	/	✓	
Metal external fan	F76	/	/	/	✓	✓	/	
Without external fan and without fan cover	F90	<i>y</i>	/	<i>'</i>			<i>,</i>	
Anti-condensation heating for 230 V (2 terminals)	Q02	✓	/	<i>'</i>	/	/	/	
Anti-condensation heating for 115 V (2 terminals)	Q03	✓	✓ 	✓	✓	<i>'</i>	✓	
Rating plate and additional rating pla			,		,		,	
Second rating plate, loose	M10	1	1	√	√ /	√	√	
Rating plate, stainless steel Additional rating plate with	M11 Y82 • and	1	1	√ √	1	√ ✓	<i>J</i>	
customer specifications	customer specifi- cations	•	•	•	•	•	v	
Additional information on rating plate and on package label (max. 20 characters)	Y84 • and customer specifi- cations	✓	√	√	1	✓	1	
Adhesive label, supplied loose (printed with: Article No., Serial No.; 2 lines of text)	Y85 • and customer specifications	_	√	1	1	1	1	

Article No. supplements and special versions

Options - 1FP10.4 aluminum series

Special versions	Additional ident		size		Motor version			
	fication code -Z		112	132	160	180	200	
	and plain text	1FP10	.4					Super Premium Efficiency
	if required							
1FP10.4 Z	Order code							
Packaging, safety notes, documentati	on and test cert	ificates						
Printed German/English Operating Instructions (compact) enclosed 17)		_					0	
Printed German/English Operating Instructions (compact) enclosed in each wire-lattice pallet	B01	0	0	0	0	0	0	
Acceptance test certificate 3.1 according to EN 10204 (18)	B02	1	✓	✓	✓	1	✓	
Printed German/English Operating Instructions enclosed	B04	1	✓	✓	✓	✓	✓	
Document - Electrical datasheet	B60	✓	✓	✓	✓	✓	✓	
Document - Order dimensional drawing	B61	✓	/	✓	✓	✓	✓	
Type test with heat run for horizontal motors, with acceptance	B83	1	✓	✓	✓	✓	✓	
"Basic" documentation package	B90 Ne	v! /	✓	✓	✓	✓	✓	
"Advanced" documentation package	B91 Ne.	v! /	✓	✓	✓	✓	✓	
"Projects" documentation package	B92 Ne.	v! /	✓	✓	✓	✓	✓	
Wire-lattice pallet packaging	B99	0	0	0	0	0	0	
Connected in star for shipping	M01	-	✓	✓	✓	✓	✓	
Connected in delta for dispatch	M02	-	✓	✓	✓	✓	✓	

- Standard version
- Without additional charge 0
- This order code only determines the price of the version Additional plain text is required.
- With additional charge
- O.R. Possible on request
- Not possible

- For order code H08, feet dimensions differing from EN 50347 Further information is available in the DT Configurator (see Appendix, "Tools and engineering")
- With IM B5 flange, only possible in combination with order code H08.
- The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.
- A second shaft extension is not possible. Please inquire for mounted
- For order codes F10, F11, and F12, the brake supply voltage must be specified or ordered.
- In combination with a separately driven fan (order code F70) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.
- As standard, motors that are prepared for additional mounted components (order codes G40, G41, G42) are shipped without protective cover. If a protective cover is requested as a cover or mechanical protection for mounted components provided by the customer, this can be ordered with order code G43. Not possible in combination with order code L00 vibration severity grade B. In combination with a separately driven fan (order code **F70**) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20
- Order code H00 provides mechanical protection for encoders.
- Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If the condensation drainage holes are required for motors of the IM B6, IM B7 or IM B8 type of construction (feet on side or top), the motors must be ordered in the respective type of construction and with order code H03, so that the condensation drainage holes will be placed in the correct position.
- ¹⁰⁾ Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code G05) and/or 2LM8 brake (order code F01)
- 11) Not possible in combination with 2LM8 brake (order code F01).

- 12) As standard, motors that are prepared for additional mounted components (order codes G40, G41, G42) are shipped without protective cover. If a protective cover is requested as a cover or mechanical protection for mounted components provided by the customer, this can be ordered with order code **G43**. Not possible in combination with order code **L00** vibration severity grade B.
- ¹³⁾ Not possible for type of construction IM V3.
- ¹⁴⁾ Not possible when brake is mounted.
- ¹⁵⁾ When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes **Y58**, **Y59** and **L05** the following applies: - Dimensions D and DA ≤ ball bearing inner diameter
 - (see dimension tables for "Dimensions")
 - Dimensions E and EA \leq 2 \times length E (standard) of the shaft extension. For an explanation of the order codes, see Catalog Section 1 "Introduction"
- 16) The special requirements of the textile industry regarding the sheet metal cover open up the possibility that a finger may be inserted between the cover and housing. The customer must implement appropriate measures to ensure that the installed system is "finger-safe".
- 17) The Operating Instructions (Compact) are available in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/40761976
- ¹⁸⁾ The delivery time for the factory test certificate may differ from the delivery time for the motor and will be dispatched by e-mail
- 19) Not UL-certified. Not in combination with option D31.
- ²⁰⁾ Not possible in combination with order codes **R70** and **R71**.

Article No. supplements and special versions

Options – 1FP15.4 cast-iron series

Selection and	ordering data
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Special versions	Additional identi	Eromo oiz	·0					Motor vorsion
Special versions	Additional identification code -Z	Frame siz	.е 112	132	160	180	200	Motor version
	with order code and plain text	1FP15.4		102	700	100	200	Super Premium Efficiency
	if required							
1FP15.4 Z	Order code							
Motor protection								
1 or 3 PTC thermistors – for tripping (2 terminals) ^{2) 3)}	Q11	-	-	✓	✓	✓	✓	
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) ³⁾	Q12	-	-	✓	✓	✓	✓	
1 KTY84-130 temperature sensor (2 terminals) ³⁾	Q23	-	-	✓	✓	1	✓	
2 KTY84-130 temperature sensor (4 terminals) ³⁾	Q25	_	-	✓	✓	✓	✓	
3 bimetal sensors (NC contacts) for tripping (2 terminals) 3)	Q31	-	-	✓	✓	✓	✓	
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)	Q32	-	-	-	-	1	1	
3 bimetal sensors (NC contacts) for tripping (6 terminals)	Q33	-	-	✓	✓	1	1	
6 bimetal sensors (NC contacts) thermostat for alarm and tripping (12 terminals)	Q34	_	-	-	-	✓	1	
1 Pt1000 resistance thermometer (2 terminals) ²⁰⁾	Q35	✓	✓	✓	✓	✓	✓	
2 Pt1000 resistance thermometers (4 terminals) ²⁰⁾	Q36	1	✓	✓	✓	1	1	
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	Q60	-	✓	✓	✓	1	✓	
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	Q62	-	✓	✓	✓	1	✓	
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	Q63	-	✓	✓	✓	✓	✓	
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	Q64	-	✓	✓	✓	✓	1	
2 Pt100 screw-in thermometers in basic configuration for bearing (2 terminals) 1)	Q72	-	-	-	-	1	1	
2 Pt100 screw-in thermometers in 3-wire input for bearing (6 terminals)	Q78	-	-	-	-	✓	✓	
2 Pt100 double screw-in thermometers in 3-wire input for bearing (12 terminals)	Q79	_	-	-	-	✓	1	
Motor connection and terminal box								
External grounding	H04	✓	1	✓	✓			
Terminal box on NDE ²⁾	H08	1	_	-	-	✓	✓	
Second external grounding	H70	√	/	0	0	✓	✓	
Rotation of the terminal box through 90°, entry from DE	R10	✓ •	✓ 	0	0	<i>\</i>	<i>'</i>	
Rotation of the terminal box through 90°, entry from NDE	R11	0	0	0	0	<i>'</i>		
Rotation of the terminal box through 180°	R12	0	0	0	0	/	<i>\</i>	
One EMC cable gland	R14	-	-	-	-	✓	✓	
One metal cable gland	R15	1	√ 	✓	✓	√	√	
EMC cable gland, maximum configuration	R16	✓	✓	-	-	✓	✓	
Larger terminal box	R50	✓	1	✓	1	✓	✓	
Terminal box without cable entry opening	R51	-	-	-	-	0	0	
Drilled removable entry plate	R52	-	-	-	-	✓	1	
Undrilled removable entry plate	R53	-	-	-	-	✓	✓	
Cast-iron auxiliary terminal box (small)	R62	-	-	-	-	✓	1	
Silicone-free version		-	-					
Non-standard threaded through hole (NPT or G thread)	Y61 • and customer specifications	-	-	-	-	✓	1	

Article No. supplements and special versions

Options – 1FP15.4 cast-iron series

Special versions	Additional identi- fication code -Z with order code	80	ze 112	132	160	180	200	Motor version
	and plain text if required	1FP15.4						Super Premium Efficiency
1FP15.4	·							
Windings and insulation								
Temperature class 180 (H) at	N11	1	1	/	/	1	/	
rated power and max. CT 60 °C 3)								
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	N30	✓	✓	✓	✓	✓	✓	
Increased air humidity/temperature with 60 to 100 g water per m ³ of air	N31	✓	✓	✓	✓	✓	✓	
Colors and paint finish			_	_	_	_	_	
Standard paint finish C2 in RAL 7030 stone gray								
Unpainted (only cast-iron parts primed)		0	0	0	0	0	0	
Unpainted, only primed	S01	1	/	/	/	/	/	
Special paint finish and air registers C4	S02	1	<i>\</i>	√	√	√	√	
Special paint finish sea air resistant C4	S03 S04	1	✓ ✓	✓ ✓	√ ✓	✓ ✓	✓ ✓	
Special paint finish for use offshore C5 Internal coating	S05	√ ✓	<i>y</i>	✓	✓ ✓	✓ ✓	✓ ✓	
Paint finish in other standard RAL	Y53 • and	1	✓ ✓		1	1	1	
colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	paint finish RAL			_	·		v	
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	finish RAL	✓	√	✓	✓	√	√	
Modular technology – Basic versions	4)							
Mounting of holding brake (standard assignment) 5)	F01	O.R.	1	✓	✓	✓	✓	
Mounted separately driven fan	F70	-	-	✓	✓	✓	✓	
Mounting of 1XP8012-10 (HTL) rotary pulse encoder 7) 8)	G01	✓	✓	✓	√	✓	✓	
Mounting of 1XP8012-20 (TTL) rotary pulse encoder 7) 8)	G02	✓	/	✓	✓	√	✓	
Modular technology – Additional vers			,					
Brake supply voltage 24 V DC	F10	-	✓ •	0	0	✓	✓ •	
Brake supply voltage 230 V AC, 50/60 Hz	F11	0	0				0	
Brake supply voltage 400 V AC, 50/60 Hz	F12	✓	✓	✓	✓	✓	✓	
Backstop, counterclockwise motion blocked, clockwise direction of rotation	F40	-	_	_	_	√	✓	
Backstop, clockwise motion blocked, counterclockwise direction of rotation	F41	-	-	-	-	✓	✓	
Mechanical manual brake release with lever (no locking)	F50	-	<i>'</i>	✓	✓	✓	✓	
Special technology 5)	004			,		,	,	
Mounting of LL 861 900 220 rotary pulse encoder 8)	G04	_	✓	√	√	√	✓	
Mounting of HOG 9 DN 1024 I rotary pulse encoder 8)	G05	-	✓	✓	✓	✓	✓	
Mounting of HOG 10 D 1024 I rotary pulse encoder 8)	G06	-	✓	✓	✓	√	✓	
Mounting of POG 10 D rotary pulse encoder (only in combination with separately driven fan or brake) 19)	G07	_	-	-	-	✓	✓	
Mounting of POG 9 rotary pulse encoder (only in combination with separately driven fan or brake) ¹⁹⁾	G08	-	-	-	-	✓	√	
Mounting of a special type of rotary pulse encoder	Y70 • and customer specifications	_	-	-	-	O. R.	O. R.	

For legend, see page 4/48 and for footnotes, see page 4/49.

Article No. supplements and special versions

Options – 1FP15.4 cast-iron series

							Ориона	s – 1FP15.4 cast-iron serie
Special versions	Additional identification code -Z	Frame siz	e 112	132	160	180	200	Motor version
	with order code and plain text if required	1FP15.4						Super Premium Efficiency
1FP15.4 Z	·							
		_	_	_	_	_	_	
Mechanical version and degrees of property of the Prepared for mountings, centering	G40	1	/	/	1	_		_
hole only	G40	•	•	•	•			
Prepared for mountings with D12 shaft	G41	1	1	✓	1	√	1	
Prepared for mountings with D16 shaft	G42	1	1	✓	1	√	1	
Mechanical protection for encoder	G43	✓	1	✓	/	✓	√	
Protective cover ^{6) 8) 9)}	H00	✓	1	✓	✓	✓	✓	
Screwed-on (instead of cast) feet	H01	-	-	✓	✓	✓	✓	
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	H02	1	1	-	-	1	✓	
Condensation drainage holes			_		_	-		
Rust-resistant screws (externally)	H07	∠	<u> </u>					
Housing with screw mounting	H10	✓	1			· /	<u> </u>	
IP65 degree of protection ¹⁰⁾	H20	1	1		<u> </u>	<u> </u>	<u> </u>	
IP54 degree of protection	H21	_	_			· /	<u> </u>	
IP56 degree of protection ¹¹⁾	H22	/	/	√	✓	<u> </u>	<u> </u>	
Drive-end seal for flange-mounted motors, oil-tight to 0.1 bar ¹²)	H23	1	√	✓	1	1	✓ /	
Coolant temperature and installation	altitude							
Coolant temperature -50 to +40 °C	D02	-	-	-	-	1	1	
Coolant temperature -40 to +40 °C 13)	D03	✓	/	✓	✓	✓	1	
Coolant temperature -30 to +40 °C	D04	✓	1	✓	√	/	✓	
Versions in accordance with standard	ls and specification	ons						
Version according to UL and CSA (Canadian regulation)	D39	1	✓	✓	1	✓	✓	
Bearings and lubrication								
Located bearing DE	L20	/	/	√	✓	√	√	
Located bearing NDE	L21	✓	/	✓				
Bearing design for increased cantilever forces	L22	/	/	/	<i>\</i>	<i>'</i>	<i>\</i>	
Regreasing device ¹⁴⁾ Bearings reinforced at both ends for DE	L23	_	1	<i>J</i>	√ √	<i>J</i>	1	
and NDE, bearing size 63 Reinforced bearings at both DE and	L23	_				<i>'</i>	<u> </u>	
NDE, DE bearing for increased cantilever forces								
Measuring nipple for SPM shock pulse measurement for bearing inspection ¹⁴⁾	Q01	-	✓	✓	✓	✓	✓	
Balance and vibration severity				_			_	
Half-key balancing (standard)	1.01	<u> </u>						
Balancing without feather key	L01	1	/	√	/	√	/	
Full-key balancing Shaft and rotor	L02	1	√	√	✓	✓	✓	
Shaft extension with standard	L04	_	_	/	1	√	/	
dimensions, without feather keyway	_57				•	•	•	
Standard, cylindrical shaft extension (second shaft extension)	L05	✓	1	✓	1	1	1	
NDE acc. to EN 50347 Standard shaft made of stainless steel (e.g. 1.4021)	L06	✓	✓	✓	1	1	✓	
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L07	1	1	✓	1	1	1	
Concentricity of shaft extension, coaxiality, and linear movement in accordance with DIN 42955 Tolerance R for flange-mounted motors	L08	1	1	√	1	√	1	
Non-standard cylindrical shaft extension, DE ¹⁵⁾	Y58 • and customer specifications	1	1	1	1	√	1	
Non-standard cylindrical shaft extension, NDE ¹⁵⁾	Y59 • and customer specifications	✓	1	√	✓	✓	✓	
Special shaft steel	Y60 • and customer specifications	-	-	-	-	O.R.	O.R.	

For legend, see page 4/48 and for footnotes, see page 4/49.

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Article No. supplements and special versions

Options – 1FP15.4 cast-iron series

Special versions	Additional ide fication code with order code and plain text if required	-Z	Frame siz 80 1FP15.4	e 112	132	160	180	200	Motor version Super Premium Efficiency
1FP15.4 Z									
Heating and ventilation									
Sheet metal fan cover	F74		/	1	/	1	1	1	
Metal external fan	F76		1	1	1	1	1	/	
Anti-condensation heating for 230 V (2 terminals)	Q02		1	✓	✓	√ ·	✓	√	
Anti-condensation heating for 115 V (2 terminals)	Q03		1	1	1	1	1	✓	
Rating plate and additional rating plat	tes								
Second rating plate, loose	M10		✓	✓	✓	✓	✓	✓	
Rating plate, stainless steel	M11		✓	✓	✓	✓	✓	✓	
Additional rating plate with customer specifications	Y82 • and customer specifications		✓	✓	√	✓	✓	✓	
Additional information on rating plate and on package label (max.20 characters)	Y84 • and customer specifications		✓	/	√	/	√	√	
Adhesive label, supplied loose (printed with: Article No., Serial No.; 2 lines of text)	Y85 • and customer specifications		-	-	-	-	√	✓	
Extension of the liability for defects									
Extension of the liability for defects by 12 months to a total of 24 months (2 years) from delivery ¹⁶)	Q80		-	-	-	-	1	✓	
Extension of the liability for defects by 24 months to a total of 36 months (3 years) from delivery ¹⁶⁾	Q82		-	-	-	-	1	1	
Packaging, safety notes, documentati	on and test ce	ertific	cates						
Acceptance test certificate 3.1 according to EN 10204 17)	B02		✓	✓	✓	1	✓	✓	
Printed German/English Operating Instructions enclosed ¹⁸⁾	B04		-	✓	✓	1	✓	✓	
Document - Electrical datasheet	B60		_	✓	✓	✓	1	✓	
Document - Order dimensional drawing			_	✓	✓	✓	✓	✓	
Standard test (routine test) with acceptance	B65		-	-	-	-	✓	✓	
Type test with heat run for horizontal motors, with acceptance	B83		✓	1	✓	✓	✓	✓	
"Basic" documentation package		, ,	✓	✓	✓	✓	✓	✓	
"Advanced" documentation package	B91 /	New!	✓	✓	✓	✓	✓	✓	
"Projects" documentation package	B92 /	New!	✓	✓	✓	✓	✓	✓	
Connected in star for shipping	M01		✓	✓	✓	✓	✓	✓	
Connected in delta for dispatch	M02		✓	/	/	/	1	1	

- Standard version
- 0
- Without additional charge
 This order code only determines the price of the version –
 Additional plain text is required.
 With additional charge
- O. R. Possible on request

 Not possible

Article No. supplements and special versions

Options - 1FP15.4 cast-iron series

- Evaluation with associated tripping unit (see Catalog IC 10) is recommended.
- For order code H08, feet dimensions differing from EN 50347 Further information is available in the DT Configurator (see Appendix, "Tools and engineering").
- 3) The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.
- 4) A second shaft extension is not possible. Please inquire for mounted brakes
- 5) For order codes F10, F11, and F12, the brake supply voltage must be specified or ordered.
- 6) The 1XP8 rotary pulse encoders are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.
- 7) In combination with a separately driven fan (order code F70) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.
- 8) LL and HOG rotary pulse encoders up to frame size 160 are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan
- 9) Order code **H00** provides mechanical protection for encoders.
- 10) Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code **G05**) and/or brake 2LM8 (order code **F01**).
- 11) Not possible in combination with 2LM8 brake order code F01.
- ¹²⁾ Not possible for type of construction IM V3.
- 13) In connection with mountings, the respective technical specifications must be observed, please inquire before ordering.

- ¹⁴⁾ Up to frame size 160 not possible when brake is mounted.
- 15) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes Y58, Y59 and L05 the following applies:
 - Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables for "Dimensions")
 - Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension.
 For an explanation of the order codes, see Catalog Section 1 "Introduction"
- ¹⁶⁾ Wearing parts (bearings) are excluded from the warranty extension.
- 17) The delivery time for the factory test certificate may differ from the delivery time for the motor.
- 18) The Operating Instructions (Compact) are available in PDF format for all official EU languages at
- http://support.automation.siemens.com/WW/view/en/10803948/133300
- 19) Option (encoder mounting) is only possible for motors with a mounted separately driven fan or for naturally cooled motors (without an external fan). This option can be used in combination with brakes of type KFB! This option cannot be used in combination with brakes of type 2LM8!
- 20) Not UL and CSA certified. Not available in combination with order code D31.

Article No. supplements and special versions

Accessories

Overview

Slide rails with fixing bolts and tensioning screws according to DIN 42923

Slide rails are used to tension the belt of a machine easily and conveniently when there is no belt-tensioning pulley. They are fixed to the base using stone bolts or foundation blocks.

The assignment of slide rails to motor size can be found in DIN 42923. For motors of frame sizes 355 to 450, there are no standardized slide rails (please inquire).

Available from:

Lütgert & Co. GmbH Postfach 42 51 33276 Gütersloh, Germany Phone +49 (5241) 7407-0 Fax +49 (5241) 7407-90

www.luetgert-antriebe.de Email: info@luetgert-antriebe.de

Foundation block according to DIN 799

The foundation blocks are inserted into the stone foundation and embedded in concrete. They are used for fixing machines of medium size, slide rails, pedestal bearings, base frames, etc. After the fixing bolts have been unscrewed, the machines can be shifted without them having to be lifted.

When the machine is initially installed, the foundation block that is bolted to the machine (without washers) and fitted with taper pins is not embedded with concrete until the machine has been fully aligned. In this case, the machine is positioned 2 to 3 mm lower. The difference in shaft height is compensated by inserting shims on final installation. The taper pins safeguard the exact position of the machine when it is repeatedly removed and replaced without the need for realignment.

Available from:

Lütgert & Co. GmbH Postfach 42 51 33276 Gütersloh, Germany Phone +49 (5241) 7407-0 Fax +49 (5241) 7407-90

www.luetgert-antriebe.de Email: info@luetgert-antriebe.de

Taper pins according to DIN 258 with threaded ends and constant taper lengths

Taper pins are used for components that are repeatedly removed. The drilled hole is conically ground using a conical reamer until the pin can be pushed in by hand until the cone shoulder lies approx. 3 to 4 mm above the rim of the hole.

It can then be driven in using a hammer until it is correctly seated. The pin is removed from the drilled hole by screwing on the nut and tightening it.

Standardized taper pins are commercially available.

For instance, available from:

Otto Roth GmbH & Co. KG Rutesheimer Strasse 22 70499 Stuttgart, Germany Tel. +49 711 1388-0 Fax. +49 711 1388-233

www.ottoroth.de Email: info@ottoroth.de

Article No. supplements and special versions

Accessories

More information

Replacement motors and repair parts

- Commitment to provide replacement motors and repair parts following delivery of the motor:
 - for up to 3 years after delivery of the original motor, in the event of total motor failure, Siemens will supply a comparable spare motor with regard to the mounting dimensions and functions (the type series may vary).
 - if a spare motor is provided within the 3-year period, this will not mean that the warranty restarts.
 - Replacement motors delivered after the active production of the machine series are also identified as spare motors on the rating plate.
 - Spare parts are offered only for these spare motors on request; repair and replacement are not possible.
 - after a period of 3 years (after the delivery of the original motor), it is only possible to repair these motors (depending on the availability of the spare parts required).
 - for up to 5 years after the delivery of the original motor, spare parts will be available and for a further 5 years, Siemens will provide information about spare parts and will supply documents when required.

- When repair parts are ordered, the following details must be provided:
 - Designation and part number
 - Article No. and factory number of the motor.
- For bearing types, see Catalog Section 1 "Introduction".
- For standard components, a commitment to supply repaired parts does not apply.
- Support hotline In Germany Phone +49 911 895 7 222

You will find telephone numbers for other countries on our Internet site:

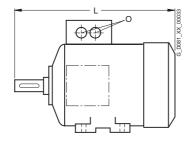
www.siemens.com/automation/service&support

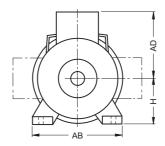
Dimensions

Overall dimensions

Overview

Overall dimensions





Frame size	Туре	Dimens			A D	0				
80 M	Aluminum acrica	L colf ver	AD	Н	AB	0				
OU IVI	Aluminum series, self-ventilated 1FP10.4-									
	0DB2 0DB3	292 327	121	80	150	$1 \times M25 \times 1.5$				
	Cast-iron series, self-ventilated									
	1FP15.4- 0DB2 0DB3	292 327	158	80	150	2 × M25 × 1.5				
112 M	Aluminum series, self-ventilated									
	1FP10.4	389 ¹⁾	177	112	226	$2 \times M32 \times 1.5$				
	Cast-iron series, self-ventilated									
	1FP15.4	415.5	195	112	226	$2 \times M32 \times 1.5$				
132 S	Aluminum series, self-ventilated									
	1FP10.4	465 ¹⁾	202	132	256	2 × M32 × 1.5				
	Cast-iron series, self-ventilated									
	1FP15.4	466.5	214.5	132	256	$2 \times M32 \times 1.5$				
132 M	Aluminum series,	self-ven	tilated							
	1FP10.4	515 ¹⁾	202	132	256	$2 \times M32 \times 1.5$				
	Cast-iron series, self-ventilated									
	1FP15.4	516.5	214.5	132	256	$2 \times M32 \times 1.5$				
160 M	Aluminum series, self-ventilated									
	1FP10.4	606 ¹⁾	236.5	160	300	$2 \times M40 \times 1.5$				
	Cast-iron series, self-ventilated									
	1FP15.4	606	265	160	300	$2 \times M40 \times 1.5$				
160 L	0 L Aluminum series, self-ventilated									
	1FP10.4	666 ¹⁾	236.5	160	300	$2 \times M40 \times 1.5$				
	Cast-iron series, self-ventilated									
	1FP15.4	666	265	160	300	$2 \times M40 \times 1.5$				
180 M/L	Aluminum series, self-ventilated									
	1FP10.4- 1EB2, 1EB4	698	259	180	339	2 × M40 × 1.5				
	Cast-iron series, self-ventilated									
	1FP15.4- 1EB2, 1EF2 1EB4	668 698	286	180	339	2 × M40 × 1.5				
200 L Aluminum series, self-ventilated										
	1FP10.4- 2AB5	746	296	200	378	2 × M50 × 1.5				
	Cast-iron series, self-ventilated									
	1FP15.4-	721	315	200	378	2 × M50 × 1.5				

 $^{^{\}rm 1)}$ The length is specified as far as the tip of the fan cover.

Dimensions

Notes on the dimensions – Dimension sheet generator (part of the DT Configurator)

Overview (continued)

Notes on the dimensions

• Dimensional drawings according to EN 50347 and IEC 60072.

Fits

The shaft extensions specified in the dimension tables (DIN 748) and centering spigot diameters (EN 50347) are machined with the following fits:

Dimension designation	ISO fit EN ISO 286	6-2
D, DA	to 30 over 30 to 50 over 50	j6 k6 m6
N	to 250 over 250	j6 h6
F, FA		h9
K		H17
S	flange (FF)	H17

The drilled holes of couplings and belt pulleys should have an ISO fit of at least H7.

Dimension tolerances

For the following dimensions, the admissible deviations are given below:

Dimension designation	Dimension	Admissible deviation
Н	to 250 over 250	- 0.5 - 1.0
E, EA		- 0.5

Keyways and feather keyways (dimensions GA, GC, F and FA) are made in compliance with DIN 6885 Part 1.

• All dimensions are specified in mm.

Dimension sheet generator

(part of the DT Configurator)

A dimensional drawing can be created in the DT Configurator for every configurable motor. A dimensional drawing can be requested for every other motor.



When a complete Article No. is entered with or without order codes, a dimensional drawing can be called up under the "Documentation" tab.

These dimensional drawings can be presented in different views and sections and printed.

The corresponding dimension sheets can be exported, saved and processed further in DXF format (interchange/import format for CAD systems) or as bitmap graphics.

Online access in the Siemens Industry Mall

The DT Configurator is integrated in the Siemens Industry Mall and can be used on the Internet without installation.

German: www.siemens.de/dt-konfigurator English: www.siemens.com/dt-configurator

Offline access in the Interactive Catalog CA 01

The DT Configurator is also integrated on the DVD of the Interactive Catalog CA 01 – the offline version of Siemens Industry Mall. CA 01 can be ordered from the relevant Siemens sales office or via the Internet:

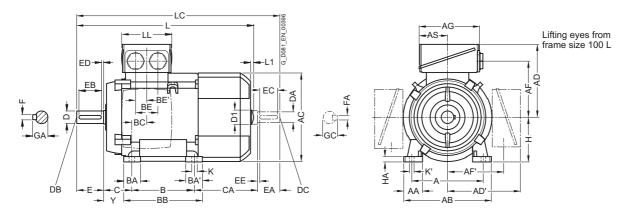
www.siemens.com/automation/CA01

Dimensions

Aluminum series, self-ventilated - Super Premium Efficiency · Frame sizes 80 M, 112 M to 200 L

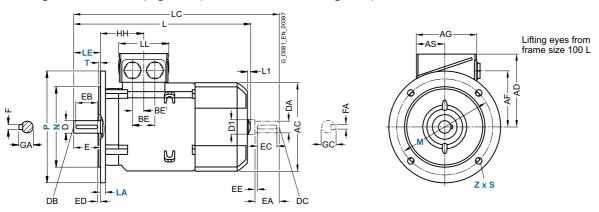
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)



_																								
For mot	tor		Dime	ension	desig	gnatic	n acc.	to IEC																
Frame size	Motor type 1FP10.4-	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	BA	BA'	BB	ВС	BE	BE'	С	CA	Н	НА	Υ
80 M	0DB2, 0DF2, 0DF3 0DB3	4	125	30.5	150	159	121	121	96.5	96.5	93	43	100	32	32	118	23	-	18 ¹⁾	50	-	80	8	41
112 M	All	4	190	46	226	222	177	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	155	112	12	52
132 S	All	4	216	53	256	262	202	202	159.5	159.5	155	70.5	140	38	76 ²⁾	218 ⁴⁾	26.5	48	24	89	166.5	132	15	69
132 M	All	4	216	53	256	262	202	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	178.5	132	15	69
160 M	All	4	254	60	300	314	236.5	236.5	190	190	175	77.5	210	44	89 ³⁾	300 ⁵⁾	47	57	28.5	108	192	160	18	85
160 L	All	4	254	60	300	314	236.5	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	208	160	18	85
180 M	All	4	279	65	339	356	259	259	212.5	212.5	175	77.5	241	80	100	328	30	57	28.5	121	232	180	20	95
180 L	All	4	279	65	339	356	259	259	212.5	212.5	175	77.5	279	80	100	328	30	57	28.5	121	194	180	20	95
200 L	All	4	318	70	378	396	296	296	238	238	225	102.5	305	90	100	355	45	75	37.5	133	202	200	25	108

¹⁾ Connecting hole for terminal box is on the side at the rear of the terminal box.

²⁾ With screwed-on feet, dimension BA' is 38 mm.

³⁾ With screwed-on feet, dimension BA' is 44 mm.

 $^{^{\}rm 4)}$ With screwed-on feet, dimension BB is 180 mm.

 $^{^{5)}}$ With screwed-on feet, dimension BB is 256 mm.

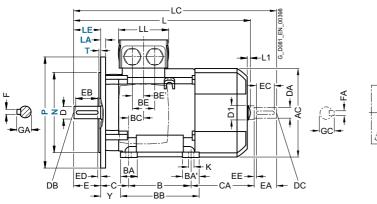
Dimensions

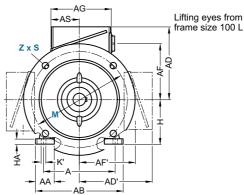
Aluminum series, self-ventilated - Super Premium Efficiency · Frame sizes 80 M, 112 M to 200 L

Dimensional drawings (continued)

Type of construction IM B35

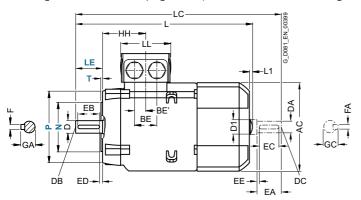
For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)

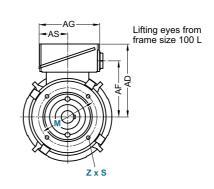




Type of construction IM B14

For flange dimensions, see page 1/53 (Z = the number of retaining holes)





For moto	or		Dimen	sion de	esigna	tion ac	c. to II	EC			DE	shaft e	extens	ion				NDE	E shaft	exten	sion			
Frame size	Motor type 1FP10.4-	No. of poles	HH	K	K'	L ¹⁾	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	0DB2, 0DF2, 0DF3 0DB3	4	73	9.5	13.5	292 327	-	-	343 378	79	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
112 M	All	4	96	12	16	389	7	32	475	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	4	115.5	12	16	465	8.5	39	535.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	4	115.5	12	16	515	8.5	39	585.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	4	155	15	19	606	10	45	730	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	4	155	15	19	666	10	45	790	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
180 M	All	4	151	14.5	19	698	-	-	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
180 L	All	4	151	14.5	19	698	-	-	814	145	48	M16	110	100	5	14	52	48	M16	110	100	5	14	52
200 L	All	4	178	18.5	25	746	-	_	860	185	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

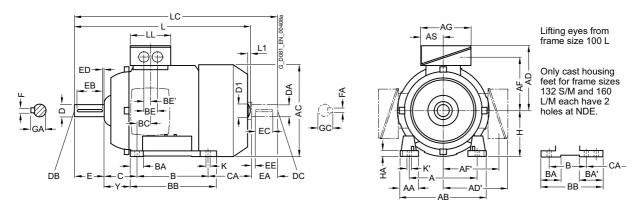
¹⁾ The length is specified as far as the tip of the fan cover.

Dimensions

Cast-iron series, self-ventilated - Super Premium Efficiency · Frame sizes 80 M, 112 M to 160 L

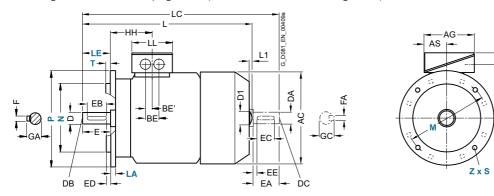
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



For mot	tor		Dime	ension	desig	nation a	acc. to I	IEC																
Frame size	Motor type 1FP15.4-	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	BA	BA'	BB	ВС	BE	BE'	С	CA	Н	НА	Υ
80 M	0DB2 0DB3	4	125	30.5	150	162	158	158	122	122	129	62	100	32	32	118	22.5	36	18	50	-	80	8.5	41
112 M	All	4	190	46	226	239	195	195	150	150	163	80.5	140	48	48	176	30	48	24	70	155	112	12	52
132 S	All	4	216	53	256	281	214.5	214.5	169	169	163	80.5	140	52 ¹⁾	117 ²⁾	218 ²⁾	26.5	48	24	89	166.5	132	15	69
132 M	All	4	216	53	256	281	214.5	214.5	169	169	163	80.5	178	52 ¹⁾	89 ³⁾	218	26.5	48	24	89	178.5	132	15	69
160 M	All	4	254	60	300	333.5	265	265	213	213	190	92	210	73 ²⁾	117 ²⁾	300 ⁴⁾	37	60	30	108	192	160	18	85
160 L	All	4	254	60	300	333.5	265	265	213	213	190	92	254	73 ²⁾	117 ²⁾	300	37	60	30	108	208	160	18	85

Lifting eyes from frame size 100 L

¹⁾ With screwed-on feet, this dimension is 41 mm.

 $^{^{2)}}$ With screwed-on feet, this dimension is 51 mm.

 $^{^{3)}}$ With screwed-on feet, this dimension is 79 mm.

 $^{^{4)}}$ With screwed-on feet, this dimension is 180 mm.

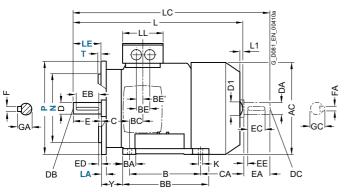
Dimensions

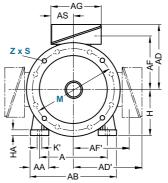
Cast-iron series, self-ventilated – Super Premium Efficiency · Frame sizes 80 M, 112 M to 160 L

Dimensional drawings (continued)

Type of construction IM B35

For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)





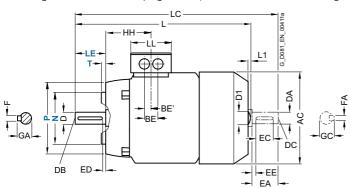
Lifting eyes from frame size 100 L

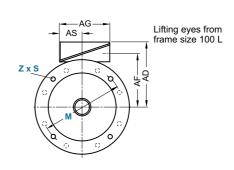
Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Type of construction IM B14

For flange dimensions, see page 1/53 (Z = the number of retaining holes)





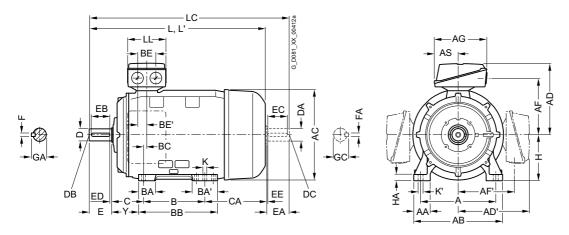
For moto	or		Dimen	sion	desig	nation a	acc. to	IEC			DE	shaft e	extens	ion				NDE	Shaft (extens	ion			
Frame size	Motor type 1FP15.4-	No. of poles	HH	K	K'	L	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	0DB2 0DB3	4	71.5	10	10	292 327	-	-	342.5 377.5	102	19	M6	40	32	4	6	21.5	19	M6	40	22	4	6	21.5
112 M	All	4	100.5	12	16	415.5	7	32	475	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	4	115.5	12	16	466.5	8.5	39	535.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	4	115.5	12	16	516.5	8.5	39	585.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	4	145	15	19	606	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	4	145	15	19	666	10	45	790	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

Dimensions

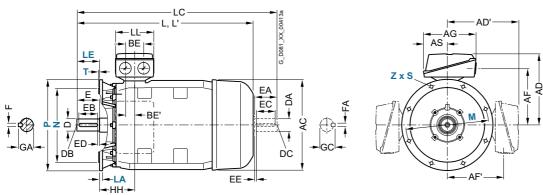
Cast-iron series, self-ventilated – Super Premium Efficiency · Frame sizes 180 M to 200 L

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1 For flange dimensions, see page 1/53 ($\bf Z$ = the number of retaining holes)



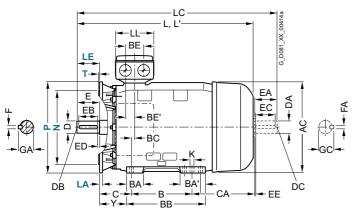
For motor			Dime	nsion (designa	ation ac	cc. to I	EC													
Frame size	Motor type 1FP15.4-	No. of poles	Α	AA	AB	AC	AD	AD′	AF	AF′	AG	AS	В	ВА	BA′	BB	ВС	BE	BE'	С	CA
180 M/ 180 L	1EB2, 1EF2 1EB4	4	279	65	339	356	286	286	234	234	190	92	241 279	85	120	328	34	60	30	121	202
200 L	All	4	318	70	378	396	315	315	259	259	266	112	305	104	104	355	31	85	42.5	133	177

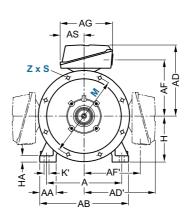
Dimensions

Cast-iron series, self-ventilated – Super Premium Efficiency · Frame sizes 180 M to 200 L

Dimensional drawings (continued)

*Type of construction IM B35*For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)





For motor	•		Dime	ensio	n des	ignati	on a	.cc. t	o IEC	;			DE	shaft e	extens	ion				NDE	E shaft	exten	sion			
Frame size	Motor type 1FP15.4-	No. of poles	Н	НА	Υ	НН	K	Κ´	L	L′	LC ¹⁾	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
180 M/ 180 L	1EB2, 1EF2 1EB4	4	180	20	95	155	15	19	668 698	668 698		165	48	M16	110	100	5	14	52	48	M16	110	100	5	14	51.5
200 L	All	4	200	25	108	164	19	25	721	755	835	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59

¹⁾ In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

Orientation

Overview

SIMOTICS GP/SD VSD10 line motor series: 1LE109, 1LE159



SIMOTICS GP/SD VSD10 line motors are suitable for all sectors of industry as a result of their flexibility and the wide range of versions available.

Versions of the SIMOTICS GP/SD VSD10 line motor series: 1LE109, 1LE159

The motors are squirrel-cage induction motors with compact dimensions in a surface-cooled, enclosed version with self-ventilation. They have been specifically designed for converter operation.

1LE109 General Purpose for converter operation

- Four-quadrant operation with a converter, optimally coordinated to the SINAMICS G drive system. Can be operated with SINAMICS S (ALM, SLM) in four-quadrant operation.
- IP55 degree of protection
- IC411 cooling method, self-ventilated (IC416 cooling method, force-ventilated version optional)
- Housing: Aluminum
- Frame sizes 100 to 160

1LE159 Severe Duty for converter operation

- Four-quadrant operation with a converter, optimally coordinated to the SINAMICS G drive system. Can be operated with SINAMICS S (ALM, SLM) in four-quadrant operation.
- IP55 degree of protection
- IC411 cooling method, self-ventilated (IC416 cooling method, force-ventilated version optional)
- Housing: Cast iron
- Frame sizes 100 to 315

Benefits

The SIMOTICS GP/SD VSD10 line series of motors has been specifically developed for operation with SINAMICS G converters.

- Optimizing the assignment of the motor active part to the Power Module results in low capital investment costs.
- The high power density and compact design ensure low space requirements combined with low weight.
- An optimally harmonized drive system is created as the motor is optimally coordinated and harmonized with the converter.
 For instance, the converter does not have to be derated or there is low temperature rise.
- Optionally, SIMOTICS GP motors with an aluminum housing (frame sizes 100 to 160) or SIMOTICS SD motors with a rugged cast-iron housing (frame sizes 100 to 315) are available
- High degree of availability based on standard protection functions for converter operation – KTY 84-130 temperature sensors, Pt1000 resistance thermometers (all frame sizes) and NDE insulated bearings (frame sizes 280 and 315).
- As a result of the optimized insulation system, a high degree of reliability is obtained for four-quadrant operation with SINAMICS converters.
- Fast and simple commissioning by transferring a motor code into the converter.

More power ratings

SIMOTICS GP/SD VSD10 line motors are designed as standard for operation with a 50-Hz, 60-Hz, and 87-Hz characteristic (up to frame size 200). No special ordering option is required.

Optimized for converter operation

The new motor series has been optimized for operation with SINAMICS G120, G130, and G150 converters with regard to converter output currents and voltage utilization. Four-quadrant operation is possible without restrictions with the SINAMICS G120 and SINAMICS S120 converter families. The motors can also be operated on other SINAMICS converters (SINAMICS G120P, SINAMICS G120C, SINAMICS G120D).

High degree of flexibility

By consistently utilizing the 1LE1 standard motor platform, almost all options of the 1LE1 line motors can also be used for the SIMOTICS GP/SD VSD10 line series.

Known and established design

Line and converter motors can be easily interchanged due to their identical dimensions and customer interfaces. The connection and operating philosophy is exactly the same as for 1LE1 line motors.

International applications

The motors are not subject to any minimum efficiency requirements for specific countries. As a consequence, they can be operated without additional MEPS certificates, also in the USA, for example.

¹⁾ Forced ventilation optionally available.

^{2) 87} Hz characteristic not available for all frame sizes.

³⁾ Other degrees of protection optionally available.

Orientation

Application

As a result of the wide range of options, the SIMOTICS GP/SD VSD10 line motor series can be deployed in all industrial areas and sectors. Paper, steel, energy, chemical, water/waste water are examples of some typical sectors.

Various flange and foot-mounted designs according to EN 60034-7 are available. IP55 is the standard degree of protection (other degrees of protection optionally available).

The wide field of applications that can be addressed includes, for example, the following:

- Pumps
- Fans
- Compressors
- Cranes
- Conveyor belts

Design

The SIMOTICS GD/SD VSD10 line motors are based on the 1LE1 platform. The principle design of the SIMOTICS GP/SD VSD10 line motors therefore corresponds to the 1LE1 line motors. The

mechanical parts are identical. The motors are adapted to the converter by appropriately dimensioning the active part and VSD-specific rating plate data.

Technical specifications

Overview of technical specifications

This table lists the most important technical specifications.

Type of motor	SIMOTICS GP/SD VSD10 line IEC Low-Voltage Motors; three-phase induction motors
Connection types	Star/delta connection The connection used depends on the particular load characteristic.
No. of poles	2, 4
Frame sizes	100 315
Rated power	 2-pole: 3 90 kW (50 Hz characteristic); 3.45 101 kW (60 Hz characteristic), 4.5 12.5 kW (87 Hz characteristic) 4-pole: 2.2 200 kW (50 Hz characteristic); 2.55 230 kW (60 Hz characteristic), 3.7 48 kW (87 Hz characteristic)
Frequencies	Characteristics for 50 Hz, 60 Hz and 87 Hz
Versions	Air-cooled, enclosed version
	with self ventilationwith forced ventilation (optional)
	SIMOTICS GP motors in an aluminum version, frame sizes 100 160 SIMOTICS SD motors in a cast-iron version, frame sizes 100 315
Marking	Only permitted for converter operation.
	As converter motors, IE classification according to IEC 60034-30-1 is not required.
Rated speed	 1500 rpm, 1800 rpm (up to frame size 315), and 2610 rpm (up to frame size 200) 3000 rpm, 3600 rpm (up to frame size 280), and 5220 rpm (up to frame size 112)
Rated torque	9.6 1273 Nm (50 Hz characteristic); 9.2 1220 Nm (60 Hz characteristic), 8.2 176 Nm (87 Hz characteristic)
Insulation of the stator winding in accordance with EN 60034-1 (IEC 60034-1)	Temperature class F Reinforced insulation system (Advanced) up to 440 V motor connection voltage Special insulation system (Premium) up to 480 V motor connection voltage
Degree of protection according to EN 60034-5 (IEC 60034-5)	Standard IP55 optionally IP56 and IP65 Air-cooled, enclosed version;
Cooling according to EN 60034-6 (IEC 60034-6)	Standard: Self-ventilated (IC411) Optional: Forced-air cooled (IC416)
Permissible coolant temperature and installation altitude	-20 +40 °C as standard, installation altitude up to 1000 m above sea level.
Standard voltages according to EN 60038 (IEC 60038)	50 Hz line supplies: 400 V, 500 V, 690 V 60-Hz supply systems: 460 V, 600 V The rated motor voltage required is listed in the "Selection and ordering data" for the required motor.
Type of construction according to EN 60034-7 (IEC 60034-7)	 Without flange: IM B3, IM B6, IM B7, IM B8, IM V5, IM V6 With flange: IM B5, IM B35, IM V1, IM V3
Paint finish Suitability of paint finish for climate group according to IEC 60721, Part 2-1	As standard: color RAL 7030 stone gray
Vibration severity grade according to EN 60034-14 (IEC 60034-14)	Grade A (normal)
Shaft extension according to DIN 748 (IEC 60072)	Balancing type: half-key balancing as standard
Sound pressure level according to EN ISO 1680 (tolerance +3 dB)	The sound pressure level is listed in the "Selection and ordering data" for the required motor.
Weights	The weight is listed in the "Selection and ordering data" for the required motor.
Modular mounting concept	Optional pulse encoder, brake, and separately driven fan according to ordering data
Options	See "Article No. supplements and special versions"

Orientation

Technical specifications (continued)

Rating plate

In accordance with EN 60034-1, the approximate total weight is specified on the rating plate. As standard, the rating plate is in English.

For straightforward and fast commissioning with SINAMICS G converters, a motor code number is stamped on the rating plate (CODE). The rated frequencies deviate, depending on the slip, from 50 Hz, 60 Hz, and 87 Hz.

	ech Rep			Nürnber						ϵ
3~Mot. 1	AV1164	4B 1L	.E10921	DB421/	\F4	UD 1	701/12	34567 001 00	01	
IEC/EN 6	0034 ′	160L IM	B3	IP55						
73kg	Th.Cl.	155(F)	-20°C	<=TAM	3<=40°	С				
	В	earing								
	DE 6	209-2Z(23							
	NE 6	209-2Z0	23					ı	(
\cup	-	CON	VERTE	R DUT	ONLY /	VPWM	SINA	MICS G120	Nmax 4200	1/min
<u></u>	Hz	CON	VERTE kW	R DUT cos φ	/ ONLY Nm	VPWM 1/min	SINA	MICS G120	Nmax 4200 COI	.,
V 380 Y	Hz 51.4							AMICS G120		ΣE
•		А	kW	cos φ	Nm	1/min	EFF	AMICS G120	COL	ΣE
380 Y	51.4	A 31.5	kW 15.0	cos φ 0.82	Nm 95	1/min 1500	EFF 88.7	AMICS G120	COL	ΣE

Example of a rating plate for SIMOTICS GP VSD10 line

Motors specially designed for converter operation

These motors have been specifically designed for converter operation. The catalog data apply for operation with Siemens SINAMICS G and SINAMICS S converters.

When operated with an alternative converter, the catalog data apply (thermal torque limits, maximum overload torques), approximately for the following general conditions:

- Minimum rated pulse frequencies:
 - 4 kHz at 400 V, up to 90 kW
 - 2 kHz at 500 V to 690 V, up to 132 kW
 - 1.25 kHz at 500 V to 690 V, 160 and 200 kW
- The converter can provide the rated voltage as listed in the catalog.
- Permissible voltage peaks for reinforced insulation system (Advanced):
- $\hat{U}_{\text{phase-to-phase}} \le 1600 \text{ V}, \ \hat{U}_{\text{phase-to-ground}} \le 1400 \text{ V}, \ t_{\text{s}} > 0.1 \text{ }\mu\text{s}$
- Permissible voltage peaks for special insulation system (Premium):

 $\hat{U}_{phase-to-phase} \le 2200 \text{ V}, \ \hat{U}_{phase-to-ground} \le 1500 \text{ V}, \ t_s > 0.1 \text{ }\mu\text{s}$

For SINAMICS G120 converters (from firmware version 4.7 and higher), the SIMOTICS GP/SD VSD10 line can be selected as the motor category and addressed using the motor code No. in the SINAMICS converter using the STARTER software or at the converter operator panel (Advanced Operator Panel (AOP), Basic Operator Panel (BOP)).

Rated voltage

The tolerance for the rated voltage is in accordance with EN 60034-1. A rated voltage is not specified. The rated motor voltages are selected so that when operated with a SINAMICS G120 converter, the available voltage is optimally utilized.

Insulation

The motors can be operated with line voltages up to 690 V 3 AC with SINAMICS G converters and SINAMICS S converters (uncontrolled and controlled infeed) when maintaining the permissible peak voltages specified above.

Depending on the selected motor connection voltage, a special insulation system is used for converter operation.

- Up to 440 V motor voltage (480 V line voltage) reinforced insulation system (Advanced)
- From 480 V motor voltage (500 V line voltage) special insulation system (Premium)

For converter operation with the power ratings specified in the catalog, the motors can be utilized corresponding to thermal class 155 (F) (service factor 1.0).

Preferred supply system configurations are TT systems and TN systems with neutral-point grounding. In the case of a fault when connected to an IT system (ground fault), the insulation is excessively stressed. In this case, the process should be terminated as quickly as possible (t < 2 h), and the fault resolved. We do not recommend operation in corner-grounded TN systems.

Noise

The maximum sound pressure levels should be taken from the selection and ordering data.

Orientation

Technical specifications (continued)

Separately driven fan

For the technical specifications of the separately driven fans, see page 1/80 "Technical specifications of separately driven fans".

Bearings

To prevent bearing current damage, converter motors are equipped with insulated bearing cartridges at the NDE, available as standard for frame sizes 280 and 315.

Insulated NDE bearings are optionally available for frame sizes 225 and 250. We recommend their use depending on the particular plant or system.

For converter operation, as a result of the basic principle employed, electrical bearing stress is created through the bearing lubricant film due to a voltage that is capacitively coupled in.

The physical cause of this is the common-mode voltage at the converter output that is inherent in the control method for a converter:

The sum of the three phase voltages is – in contrast to pure line operation – not equal to zero at every point in time.

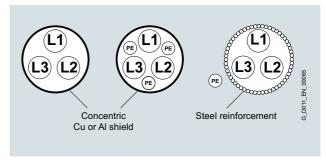
In order to apply currents to the motor which are sinusoidal as far as possible (resulting in smoother running, lower oscillation torques, and lower stray losses), a high pulse frequency is required for the converter's output voltage. The related (very steep) switching edges of the converter output voltage (and also, therefore, of the common-mode voltage) cause correspondingly high capacitive currents and voltages on the machine's internal capacitances.

In the worst-case scenario, the capacitive voltage induced via the bearing can lead to random arcing through the bearing lubricating film, thus causing premature bearing aging or damage.

This physical effect, which occurs in isolated cases, has mostly been observed in connection with larger motors.

EMC-compliant installation of the drive system is a basic prerequisite for preventing premature bearing damage via bearing currents. The most important measures for reducing bearing currents:

- Insulated motor bearing at the NDE
- Use cables with a symmetrical cable cross-section:



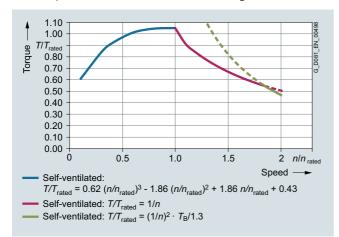
- Preference given to a line supply with isolated neutral point (IT system).
- Using grounding cables with low impedance over a wide frequency range (DC up to approximately 70 MHz): for example, braided copper ribbon cables, HF finely stranded wires.
- Separate HF equipotential-bonding cable between motor housing and driven machine.
- Separate HF equipotential-bonding cable between motor housing and converter PE busbar.
- 360° HF contacting of the cable shield on the motor housing and the converter PE busbar. This can be achieved using EMC screwed glands on the motor side and EMC shield clips on the converter side, for example.

Orientation

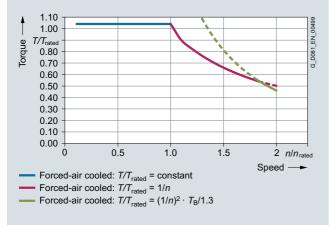
Technical specifications (continued)

Torque limits (continuous duty)

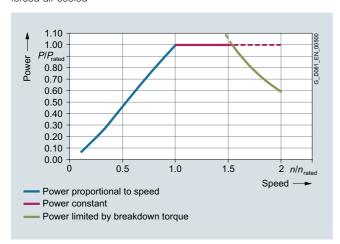
The thermal torque limit characteristics of the SIMOTICS GP/SD VSD10 line define the maximum load torque for uninterrupted duty (S1) over the complete speed control range. The characteristics are different for all of the cooling methods. The speed control range is limited by the mechanical speed limit, which depends on the motor's mechanical design.



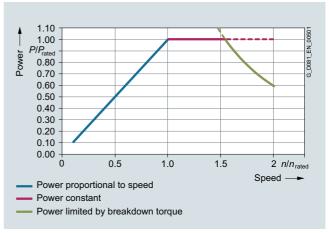
Torque limit characteristic for SIMOTICS GP/SD VSD10 line, self-ventilated



Torque limit characteristic for SIMOTICS GP/SD VSD10 line, forced-air cooled



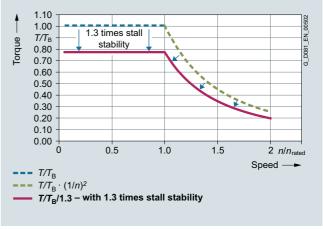
Power limit for SIMOTICS GP/SD VSD10 line, self-ventilated



Power limit for SIMOTICS GP/SD VSD10 line, forced-air cooled

Maximum overload torques

The maximum overload torque output from the motor is defined by the overload torque characteristic over the complete speed control range. The reference variable is the breakdown torque at rated speed. The breakdown torque is calculated from the breakdown torque ratio and the rated torque. Operation at the maximum overload torque is only briefly permissible, for instance, when accelerating. The speed control range is limited by the mechanical speed limit, which depends on the motor's mechanical design.



Overload torque characteristic for SIMOTICS GP/SD VSD10 line

Orientation

Technical specifications (continued)

Additional information

Mechanical stress and grease lifetime

When motors are operated at speeds above the rated speed, the mechanical smooth running operation and the bearings are subjected to greater mechanical stress. This reduces the grease lifetime and the bearing lifetime.

Above 100 Hz, the motors must be balanced for twice the rated frequency.

Motor protection

A motor protection function can be implemented using the \$Pt\$ sensing function implemented in the converter software. If required, more precise motor protection can be afforded by direct temperature measurement using KTY84 sensors, PTC thermistors, or Pt100/1000 resistance thermometers in the motor winding. Some converters from Siemens determine the motor temperature using the resistance of the temperature sensor. They can be set to a required temperature for alarm and tripping. When ordering PTC thermistors, Pt100 resistance thermistors or other temperature sensors to monitor the cooling temperature, the KTY84 sensors, otherwise provided as standard, are omitted. As described above, KTY84 sensors are evaluated in the SINAMICS converters.

Motor connection

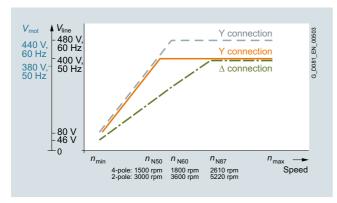
When connecting the motors, it is important to consider the restrictions for 1LE1 line motors as well as the maximum conductor cross-sections permitted for the converter.

Operating data for 50 Hz/60 Hz/87 Hz characteristics

SIMOTICS GP/SD VSD10 line motors are designed for operation with 50-Hz, 60-Hz and 87-Hz characteristics (87-Hz characteristic up to frame size 200).

Operation with the 50-/60-Hz characteristic requires Y (star or wye) connection; operation with the 87-Hz characteristic requires Δ connection.

The corresponding power data are stamped on the rating plate as standard. An ordering option is not required.



Operating characteristics of SIMOTICS GP/SD VSD10 line motors

Maximum operating speed

The maximum operating speed is limited by the mechanical speed limit of the motors as well as the available converter output frequency.

A significant increase in the sound pressure level can be expected when operating the motor above its rated speed (field weakening range).

Mechanical speed limits SIMOTICS GP/SD VSD10 line:

Frame size	Mechanical speed limits	for 1LE1.92 motors
	2-pole	4-pole
	n _{max}	n_{max}
	rpm	rpm
100	5500	4200
112	5500	4200
132	4500	4200
160	4500	4200
180	4500	4200
200	4500	4200
225	4500	4500
250	3900	3700
280	3600	3000
315	_	2600

International use:

As special converter motors, SIMOTICS GP/SD VSD10 line motors are presently not subject to any minimum efficiency requirements in the EU and USA/Canada. However, other national certificates may be required (e.g. CSA-S safety in Canada).

Therefore, for use in USA, Canada and Mexico, we recommend:

Ordering with order code **D39** (version according to UL and CSA-S).

Note:

At the present time, national Chinese regulations regarding converter motors are being revised. A conclusive interpretation relating to the design still cannot be made. As a consequence, until further notice, for China we recommend that line motors suitable for converter operation are used with CEL (China Energy Label) (e.g. 1LE100. with order code **D34**)

Orientation

Technical specifications (continued)

Load characteristics for the line supply voltage: 3 AC 50 Hz 400 V

Rated speed	3000 rpm				
Load characte	eristic			SIMOTICS GP/SD VSD10 line	SINAMICS G120
$T \sim n^2$	T = const.			motors	converters
	Speed control i	range			
	from 1500 rpm 1 : 2	from 750 rpm 1 : 4	from 300 rpm 1 : 10		
P _{max}	P_{max}	P_{max}	P_{max}		
kW	kW	kW	kW	Motor type	Converter type
3	1.47	0.63	0.21	1LE1.92-1AA42-1	6SL3210-1PE18-0.L1
4	1.97	0.84	0.27	1LE1.92-1BA22-1	6SL3210-1PE21-1.L0
5.5	2.69	1.17	0.39	1LE1.92-1CA02-1	6SL3210-1PE21-4.L0
7.5	3.64	1.59	0.54	1LE1.92-1CA12-1	6SL3210-1PE21-8.L0
11	5.38	2.34	0.79	1LE1.92-1DA22-1	6SL3210-1PE22-7.L0
15	7.33	3.19	1.08	1LE1.92-1DA32-1	6SL3210-1PE23-3.L0
18.5	9.05	3.93	1.32	1LE1.92-1DA42-1	6SL3210-1PE23-8.L0
22	10.77	4.69	1.59	1LE1592-1EA22-1	6SL3210-1PE24-5.L0
30	14.64	6.37	2.13	1LE1592-2AA42-1	6SL3210-1PE26-0.L0
37	18.08	7.86	2.66	1LE1592-2AA52-1	6SL3210-1PE27-5.L0
45	21.99	9.54	3.21	1LE1592-2BA22-1	6SL3210-1PE28-8.L0
55	26.86	11.65	3.91	1LE1592-2CA22-1	6SL3210-1PE31-1.L0
75	36.63	15.85	5.33	1LE1592-2DA02-1	6SL3210-1PE31-5.L0
90	43.91	19.00	6.38	1LE1592-2DA22-1	6SL3210-1PE31-8.L0

Rated speed 150	0 rpm				
Load characterist	ic			SIMOTICS GP/SD VSD10 line	SINAMICS
$T \sim n^2$	T = const.			motors	converters
	Speed control	range			
	from 750 rpm 1:2	from 375 rpm 1:4	from 150 rpm 1:10		
P _{max}	P_{max}	P_{max}	P_{max}		
kW	kW	kW	kW	Motor type	Converter type
2.2	1.06	0.43	0.13	1LE1.92-1AB42-1	6SL3210-1PE16-1.L1
3	1.45	0.59	0.18	1LE1.92-1AB52-1	6SL3210-1PE18-0.L1
4	1.93	0.78	0.24	1LE1.92-1BB22-1	6SL3210-1PE21-1.L0
5.5	2.65	1.07	0.33	1LE1.92-1CB02-1	6SL3210-1PE21-4.L0
7.5	3.60	1.45	0.45	1LE1.92-1CB22-1	6SL3210-1PE21-8.L0
11	5.31	2.14	0.66	1LE1.92-1DB22-1	6SL3210-1PE22-7.L0
15	7.20	2.91	0.90	1LE1.92-1DB42-1	6SL3210-1PE23-3.L0
18.5	8.94	3.61	1.11	1LE1592-1EB22-1	6SL3210-1PE23-8.L0
22	10.61	4.29	1.32	1LE1592-1EB42-1	6SL3210-1PE24-5.L0
30	14.48	5.85	1.80	1LE1592-2AB52-1	6SL3210-1PE26-0.L0
37	17.89	7.23	2.22	1LE1592-2BB02-1	6SL3210-1PE27-5.L0
45	21.68	8.76	2.70	1LE1592-2BB22-1	6SL3210-1PE28-8.L0
55	26.53	10.72	3.30	1LE1592-2CB22-1	6SL3210-1PE31-1.L0
75	36.15	14.61	4.50	1LE1592-2DB02-1	6SL3210-1PE31-5.L0
90	43.43	17.55	5.40	1LE1592-2DB22-1	6SL3210-1PE31-8.L0
106	53.05	21.44	6.60	1LE1592-3AB02-1	6SL3210-1PE32-1.L0
130	63.66	25.73	7.92	1LE1592-3AB22-1	6SL3210-1PE32-5.L0
160	77.23	31.21	9.60	1LE1592-3AB42-1	6SL3224-0XE41-3.A0
200	96.48	38.99	12.00	1LE1592-3AB52-1	6SL3224-0XE41-6.A0

Note:

The converter recommendation applies to standard ambient conditions (40 °C; 1000 m above sea level).

If, as a result of different ambient conditions, the rated motor power is significantly reduced, under certain circumstances, another converter is the optimum solution. Here, please use the configuration options for converters in the DT Configurator.

Orientation

Technical specifications (continued)

SIMOTICS GP/SD VSD10 line standard motors for converter operation with converter SINAMICS G120 Power Modules PM240-2

	SIMOTICS GP/SD Frame vSD10 size 1LE109/1LE159	SINAMICS G120 Power Module PM240-2	Pulse fre- quency	Frame size	System	n power	loss, rela	ative P _\	_{/,rel} as a	% referr	ed to P _{ra}	ited	IES class acc. to EN 50598-2
					Operat	ing poir	nts						
					at	1\						at	
					partial		_,,					rated load 1)	
	_	_			0/25	0/50	0/100		50/50	,	100/50	100/100	
kW	Туре	Туре	kHz		%	%	%	%	%	%	%	%	
	oltage 400 V 3 AC, 50/60 Hz												
3	1LE1.92-1AA42-1 100 L	6SL3210-1PE18-0.L1		FSA	3.433	6.367	17.333		8.533	21.433		27.833	IES 1
4	1LE1.92-1BA22-1 112 M	6SL3210-1PE21-1.L0		FSB	3.775	5.8	14.35	5.65	8.025	17.6	13.375	24.45	IES 1
5.5	1LE1.92-1CA02-1 132 S		4	FSB	3.109	5.218			6.564	16.6	10.309	21.6	IES 1
7.5	1LE1.92-1CA12-1 132 S		4	FSB	2.56	4.333	11.587		5.693	13.84	9.093	18.533	IES 2
11	1LE1.92-1DA22-1 160 M	6SL3210-1PE22-7.L0	4	FSC	2.664	4.364	11.2		5.936	13.845	10.255	19.555	IES 1
15	1LE1.92-1DA32-1 160 M	6SL3210-1PE23-3.L0		FSC	1.96	3.68	10.227			12.693	8.547	17.4	IES 1
18.5	1LE1592-1DA42-1 160 L	6SL3210-1PE23-8.L0	4	FSD	2.308	3.649	8.854	3.53	5.022	10.865	8.059	15.07	IES 2
22	1LE1592-1EA22-1 180 M	6SL3210-1PE24-5.L0	4	FSD	1.695	3.027	8.345	2.586	4.073	9.741	6.482	13.255	IES 2
30	1LE1592-2AA42-1 200 L	6SL3210-1PE26-0.L0	4	FSD	1.33	2.703	7.327	2.233	3.737	8.88	6.233	12.797	IES 2
37	1LE1592-2AA52-1 200 L	6SL3210-1PE27-5.L0	4	FSD	1.276	2.3	6.238	2.108	3.276	7.611	5.257	10.678	IES 2
45	1LE1592-2BA22-1 225 M	6SL3210-1PE28-8.L0	4	FSE	1.127	2.093	5.749	2.044	3.144	7.016	5.538	10.471	IES 2
55	1LE1592-2CA22-1 250 M	6SL3210-1PE31-1.L0	4	FSE	1.056	1.991	5.467	1.869	2.945	6.771	5.396	10.253	IES 2
75	1LE1592-2DA02-1 280 S	6SL3210-1PE31-5.L0	4	FSF	1.064	1.847	4.784	2.064	2.971	6.207	5.564	9.799	IES 2
90	1LE1592-2DA22-1 280 M	6SL3210-1PE31-8.L0	4	FSF	0.932	1.643	4.241	1.696	2.527	5.473	4.523	8.412	IES 2
Line v	oltage 400 V 3 AC, 50/60 Hz	, rated speed 1500 rpm											
2.2	1LE1.92-1AB42-1 100 L	6SL3210-1PE16-1.L1	4	FSA	5.273	8.273	19.273	6.682	10.364	27.682	14.364	32.091	IES 1
3	1LE1.92-1AB52-1 100 L	6SL3210-1PE18-0.L1	4	FSA	4.433	7.233	16.4	5.867	9	22.367	12.433	27	IES 1
4	1LE1.92-1BB22-1 112 M	6SL3210-1PE21-1.L0	4	FSB	4.45	6.9	16.1	5.675	8.425	20.025	11.5	24.3	IES 1
5.5	1LE1.92-1CB02-1 132 S	6SL3210-1PE21-4.L0	4	FSB	3.618	6	15.618	4.764	7.455	18.818	10.545	23.036	IES 1
7.5	1LE1.92-1CB22-1 132 M	6SL3210-1PE21-8.L0	4	FSB	3.413	5.24	12.533	4.787	6.84	15.24	10.013	19.733	IES 1
11	1LE1.92-1DB22-1 160 M	6SL3210-1PE22-7.L0	4	FSC	3.255	4.918	11.445	4.482	6.355	13.936	9.418	18.336	IES 1
15	1LE1.92-1DB42-1 160 L	6SL3210-1PE23-3.L0	4	FSC	2.94	4.387	10.073	4.013	5.627	12.06	8.14	15.8	IES 2
18.5	1LE1592-1EB22-1 180 M	6SL3210-1PE23-8.L0	4	FSD	2.205	3.665	9.092	3.465	5.076	11.292	7.514	14.843	IES 2
22	1LE1592-1EB42-1 180 L	6SL3210-1PE24-5.L0		FSD	2.232	3.527	8.5	3.1	4.545	10.145		12.841	IES 2
30	1LE1592-2AB52-1 200 L	6SL3210-1PE26-0.L0		FSD	1.99	3.167	7.903	2.877	4.197	9.32	6.06	12.26	IES 2
37	1LE1592-2BB02-1 225 S	6SL3210-1PE27-5.L0		FSD	1.53	2.635	6.938	2.551	3.797	8.568	6.051	11.924	IES 2
45	1LE1592-2BB22-1 225 M	6SL3210-1PE28-8.L0		FSE	1.413	2.493	6.644		3.504	8.053	5.447	10.982	IES 2
55	1LE1592-2CB22-1 250 M	6SL3210-1PE31-1.L0		FSE	1.298	2.427	7.129	2.104		8.082	5.3	11.051	IES 2
75	1LE1592-2DB02-1 280 S	6SL3210-1PE31-5.L0		FSF	1.317	2.135	5.216	2.441	3.373	6.811	5.909	10.315	IES 2
90	1LE1592-2DB22-1 280 M	6SL3210-1PE31-8.L0		FSF	1.224	2.033	5.132	2.002		6.357	4.579	8.95	IES 2
106	1LE1592-3AB02-1 315 S	6SL3210-1PE32-1.L0		FSF	1.021	1.711	4.398	1.959	2.765	5.781	4.811	8.863	IES 2
130	1LE1592-3AB22-1 315 M	6SL3210-1PE32-5.L0		FSF	0.947	1.543	3.828		2.468	5.094	4.256	7.9	IES 2
160	1LE1592-3AB42-1 315 M	6SL3224-0XE41-3.A0		FSGX	1.343	1.981	4.441	2.224	2.400	5.771	4.762	8.614	IES 2
200	1LE1592-3AB42-1 315 L	6SL3224-0XE41-3.A0		FSGX	1.149		4.441	1.871	2.703	5.838	4.762	8.251	IES 2
200	ILL 1092-0AD02-1 313 L	03L3ZZ4-UAE41-0.AU	_	roux	1.149	1.079	4.131	1.0/ I	2.703	J.030	4.104	0.201	ILO Z

 $^{^{1)}}$ Output frequency, rel. [%] referred to the rated speed/ Torque, rel. [%] referred to the rated torque $T_{\rm rated}.$

Orientation

Article number code

Selection and ordering data

The article number consists of a combination of digits and letters and is divided into three hyphenated blocks to provide a better overview, e.g.:

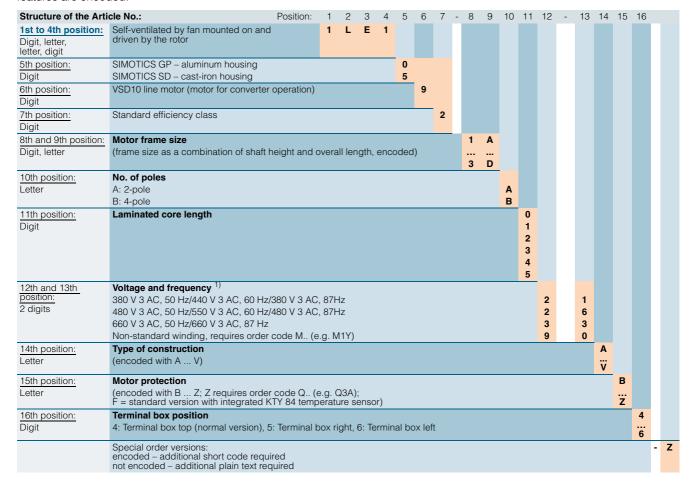
1LE1592-1DB42-1GF4-Z H00

The first block (positions 1 to 7) identifies the motor type. The second block (positions 8 to 12) defines the motor frame size and length, the number of poles and in some cases the frequency/voltage. In the third block (positions 13 to 16), the frequency/voltage, type of construction and further design features are encoded.

For deviations in the second and third block from the catalog codes either ${\bf Z}$ or ${\bf 90}$ should be used as appropriate.

Ordering data:

- Complete Article No. and order code(s) or plain text
- If a quotation has been requested, please specify the quotation number in addition to the Article No.
- When ordering a complete motor as a spare part, please specify the works serial No. for the previously supplied motor as well as the Article No.



Depending on slip, the rated frequency is above 50 Hz, 60 Hz or 87 Hz (see Technical specifications).

Orientation

Article number code

Selection and ordering data (continued)

Ordering example:

Selection criteria	Requirement	Structure of the Article No.
Motor type 1LE1	Standard motor for converter operation SIMOTICS GP VSD10 line, aluminum version	1LE1092-
Motor frame size	160 L	1LE1092-1DB
No. of poles	4-pole	1LE1092-1DB4
Rated power	P _{rated} 50: 15 kW P _{rated} 60: 17.3 kW P _{rated} 87: 23.5 kW	
Voltage and frequency	380 V 3 AC, 50 Hz/440 V 3 AC, 60 Hz/380 V 3 AC, 87Hz	1LE1092-1DB42-1
Type of construction with special version	IM V5 with protective cover 1)	1LE1092-1DB42-1CIII-Z H00
Motor protection	Motor protection with PTC thermistors with 1 or 3 embedded temperature sensors for tripping	1LE1092-1DB42-1CB■-Z H00
Terminal box position	Terminal box right (viewed from DE)	1LE1092-1DB42-1CB5-Z H00

Standard without protective cover – the protective cover is defined with order code **H00** and must be ordered in addition to the Article No. with **-Z** and this order code.

1LE1092 aluminum series – Standard Efficiency

Self-ventilated, enclosed motors – line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz

Selection	on and ord	ering data	1							
					Operatir	ng values at ra	ated power			1LE1092 aluminum series
P _{rated} 50 Hz, 400 V	P rated 60 Hz, 460 V	P _{rated} 87 Hz, 400 V	Frame size	Connection	f _{rated}	$T_{ m rated}$	η _{rated, 4/4} for converter operation	COS $\phi_{\text{rated}, 4/4}$	I _{rated}	Version specifically for converter operation
kW	kW	kW			Hz	Nm	%		А	Article No.
• Insulat	tion: Therma	l class 155 (t	temperature	class F), IP5	5 degree	of protection	, utilization in	accordance w	th therma	al class 155 (temperature class
 Operat 	tion with a SI	NAMICS G	converter wit	th uncontrol	led infeed	- rated moto	or voltage 380	V, 50 Hz/440 V	60 Hz/38	0 V, 87 Hz
3000 rpn	n 3600 rpm	1 5220 rpm	n 2-pole							
3			100 L	Υ	52.9	9.6	81.5	0.87	6.4	1LE1092-1AA42-1
	3.45			Υ	62.8	9.2	84.5	0.88	6.1	
		4.5		Δ	89.4	8.2	84.5	0.82	9.9	
4			112 M	Υ	51.2	12.7	83.1	0.86	8.5	1LE1092-1BA22-1■■■
	4.55			Υ	61.2	12.1	84.5	0.88	8	
		6.6		Δ	88.2	12.1	84.5	0.83	14.2	
5.5			132 S	Υ	51.4	17.5	84.7	0.89	11.1	1LE1092-1CA02-1
	6.3			Υ	61.4	16.7	86.0	0.90	10.7	
7.5			132 S	Υ	51.2	23.9	86.0	0.87	15.2	1LE1092-1CA12-1
	8.6			Υ	61.2	22.8	88.7	0.88	14.7	
11			160 M	Υ	51.3	35.0	87.6	0.85	22.5	1LE1092-1DA22-1
	12.6			Υ	61.2	33.4	87.5	0.86	22	
15			160 M	Υ	51.4	47.8	88.7	0.84	30.5	1LE1092-1DA32-1
	17.3			Υ	61.4	45.9	89.5	0.86	29.5	
18.5			160 L	Υ	51.1	58.9	89.3	0.86	36.5	1LE1092-1DA42-1■■■
	21.3			Υ	61.1	56.5	89.5	0.87	36	
1500 rpn	n 1800 rpm	1 2610 rpm	n 4-pole							
2.2			100 L	Υ	52.9	14.0	79.7	0.81	5.2	1LE1092-1AB42-1
	2.55			Υ	62.8	13.5	83.0	0.82	4.9	
		3.7		Δ	89.3	13.5	83.0	0.79	8.6	
3			100 L	Υ	52.7	19.1	81.5	0.85	6.6	1LE1092-1AB52-1
	3.45			Υ	62.6	18.3	85.0	0.86	6.2	
		5		Δ	89.3	18.3	85.0	0.79	11.3	
4			112 M	Υ	52.3	25.5	83.1	0.85	8.6	1LE1092-1BB22-1■■■
	4.55			Υ	62.2	24.0	85.0	0.85	8.3	
		6.6		Δ	89.0	24.0	85.0	0.81	14.6	
5.5			132 S	Υ	52.1	35.0	84.7	0.82	12	1LE1092-1CB02-1
	6.3			Υ	62.0	33.5	87.0	0.84	11.3	
		9		Δ	88.8	33.0	87.0	0.81	19.4	
7.5			132 M	Υ	51.7	47.5	86.0	0.82	16.2	1LE1092-1CB22-1■■■
	8.6			Υ	61.7	45.5	87.5	0.84	15.4	
		12.5		Δ	88.8	45.5	87.5	0.80	27.1	
11			160 M	Y	51.5	70.0	87.6	0.82	23.5	1LE1092-1DB22-1■■■

61.4

88.3

51.4

61.4

Δ

67.0

62.0

95.0

92.0

86.0

88.5

88.5

88.7

90.5

90.5

0.82

0.78

0.82

0.82

0.77

23 37.5

31.5

30.5

51

1LE1092-1DB42-1

For versions, see Article No. supplements and special versions.

All technical specifications refer to converter operation.

160 L

17

23.5

12.6

17.3

15

1LE1092 aluminum series – Standard Efficiency

Self-ventilated, enclosed motors – line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz

Motor type	m _{IM B3}	J	L _{pfA} , tolerance +3 dB(A) load	L _{WA} , tolerance +3 dB(A) load	Mech. speed limit	Terminal box	Preferred SINAMICS G120 – PM240(-2) Other SINAMICS converters also possible Operating mode: Low overload	Frame size	IES class acc. to EN 50598-2
	kg	kgm ²	dB(A)	dB(A)	rpm		Type 1)		
1LE1092-1AA42-1	20	0.0034	79.0	91.1	5500	TB1F00	6SL3210-1PE18-0.L1	FSA	IES 1
	20	0.0034	79.0	91.1	5500		6SL3210-1PE18-0.L1	FSA	IES 1
	20	0.0034	83.0	95.1	5500		6SL3210-1PE21-4.L0	FSB	IES 1
1LE1092-1BA22-1	25	0.0067	78.0	90.1	5500	TB1F00	6SL3210-1PE21-1.L0	FSB	IES 1
	25	0.0067	78.0	90.1	5500		6SL3210-1PE21-1.L0	FSB	IES 1
	25	0.0067	83.0	95.2	5500		6SL3210-1PE21-8.L0	FSB	IES 1
1LE1092-1CA02-1	35	0.013	76.0	88.3	4500	TB1F00	6SL3210-1PE21-4.L0	FSB	IES 1
	35	0.013	76.0	88.3	4500		6SL3210-1PE21-4.L0	FSB	IES 1
1LE1092-1CA12-1	40	0.016	76.0	88.4	4500	TB1H00	6SL3210-1PE21-8.L0	FSB	IES 2
	40	0.016	76.0	88.4	4500		6SL3210-1PE21-8.L0	FSB	IES 2
1LE1092-1DA22-1	60	0.03	79.0	91.4	4500	TB1H00	6SL3210-1PE22-7.L0	FSC	IES 1
	60	0.03	78.0	90.4	4500		6SL3210-1PE22-7.L0	FSC	IES 1
1LE1092-1DA32-1	68	0.036	79.0	91.8	4500	TB1J00	6SL3210-1PE23-3.L0	FSC	IES 1
	68	0.036	78.0	90.8	4500		6SL3210-1PE23-3.L0	FSC	IES 1
1LE1092-1DA42-1	78	0.044	79.0	91.8	4500	TB1J00	6SL3210-1PE23-8.L0	FSD	IES 2
	78	0.044	78.0	90.8	4500		6SL3210-1PE23-8.L0	FSD	IES 2
1LE1092-1AB42-1	15	0.0059	79.0	91.0	4200	TB1F00	6SL3210-1PE16-1.L1	FSA	IES 1
TEE 1002 17 15 12 1	15	0.0059	79.0	91.0	4200		6SL3210-1PE16-1.L1	FSA	IES 1
	15	0.0059	81.0	93.0	4200		6SL3210-1PE21-1.L0	FSB	IES 1
1LE1092-1AB52-1	21	0.0078	79.0	91.0	4200	TB1F00	6SL3210-1PE18-0.L1	FSA	IES 1
722 7002 77 202 77	21	0.0078	79.0	91.0	4200		6SL3210-1PE18-0.L1	FSA	IES 1
	21	0.0078	81.0	93.0	4200	_	6SL3210-1PE21-4.L0	FSB	IES 1
1LE1092-1BB22-1	27	0.01	77.4	89.4	4200	TB1F00	6SL3210-1PE21-1.L0	FSB	IES 1
	27	0.01	77.2	89.2	4200		6SL3210-1PE21-1.L0	FSB	IES 1
	27	0.01	78.4	90.4	4200		6SL3210-1PE21-8.L0	FSB	IES 1
1LE1092-1CB02-1	39	0.019	76.0	88.0	4200	TB1H00	6SL3210-1PE21-4.L0	FSB	IES 1
	39	0.019	76.0	88.0	4200		6SL3210-1PE21-4.L0	FSB	IES 1
	39	0.019	83.0	95.0	4200		6SL3210-1PE22-7.L0	FSC	IES 1
1LE1092-1CB22-1	43	0.024	76.0	88.0	4200	TB1H00	6SL3210-1PE21-8.L0	FSB	IES 1
	43	0.024	76.0	88.0	4200		6SL3210-1PE21-8.L0	FSB	IES 1
	43	0.024	83.0	95.0	4200		6SL3210-1PE23-3.L0	FSC	IES 1
1LE1092-1DB22-1	67	0.044	83.5	95.5	4200	TB1J00	6SL3210-1PE22-7.L0	FSC	IES 1
	67	0.044	82.3	94.3	4200		6SL3210-1PE22-7.L0	FSC	IES 1
	67	0.044	85.8	97.8	4200		6SL3210-1PE24-5.L0	FSD	IES 1
1LE1092-1DB42-1	75	0.056	83.5	95.5	4200	TB1J00	6SL3210-1PE23-3.L0	FSC	IES 2
	75	0.056	82.3	94.3	4200		6SL3210-1PE23-3.L0	FSC	IES 2
	75	0.056	85.8	97.8	4200		6SL3210-1PE26-0.L0	FSD	IES 2

¹⁾ In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

1LE1092 aluminum series – Standard Efficiency

Self-ventilated, enclosed motors – line voltage 500 V, 50 Hz/575 V, 60 Hz/500 V, 87 Hz

Selection and ordering data											
					Operating	values at rate	ed power			1LE1092 aluminum series	
P _{rated} 50 Hz, 500 V	P _{rated} 60 Hz, 575 V	P _{rated} 87 Hz, 500 V	Frame size	Connection	f _{rated}	T _{rated}	$\eta_{\rm rated, 4/4}$ for converter operation	COS φ _{rated, 4/4}	I _{rated}	Version specifically for converter operation	

							operation	n		
:W	kW	kW			Hz	Nm	%		Α	Article No.
										al class 155 (temperature clas
				h uncon	trolled infeed -	 rated mot 	or voltage 4	80 V, 50 Hz/5	50 V, 60 Hz/48	80 V, 87 Hz
00 rpm	3600 rpm	5220 rpm	2-pole							
			_ 100 L	Υ	52.9	9.6	81.5	0.87	5.1	1LE1092-1AA42-6
	3.45			Υ	63.0	9.2	84.5	0.88	4.85	
		5		Δ	89.6	9.1	84.5	0.85	8.4	
			112 M	Υ	51.3	12.7	83.1	0.86	6.7	1LE1092-1BA22-6
	4.55		_	Υ	61.3	12.1	84.5	0.88	6.4	
		6.6		Δ	88.2	12.1	84.5	0.84	11.1	
			132 S	Υ	51.6	17.5	84.7	0.89	8.8	1LE1092-1CA02-6
	6.3			Υ	61.6	16.7	86.0	0.90	8.5	
			132 S	Υ	51.2	23.9	86.0	0.87	12.1	1LE1092-1CA12-6
	8.6			Υ	61.2	22.8	88.7	0.88	11.7	
0			160 M	Υ	51.3	35.0	87.6	0.85	17.8	1LE1092-1DA22-6
	12.6			Υ	61.3	33.4	87.5	0.86	17.6	
			160 M	Υ	51.1	44.6	88.7	0.84	22.5	1LE1092-1DA32-6
	16.5		_	Υ	61.2	43.8	89.5	0.86	22.5	
			160 L	Υ	51.1	54.1	89.3	0.85	27	1LE1092-1DA42-6
	19.5		_	Υ	61.1	51.7	89.5	0.86	26.5	
00 rpm	1800 rpm	2610 rpm	4-pole							
			100 L	Υ	52.8	14.0	79.7	0.81	4.1	1LE1092-1AB42-6
	2.55		_	Υ	62.8	13.5	83.0	0.82	3.95	
		3.7		Δ	89.6	13.5	83.0	0.79	6.8	
			100 L	Υ	52.6	19.1	81.5	0.85	5.2	1LE1092-1AB52-6
	3.45		_	Υ	62.6	18.3	85.0	0.86	4.95	
		5	_	Δ	89.3	18.3	85.0	0.79	8.7	
			112 M	Y	52.4	25.5	83.1	0.85	6.8	1LE1092-1BB22-6
	4.55			Y	62.3	24.1	85.0	0.85	6.6	
		6.6	_	Δ	89.1	24.1	85.0	0.81	12	
j			132 S	Y	52.0	35.0	84.7	0.82	9.5	1LE1092-1CB02-6
	6.3			Y	62.0	33.4	87.0	0.84	9	
	0.0	9	_	Δ	88.8	32.9	87.0	0.81	15.4	_
			132 M	Y	51.9	47.8	86.0	0.82	12.8	1LE1092-1CB22-6
•	8.6		02	Y	61.9	45.6	87.5	0.84	12.3	
		12.5		Δ	88.7	45.7	87.5	0.80	21.5	
		12.0	160 M	Y	51.5	70.0	87.6	0.82	18.4	1LE1092-1DB22-6
	12.6		_ 100 W	Y	61.5	66.9	88.5	0.82	18.2	1LL 1032-1DD22-0
	12.0	17		$\frac{1}{\Delta}$	88.4	62.2	88.5	0.62	29.5	
.5		17	160 L	Y Y	51.2		88.5	0.78	29.5	1LE1092-1DB42-6
.5	15.6		100 L			86.0				1LE 1092-1DB42-6
	15.6		_	Y	61.2	82.8	90.5	0.81	22.5	

86.0

90.5

40.5

For versions, see Article No. supplements and special versions. All technical specifications refer to converter operation.

23.5

1LE1092 aluminum series – Standard Efficiency

Self-ventilated, enclosed motors – line voltage 500 V, 50 Hz/575 V, 60 Hz/500 V, 87 Hz

March March March March Medical Me	Motor type							Preferred		
TILE 1092-1AA42-6 20		m _{IM B3}	J	tolerance +3 dB(A)	tolerance +3 dB(A)	speed		Other SINAMICS converters also possible		
TILE 1092-1AA42-6 20		ka	kam ²	dB(A)	dB(A)	rpm		Type 1)		
1		ng	Ngili	GB(/T)	GD(71)	тртт		1,950		
1										
1										
The transfer of	1LE1092-1AA42-6	20	0.0034	80.0	92.1	5500	TB1F00			
The Triange of Trian		20	0.0034	80.0	92.1	5500				
Part		20	0.0034	85.0	92.1	5500				
1LE1092-1DA42-6 25	1LE1092-1BA22-6	25	0.0067	79.0	91.1	5500	TB1F00			
The Hard No.		25	0.0067	79.0	91.1	5500				
1LE 1092-1DA2-6 25		25	0.0067	85.0	91.1	5500		6SL3210-1PH21-4.L0	FSD	
The Triangle of Cartest	1LE1092-1CA02-6	35	0.013	77.0	89.3	4500	TB1F00	6SL3210-1PH21-4.L0	FSD	
1LE1092-1DA22-6 60		35	0.013	77.0	89.3	4500		6SL3210-1PH21-4.L0	FSD	
1LE1092-1DA22-6 60	1LE1092-1CA12-6	40	0.016	77.0	89.4	4500	TB1H00	6SL3210-1PH21-4.L0	FSD	
The Trip										
1LE1092-1DA32-6 68 0.036 80.0 92.4 4500 7B1y00 6SL3210-1PH22-0.10 FSD FSD 1LE1092-1DA32-6 78 0.044 80.0 92.8 4500 7B1y00 6SL3210-1PH22-3.10 FSD FSD 1LE1092-1DA42-6 78 0.044 80.0 92.8 4500 7B1y00 6SL3210-1PH22-7.1.0 FSD FSD 1LE1092-1DA42-6 78 0.044 80.0 92.8 4500 7B1y00 6SL3210-1PH22-7.1.0 FSD FSD 1LE1092-1AB42-6 18 0.0059 80.0 92.1 4200 42	1LF1092-1DA22-6						TB1H00		-	
1	122 1002 13/122 0								_	
1	1LF1092-1DA32-6						TB1,I00		_	
TET 1092-1 DA42-6 78	TEE 1002 15/102 0								-	
Tel 1092-1AB42-6 18	11 F1002-1D442-6						TR1 IOO		_	
THE TOP 2-1 AB 42-6	TEE 1032-1DA42-0								-	
18		70	0.044	00.0	92.0	4300		03L3210-111122-7.L0	1 30	
18	1LE1002-1AB42-6	10	0.0050	80.0	02.1	4200	TR1E00			
18	TEE 1032-1AD42-0									
LE1092-1AB52-6 22 0.0078 80.0 92.1 4200 781F00 4200<										
Parish	11 F1000 1AREO 6						TD1500			
1 1 2 2 2 2 2 2 2 2	TLE 1092-TAB32-0									
The Trip of Control										
1	11 E1000 1BB00 0						TD1500			
1	1LE1092-1BB22-6						IB1F00			
1LE1092-1CB02-6 38 0.019 77.0 89.4 4200 TB1H00 6SL3210-1PH21-4.L0 FSD 38 0.019 77.0 89.4 4200 6SL3210-1PH21-4.L0 FSD 1LE1092-1CB22-6 44 0.024 77.0 89.4 4200 TB1H00 6SL3210-1PH21-4.L0 FSD 44 0.024 77.0 89.4 4200 FSD 6SL3210-1PH21-4.L0 FSD 44 0.024 83.0 95.4 4200 6SL3210-1PH21-4.L0 FSD 5LE1092-1DB22-6 62 0.044 85.0 97.8 4200 TB1J00 6SL3210-1PH21-4.L0 FSD 62 0.044 85.0 97.8 4200 TB1J00 6SL3210-1PH22-0.L0 FSD 1LE1092-1DB42-6 62 0.044 85.0 97.8 4200 TB1J00 6SL3210-1PH22-3.L0 FSD 1LE1092-1DB42-6 73 0.056 85.0 97.8 4200 TB1J00 6SL3210-1PH22-3.L0 FSD 6SL3210-1PH22-3.L0 FSD 6SL3210-1PH22-3.L0 FSD			****					001 00 10 101 101 110	500	
1	## F 4000 40000 0						TD // 100		_	
1 1 1 1 1 1 1 1 1 1	1LE1092-1CB02-6						IB1H00			
1LE1092-1CB22-6 44 0.024 77.0 89.4 4200 TB1H00 6SL3210-1PH21-4.L0 FSD 44 0.024 77.0 89.4 4200 6SL3210-1PH21-4.L0 FSD 1LE1092-1DB22-6 62 0.044 85.0 97.8 4200 TB1J00 6SL3210-1PH22-3.L0 FSD 62 0.044 85.0 97.8 4200 FSD 6SL3210-1PH22-0.L0 FSD 62 0.044 85.0 97.8 4200 6SL3210-1PH22-0.L0 FSD 1LE1092-1DB42-6 73 0.056 85.0 97.8 4200 TB1J00 6SL3210-1PH23-5.L0 FSD 1LE1092-1DB42-6 73 0.056 85.0 97.8 4200 TB1J00 6SL3210-1PH22-3.L0 FSD 6SL3210-1PH22-3.L0 FSD FSD 6SL3210-1PH22-3.L0 FSD FSD							<u></u>		-	
44 0.024 77.0 89.4 4200 6SL3210-1PH21-4.L0 FSD 1LE1092-1DB22-6 62 0.044 85.0 97.8 4200 TB1J00 6SL3210-1PH22-3.L0 FSD 62 0.044 85.0 97.8 4200 6SL3210-1PH22-0.L0 FSD 62 0.044 85.0 97.8 4200 6SL3210-1PH22-0.L0 FSD 1LE1092-1DB42-6 73 0.056 85.0 97.8 4200 TB1J00 6SL3210-1PH22-3.L0 FSD 1LE1092-1DB42-6 73 0.056 85.0 97.8 4200 TB1J00 6SL3210-1PH22-3.L0 FSD 6SL3210-1PH22-3.L0 FSD										
1LE1092-1DB22-6 62 0.044 85.0 97.8 4200 4200 6SL3210-1PH22-3.L0 FSD	1LE1092-1CB22-6						TB1H00		-	
1LE1092-1DB22-6 62 0.044 85.0 97.8 4200 TB1J00 6SL3210-1PH22-0.L0 FSD 62 0.044 85.0 97.8 4200 6SL3210-1PH22-0.L0 FSD 62 0.044 85.0 97.8 4200 6SL3210-1PH23-5.L0 FSD 1LE1092-1DB42-6 73 0.056 85.0 97.8 4200 TB1J00 6SL3210-1PH23-3.L0 FSD 73 0.056 85.0 97.8 4200 TB1J00 6SL3210-1PH22-3.L0 FSD 6SL3210-1PH22-3.L0 FSD									-	
62 0.044 85.0 97.8 4200 6SL3210-1PH22-0.L0 FSD 62 0.044 85.0 97.8 4200 6SL3210-1PH23-5.L0 FSD 1LE1092-1DB42-6 73 0.056 85.0 97.8 4200 TB1J00 6SL3210-1PH22-3.L0 FSD 73 0.056 85.0 97.8 4200 6SL3210-1PH22-3.L0 FSD		* * *							-	
62 0.044 85.0 97.8 4200 6SL3210-1PH23-5.L0 FSD 1LE1092-1DB42-6 73 0.056 85.0 97.8 4200 TB1J00 6SL3210-1PH22-3.L0 FSD 73 0.056 85.0 97.8 4200 6SL3210-1PH22-3.L0 FSD	1LE1092-1DB22-6		0.044				TB1J00		-	
1LE1092-1DB42-6 73 0.056 85.0 97.8 4200 TB1J00 6SL3210-1PH22-3.L0 FSD 73 0.056 85.0 97.8 4200 6SL3210-1PH22-3.L0 FSD			0.044				<u></u>	6SL3210-1PH22-0.L0	-	
73 0.056 85.0 97.8 4200 6SL3210-1PH22-3.L0 FSD			0.044	85.0	97.8	4200		6SL3210-1PH23-5.L0	FSD	
	1LE1092-1DB42-6	73	0.056	85.0	97.8	4200	TB1J00	6SL3210-1PH22-3.L0	FSD	
73 0.056 85.0 97.8 4200 6SL3210-1PH24-2.L0 FSD		73	0.056	85.0	97.8	4200	=	6SL3210-1PH22-3.L0	FSD	
		73	0.056	85.0	97.8	4200		6SL3210-1PH24-2.L0	FSD	

¹⁾ In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

1LE1092 aluminum series – Standard Efficiency

Self-ventilated, enclosed motors – line voltage 690 V, 50 Hz/690 V, 87 Hz

Selection and ordering data

					Operatir	g values at ra	ated power			1LE1092 aluminum series
P _{rated} 50 Hz, 690 V	P _{rated} 60 Hz	P _{rated} 87 Hz, 690 V	Frame size	Connection	f _{rated}	$T_{ m rated}$	η _{rated, 4/4} for converter operation	COS <i>P</i> _{rated} , 4/4	I _{rated}	Version specifically for converter operation
kW	kW	kW			Hz	Nm	%		А	Article No.
 Insulatio 	n: Thermal c	lass 155 (te	mperature	class F), IP5	5 degree	of protection	, utilization in	accordance w	ith therm	al class 155 (temperature class F
 Operatio 	n with a SIN	AMICS G co	nverter wit	h uncontroll	ed infeed	 rated motor 	or voltage 660	V/50 Hz/660 V,	87 Hz	
3000 rpm	3600 rpm	5220 rpm	2-pole							
3			100 L	Υ	52.7	9.6	81.5	0.87	3.7	1LE1092-1AA43-3
		5	 '	Δ	89.5	9.1	84.5	0.81	6.4	
4			112 M	Υ	51.2	12.7	83.1	0.86	4.9	1LE1092-1BA23-3■■■
		6.6	_	Δ	88.2	12.1	84.5	0.83	8.2	
5.5			132 S	Υ	51.6	17.5	84.7	0.89	6.4	1LE1092-1CA03-3
7.5			132 S	Υ	51.2	23.9	86.0	0.87	8.8	1LE1092-1CA13-3
11			160 M	Υ	51.3	35.0	87.6	0.85	12.9	1LE1092-1DA23-3■■■
15			160 M	Υ	51.4	47.8	88.7	0.84	17.6	1LE1092-1DA33-3
18.5			160 L	Υ	51.3	58.9	89.3	0.86	20.5	1LE1092-1DA43-3
1500 rpm	1800 rpm	2610 rpm	4-pole							
2.2			100 L	Υ	52.9	14.0	79.7	0.81	3	1LE1092-1AB43-3
		3.7	_	Δ	89.5	13.5	83.0	0.79	4.95	
3			100 L	Υ	52.5	19.1	81.5	0.85	3.8	1LE1092-1AB53-3
		5	_	Δ	89.5	18.3	85.0	0.79	6.5	
4			112 M	Υ	52.5	25.5	83.1	0.85	5	1LE1092-1BB23-3
		6.6	_	Δ	89.2	24.1	85.0	0.81	8.4	
5.5			132 S	Υ	52.0	35.0	84.7	0.82	6.9	1LE1092-1CB03-3
		9	_	Δ	88.7	32.9	87.0	0.81	11.2	
7.5			132 M	Υ	51.7	47.8	86.0	0.82	9.3	1LE1092-1CB23-3
		12.5	_	Δ	88.6	45.7	87.5	0.80	15.6	
11			160 M	Υ	51.5	70.0	87.6	0.82	13.4	1LE1092-1DB23-3
		17	_	Δ	88.3	62.2	88.5	0.78	21.5	
15			160 L	Υ	51.4	95.5	88.7	0.82	18	1LE1092-1DB43-3
		23.5	_	Δ	88.2	86.0	90.5	0.77	29.5	
For version	is see Article	No suppler	nents and s	pecial versio						-

All technical specifications refer to converter operation.

1LE1092 aluminum series – Standard Efficiency

Self-ventilated, enclosed motors – line voltage 690 V, 50 Hz/690 V, 87 Hz

Motor type	m _{IM B3}	J	L _{pfA} , tolerance +3 dB(A) load	L _{WA} , tolerance +3 dB(A) load	Mech. speed limit	Terminal box	Preferred SINAMICS G120 – PM240(-2) Other SINAMICS converters also possible Operating mode: Low overload	Frame size	IES class acc. to EN 50598-2
	kg	kgm ²	dB(A)	dB(A)	rpm		Type ¹⁾		
1LE1092-1AA43-3	20	0.0034	80.0	92.1	5500	TB1F00			
TLL 1092-1AA40-5	20	0.0034	85.0	97.1	5500				
1LE1092-1BA23-3	25	0.0034	79.0	91.1	5500	TB1F00			
TEE 1032-1DA23-3	25	0.0067	85.0	97.2	5500		6SL3210-1PH21-4.L0	FSD	
1LE1092-1CA03-3	35	0.0007	77.0	89.3	4500	TB1F00	6SL3210-1PH21-4.L0	FSD	
1LE1092-1CA13-3	40	0.016	77.0	89.4	4500	TB1H00	6SL3210-1PH21-4.L0	FSD	
1LE1092-1DA23-3	60	0.03	80.0	92.4	4500	TB1H00	6SL3210-1PH21-4.L0	FSD	
1LE1092-1DA33-3	68	0.036	80.0	92.8	4500	TB1J00	6SL3210-1PH22-0.L0	FSD	
1LE1092-1DA43-3	78	0.044	80.0	92.8	4500	TB1J00	6SL3210-1PH22-3.L0	FSD	
TEE TOOL TENTED ON		0.011	00.0	02.0	1000	12.000	0020210 11 1122 0.20	. 05	
1LE1092-1AB43-3	18	0.0059	80.0	92.1	4200	TB1F00			
	18	0.0059	81.0	93.1	4200				
1LE1092-1AB53-3	22	0.0078	80.0	92.1	4200	TB1F00			
	22	0.0078	81.0	93.1	4200				
1LE1092-1BB23-3	27	0.01	79.0	91.3	4200	TB1F00			
	27	0.01	80.0	92.3	4200		6SL3210-1PH21-4.L0	FSD	
1LE1092-1CB03-3	38	0.019	77.0	89.4	4200	TB1H00	6SL3210-1PH21-4.L0	FSD	
	38	0.019	83.0	95.4	4200	_	6SL3210-1PH21-4.L0	FSD	
1LE1092-1CB23-3	44	0.024	77.0	89.4	4200	TB1H00	6SL3210-1PH21-4.L0	FSD	
	44	0.024	83.0	95.4	4200		6SL3210-1PH22-0.L0	FSD	
1LE1092-1DB23-3	62	0.044	85.0	97.8	4200	TB1J00	6SL3210-1PH21-4.L0	FSD	
	62	0.044	85.0	97.8	4200		6SL3210-1PH22-7.L0	FSD	
1LE1092-1DB43-3	73	0.056	85.0	97.8	4200	TB1J00	6SL3210-1PH22-0.L0	FSD	
	73	0.056	85.0	97.8	4200		6SL3210-1PH23-5.L0	FSD	

¹⁾ In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

Υ

Υ

Υ

Υ

Υ

Υ

Υ

Υ

200 L

225 M

250 M

280 S

280 M

1LE1592 cast-iron series – Standard Efficiency

Self-ventilated, enclosed motors - line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz

Selection and ordering data Operating values at rated power 1LE1592 cast-iron series **P**rated Version specifically for Frame Connec-P_{rated} P_{rated} $\eta_{\rm rated, 4/4}$ $\cos \varphi_{\text{rated, 4/4}}$ I_{rated} converter operation 50 Hz, 60 Hz, 87 Hz, size tion 400 V 460 V 400 V converter operation kW kW kW % Article No. Hz Nm Α . Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F • Operation with a SINAMICS G converter with uncontrolled infeed - rated motor voltage 380 V, 50 Hz/440 V, 60 Hz/380 V, 87 Hz 100 L 9.6 0.87 3 52.9 81.5 6.4 1LE1592-1AA42-1 3.45 Υ 62.8 9.2 84.5 0.88 6.1 4.5 0.82 9.9 Δ 89.4 8.2 84.5 1LE1592-1BA22-1 4.0 112 M 51.2 12.7 83.1 0.86 8.5 4.6 Υ 12.1 0.88 61.2 84.5 8 6.6 Δ 88.2 12.1 84.5 0.83 14.2 5.5 132 S 51.4 17.5 84.7 0.89 11.1 1LE1592-1CA02-1 6.3 Υ 61.4 16.7 86.0 0.90 10.7 1LE1592-1CA12-1 7.5 15.2 132 S Υ 51.2 23.9 86.0 0.87 Υ 8.6 61.2 22.8 88.7 0.88 14.7 11 160 M Υ 51.3 35.0 87.6 0.85 22.5 1LE1592-1DA22-1 Υ 12.6 61.2 33.4 87.5 0.86 22 0.84 1LE1592-1DA32-1 15.0 160 M 51.4 47.8 88.7 30.5 Υ 17.3 61.4 45.9 89.5 0.86 29.5 18.5 160 L 51.1 58.9 89.3 0.86 36.5 1LE1592-1DA42-1 21.3 Υ 0.87 36 56.5 89.5 22 180 M 42.5 1LE1592-1EA22-1 Υ 51.0 70 89.9 0.87 Υ 24.5 60.9 65.0 89.5 0.87 41.5 30 200 L Υ 50.9 96 90.7 0.84 60 1LE1592-2AA42-1

88.9

118

110.1

135.0

164.0

223.0

143

175

239

286

268

60.9

50.8

60.7

50.7

60.7

50.6

60.6

50.5

60.5

50.4

91.5

912

91.7

91.7

92.4

92.1

92.4

92.7

93.0

93.0

0.84

0.88

0.89

0.88

0.88

0.88

0.88

0.87

0.87

0.88

0.88

57

70

67

85

82

103

100

141

136

167

162

1LE1592-2AA52-1

1LE1592-2BA22-1

1LE1592-2CA22-1

1LE1592-2DA02-1

1LE1592-2DA22-1

For versions, see Article No. supplements and special versions.

All technical specifications refer to converter operation.

33.5

41.5

51

62

84

37

45

55

75

90

1LE1592 cast-iron series - Standard Efficiency

Self-ventilated, enclosed motors – line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz

Motor type							Preferred		
тиотот туре	m _{IM B3}	J	L _{pfA} , tolerance +3 dB(A) load	L _{WA} , tolerance +3 dB(A) load	Mech. speed limit	Terminal box	SINAMICS G120 – PM240(-2) Other SINAMICS converters also possible Operating mode: Low overload	Frame size	IES class acc. to EN 50598-2
	kg	kgm ²	dB(A)	dB(A)	rpm		Type ¹⁾		
1LE1592-1AA42-1	31	0.0034	79.0	91.1	5500	TB1F01	6SL3210-1PE18-0.L1	FSA	IES 1
	31	0.0034	79.0	91.1	5500		6SL3210-1PE18-0.L1	FSA	IES 1
	31	0.0034	83.0	95.1	5500		6SL3210-1PE21-4.L0	FSB	IES 1
1LE1592-1BA22-1	36	0.0067	78.0	90.1	5500	TB1F01	6SL3210-1PE21-4.L0	FSB	IES 1
	36	0.0067	78.0	90.1	5500		6SL3210-1PE21-4.L0	FSB	IES 1
	36	0.0067	83.0	95.2	5500		6SL3210-1PE22-7.L0	FSC	IES 1
1LE1592-1CA02-1	53	0.013	76.0	88.3	4500	TB1H01	6SL3210-1PE21-8.L0	FSB	IES 1
	53	0.013	76.0	88.3	4500		6SL3210-1PE21-8.L0	FSB	IES 1
1LE1592-1CA12-1	58	0.016	76.0	88.4	4500	TB1H01	6SL3210-1PE22-7.L0	FSC	IES 2
	58	0.016	76.0	88.4	4500		6SL3210-1PE22-7.L0	FSC	IES 2
1LE1592-1DA22-1	87	0.03	79.0	91.4	4500	TB1J01	6SL3210-1PE23-3.L0	FSC	IES 1
	87	0.03	78.0	90.4	4500		6SL3210-1PE23-3.L0	FSC	IES 1
1LE1592-1DA32-1	95	0.036	79.0	91.8	4500	TB1J01	6SL3210-1PE23-8.L0	FSD	IES 1
	95	0.036	78.0	90.8	4500		6SL3210-1PE23-8.L0	FSD	IES 1
1LE1592-1DA42-1	105	0.044	79.0	91.8	4500	TB1J01	6SL3210-1PE23-8.L0	FSD	IES 2
	105	0.044	78.0	90.8	4500		6SL3210-1PE23-8.L0	FSD	IES 2
1LE1592-1EA22-1	150	0.069	79.0	92.0	4500	TB1J01	6SL3210-1PE24-5.L0	FSD	IES 2
	150	0.069	78.0	91.0	4500		6SL3210-1PE24-5.L0	FSD	IES 2
1LE1592-2AA42-1	195	0.124	78.0	91.0	4500	TB1L01	6SL3210-1PE26-0.L0	FSD	IES 2
	195	0.124	78.0	91.0	4500		6SL3210-1PE26-0.L0	FSD	IES 2
1LE1592-2AA52-1	230	0.15	76.0	89.1	4500	TB1L01	6SL3210-1PE27-5.L0	FSD	IES 2
	230	0.15	76.0	89.1	4500		6SL3210-1PE27-5.L0	FSD	IES 2
1LE1592-2BA22-1	280	0.22	78.0	90.0	4500	TB1L01	6SL3210-1PE28-8.L0	FSE	IES 2
	280	0.22	80.0	93.0	4500		6SL3210-1PE28-8.L0	FSE	IES 2
1LE1592-2CA22-1	360	0.4	78.0	92.0	3900	TB1N01	6SL3210-1PE31-1.L0	FSE	IES 2
	360	0.4	82.0	96.0	3900		6SL3210-1PE31-1.L0	FSE	IES 2
1LE1592-2DA02-1	470	0.72	78.0	92.0	3600	TB1N01	6SL3210-1PE31-5.L0	FSF	IES 2
	470	0.72	82.0	96.0	3600		6SL3210-1PE31-5.L0	FSF	IES 2
1LE1592-2DA22-1	530	0.83	78.0	92.0	3600	TB1N01	6SL3210-1PE31-8.L0	FSF	IES 2
	530	0.83	82.0	96.0	3600		6SL3210-1PE31-8.L0	FSF	IES 2

¹⁾ In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

1LE1592 cast-iron series – Standard Efficiency

Self-ventilated, enclosed motors – line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz

Selection	n and ord	ering data	l							
P _{rated} 50 Hz, 400 V	P rated 60 Hz, 460 V	P rated 87 Hz, 400 V	Frame size	Connection	Operating frated	g values at ra T _{rated}	nted power \$\eta_{\text{rated}, 4/4} \text{for} \text{converter}	$\cos arphi_{ m rated, 4/4}$	I _{rated}	1LE1592 cast-iron series Version specifically for converter operation

							operation			
v	kW	kW			Hz	Nm	%		А	Article No.
			mperature	class F).				n accordanc		class 155 (temperature cl
					trolled infeed -					
00 rpn	n 1800 rpm	2610 rpm	4-pole							
2			100 L	Υ	52.9	14.0	79.7	0.81	5.2	1LE1592-1AB42-1
	2.55		_	Υ	62.8	13.5	83.0	0.82	4.9	
		3.7	_	Δ	89.3	13.5	83.0	0.79	8.6	
			100 L	Υ	52.7	19.1	81.5	0.85	6.6	1LE1592-1AB52-1
	3.45		_	Υ	62.6	18.3	85.0	0.86	6.2	
		5		Δ	89.3	18.3	85.0	0.79	11.3	
			112 M	Υ	52.3	25.5	83.1	0.85	8.6	1LE1592-1BB22-1■■■
	4.55		_	Υ	62.2	24.0	85.0	0.85	8.3	
		6.6		Δ	89.0	24.0	85.0	0.81	14.6	
			132 S	Υ	52.1	35.0	84.7	0.82	12	1LE1592-1CB02-1
	6.3		_	Υ	62.0	33.5	87.0	0.84	11.3	
		9		Δ	88.8	33.0	87.0	0.81	19.4	
			132 M	Υ	51.7	47.5	86.0	0.82	16.2	1LE1592-1CB22-1
	8.6		_	Υ	61.7	45.5	87.5	0.84	15.4	
		12.5		Δ	88.8	45.5	87.5	0.80	27.1	
			160 M	Υ	51.5	70.0	87.6	0.82	23.5	1LE1592-1DB22-1
	12.6		_	Υ	61.4	67.0	88.5	0.82	23	
		17		Δ	88.3	62.0	88.5	0.78	37.5	
			160 L	Υ	51.4	95.0	88.7	0.82	31.5	1LE1592-1DB42-1
	17.3		_	Υ	61.4	92.0	90.5	0.82	30.5	
		23.5		Δ	88.2	86.0	90.5	0.77	51	
.5			180 M	Υ	51.1	118	89.3	0.85	37	1LE1592-1EB22-1
	21.3		_	Υ	61.1	113	91.0	0.85	36	
		31		Δ	88.1	113	91.0	0.84	62	
			180 L	Υ	51.1	140	89.9	0.83	45	1LE1592-1EB42-1
	25.3		_	Υ	61.1	134	91.0	0.84	43.5	
		36.5		Δ	88.0	134	91.0	0.82	74	
			200 L	Υ	50.9	191	90.7	0.83	60	1LE1592-2AB52-1
	34.5		_	Υ	60.9	183	92.4	0.84	58	
		48		Δ	87.8	176	92.4	0.81	97	
			225 S	Υ	50.9	236	91.4	0.85	72	1LE1592-2BB02-1
	42.5			Υ	60.9	225	92.4	0.86	70	
			225 M	Y	50.9	286	92.4	0.88	84	1LE1592-2BB22-1
	52		050	Y	60.9	276	93.0	0.83	84	41 54500 00500 4555
			_250 M	Y	50.8	350	92.3	0.86	105	1LE1592-2CB22-1
	63		000.0		60.8	334	93.0	0.86	103	41 54500 00000 4555
	06		_280 S	Y	50.6	477	92.7	0.86	143	1LE1592-2DB02-1
	86		200 84	Y	60.6	456	93.2	0.87	139 169	1LE1592-2DB22-1
	104		280 M	Y	50.6	573 552	93.0	0.87		ILE 1992-2DB22-1
2	104		215.0		60.6		93.2	0.87	168	11 E1500 24 B00 1
5	105		315 S	Y	50.4	675	94.0	0.84	205	1LE1592-3AB02-1
	125		015 54		60.4	663	94.2	0.85	205	41 E4500 04 D00 4 EEE
)	150		315 M	Y	50.4	828	94.4	0.84	250	1LE1592-3AB22-1
	152		045 '		60.4	806	94.8	0.85	250	41 54500 04540 4555
)	101		_315 L	Y	50.4	1019	95.0	0.87	295	1LE1592-3AB42-1
_	184		045 '	Y	60.4	976	95.0	0.87	290	41 54500 04550 4555
0	000		_315 L	Y	50.5	1273	95.5	0.89	360	1LE1592-3AB52-1
	230			Υ	60.5	1220	95.0	0.89	355	

All technical specifications refer to converter operation.

1LE1592 cast-iron series - Standard Efficiency

Self-ventilated, enclosed motors – line voltage 400 V, 50 Hz/460 V, 60 Hz/400 V, 87 Hz

Motor type	m _{IM B3}	J	$L_{pfA,}$	L _{WA,}	Mech.	Terminal	Preferred SINAMICS G120 – PM240(-2)	Frame	IES class
			tolerance +3 dB(A) load	tolerance +3 dB(A) load	speed limit	box	Other SINAMICS converters also possible Operating mode: Low overload	size	acc. to EN 50598-2
	kg	kgm ²	dB(A)	dB(A)	rpm		Type 1)		
1LE1592-1AB42-1	29	0.0059	79.0	91.0	4200	TB1F01	6SL3210-1PE16-1.L1	FSA	IES 1
	29	0.0059	79.0	91.0	4200		6SL3210-1PE16-1.L1	FSA	IES 1
	29	0.0059	81.0	93.0	4200		6SL3210-1PE21-1.L0	FSB	IES 1
1LE1592-1AB52-1	33	0.0078	79.0	91.0	4200	TB1F01	6SL3210-1PE18-0.L1	FSA	IES 1
	33	0.0078	79.0	91.0	4200		6SL3210-1PE18-0.L1	FSA	IES 1
	33	0.0078	81.0	93.0	4200		6SL3210-1PE21-4.L0	FSB	IES 1
1LE1592-1BB22-1	38	0.01	77.4	89.4	4200	TB1F01	6SL3210-1PE21-1.L0	FSB	IES 1
	38	0.01	77.2	89.2	4200		6SL3210-1PE21-1.L0	FSB	IES 1
	38	0.01	78.4	90.4	4200		6SL3210-1PE21-8.L0	FSB	IES 1
1LE1592-1CB02-1	60	0.019	76.0	88.0	4200	TB1H01	6SL3210-1PE21-4.L0	FSB	IES 1
	60	0.019	76.0	88.0	4200		6SL3210-1PE21-4.L0	FSB	IES 1
	60	0.019	83.0	95.0	4200		6SL3210-1PE22-7.L0	FSC	IES 1
1LE1592-1CB22-1	62	0.024	76.0	88.0	4200	TB1H01	6SL3210-1PE21-8.L0	FSB	IES 1
	62	0.024	76.0	88.0	4200		6SL3210-1PE21-8.L0	FSB	IES 1
	62	0.024	83.0	95.0	4200		6SL3210-1PE23-3.L0	FSC	IES 1
1LE1592-1DB22-1	89	0.044	83.5	95.5	4200	TB1J01	6SL3210-1PE22-7.L0	FSC	IES 1
	89	0.044	82.3	94.3	4200		6SL3210-1PE22-7.L0	FSC	IES 1
	89	0.044	85.8	97.8	4200		6SL3210-1PE24-5.L0	FSD	IES 1
1LE1592-1DB42-1	100	0.056	83.5	95.5	4200	TB1J01	6SL3210-1PE23-3.L0	FSC	IES 2
	100	0.056	82.3	94.3	4200		6SL3210-1PE23-3.L0	FSC	IES 2
	100	0.056	85.8	97.8	4200		6SL3210-1PE26-0.L0	FSD	IES 2
1LE1592-1EB22-1	170	0.13	71.0	83.0	4200	TB1J01	6SL3210-1PE23-8.L0	FSD	IES 2
	170	0.13	73.0	85.0	4200		6SL3210-1PE23-8.L0	FSD	IES 2
# E # 500 # ED # 0 #	170	0.13	84.0	96.0	4200	TD / 10 /	6SL3210-1PE27-5.L0	FSD	IES 2
1LE1592-1EB42-1	170	0.13	71.0	83.0	4200	TB1J01	6SL3210-1PE24-5.L0	FSD	IES 2
	170	0.13	73.0	85.0	4200		6SL3210-1PE24-5.L0	FSD	IES 2
41 E4500 04 D50 4	170	0.13	84.0	96.0	4200	TD41.04	6SL3210-1PE28-8.L0	FSE	IES 2
1LE1592-2AB52-1	220	0.2	76.3	88.3	4200	TB1L01	6SL3210-1PE26-0.L0	FSD	IES 2
	220	0.2	77.7	89.7	4200	_	6SL3210-1PE26-0.L0	FSD	IES 2
11 E1E00 0DD00 1	220	0.2	83.1	95.1	4200	TD4L04	6SL3210-1PE31-1.L0	FSE	IES 2
1LE1592-2BB02-1	260 260	0.37	67.0 70.0	83.0 86.0	4500 4500	TB1L01	6SL3210-1PE27-5.L0 6SL3210-1PE27-5.L0	FSD FSD	IES 2
1LE1592-2BB22-1	290	0.37	70.0	83.0	4500	TB1L01	6SL3210-1PE28-8.L0	FSE	IES 2
ILE 1092-20022-1	290	0.45	70.0	86.0	4500	IBILUI	6SL3210-1PE28-8.L0	FSE	IES 2
1LE1592-2CB22-1	360	0.43	70.0	83.0	3700	TB1N01	6SL3210-1PE31-1.L0	FSE	IES 2
TLL 1392-20022-1	360	0.69	72.0	86.0	3700		6SL3210-1PE31-1.L0	FSE	IES 2
1LE1592-2DB02-1	540	1.2	75.0	90.0	3000	TB1N01	6SL3210-1PE31-5.L0	FSF	IES 2
TLL 1392-2DD02-1	540	1.2	76.0	91.0	3000		6SL3210-1PE31-5.L0	FSF	IES 2
1LE1592-2DB22-1	560	1.4	75.0	90.0	3000	TB1N01	6SL3210-1PE31-8.L0	FSF	IES 2
1LL 1032-2DD22-1	560	1.4	76.0	91.0	3000	וטוווטו	6SL3210-1PE31-8.L0	FSF	IES 2
1LE1592-3AB02-1	730	1.9	79.0	94.0	2600	TB1Q01	6SL3210-1PE32-1.L0	FSF	IES 2
1LL 1032-0AD02-1	730	1.9	82.0	96.0	2600	וטאוטו	6SL3210-1PE32-1.L0	FSF	IES 2
1LE1592-3AB22-1	760	2.2	79.0	94.0	2600	TB1Q01	6SL3210-1PE32-5.L0	FSF	IES 2
ILL 1002-0AD22-1	760	2.2	82.0	96.0	2600		6SL3210-1PE32-5.L0	FSF	IES 2
1LE1592-3AB42-1	940	2.8	79.0	94.0	2600	TB1Q01	6SL3224-0XE41-3.A0	FSGX	IES 2
12L 1002 0AD42-1	940	2.8	80.0	95.0	2600	- 151001	6SL3224-0XE41-3.A0	FSGX	IES 2
1LE1592-3AB52-1	1140	3.5	81.0	96.0	2600	TB1Q01	6SL3224-0XE41-6.A0	FSGX	IES 2
122 1002 OAD02-1	1140	3.5	82.0	96.0	2600		6SL3224-0XE41-6.A0	FSGX	IES 2
	1140	J.J	02.0	90.0	2000		00L0224-0AL4 I-0.AU	1 301	ILO Z

¹⁾ In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

1LE1592 cast-iron series – Standard Efficiency

Self-ventilated, enclosed motors - line voltage 500 V, 50 Hz/575 V, 60 Hz/500 V, 87 Hz

Selection and ordering data Operating values at rated power 1LE1592 cast-iron series **P**rated Version specifically for Frame Connec-P_{rated} P_{rated} $\eta_{\rm rated, 4/4}$ $\cos \varphi_{\text{rated, 4/4}}$ I_{rated} converter operation 50 Hz, 60 Hz, 87 Hz, size tion 500 V 575 V 500 V converter operation kW kW kW % Article No. Hz Nm Α . Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 155 (temperature class F • Operation with a SINAMICS G converter with uncontrolled infeed - rated motor voltage 480 V, 50 Hz/550 V, 60 Hz/480 V, 87 Hz 100 L 9.6 0.87 5.1 3 52.9 81.5 1LE1592-1AA42-6 3.45 Υ 63.0 9.2 84.5 0.88 4.85 9.1 0.85 8.4 5 Δ 89.6 84.5 1LE1592-1BA22-6 4 112 M 51.3 12.7 83.1 0.86 6.7 4.55 Υ 12.1 0.88 61.3 84.5 6.4 6.6 Δ 88.2 12.1 84.5 0.84 11.1 5.5 132 S 51.6 17.5 84.7 0.89 8.8 1LE1592-1CA02-6 6.3 Υ 61.6 16.7 86.0 0.90 8.5 1LE1592-1CA12-6 7.5 12.1 132 S Υ 51.2 23.9 86.0 0.87 Υ 8.6 61.2 22.8 88.7 0.88 11.7 11 160 M Υ 51.3 35.0 87.6 0.85 17.8 1LE1592-1DA22-6 Υ 12.6 61.3 33.4 87.5 0.86 17.6 1LE1592-1DA32-6 14 160 M 51.1 44.6 88.7 0.84 22.5 Υ 16.5 61.2 43.8 89.5 0.86 22.5 17 160 L 51.1 54.1 89.3 0.85 27 1LE1592-1DA42-6 19.5 Υ 51.7 26.5 61.1 89.5 0.86 22 180 M 0.87 34 1LE1592-1EA22-6 Υ 50.9 70 89.9 Υ 24.5 60.9 65 89.5 0.87 33 30 200 L Υ 50.8 96 90.7 0.82 48.5 1LE1592-2AA42-6 Υ 33.5 89 91.5 0.82 47 60.8 34 200 L Υ 50.7 108 912 0.87 52 1LE1592-2AA52-6 40 Υ 60.8 106 91.7 0.89 51 41 225 M 50.6 131 91.7 0.88 61 1LE1592-2BA22-6 Υ 48 91.7 0.88 62 60.6 127 53 250 M Υ 50.5 169 92.1 0.88 79 1LE1592-2CA22-6

159

239

223

286

268

60.5

50.5

60.5

50.4

0.88

0.87

0.87

0.88

0.88

92.4

92.7

93.0

93.0

93.0

77

112

109

132

130

1LE1592-2DA02-6

1LE1592-2DA22-6

For versions, see Article No. supplements and special versions.

All technical specifications refer to converter operation.

Υ

Υ

Υ

280 S

280 M

60

84

75

90

1LE1592 cast-iron series - Standard Efficiency

Self-ventilated, enclosed motors – line voltage 500 V, 50 Hz/575 V, 60 Hz/500 V, 87 Hz

Motor type							Preferred		
motor type	m _{IM B3}	J	L _{pfA} , tolerance +3 dB(A) load	L _{WA} , tolerance +3 dB(A) load	Mech. speed limit	Terminal box	SINAMICS G120 – PM240(-2) Other SINAMICS converters also possible Operating mode: Low overload	Frame size	IES class acc. to EN 50598-2
	kg	kgm ²	dB(A)	dB(A)	rpm		Type 1)		
	- J	- J			·				
1LE1592-1AA42-6	31	0.0034	80.0	92.1	5500	TB1F01			
	31	0.0034	80.0	92.1	5500				
	31	0.0034	85.0	97.1	5500				
1LE1592-1BA22-6	36	0.0067	79.0	91.1	5500	TB1F01			
	36	0.0067	79.0	91.1	5500				
	36	0.0067	85.0	97.2	5500		6SL3210-1PH21-4.L0	FSD	
1LE1592-1CA02-6	53	0.013	77.0	89.3	4500	TB1H01	6SL3210-1PH21-4.L0	FSD	
	53	0.013	77.0	89.3	4500		6SL3210-1PH21-4.L0	FSD	
1LE1592-1CA12-6	58	0.016	77.0	89.4	4500	TB1H01	6SL3210-1PH21-4.L0	FSD	
	58	0.016	77.0	89.4	4500		6SL3210-1PH21-4.L0	FSD	
1LE1592-1DA22-6	87	0.03	80.0	92.4	4500	TB1J01	6SL3210-1PH22-0.L0	FSD	
	87	0.03	80.0	92.4	4500		6SL3210-1PH22-0.L0	FSD	
1LE1592-1DA32-6	95	0.036	80.0	92.8	4500	TB1J01	6SL3210-1PH22-3.L0	FSD	
	95	0.036	80.0	92.8	4500		6SL3210-1PH22-3.L0	FSD	
1LE1592-1DA42-6	105	0.044	80.0	92.8	4500	TB1J01	6SL3210-1PH22-7.L0	FSD	
	105	0.044	80.0	92.8	4500		6SL3210-1PH22-7.L0	FSD	
1LE1592-1EA22-6	150	0.069	80.0	93.0	4500	TB1J01	6SL3210-1PH23-5.L0	FSD	
	150	0.069	80.0	93.0	4500		6SL3210-1PH23-5.L0	FSD	
1LE1592-2AA42-6	195	0.124	79.0	92.0	4500	TB1L01	6SL3210-1PH25-2.L0	FSE	
	195	0.124	79.0	92.0	4500		6SL3210-1PH25-2.L0	FSE	
1LE1592-2AA52-6	230	0.15	77.0	90.1	4500	TB1L01	6SL3210-1PH25-2.L0	FSE	
	230	0.15	77.0	90.1	4500		6SL3210-1PH25-2.L0	FSE	
1LE1592-2BA22-6	280	0.22	78.0	90.0	4500	TB1L01	6SL3210-1PH26-2.L0	FSE	
	280	0.22	80.0	93.0	4500		6SL3210-1PH26-2.L0	FSE	
1LE1592-2CA22-6	360	0.4	78.0	92.0	3900	TB1N01	6SL3210-1PH28-0.L0	FSF	
	360	0.4	82.0	96.0	3900		6SL3210-1PH28-0.L0	FSF	
1LE1592-2DA02-6	470	0.72	78.0	92.0	3600	TB1N01	6SL3210-1PH31-2.L0	FSF	
	470	0.72	82.0	96.0	3600		6SL3210-1PH31-2.L0	FSF	
1LE1592-2DA22-6	530	0.83	78.0	92.0	3600	TB1N01	6SL3210-1PH31-4.L0	FSF	
	530	0.83	82.0	96.0	3600		6SL3210-1PH31-4.L0	FSF	

¹⁾ In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

1LE1592 cast-iron series – Standard Efficiency

Self-ventilated, enclosed motors – line voltage 500 V, 50 Hz/575 V, 60 Hz/500 V, 87 Hz

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Selection	and orde	ring data								
		_			Operating	values at ra	ted power			1LE1592 cast-iron series
P _{rated} 50 Hz, 500 V	P _{rated} 60 Hz, 575 V	P _{rated} 87 Hz, 500 V	Frame size	Connection	f _{rated}	T _{rated}	η _{rated, 4/4} for converter operation	COS $\phi_{\rm rated, 4/4}$	I _{rated}	Version specifically for converter operation
kW	kW	kW			Hz	Nm	%		Α	Article No.
 Insulatio 	n: Thermal	class 155 (te	mperature o	lass F), IP5	5 degree o	f protection.	utilization in	accordance w	ith thermal	class 155 (temperature class F)
				uncontrol	led infeed -	- rated moto	r voltage 480	V, 50 Hz/550 V	, 60 Hz/480	V, 87 Hz
1500 rpm	1800 rpm	2610 rpm	•		50.0			2.24		
2.2	2.55		_ 100 L	Y	52.8 62.8	14.0 13.5	79.7 83.0	0.81	4.1 3.95	1LE1592-1AB42-6
	2.55	4	_	$\frac{1}{\Delta}$	89.6	13.5	83.0	0.62	6.8	_
3		7	100 L	Y	52.6	19.1	81.5	0.75	5.2	1LE1592-1AB52-6
	3.45			Y	62.6	18.3	85.0	0.86	4.95	
		5	_	Δ	89.3	18.3	85.0	0.79	8.7	_
4			112 M	Υ	52.4	25.5	83.1	0.85	6.8	1LE1592-1BB22-6■■■
	4.55			Υ	62.3	24.1	85.0	0.85	6.6	
		7		Δ	89.1	24.1	85.0	0.81	12	
5.5			132 S	Y	52.0	35.0	84.7	0.82	9.5	1LE1592-1CB02-6■■■
	6.3		_	Y	62.0	33.4	87.0	0.84	9	_
7.5		9	132 M	Υ	88.8 51.9	32.9 47.8	87.0 86.0	0.81	15.4 12.8	1LE1592-1CB22-6
7.5	8.6		_ 132 W	Y	61.9	45.6	87.5	0.82	12.8	ILE 1392-1CB22-0
	0.0	13	_	Δ	88.7	45.7	87.5	0.80	21.5	_
11			160 M	Y	51.5	70.0	87.6	0.82	18.4	1LE1592-1DB22-6
	12.6		_	Υ	61.5	66.9	88.5	0.82	18.2	_
		17	_	Δ	88.4	62.2	88.5	0.78	29.5	
13.5			160 L	Υ	51.2	86.0	88.7	0.79	23	1LE1592-1DB42-6■■■
	15.6			Υ	61.2	82.8	90.5	0.81	22.5	
		24		Δ	88.3	86.0	90.5	0.77	40.5	
16.7			180 M	Y	51.0	106	89.3	0.84	27	1LE1592-1EB22-6■■■
	19.2	01	_	Υ	61.0	102 113	91.0	0.84	26.5 49	_
21.5		31	180 L	Υ	88.0 51.1	137	91.0 89.9	0.84	34.5	1LE1592-1EB42-6
21.5	25.3		_ 100 L	Y	61.2	134	91.0	0.84	34.5	1LE 1392-1EB42-0
	20.0	37	_	Δ	88.1	134	91.0	0.82	59	_
30			200 L	Υ	51.0	191	90.7	0.83	48	1LE1592-2AB52-6
	34.5		_	Υ	61.0	183	92.4	0.84	46.5	
		48		Δ	87.9	176	92.4	0.81	77	
33			225 S	Υ	50.6	210	92.0	0.84	51	1LE1592-2BB02-6■■■
	38			Y	60.6	202	92.4	0.84	51	
41	47		225 M	Y	50.7	261	92.4	0.87	61	1LE1592-2BB22-6
F0	47		250 M	Y	60.7	249	93.0	0.87	61	11 E1500 0CB00 6
52	59		_ 250 IVI	Y	50.7 60.7	331 313	92.3 93.0	0.85 0.85	80 78	1LE1592-2CB22-6
75			280 S	Y	50.5	477	92.7	0.85	114	1LE1592-2DB02-6
	86			Y	60.5	456	93.2	0.86	113	
90			280 M	Υ	50.6	573	93.0	0.87	134	1LE1592-2DB22-6
	102			Υ	60.6	541	93.2	0.87	132	
110			315 S	Υ	50.4	700	94.0	0.84	168	1LE1592-3AB02-6
	127			Υ	60.4	674	94.2	0.84	168	
132			315 M	Y	50.4	840	94.4	0.85	198	1LE1592-3AB22-6
160	152		215 '	Y	60.4	806	94.8	0.85	198	41 E4500 0 A B 40 C
160	184		_315 L	Y	50.3 60.3	1019 976	95.0 95.0	0.86	235 235	1LE1592-3AB42-6
200	104		315 L	Y	50.4	1273	95.0	0.86	290	1LE1592-3AB52-6
	230		_ 5.5 E	Y	60.4	1273	95.0	0.88	290	. IL TOOL SALUE V
	A 12 1	N.I. I								

For versions, see Article No. supplements and special versions.

All technical specifications refer to converter operation.

1LE1592 cast-iron series - Standard Efficiency

Self-ventilated, enclosed motors – line voltage 500 V, 50 Hz/575 V, 60 Hz/500 V, 87 Hz

Motor type							Preferred		
mote. type	m _{IM B3}	J	L _{pfA} , tolerance +3 dB(A) load	L _{WA} , tolerance +3 dB(A) load	Mech. speed limit	Terminal box	SINAMICS G120 – PM240(-2) Other SINAMICS converters also possible Operating mode: Low overload	Frame size	IES class acc. to EN 50598-2
	kg	kgm ²	dB(A)	dB(A)	rpm		Type 1)		
	9	9	- ()		Tr.		71		
1LE1592-1AB42-6	29	0.0059	80.0	92.1	4200	TB1F01			
TEE 1002 17 D42 0	29	0.0059	80.0	92.1	4200				
	29	0.0059	81.0	93.1	4200				
1LE1592-1AB52-6	33	0.0039	80.0	92.1	4200	TB1F01			
TEE 1092-1AD02-0	33	0.0078	80.0	92.1	4200				
	33	0.0078	81.0	93.1	4200				
1LE1592-1BB22-6	38	0.0070	79.0	91.3	4200	TB1F01			
TLL 1392-10022-0	38	0.01	79.0	91.3	4200				
	38	0.01	80.0	92.3	4200		6SL3210-1PH21-4.L0	FSD	
1LE1592-1CB02-6	60	0.019	77.0	89.4	4200	TB1H01	6SL3210-1PH21-4.L0	FSD	
ILE 1392-10002-0									
	60	0.019	77.0	89.4	4200	<u>—</u>	6SL3210-1PH21-4.L0	FSD	
11 E1E00 10D00 0	60	0.019	83.0	95.4	4200	TD4LI04	6SL3210-1PH22-0.L0	FSD	
1LE1592-1CB22-6	62	0.024	77.0	89.4	4200	TB1H01	6SL3210-1PH21-4.L0	FSD	
	62	0.024	77.0	89.4	4200		6SL3210-1PH21-4.L0	FSD	
	62	0.024	83.0	95.4	4200		6SL3210-1PH22-3.L0	FSD	
1LE1592-1DB22-6	89	0.044	85.0	97.8	4200	TB1J01	6SL3210-1PH22-0.L0	FSD	
	89	0.044	85.0	97.8	4200		6SL3210-1PH22-0.L0	FSD	
	89	0.044	85.0	97.8	4200		6SL3210-1PH23-5.L0	FSD	
1LE1592-1DB42-6	100	0.056	85.0	97.8	4200	TB1J01	6SL3210-1PH22-3.L0	FSD	
	100	0.056	85.0	97.8	4200		6SL3210-1PH22-3.L0	FSD	
	100	0.056	85.0	97.8	4200		6SL3210-1PH24-2.L0	FSD	
1LE1592-1EB22-6	170	0.13	72.0	85.0	4200	TB1J01	6SL3210-1PH22-7.L0	FSD	
	170	0.13	72.0	85.0	4200		6SL3210-1PH22-7.L0	FSD	
	170	0.13	84.0	97.0	4200		6SL3210-1PH25-2.L0	FSE	
1LE1592-1EB42-6	170	0.13	72.0	85.0	4200	TB1J01	6SL3210-1PH23-5.L0	FSD	
	170	0.13	72.0	85.0	4200		6SL3210-1PH23-5.L0	FSD	
	170	0.13	84.0	97.0	4200		6SL3210-1PH26-2.L0	FSE	
1LE1592-2AB52-6	220	0.2	78.0	91.3	4200	TB1L01	6SL3210-1PH25-2.L0	FSE	
	220	0.2	78.0	91.3	4200		6SL3210-1PH25-2.L0	FSE	
	220	0.2	84.0	97.3	4200		6SL3210-1PH31-0.L0	FSF	
1LE1592-2BB02-6	260	0.37	70.0	84.0	4500	TB1L01	6SL3210-1PH25-2.L0	FSE	
	260	0.37	70.0	84.0	4500		6SL3210-1PH25-2.L0	FSE	
1LE1592-2BB22-6	290	0.45	71.0	84.0	4500	TB1L01	6SL3210-1PH26-2.L0	FSE	
	290	0.45	71.0	84.0	4500		6SL3210-1PH26-2.L0	FSE	
1LE1592-2CB22-6	360	0.69	71.0	84.0	3700	TB1N01	6SL3210-1PH28-0.L0	FSF	
	360	0.69	71.0	84.0	3700		6SL3210-1PH28-0.L0	FSF	
1LE1592-2DB02-6	540	1.2	76.0	91.0	3000	TB1N01	6SL3210-1PH31-2.L0	FSF	
	540	1.2	76.0	91.0	3000	_	6SL3210-1PH31-2.L0	FSF	
1LE1592-2DB22-6	560	1.4	76.0	91.0	3000	TB1N01	6SL3210-1PH31-4.L0	FSF	
	560	1.4	76.0	91.0	3000		6SL3210-1PH31-4.L0	FSF	
1LE1592-3AB02-6	730	1.9	80.0	95.0	2600	TB1Q01	6SL3710-1GF31-8.A3	_	
	730	1.9	80.0	95.0	2600		6SL3710-1GF31-8.A3	_	
1LE1592-3AB22-6	760	2.2	80.0	95.0	2600	TB1Q01	6SL3710-1GF32-2.A3	-	
	760	2.2	80.0	95.0	2600		6SL3710-1GF32-2.A3	-	
1LE1592-3AB42-6	940	2.8	80.0	95.0	2600	TB1Q01	6SL3710-1GF32-6.A3	_	
	940	2.8	80.0	95.0	2600		6SL3710-1GF32-6.A3	_	
1LE1592-3AB52-6	1140	3.5	82.0	96.0	2600	TB1Q01	6SL3710-1GF33-3.A3	_	
	1140	3.5	82.0	96.0	2600		6SL3710-1GF33-3.A3	_	
	1110	0.0	02.0	00.0	2000		0020710101000.710		

¹⁾ In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

1LE1592 cast-iron series – Standard Efficiency

Self-ventilated, enclosed motors – line voltage 690 V, 50 Hz/690 V, 87 Hz

Selection and ordering data	
	Operating values at rated power

					Operatin	g values at ra	ated power			1LE1592 cast-iron series
rated 0 Hz, 90 V	P _{rated} 60 Hz	P _{rated} 87 Hz, 690 V	Frame size	Connection	f _{rated}	$T_{ m rated}$	$\eta_{\rm rated, 4/4}$ for converter operation	cos $\phi_{\rm rated, 4/4}$	I _{rated}	Version specifically for converter operation
W	kW	kW			Hz	Nm	%		Α	Article No.
Insulatio	n: Thermal c	lass 155 (te	mperature	class F), IP5	5 degree	of protection	, utilization in	accordance wi	th therm	al class 155 (temperature cla
Operatio	n with a SIN	AMICS G co	nverter wit	h uncontrol	led infeed	- rated moto	or voltage 660	V, 50 Hz/660 V,	87 Hz	
000 rpm	3600 rpm	5220 rpm	2-pole							
			100 L	Υ	52.7	9.6	81.5	0.87	3.7	1LE1592-1AA43-3
		5		Δ	89.5	9.1	84.5	0.81	6.4	
			112 M	Υ	51.2	12.7	83.1	0.86	4.9	1LE1592-1BA23-3
		6.6		Δ	88.2	12.1	84.5	0.83	8.2	
5			132 S	Υ	51.6	17.5	84.7	0.89	6.4	1LE1592-1CA03-3
5			132 S	Υ	51.2	23.9	86.0	0.87	8.8	1LE1592-1CA13-3
			160 M	Υ	51.3	35.0	87.6	0.85	12.9	1LE1592-1DA23-3
			160 M	Y	51.4	47.8	88.7	0.84	17.6	1LE1592-1DA33-3
.5			160 L	Y	51.3	58.9	89.3	0.86	20.5	1LE1592-1DA43-3
			180 M	Y	51.0	70	89.9	0.87	24.5	1LE1592-1EA23-3
			200 L	Y	50.9	96	90.7	0.84	34.5	1LE1592-2AA43-3
			200 L	Y	50.9	118	91.2	0.88	40.5	1LE1592-2AA53-3
			225 M	Y	50.7	143	91.7	0.88	49	1LE1592-2BA23-3
			250 M	Y	50.6	175	92.1	0.88	59	1LE1592-2CA23-3
			280 S 280 M	Y	50.5 50.4	239 286	92.7	0.88	96	1LE1592-2DA03-3
00 889 899	1000 ***	0610 ***		Y	50.4	286	93.0	0.88	96	1LE1592-2DA23-3
00 rpm	1800 rpm	2610 rpm	4-pole	V	F0.0	14.0	70.7	0.01	2	11 E1500 1 AB40 2
2		3.7	_100 L	Υ Δ	52.9 89.5	14.0 13.5	79.7 83.0	0.81	3 4.95	1LE1592-1AB43-3
		3.1	100 L	Υ	52.5	19.1	81.5	0.79	3.8	1LE1592-1AB53-3
		5	_ 100 L	$\frac{1}{\Delta}$	89.5	18.3	85.0	0.83	6.5	ILE1992-1AB33-3
		J	112 M	Υ	52.5	25.5	83.1	0.79	5	1LE1592-1BB23-3
		6.6	_ I I Z IVI	$\frac{1}{\Delta}$	89.2	24.1	85.0	0.83	8.4	10020-10020-3
5		0.0	132 S	Y	52.0	35.0	84.7	0.82	6.9	1LE1592-1CB03-3
,		9	_ 102 0	$\frac{1}{\Delta}$	88.7	32.9	87.0	0.81	11.2	1221392-10803-3
5		<u> </u>	132 M	Y	51.7	47.8	86.0	0.82	9.3	1LE1592-1CB23-3
,		12.5	_ 132 W	$\frac{1}{\Delta}$	88.6	45.7	87.5	0.80	15.6	1221392-10023-3
		12.0	160 M	Y	51.5	70.0	87.6	0.82	13.4	1LE1592-1DB23-3
		17		Δ	88.3	62.2	88.5	0.78	21.5	1221002 12220 0
		••	160 L	Y	51.4	95.5	88.7	0.82	18	1LE1592-1DB43-3
		23.5		Δ	88.2	86.0	90.5	0.77	29.5	
.5			180 M	Y	51.1	117.8	89.3	0.85	21.5	1LE1592-1EB23-3
		31	_	Δ	88.0	112	91.0	0.84	35	
!			180 L	Y	51.2	140	89.9	0.85	25	1LE1592-1EB43-3
		36.5	_	Δ	88.2	134	91.0	0.84	42	
ı			200 L	Υ	51.0	191	90.7	0.83	35	1LE1592-2AB53-3
		48	_	Δ	87.9	176	92.4	0.81	56	
			225 S	Υ	50.8	236	91.4	0.85	41.5	1LE1592-2BB03-3
			225 M	Υ	50.8	286	92.4	0.88	48.5	1LE1592-2BB23-3
			250 M	Υ	50.8	350	92.3	0.86	61	1LE1592-2CB23-3
!			280 S	Υ	50.5	458	92.7	0.85	80	1LE1592-2DB03-3
1			280 M	Υ	50.6	573	93.0	0.87	97	1LE1592-2DB23-3
5			315 S	Υ	50.4	668	94.0	0.85	115	1LE1592-3AB03-3
80			315 M	Υ	50.4	828	94.4	0.85	142	1LE1592-3AB23-3
60			315 L	Υ	50.3	1019	95.0	0.87	169	1LE1592-3AB43-3
00			315 L	Υ	50.4	1273	95.0	0.89	205	1LE1592-3AB53-3

All technical specifications refer to converter operation.

1LE1592 cast-iron series - Standard Efficiency

Self-ventilated, enclosed motors – line voltage 690 V, 50 Hz/690 V, 87 Hz

Motor type	m	,	1.	1	Mooh	Torminal	Preferred SINAMICS G120 – PM240(-2)	Frame	IES class
	$m_{ m IM~B3}$	J	L _{pfA} , tolerance	L _{WA} , tolerance	Mech. speed	Terminal box	Other SINAMICS converters	size	acc. to
			+3 dB(A)	+3 dB(A)	limit		also possible		EN 50598-2
			load	load			Operating mode: Low overload		
	kg	kgm ²	dB(A)	dB(A)	rpm		Type 1)		
	<u> </u>	<u> </u>			<u>'</u>		21: -		
1LE1592-1AA43-3	31	0.0034	80.0	92.1	5500	TB1F01			
	31	0.0034	85.0	97.1	5500				
1LE1592-1BA23-3	36	0.0067	79.0	91.1	5500	TB1F01			
	36	0.0067	85.0	97.2	5500		6SL3210-1PH21-4.L0	FSD	
1LE1592-1CA03-3	53	0.013	77.0	89.3	4500	TB1H01	6SL3210-1PH21-4.L0	FSD	
1LE1592-1CA13-3	58	0.016	77.0	89.4	4500	TB1H01	6SL3210-1PH21-4.L0	FSD	
1LE1592-1DA23-3	87	0.03	80.0	92.4	4500	TB1J01	6SL3210-1PH21-4.L0	FSD	
1LE1592-1DA33-3	95	0.036	80.0	92.8	4500	TB1J01	6SL3210-1PH22-0.L0	FSD	
1LE1592-1DA43-3	105	0.044	80.0	92.8	4500	TB1J01	6SL3210-1PH22-3.L0	FSD	
1LE1592-1EA23-3	150	0.069	80.0	93.0	4500	TB1J01	6SL3210-1PH22-7.L0	FSD	
1LE1592-2AA43-3	195	0.124	79.0	92.0	4500	TB1L01	6SL3210-1PH23-5.L0	FSD	
1LE1592-2AA53-3	230	0.15	77.0	90.1	4500	TB1L01	6SL3210-1PH24-2.L0	FSD	
1LE1592-2BA23-3	280	0.22	78.0	90.0	4500	TB1L01	6SL3210-1PH25-2.L0	FSE	
1LE1592-2CA23-3	360	0.4	78.0	92.0	3900	TB1N01	6SL3210-1PH26-2.L0	FSE	
1LE1592-2DA03-3	470	0.72	78.0	92.0	3600	TB1N01	6SL3210-1PH28-0.L0	FSF	
1LE1592-2DA23-3	530	0.83	78.0	92.0	3600	TB1N01	6SL3210-1PH31-0.L0	FSF	
11 E 1500 1 A D 10 0		0.0050		20.4	1000	TD / F0 /			
1LE1592-1AB43-3	29	0.0059	80.0	92.1	4200	TB1F01			
	29	0.0059	81.0	93.1	4200	TD / F0 /			
1LE1592-1AB53-3	33	0.0078	80.0	92.1	4200	TB1F01			
41 E4500 4DD00 0	33	0.0078	81.0	93.1	4200	TD4504			
1LE1592-1BB23-3	38	0.01	79.0	91.3	4200	TB1F01	201 2010 101101 110	FOD	
## F # F # P # P # P # P # P # P # P # P	38	0.01	80.0	92.3	4200	TD (110.4	6SL3210-1PH21-4.L0	FSD	
1LE1592-1CB03-3	60	0.019	77.0	89.4	4200	TB1H01	6SL3210-1PH21-4.L0	FSD	
## F # F # P # P # P # P # P # P # P # P	60	0.019	83.0	95.4	4200	TD (110.4	6SL3210-1PH21-4.L0	FSD	
1LE1592-1CB23-3	62	0.024	77.0	89.4	4200	TB1H01	6SL3210-1PH21-4.L0	FSD	
41 E4500 4DD00 0	62	0.024	83.0	95.4	4200	TD4 104	6SL3210-1PH22-0.L0	FSD	
1LE1592-1DB23-3	89	0.044	85.0	97.8	4200	TB1J01	6SL3210-1PH21-4.L0	FSD	
41 E4500 4DD 40 0	89	0.044	85.0	97.8	4200	TD4 104	6SL3210-1PH22-7.L0	FSD	
1LE1592-1DB43-3	100	0.056	85.0	97.8	4200	TB1J01	6SL3210-1PH22-0.L0	FSD	
41 E4500 4ED00 0	100	0.056	85.0	97.8	4200	TD4 104	6SL3210-1PH23-5.L0	FSD	
1LE1592-1EB23-3	170	0.13	72.0	85.0	4200	TB1J01	6SL3210-1PH22-3.L0	FSD	
41 E4500 4ED 40 0	170	0.13	84.0	97.0	4200	TD4 104	6SL3210-1PH24-2.L0	FSD	
1LE1592-1EB43-3	170	0.13	72.0	85.0	4200	TB1J01	6SL3210-1PH22-7.L0	FSD	
11 E 1 E 0 0 0 A D E 0 0	170	0.13	84.0	97.0	4200	TD41.04	6SL3210-1PH25-2.L0	FSE	
1LE1592-2AB53-3	220	0.2	78.0	91.3	4200	TB1L01	6SL3210-1PH23-5.L0	FSD	
41 E4500 CDD00 0	220	0.2	84.0	97.3	4200	TD4' C4	6SL3210-1PH26-2.L0	FSE	
1LE1592-2BB03-3	260	0.37	70.0	84.0	4500	TB1L01	6SL3210-1PH24-2.L0	FSD	
1LE1592-2BB23-3	290	0.45	71.0	84.0	4500	TB1L01	6SL3210-1PH25-2.L0	FSE	
1LE1592-2CB23-3	360	0.69	71.0	84.0	3700	TB1N01	6SL3210-1PH26-2.L0	FSE	
1LE1592-2DB03-3	540	1.2	76.0	91.0	3000	TB1N01	6SL3210-1PH28-0.L0	FSF	
1LE1592-2DB23-3	560	1.4	76.0	91.0	3000	TB1N01	6SL3210-1PH31-0.L0	FSF	
1LE1592-3AB03-3	730	1.9	80.0	95.0	2600	TB1Q01	6SL3710-1GH31-2.A3	-	
1LE1592-3AB23-3	760	2.2	80.0	95.0	2600	TB1Q01	6SL3710-1GH31-5.A3	-	
1LE1592-3AB43-3	940	2.8	80.0	95.0	2600	TB1Q01	6SL3710-1GH31-8.A3	_	
1LE1592-3AB53-3	1140	3.5	82.0	96.0	2600	TB1Q01	6SL3710-1GH32-2.A3	-	

¹⁾ In addition to the Power Module, a Control Unit and an Operator Panel are required (see Catalog D 31 and/or D 35).

Article No. supplements and special versions

Voltages - 1LE1092 aluminum series

Selection and ordering data Voltages Article No. supplement Frame size Motor version Voltage code 12th and 13th Additional identifica-100 112 132 160 1LE1092 Standard Efficiency tion code with order code and position of the Article No. plain text if required 1LE1092- ■ - ■ . . . Order code Voltage at 50 Hz or 60 Hz Line voltage: 2 50 Hz, 400 V 60 Hz, 480 V Line voltage: 3 3 1 50 Hz, 690 V Non-standard voltage and/or frequenci Non-standard winding Reinforced insulation system M1Y • and customer 0 1 (Advanced) specifi-cations Non-standard winding 9 0 M2Y • Special insulation system (Premium) and customer specifications

- Standard version
- ✓ With additional charge
- This order code only determines the price of the version Additional plain text is required.

Article No. supplements and special versions

Voltages – 1LE1592 cast-iron series

Selection and ordering data

Voltages				. supplement											Motor version
			ige	Additional identifica-			132	160	180	200	225	250	280	315	
	code 12th and		tion code	1LE1	592									Standard Efficiency	
	13 prof A	of the		with order code and plain text if required											
1LE1592		-		Order code											
Voltage at 50 Hz or 60 Hz															
Line voltage:	2	1		_											
50 Hz, 400 V 60 Hz, 480 V															
Line voltage:	2	6		-	1	✓	✓	✓	✓	✓	✓	/	✓	✓	
50 Hz, 500 V 60 Hz, 600 V															
Line voltage:	3	3		-	1	✓	✓	✓	✓	✓	✓	/	✓	✓	
50 Hz, 690 V															
Non-standard voltage and/or f	rec	ļue	ncies												
Non-standard winding Reinforced insulation system (Advanced)	9	0		M1Y • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	1	
Non-standard winding Special insulation system (Premium)	9	0		M2Y • and customer specifications	✓	√	1	1	1	1	1	1	1	√	

- Standard version
 With additional charge
 This order code only determines the price of the version –
 Additional plain text is required. □ ✓ •

Article No. supplements and special versions

Types of construction – 1LE1092 aluminum series

Selection and orde	ring data						
Types of construction		supplement	Frame size				Motor version
	Type of construc-	For types of construc-	11 51002	112	132	160	Standard Efficiency
	tion code letter 14th	tion with order	ILE 1092				Standard Efficiency
	position	code(s)					
	of the Article	Article No. with addi-					
	No.	tional iden- tification					
		code -Z					
1LE1092	. ■ (-Z)	Order code					
Without flange							
IM B3 ^{1) 2)}	A	-	0				
7							
IM B6 ²⁾	-		_	_	_	_	
IIVI BO =/	Т	-	0	0	0	0	
(®)							
IM B7 ²⁾	U	_	_	0	0	0	
IM B8 ²⁾	V	-	0				
((⊚))							
IM V6 ²⁾	D	-	0	0		0	
IM V5 without	С	-	0	0	0	0	
protective cover 2)							
cover 2)							
IM V5	С	H00	✓	✓	✓	✓	
with protective							
cover 2) 3) 4) 5)							
With flange	Acc. to EN		FF215 A 250	FF215 A 250	FF265 A 300	FF300 A 350	
IM B5 ^{2) 6)}	F	-	✓ ×	✓ ×	✓ ×	✓ ×	
111111			,				
IM V1 without	G	-	✓	1	✓	1	
without protective cover ²⁾							
- T							
IM V1	G	H00	√	1	1	√	
with protective							
cover 2) 3) 4) 5)							
2) 3) 4) 3)							
IM V3 ³⁾	Н	_	✓	✓	✓	✓	
IM B35	J	-	1	1	1	1	

For legends and footnotes, see page 4/90.

Article No. supplements and special versions

Types of construction – 1LE1092 aluminum series

Types of construction Article N Type of	lo. supplement For types	Frame size	112	132	160	Motor version
construc	- of construc-	1LF1092		102	100	Standard Efficiency
tion cod letter 14 position of the Article No.	th order code(s) Article No. with additional identification code -Z	TEE 103E				Candad Emolency
1LE1092 ■ (-Z)						
	EN 50347	FT130	FT130	FT165		
	DIN 42948	C 160	C 160	C 200	-	
IM B14 (2) 7) K	-	✓	/	/	√	
IM V19 ²⁾	-	/	✓	/	√	
IM V18 without protective cover 2	-	/	✓	✓	√	
IM V18 with protective cover 2) 3) 4) 5)	-	✓	√	,	,	
IM B34	-	1	√	√	✓	
mand language	EN 50347	FT165	FT165	FT215		
100.00	DIN 42948	C 200	C 200	C 250	-	
IM B14 (2) 7)	P01	✓	/	/	-	
IM V19 ²⁾	P01	✓	/	/	-	
IM V18 without protective cover 2	P01	V	✓	✓	-	
IM V18 with protective cover 2) 3) 4) 5)	P01+H00	/	√	V	-	
IM B34	P01	1	✓	✓	-	

Article No. supplements and special versions

Types of construction – 1LE1092 aluminum series

Types of construction	Type of construc- tion code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code -Z Order code	Frame size 100 1LE1092	112	132	160	Motor version Standard Efficiency
1LE1092							
With special flange	Acc. to EN		FT115	FT115	FT130		
next smallest	Acc. to DIN		C 140	C 140	C 160	-	
IM B14 2) 7)	K	P02	O. R.	O. R.	O. R.	-	
IM V19 ²⁾		P02	O. R.	O. R.	O. R.	-	
IM V18 without protective cover 2)	М	P02	O. R.	O. R.	O. R.	-	
IM V18 with protective cover 2) 3) 4) 5)	М	P02+H00	O. R.	O. R.	O. R.	-	
IM B34	N	P02	O. R.	O. R.	O. R.	-	

- □ Standard version
 ✓ With additional charge
 Not possible
- O. R. Possible on request

¹⁾ The types of construction IM B6/7/8, IM V6 and IM V5 with/without protective cover are also possible as long as there are no condensation drainage holes (order code H03) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code H00. The protective cover is not stamped on the rating plate.

²⁾ The type of construction is stamped on the rating plate. For orders with condensation drainage holes (order code H03), if mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

³⁾ The "Second shaft extension" option (order code **L05**) is not possible

⁴⁾ In combination with an encoder, it is not necessary to order the protective cover (order code H00), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard version (without additional charge).

Not possible for forced-air cooled motors with order code F90 without external fan and fan cover

The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as there are no condensation drainage holes (order code H03) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code H00. The protective cover is not stamped on the rating plate.

⁷⁾ The types of construction IM V19 and IM V18 with/without protective cover are also possible as long as there are no condensation drainage holes (order code H03) and these types of construction do not have to be stamped on the rating plate. As standard the type of construction IM B14 is then stamped on the rating plate. With type of construction IM V18 with protective cover, the protective cover has to be additionally ordered with order code H00. The protective cover is not stamped on the rating plate.

Article No. supplements and special versions

Types of construction – 1LE1592 cast-iron series

Selection	and orde	ring data													_
Types of co		_	supplement	Frame	cizo										Motor version
Types of Co	oristi detion	Type of construc-	For types of construc-	100	112	132	160	180	200	225	250	280	315 S/M	315 L	WOLDI VELSION
		tion code letter 14th	tion with order	1LE1	592										Standard Efficiency
		position of the Article No.	code(s) Article No. with additional identification code -Z												
1LE1	592	. . (-Z)	Order code												
Without fla	ange														
IM B3 ^{1) 2)}		A	-	0	0	-	0	0	0	0	0	0	0	0	
IM B6 ²⁾			-	0	_	0	0			0	0	0	0	0	
IM B7 ²⁾		U	-	0	0	0	0	0	0	0	0	0	0	0	
IM B8 ²⁾		V	-	0	0	0	0	0	0	0	0	0	0	0	
IM V6 ²⁾		D	-	0		0		0	0			0	0	0	
IM V5 without protective cover ²⁾		С	-	0		0		_	0	_	_	_	0		
IM V5 with protective cover 2) 3) 4)		С	H00	√	√	✓	✓	✓	✓	✓	✓	✓	✓	1	
With flang	е	Acc. to EN											FF600		
IM B5		Acc. to Dif	1 42948	A 250	A 250	A 300 ✓	A 350 ✓	A 350 ✓	A 400	A 450 ✓	A 550 ✓	A 550 ✓	A 660 ✓	A 660	
2) 5)			_	•	•	•	•	•	•	•	•	•	•	_	
IM V1 without protective cover ²)		G	-	✓	1	1	1	1	1	1	1	1	✓	1	
IM V1 with protective cover 2) 3) 4)		G	H00	✓	1	√	√	√	√	√	√	√	1	1	
IM V3 ⁴⁾		Н	-	√	1	1	1	✓	✓	✓	✓	1	1	-	
IM B35		J	-	√	√	√	√	✓	✓	✓	✓	√	1	1	

Article No. supplements and special versions

Types of construction - 1LE1592 cast-iron series

Types of co	onstruction	Article No. s Type of construc- tion code letter 14th	For types of construction with order	Frame 100	112	132	160	180	200	225	250	280	315 S/M	315 L	Motor version Standard Efficiency
		position of the Article No.	code(s) Article No. with additional identification code -Z												
1LE1	592	■ (-Z)	Order code												
With flang	je	Acc. to EN			FT130				-	-	-	-	-	-	
IM B14 2) 6)	£)	Acc. to DIN	-	✓ T60	C 160 ✓	✓ 200	✓ Z50	-	-	-	-	-	-	-	
IM V19 ²⁾			-	1	/	√	1	-	-	-	-	-	-	-	
IM V18 without protective cover ²)		М	-	1	√	√	√	-	-	_	-	-	-	_	
IM V18 with protective cover 2) 3) 4)		М	H00	√	✓	/	/	_	_	_	_	_	_	_	
IM B34		N	-	V	✓	√	✓	-	-	-	-	-	-	-	
With spec next large	ial flange st	Acc. to EN			FT165 C 200										
IM B14 2) 6)		K	P01	√	✓ 200	√ Z50	-	-	-	-	-	-	-	-	
IM V19 ²⁾			P01	1	√	√	-	-	-	_	-	-	-	_	
IM V18 without protective cover ²)		М	P01	1	√	√	-	-	-	-	-	-	-	-	
IM V18 with protective cover 2) 3) 4)		М	P01+H00	1	✓	√	-	-	-	_	_	-	-	_	
IM B34	£	N	P01	✓	1	✓	-	-	-	-	-	-	-	-	_

- Standard version Not possible
- With additional charge
- 1) The types of construction IM B6/7/8, IM V6 and IM V5 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B3 is then stamped on the rating plate. With type of
- stamped on the rating plate. 2) The type of construction is stamped on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

construction IM V5 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not

- 3) In combination with an encoder, it is not necessary to order the protective cover (order code H00), as this is delivered as a protection for the encoder as standard. In this case the protective cover is standard design (without additional charge).
- 4) The "Second shaft extension" option (order code **L05**) is not possible.
- 5) The types of construction IM V3 and IM V1 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B5 is then stamped on the rating plate. With type of construction IM V1 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.
- 6) The types of construction IM V19 and IM V18 with/without protective cover are also possible as long as no stamping of these types of construction on the rating plate is required. As standard the type of construction IM B14 is then stamped on the rating plate. With type of construction IM V18 with protective cover, the protective cover has to be additionally ordered with order code **H00**. The protective cover is not stamped on the rating plate.

Article No. supplements and special versions

Motor protection – 1LE1092 aluminum series

Selection and ordering data

Motor protection	Motor protection code letter 15th position of the Article No.	tion code with order code and plain text if required		Frame size 100 1LE1092	112	132	160	Motor version Standard Efficiency
1LE1092	•	Order code						
Motor protection								
1 or 3 PTC thermistors – for tripping (2 terminals) 1)	В	-		1	√	√	1	
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) 1)	С	-		✓	✓	✓	1	
1 KTY84-130 temperature sensor (2 terminals) 1)	F	-		0	0	0	0	
2 KTY84-130 temperature sensors (4 terminals) 1)	G	-		✓	1	✓	1	
3 Pt100 resistance thermometers – 2-wire input (6 terminals) 1)	Н	-		✓	✓	✓	1	
1 Pt1000 resistance thermometer (2 terminals) ²⁾	K	-		✓	✓	✓	1	
2 Pt1000 resistance thermometers (4 terminals) ²⁾	L	-		✓	✓	✓	1	
1 Pt100 resistance thermometers – 2-wire input (2 terminals) 1)	P	-	New!	_	1	√	1	
3 Pt100 resistance thermometers – 3-wire input (9 terminals) 1)	Q	-	New!	_	1	1	1	
6 Pt100 resistance thermometers – 3-wire input (18 terminals) 1)	R	-	New!	_	1	√	1	
3 bimetal sensors (NC contacts) for tripping (2 terminals) 1)	Z	Q3A		1	√	✓	1	Only for: Voltage code 2-1 (12th and 13th position of the Article No.)

Standard version With additional charge □ ✓

¹⁾ Evaluation with associated tripping unit (see Catalog IC 10) is recommended.

²⁾ Not UL-certified. Not in combination with option D39.

Article No. supplements and special versions

Motor protection – 1LE1592 cast-iron series

Selection and ordering data

Motor protection	Article No. s	supplement	Fram	ne size									Motor version	n
	Motor	Additional	100	112	132	160	180	200	225	250	280	315		
	protection code letter	identifica- tion code	1LE1	1592									Standard Ef	ficiency
	15th position of the Article No.	with order code and plain text if required												
1LE1592	•	Order code												
Motor protection														
1 or 3 PTC thermistors – for tripping (2 terminals) 1)	В	-	1	1	1	1	1	1	1	1	1	1		
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) 1)	С	-	1	1	1	1	1	1	1	1	1	1		
1 KTY84-130 temperature sensor (2 terminals) 1)	F	-		_		_	_	_			_	_		
2 KTY84-130 temperature sensors (4 terminals) 1)	G	-	1	✓	1	1	1	1	1	1	1	/		
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	Н	-	1	1	1	1	1	✓	1	1	1	1		
1 Pt1000 resistance thermometers (2 terminals) 3)	K	-	1	1	1	1	1	1	1	✓	1	1		
2 Pt1000 resistance thermometers (4 terminals) 3)	L	-	1	1	1	1	1	1	1	✓	1	1		
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	P	-	1	1	1	1	1	1	1	1	1	1		
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	Q	-	1	1	1	1	1	1	1	1	1	1		
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	R	-	1	1	1	1	1	1	1	1	1	1		
3 bimetal sensors (NC contacts) for tripping (2 terminals) ²⁾	Z	Q3A	√	✓	1	1	1	1	1	1	1	✓	, (oltage code 2-1 12th and 13th osition of the orticle No.)

[□] **✓**

Standard version With additional charge

¹⁾ Evaluation with associated tripping unit (see Catalog IC 10) is

Only applicable for voltage code (12th and 13th position of the Article No.) 2-1.

³⁾ Not possible in combination with UL.

Article No. supplements and special versions

Terminal box position – 1LE1092 aluminum series

Selection and ordering data

Terminal box position	Article No.	supplement	Frame size				Motor version
4	Terminal	Additional	100	112	132	160	
	box posi- tion code	identifica- tion code	1LE1092				Standard Efficiency
6 (((**))) 5	16th	with order					
	position of the	code and plain text					
7	Article	if required					
	No.	·					
1LE1092		Order code					
Terminal box position							
Terminal box top 1)	4	_		0	0		
Terminal box right-hand side 2)	5	_	1	1	1	✓	
Terminal box left-hand side 2)	6	_	1	✓	1	1	
Terminal box bottom 2)	7 New!	_	1	1	√	1	

■ Standard version✓ With additional charge

¹⁾ For types of construction with feet, cast feet are standard. Screwed-on feet are available with order code H01.

 $^{^{2)}}$ For foot-mounted designs, screwed-on feet are standard.

Article No. supplements and special versions

Terminal box position – 1LE1592 cast-iron series

Selection and ordering data

Terminal box position	Article No. :	supplement	Fram	ne size									Motor version
4	Terminal	Additional	100	112	132	160	180	200	225	250	280	315	
	box posi- tion code	identifica- tion code	1LE	1592									Standard Efficiency
6 6 5	16th position of the Article No.	with order code and plain text if required											
1LE1592	•	Order code											
Terminal box position													
Terminal box top 1)	4	_											
Terminal box right-hand side ²⁾	5	_	1	1	1	1	1	/	/	1	/	✓	
Terminal box left-hand side ²⁾	6	_	1	1	/	1	/	/	/	/	/	/	
Terminal box bottom ²⁾	7 New!	_	1	/	/	1	-	-	-	-	-	-	

■ Standard version✓ With additional charge

¹⁾ For types of construction with feet, cast feet are standard. Screwed-on feet are available with order code **H01**.

²⁾ For foot-mounted designs, screwed-on feet are standard.

Article No. supplements and special versions

Options – 1LE1092 aluminum series

						Options –	TLE 1092 aluminum series
Selection and ordering data							
Special versions	fication code -Z with order code and plain text if required		Frame size 100 1LE1092	112	132	160	Motor version Standard Efficiency
1LE1092 Z	Order code	!					
Motor protection							
1 or 3 PTC thermistors – for tripping (2 terminals) ^{2) 3)}	Q11		1	✓	✓	✓	
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) ³⁾	Q12		1	√	√	✓	
1 KTY84-130 temperature sensor (2 terminals) ³⁾	Q23		✓	√	✓	✓	
2 KTY84-130 temperature sensor (4 terminals) ³⁾	Q25		✓	√	✓	✓	
3 bimetal sensors (NC contacts) for tripping (2 terminals) 3)	Q31		✓	✓	✓	✓	
6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)	Q32		✓	✓	✓	✓	
3 bimetal sensors (NC contacts) for tripping (6 terminals)	Q33		O.R.	O. R.	O. R.	O. R.	
1 Pt1000 resistance thermometer (2 terminals) ²⁰⁾	Q35		✓	✓	✓	✓	
2 Pt1000 resistance thermometers (4 terminals) ²⁰⁾	Q36		✓	✓	✓	✓	
3 Pt100 resistance thermometers – 2-wire input (6 terminals)	Q60		✓	✓	✓	✓	
6 Pt100 resistance thermometers – 2-wire input (12 terminals)	Q61	New!	✓	✓	✓	✓	
1 Pt100 resistance thermometer – 2-wire input (2 terminals)	Q62	New!	✓	✓	✓	✓	
3 Pt100 resistance thermometers – 3-wire input (9 terminals)	Q63	New!	✓	✓	✓	✓	
6 Pt100 resistance thermometers – 3-wire input (18 terminals)	Q64	New!	1	✓	✓	1	
2 Pt100 screw-in thermometers in basic configuration for bearings (2 terminals)	Q72	,,,,	O.R.	O.R.	O.R.	O.R.	
2 Pt100 screw-in thermometers in 3-wire input for bearing (6 terminals)	Q78	New!	O. R.	O. R.	O. R.	O.R.	
2 Pt100 double screw-in thermometers in 3-wire input for bearing (12 terminals) Motor connection and terminal box	Q79	New!	O.R.	O.R.	O.R.	O.R.	
External grounding	H04		✓	1	1	1	
Terminal box on NDE 1)	H08		1	✓	✓	✓	
Rotation of the terminal box through 90°, entry from DE ²⁾	R10		0	0	0	0	
Rotation of the terminal box through 90°, entry from NDE	R11		0	0	0	0	
Rotation of the terminal box through 180°	R12		0	0	0	0	
Terminal box in position 0°, connection from right	R13	New!	0	0	0	-	
One metal cable gland	R15		1	✓	✓	✓	
3 cables protruding, 0.5 m long	R20		✓	✓	✓	✓	
6 cables protruding, 0.5 m long	R22		✓	✓	✓	✓	
Larger terminal box	R50		1	1	1	1	
Motor connector Han-Drive 10e for 230 VΔ/400 VY	R70		✓	✓	✓	-	
Motor connector EMC Han-Drive 10e for 230 $V\Delta/400~VY$	R71		✓	✓	✓	-	
Windings and insulation							
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	N30		✓	✓	✓	✓	

Article No. supplements and special versions

Options – 1LE1092 aluminum series

Special versions	Additional identification code -Z with order code	Frame size 100 1LE1092	112	132	160	Motor version
	and plain text if required	ILE 1092				Standard Efficiency
1LE1092 Z						
	01401 0040					
Colors and paint finish		0			_	
Standard paint finish C2 in RAL 7030 stone gray		Ц	Ц	Ц	ш	
Unpainted (only cast-iron parts primed)	S00	0	0	0	0	
Unpainted, only primed	S01	1	1	√	1	
Special paint finish C3	S02	1	1	1	1	
Special paint finish sea air resistant C4	S03	1	1	1	1	
Internal coating	S05	✓	✓	✓	✓	
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	Y53 • and paint finish RAL	,	,	,	,	
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	paint finish RAL	✓	✓	✓	V	
Modular technology – Basic versions	4)					
Mounting of holding brake (standard assignment) 5)	F01	1	✓	✓	✓	
Mounting of brake for higher switching frequency (operating brake)	F02	O.R.	O. R.	O. R.	O. R.	
Mounted separately driven fan	F70	✓	✓	✓	✓	
Mounting of 1XP8012-10 (HTL) rotary pulse encoder ^{6) 7)}	G01	1	✓	✓	✓	
Mounting of 1XP8012-20 (TTL) rotary pulse encoder ^{6) 7)}	G02	✓	✓	✓	✓	
Modular technology - Additional vers	ions					
Brake supply voltage 24 V DC	F10	✓	✓	✓	✓	
Brake supply voltage 230 V AC, 50/60 Hz	F11	0	0	0	0	
Brake supply voltage 400 V AC, 50/60 Hz	F12	✓	✓	✓	✓	
Mechanical manual brake release with lever (no locking)	F50	1	✓	✓	✓	
Special technology 3)						
Mounting of LL 861 900 220 rotary pulse encoder ⁶⁾	G04	1	✓	✓	✓	
Mounting of HOG 9 DN 1024 I rotary pulse encoder 6)	G05	✓	✓	✓	✓	
Mounting of HOG 10 D 1024 I rotary pulse encoder ⁶⁾	G06	✓	✓	✓	✓	
Mechanical version and degrees of pr						
Prepared for mountings, centering hole only 7)	G40	✓	✓	✓	✓	
Prepared for mountings with D12 shaft ¹²⁾	G41	✓	✓	✓	✓	
Prepared for mountings with D16 shaft ¹²⁾	G42	1	✓	1	✓	
Mechanical protection for encoder	G43	✓	✓	✓	✓	
Protective cover ^{6) 8)}	H00	✓	✓	✓	✓	
Screwed-on (instead of cast) feet	H01	✓	✓	✓	✓	
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	H02	✓	√	✓	√	
Condensation drainage holes 9)	H03	1	1	1	1	
Rust-resistant screws (externally)	H07	✓	✓	✓	✓	
IP65 degree of protection ¹⁰⁾	H20	✓	1	✓	1	
IP56 degree of protection ¹¹⁾	H22	✓	✓	✓	1	
Drive-end seal for flange-mounted motors, oil-tight to 0.1 bar ¹³⁾	H23	✓	✓	✓	✓	
Coolant temperature and installation						
Coolant temperature –40 to +40 °C ¹⁹⁾	D03	1	✓	✓	1	
Coolant temperature –30 to +40 °C ¹⁹⁾	D04	✓	✓	✓	✓	

For legends and footnotes, see page 4/100.

Article No. supplements and special versions

Options – 1LE1092 aluminum series

						122 1002 arammam 001100
Special versions	Additional identi-	Frame size				Motor version
·	fication code -Z	100	112	132	160	
	with order code	1LE1092			100	Standard Efficiency
	and plain text if required	1221032				Standard Efficiency
41 54000	· ·					
1LE1092 Z	Order code					
Versions in accordance with standard	ls and specificatio	ns				
Version according to UL and CSA	D39	1	1	1	/	
(Canadian regulation)						
TR CU product safety certificate EAC	D47	✓	✓	✓	✓	
for Eurasian customs union						
Bearings and lubrication						
Located bearing DE	L20	✓	✓	✓	✓	
Located bearing NDE	L21	1	1	1		
Bearing design for increased	L22	/	/	/	/	
cantilever forces						
Regreasing device ¹⁴⁾	L23	✓	✓	/	✓	
Bearings reinforced at both ends for	L25	1	✓	1	✓	
DE and NDE, bearing size 63						
Measuring nipple for SPM shock pulse measurement for bearing inspection ¹⁴⁾	Q01	✓	✓	1	✓	
measurement for bearing inspection 14)						
Balance and vibration severity						
Vibration severity grade A						
Half-key balancing (standard)						
Balancing without feather key	L01	/	/	/	/	
Full-key balancing	L02	1	1	1	1	
Shaft and rotor	202		•	•	•	
* * * * * * * * * * * * * * * * * * * *	L04	1	,	,	,	
Shaft extension with standard dimensions, without feather keyway	L04	✓	1	✓	1	
Standard, cylindrical shaft extension	L05	1	/	✓	1	
(second shaft extension)	L03	•	•	•	•	
NDE acc. to EN 50347						
Standard shaft made of stainless steel	L06	1	1	1	1	
(e.g. 1.4021)						
Concentricity of shaft extension in	L07	✓	✓	/	✓	
accordance with DIN 42955						
Tolerance R		_				
Concentricity of shaft extension, coaxiality, and linear movement in	L08	✓	1	1	✓	
accordance with DIN 42955						
Tolerance R for flange-mounted motors						
Non-standard cylindrical shaft	Y58 • and	1	1	1	/	
extension, DE ¹⁵⁾	customer					
	specifi-					
Non-standard sulindrial de-ft	cations					
Non-standard cylindrical shaft extension, NDE ¹⁵⁾	Y59 • and customer	1	1	✓	1	
CATCHOIGH, TABLE	specifi-					
	cations					
Heating and ventilation						
Sheet metal fan cover	F74	1	/	1	1	
Fan cover for textile industry ¹⁶⁾	F75	1	/	/	/	
Metal external fan	F76	1	1	1	1	
Without external fan and without	F90	1	-	<u>√</u>	-	
fan cover	. 30	•	•	•	•	
Anti-condensation heating for 230 V	Q02	1	1	/	/	
(2 terminals)		•	·	•	·	
Anti-condensation heating for 115 V	Q03	1	1	1	1	
(2 terminals)						
Rating plate and additional rating plate	tes					
Second rating plate, loose	M10	1	/	1	/	
Rating plate, stainless steel	M11	/	/	/	/	
Additional rating plate with customer	Y82 • and	1	1	1	1	
specifications	customer				•	
	specifi-					
	cations					
Additional information on rating plate	Y84 • and	✓	✓	1	✓	
and on package label (max. 20 characters)	customer specifi-					
onardolors)	cations					
Adhesive label, supplied loose	Y85 • and	1	1	/	/	
(printed with: Article No., Serial No.;	customer					
2 lines of text)	specifi-					
	cations					

For legends and footnotes, see page 4/100.

Article No. supplements and special versions

Options - 1LE1092 aluminum series

Special versions	Additional ider fication code - with order cod and plain text if required	Z 100	112	132	160	Motor version Standard Efficiency
1LE1092 Z	Order code					
Packaging, safety notes, documentati	ion and test ce	tificates				
Printed German/English Operating Instructions (compact) enclosed 17)		0	0	0	0	
Printed German/English Operating Instructions (compact) enclosed in each wire-lattice pallet	B01	0	0	0	0	
Acceptance test certificate 3.1 according to EN 10204 ¹⁸⁾	B02	1	✓	1	✓	
Printed German/English Operating Instructions enclosed	B04	1	✓	✓	✓	
Document - Electrical datasheet	B60	1	✓	✓	✓	
Document - Order dimensional drawing	B61	✓	✓	✓	✓	
Type test with heat run for horizontal motors, with acceptance	B83	1	✓	✓	✓	
"Basic" documentation package	B90 /	ew! 🗸	✓	✓	✓	
"Advanced" documentation package	B91 /	ew! 🗸	✓	✓	✓	
"Projects" documentation package	B92 /	ew! 🗸	✓	✓	✓	
Wire-lattice pallet packaging	B99	0	0	0	0	
Connected in star for shipping	M01	✓	✓	✓	1	
Connected in delta for dispatch	M02	✓	1	✓	✓	

- Standard version
- o Without additional charge
- This order code only determines the price of the version Additional plain text is required.
- ✓ With additional charge
- O. R. Possible on request
- Not possible

- For order code H08 mounting feet dimension deviates from EN 50347. Further information is available in the DT Configurator (see Appendix, "Tools and engineering").
- With IM B5 flange, only possible in combination with order code H08.
- The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.
- 4) A second shaft extension is not possible. Please inquire for mounted brakes.
- 5) For order codes F10, F11, and F12, the brake supply voltage must be specified or ordered.
- 6) In combination with a separately driven fan (order code F70) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.
- As standard, motors that are prepared for additional mounted components (order codes **G40**, **G41**, **G42**) are shipped without protective cover. If a protective cover is requested as a cover or mechanical protection for mounted components provided by the customer, this can be ordered with order code **G43**. In combination with a separately driven fan (order code **F70**) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.
- 8) Order code **H00** provides mechanical protection for encoders.
- Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If the condensation drainage holes are required for motors of the IM B6, IM B7 or IM B8 type of construction (feet on side or top), the motors must be ordered in the respective type of construction and with order code H03, so that the condensation drainage holes will be placed in the correct position.
- 10) Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code G05) and/or brake 2LM8 (order code F01).
- 11) Not possible in combination with 2LM8 brake (order code F01).

- 12) As standard, motors that are prepared for additional mounted components (order codes G40, G41, G42) are shipped without protective cover. If a protective cover is requested as a cover or mechanical protection for mountings provided by the customer, this can be ordered with order code G43.
- ¹³⁾ Not possible for type of construction IM V3.
- ¹⁴⁾ Not possible when a brake is mounted.
- 15) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Tapered shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes Y58, Y59 and L05 the following applies:
 - Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables for "Dimensions")
 - Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension. For an explanation of the order codes, see Catalog Section 1 "Introduction".
- 16) The special requirements of the textile industry regarding the sheet metal cover open up the possibility that a finger may be inserted between the cover and housing. The customer must implement appropriate measures to ensure that the installed system is "finger-safe".
- 17) The Operating Instructions (compact) are available in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/40761976.
- 18) The delivery time for the factory test certificate may differ from the delivery time for the motor and will be dispatched by e-mail.
- 19) In connection with mountings, the respective technical specifications must be observed, please inquire before ordering.
- ²⁰⁾ Not possible in combination with UL

Article No. supplements and special versions

Options – 1LE1592 cast-iron series

Additional Identic Recibion Condensis													
Tile 150	Selection and ordering data												
Tell 1932													Motor version
ILE1592		with order code			132	160	180	200	225	250	280	315	Chand of Efficiency
Motor protection 10 cs Fire Protection 10 cs 10 cs Fire Protection 10 cs 10			ILEI	592									Standard Efficiency
Orange O		•											
Orange O	Motor protection			-	-	-	-	-	-	-	-	_	
2 of 6 PTC thermistors - for alarm and furping (4 terminals) - - - - - - - - -		Q11	/	/	/	/	/	/	/	/	/	/	
Image: Company Imag													
2 Erminals 3	2 or 6 PTC thermistors – for alarm and tripping (4 terminals) 3)	Q12											
3 bimetal sensors (NC, contacts) for tripping (2 terminals) 3 bimetal sensors (NC contacts) for tripping (2 terminals) 3 bimetal sensors (NC contacts) for alarm and tripping (4 terminals) 3 bimetal sensors (NC contacts) for tripping (6 terminals) 3 bimetal sensors (NC contacts) for tripping (6 terminals) 3 bimetal sensors (NC contacts) for tripping (6 terminals) 3 bimetal sensors (NC contacts) for tripping (6 terminals) 3 bimetal sensors (NC contacts) for tripping (6 terminals) 4 bimerostat for alarm and tripping (12 terminals) 5 bimetal sensors (NC contacts) for tripping (6 terminals) 6 bimetal sensors (NC contacts) for the Article Nc tripping (12 terminals) 7 bimerostat for alarm and tr	(2 terminals) 3)	Q23	1		1		√		✓		✓	✓	
Interpretation Content	2 KTY84-130 temperature sensor (4 terminals) 3)	Q25	1	/	1	1	1	1	1	1	1	1	
State Stat	3 bimetal sensors (NC contacts) for tripping (2 terminals) 3)	Q31	1	1	1	✓	✓	✓	✓	✓	✓	✓	
Simetal sensors (NC contacts)		Q32	1	1	1	1	1	1	1	1	1	1	Only for: Voltage code 2-1 (12th and 13th position of the Article No.)
thermostat for alarm and tripping (12 terminals) 1 Pt1000 resistance thermometer (2 terminals) 2 Pt1000 resistance thermometer (3 terminals) 2 Pt1000 resistance thermometers — (4 terminals) 3 Pt100 resistance thermometers — (4 terminals) 3 Pt100 resistance thermometers — (4 terminals) 4 Pt100 resistance thermometers — (4 terminals) 4 Pt100 resistance thermometers — (4 terminals) 5 Pt100 resistance thermometers — (4 terminals) 6 Pt100 resistance thermometers — (4 terminals) 6 Pt100 resistance thermometers — (4 terminals) 7 Pt100 resistance thermometers — (4 terminals) 8 Pt100 resistance thermometers — (4 terminals) 9 Pt100 resistance thermometers — (4 terminals) 9 Pt100 resistance thermometers — (4 terminals) 10 Pt100 resi		Q33	1	1	1	✓	✓	✓	✓	✓	✓	✓	
2 Pt100 cresistance thermometer Q36	thermostat for alarm and tripping	Q34	-	-	-	-	1	1	1	1	1	1	
A terminals	1 Pt1000 resistance thermometer (2 terminals) ²¹⁾	Q35	1	1	1	✓	1	✓	✓	✓	1	✓	
2-wire input (6 terminals) 1 Pt100 resistance thermometer —	2 Pt1000 resistance thermometer (4 terminals) ²¹⁾	Q36	1	1	1	1	✓	1	1	1	1	✓	
2-wire input (2 terminals) 3 Pt100 resistance thermometers — 3-wire input (9 terminals) 6 Pt100 resistance thermometers — 3-wire input (18 terminals) 2 Pt100 screw-in thermometers in basic configuration for bearing (2 terminals) 2 Pt100 screw-in thermometers in 3-wire input for bearing (6 terminals) 2 Pt100 screw-in thermometers in 3-wire input for bearing (12 terminals) 2 Pt100 screw-in thermometers in 3-wire input for bearing (12 terminals) Motor connection and terminal box External grounding H04 V V V V V V V V V V V V V V V V V V V		Q60	1	/	1	1	1	1	1	1	1	1	
3-wire input (9 terminals) 6 Pt100 resistance thermometers – 3-wire input (18 terminals) 2 Pt100 screw-in thermometers in basic configuration for bearing (2 terminals) 1 Pt100 screw-in thermometers in basic configuration for bearing (2 terminals) 2 Pt100 screw-in thermometers in 3-wire input for bearing (6 terminals) 2 Pt100 double screw-in thermometers in 3-wire input for bearing (12 terminals) Motor connection and terminal box External grounding Terminal box on NDE 2) H08 Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y		Q62	1	1	1	1	1	/	/	1	1	1	
3-wire input (18 terminals) 2 P1100 screw-in thermometers in basic configuration for bearing (2 terminals) 2 P1100 screw-in thermometers in 3-wire input for bearing (6 terminals) 2 P1100 double screw-in thermometers in 3-wire input for bearing (12 terminals) Motor connection and terminal box External grounding H04		Q63	1	1	1	1	1	/	/	1	1	1	
in basic configuration for bearing (2 terminals) 1		Q64	1	1	1	1	1	1	1	1	1	1	
3-wire input for bearing (6 terminals) 2 Pt100 double screw-in thermometers in 3-wire input for bearing (12 terminals) Motor connection and terminal box External grounding	in basic configuration for bearing	Q72	-	-	-	-	1	1	1	1	1	1	
Motor connection and terminal box External grounding H04		Q78	-	-	-	-	1	✓	✓	✓	✓	✓	
External grounding		Q79	-	-	-	-	1	✓	✓	✓	✓	✓	
Terminal box on NDE 2 H08													
Notation of the terminal box through 90°, entry from DE Rotation of the terminal box through 90°, entry from DE Rotation of the terminal box through 90°, entry from NDE Rotation of the terminal box through 90°, entry from NDE Rotation of the terminal box through 180° R12	0 0												
Rotation of the terminal box through 90°, entry from DE			-										
Rotation of the terminal box through 90°, entry from NDE R11 ✓	Rotation of the terminal box		-										
Rotation of the terminal box through 180° R12 O O O V <td>Rotation of the terminal box</td> <td>R11</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>√</td> <td></td>	Rotation of the terminal box	R11	1	1	1	1	1	1	1	1	1	√	
One EMC cable gland R14 -	Rotation of the terminal box	R12	0	0	0	0	1	1	1	1	1	1	
One metal cable gland R15 V		R14	_	_	_	_	1	1	1	1	1	/	
EMC cable gland, maximum P16 V V V V V V													
	EMC cable gland, maximum		-	-	-	-	1						
accessories pack (3 items)	Stud terminal for cable connection,	R17	-	-	-	-	-	-	-	1	1	✓	
Saddle terminal for connection without cable lug, accessories pack	Saddle terminal for connection without	R19	-	-	-	-	-	-	-	1	1	1	
Larger terminal box R50		R50	1	1	/	/	/	/	/	/	/	/	
Terminal box without cable entry opening R51 OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO	. 9		0										
Drilled removable entry plate R52 \ \ \ \ \ \ \ \ \ \ \ \ \ \	Drilled removable entry plate	R52	-	-	-	-	1	1	1	1	1	1	
Undrilled removable entry plate R53 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Undrilled removable entry plate	R53	-	-	-	-	1	1	1	1	1	1	

Article No. supplements and special versions

Options – 1LE1592 cast-iron series

Special versions	Additional identification code -Z with order code and plain text		ne size 112 1592	132	160	180	200	225	250	280	315	Motor version Standard Efficiency
	if required											
1LE1592Z	Order code											
Motor connection and terminal box (c												
Cast iron auxiliary terminal box (small)	R62	<u>✓</u>	<u>/</u>	<u> </u>			<u> </u>	<u> </u>	√	/	√	
Silicone-free version	R74 Y61 •		<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>		√ /	/	1	
Non-standard threaded through hole (NPT or G thread)	and customer specifi- cations	•	,	•	•	•	•	•	•	•	•	
Windings and insulation												
Increased air humidity/temperature with 30 to 60 g water per m3 of air	N30	1	<i>'</i>				1	<i>'</i>	<i>\</i>	1	1	
Increased air humidity/temperature with 60 to 100 g water per m3 of air	N31	/	✓	<i>\</i>	<i>\</i>	✓	√	/	✓	/	✓	
Colors and paint finish Standard paint finish C2 in RAL 7030 stone gray		0	0	_	0	0	-	_	0	_	_	
Unpainted (only cast-iron parts primed)		0	0	0	0	0	0	0	0	0	0	
Unpainted, only primed	S01	1	√	√	√	√	/	√	√	/	/	
Special point finish and air registant C4	S02	1	1	/	1	/	/	/	/	/	/	
Special paint finish sea air resistant C4 Special paint finish for use offshore C5	S03	1	√ ✓	√ ✓	✓ ✓	√ √	√ ✓	√ ✓	√ √	✓ ✓	√ √	
Internal coating	S05	✓ ✓	✓	✓ ✓	✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	
Paint finish in other standard RAL	Y53 •	1	1	<u>√</u>	1	1	1	1	1	1	<u>✓</u>	
colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	and paint finish RAL											
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	paint finish RAL	✓	√	√	✓	√	/	√	√	/	/	
Modular technology – Basic versions												
Mounting of holding brake (standard assignment) 5)	F01	✓	√	√	√	√	✓	√	√	✓	<i></i>	
Mounted separately driven fan	F70	/	/	/	/	/	/	/	/	/	/	
Mounting of 1XP8012-10 (HTL) rotary pulse encoder ^{6) 7)}	G01	<i>\</i>	<i>'</i>		<i>'</i>		/				/	
Mounting of 1XP8012-20 (TTL) rotary pulse encoder ^{6) 7)}	G02	<i>'</i>	✓								√	
Modular technology – Additional vers Brake supply voltage 24 V DC	F10	1	/	/	1	/	/	/	/	/	/	
Brake supply voltage 230 V AC, 50/60 Hz	F11	0	0	0	0	0	0	0	0	0	0	
Brake supply voltage 400 V AC, 50/60 Hz	F12	1	1	1	✓	1	1	1	1	1	1	
Mechanical manual brake release with lever (no locking)	F50	✓	1	1	1	1	✓	1	1	1	✓	
Special technology ⁵⁾												
Mounting of LL 861 900 220 rotary pulse encoder ⁸⁾	G04	/	✓	✓	<i>'</i>	✓	✓	✓	✓	✓	/	
Mounting of HOG 9 DN 1024 I rotary pulse encoder ⁸⁾	G05	1	✓	√	✓	√	✓	√	√	✓	✓	
Mounting of HOG 10 D 1024 I rotary pulse encoder 8)	G06	1	✓	√	✓	√	√	√	√	✓	✓	
Mounting of POG10D rotary pulse encoder (only in combination with separately driven fan or brake) 9)	G07	_	-	-	-	<i>'</i>	✓	<i>\</i>	<i>'</i>	✓	✓	
Mounting of POG9 rotary pulse encoder (only in combination with separately driven fan or brake)		-	-	-	-	1	✓	1	1	√	✓	
Mounting of a special type of rotary pulse encoder	Y70 • and customer specifications	_	_	_	_	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.	

For legend, see page 4/104, for footnotes, see page 4/105.

Article No. supplements and special versions

		E4 E00		
	Intione —	 - L. C. P.	cast-iron	CALIBE
_	<i>-</i>	 L 1226	Cast-IIOII	36163

										Opti		- ILE 1392 Cast-IIOII Series
Special versions	Additional identi-	Fra	me size									Motor version
	fication code -Z with order code	100	112	132	160	180	200	225	250	280	315	
	and plain text	1LI	E1592									Standard Efficiency
	if required											
1LE1592 Z	Order code											
Mechanical version and degrees of pr	otection											
Prepared for mountings, centering	G40	1	1	/	/							
hole only												
Prepared for mountings with D12 shaft	G41	1	1	/	/	/	/	/	/	/	✓	
Prepared for mountings with D16 shaft	G42	1	/	/	/	/	/	/	/	/	/	
Mechanical protection for encoder Protective cover ^{6) 8) 10)}	G43	1	√	/	√	√	√	√	√	√	/	
	H00	√	√	✓	√	√	1	✓	✓	/	√	
Screwed-on (instead of cast) feet	H01 H02	1	1	1	1	1	1	1	1	1	1	
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	HU2	•	,	•	•	•	•	•	•	•	•	
Condensation drainage holes												
Rust-resistant screws (externally)	H07	✓	✓	/	✓	✓	✓	/	/	/	✓	
IP65 degree of protection ¹¹⁾	H20	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	
IP54 degree of protection	H21	-	-	-	-	/	/	/	/	/	✓	
IP56 degree of protection ¹²⁾	H22	1	√	/	/	/	/	/	/	✓	√	
Drive-end seal for flange-mounted motors, oil-tight to 0.1 bar ¹³⁾	H23	✓	✓		✓		✓	✓	✓	<i>'</i>	/	
Grounding brush for converter operation	L52		_	_	_	_	_	_	_	<i>'</i>	/	
Coolant temperature and installation			,	,	,	,	,	,	,	,	,	
Coolant temperature -50 to +40 °C	D02 D03	1	✓ ✓	√ √	√ √	√ √	√ ✓	√ √	√ √	1	✓ ✓	
Coolant temperature –40 to +40 °C ¹⁴⁾ Coolant temperature –30 to +40 °C	D03	<i>y</i>	✓ ✓	1	1	1	1	1	1	1	1	
Versions in accordance with standard			, , , , , , , , , , , , , , , , , , ,	·	•	•	·		•	·		
Version according to UL and CSA	D39	UIIS ✓	/	/	/	1	/	1	/	1	/	
(Canadian regulation) TR CU product safety certificate EAC	D47	<i>y</i>									<i>'</i>	
for Eurasian customs union	D41	•	·	•	•	•	•	•	•	•	•	
Bearings and lubrication												
Located bearing DE	L20	1	1	1	1	1	/	/	1	/	/	
Located bearing NDE	L21	1	1	/								
Bearing design for increased cantilever forces	L22	✓	✓	1	✓	✓	1	✓	1	1	✓	
Regreasing device ¹⁵⁾	L23	✓	✓	✓	✓	✓	✓	✓	✓			
Bearings reinforced at both ends for DE and NDE, bearing size 63 16)	L25	✓	✓	√	✓	✓	✓	/	✓		_	
Reinforced bearings at both DE and NDE, DE bearing for increased cantilever forces	L28	-	-	-	_	✓	1	/	✓	_	_	
Bearing insulation DE	L50	-	-	-	-	-	-	1	1	/	1	
Bearing insulation NDE	L51	1	✓	✓	✓	✓	✓	✓	✓	1	✓	
Measuring nipple for SPM shock pulse measurement for bearing inspection ¹⁵⁾	Q01	/	1	1	1	1	/	1	1	1	1	
Balance and vibration severity												
Vibration severity grade A												
Half-key balancing (standard)												
Balancing without feather key	L01	1	✓	/	/	/	/	/	/	/	/	
Full-key balancing	L02	✓	✓	✓	✓	✓	/	/	✓	1	✓	
Shaft and rotor	104		,	,	,	,	,	,	,	,	,	
Shaft extension with standard dimensions, without feather keyway	L04	1	<i>\</i>	<i>'</i>	<i>'</i>	<i>'</i>	<i>'</i>	<i>'</i>	<i>\</i>	<i>\</i>	<i>\</i>	
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	L05	✓	√	✓	✓	✓	1	✓	✓	1	✓	
Standard shaft made of stainless steel (e.g. 1.4021)	L06	✓	✓	1	1	1	1	1	1	/	1	
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L07	✓	1	1	1	1	1	1	1	1	1	
Concentricity of shaft extension, coaxiality and linear movement in accordance with DIN 42955 Tolerance R for flange-mounted motors	L08	✓	1	1	√	√	√	1	1	√	1	

For legend, see page 4/104, for footnotes, see page 4/105.

Article No. supplements and special versions

Options – 1LE1592 cast-iron series

Options = TEE 1332 cast-non s	301100											
Special versions	Additional identi-	Fran	ne size									Motor version
	fication code -Z	100	112	132	160	180	200	225	250	280	315	
	with order code and plain text	1LE	1592									Standard Efficiency
	if required											
1LE1592 Z	Order code											
Shaft and rotor (continued)												
	VEQ a and	,	,	,	,	,	,	,	,	,	,	
Non-standard cylindrical shaft extension, DE ¹⁷)	Y58 • and customer	•	•	/	1							
Oxtoriori, BE	specifi-											
	cations											
Non-standard cylindrical shaft	Y59 • and	✓	/	✓	✓	✓	✓	✓	✓	✓	✓	
extension, NDE 17)	customer specifi-											
	cations											
Special shaft steel	Y60 • and	O.R	. O.R.	0. R	. O.R	. O.R.	0. R.	0. R.	0. R.	0. R.	0. R.	
	customer specifi-											
	cations											
Heating and ventilation												
Sheet metal fan cover	F74	/	/	/	/	/	/	/	/	/	/	
Metal external fan	F76	1	1	1		· /	/	/	1	1	1	
Anti-condensation heating for 230 V	Q02	1	/						1	1	/	
(2 terminals)	402	•	·	•	•	•	•	·	•	•	•	
Anti-condensation heating for 115 V (2 terminals)	Q03	✓	1	1	✓	✓	1	✓	1	1	1	
Separately driven fan with non-standard	Y81 • and	-	-	-	-	-	-	/	/	1	/	
voltage and/or frequency	customer											
	specifi- cations											
Rating plate and additional rating pla												
Second rating plate, loose	M10	1	/	/	/	/	/	/	/	/	/	
Rating plate, stainless steel	M11	1	1	1	1	1	1	1	<u>√</u>	1	1	
Additional rating plate with customer	Y82 • and	1		1	1	1	1	1	1	1	/	
specifications	customer	•	·	·		•	·	·	•		·	
	specifi- cations											
Additional information on rating plate	Y84 •and	1	/							1	/	
and on package label (max. 20	customer	•	·	•	•	•	•	·	•	•	•	
characters)	specifi-											
Adhasiva labal avantiad lagge	cations Y85 • and	,	1	,	,	,	,	,	,	,	/	
Adhesive label, supplied loose (printed with: Article No., Serial No.;	customer	•	•	•	•	•	•	•	•	•	•	
2 lines of text)	specifi-											
	cations	_	_	_	_	_	_	_	_	_	_	
Extension of the liability for defects												
Extension of the liability for defects by 12 months to a total of 24 months	Q80	_	_	-	-	/	/	1	1	1	1	
(2 years) from delivery ¹⁸⁾												
Extension of the liability for defects by	Q82	-	-	-	-	1	/	/	/	1	/	
24 months to a total of 36 months (3 years) from delivery ¹⁸⁾												
		C 1	_	_	_	_	_	_	_	_	_	
Packaging, safety notes, documentat		licates	,	,	,	,	,	,	,	,	/	
Acceptance test certificate 3.1 according to EN 10204 ¹⁹⁾	B02	•	•		•	•		<i>,</i>	•			
Printed German/English Operating Instructions enclosed ²⁰⁾	B04	✓	1	1	✓	✓	1	/	1	1	✓	
Document - Electrical datasheet	B60	1	1	✓	/	1	✓	/	✓	/	✓	
Document - Order dimensional drawing	B61	✓	✓	✓	✓	✓	✓	✓	✓	/	✓	
Standard test (routine test) with acceptance	B65	1	✓	1	1	1	1	1	1	1	1	
Type test with heat run for horizontal motors, with acceptance	B83	✓	✓	1	✓	1	✓	1	✓	/	1	
"Basic" documentation package	B90 New	/ /	/	/	/	/	/	/	/	/	/	
"Advanced" documentation package	B91 New		1	/	/	1	/	/	/	1	/	
"Projects" documentation package	B92 New		1	1	1	1	1	1	1	1	1	
Connected in star for shipping	M01	1	1	/	1	1	/	/	/	1	/	
Connected in delta for dispatch	M02	1	1	1	1	1	1	1	1	1	1	
1,												

- □ Standard version
 Without additional charge
 This order code only determines the price of the version Additional plain text is required.
 ✓ With additional charge
 O. R. Possible on request
- Not possible

For footnotes, see page 4/105.

Article No. supplements and special versions

Options - 1LE1592 cast-iron series

- Evaluation with associated tripping unit (see Catalog IC 10) is recommended.
- Por order code H08 mounting feet dimension deviates from EN 50347. Further information is available in the DT Configurator (see Appendix, "Tools and engineering").
- 3) The grease lifetime specified in Catalog Section 1 "Introduction" refers to CT 40 °C. If the coolant temperature is increased by 10 K, the grease lifetime and regreasing interval are halved.
- 4) A second shaft extension is not possible. Please inquire for mounted brakes.
- 5) For order codes F10, F11, and F12, the brake supply voltage must be specified or ordered.
- 6) The 1XP8 rotary pulse encoders are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover.
- 7) In combination with a separately driven fan (order code F70) the 1XP8032-10 rotary pulse encoder is used instead of 1XP8012-10 or 1XP8032-20 is used instead of 1XP8012-20.
- 8) LL and HOG rotary pulse encoders up to frame size 160 are fitted with a protective cover as standard. The protective cover is omitted at the factory when a rotary pulse encoder is combined with a separately driven fan, because in this case the rotary pulse encoder is installed under the fan cover
- 9) Option (encoder mounting) is only possible for motors with a mounted separately driven fan or for naturally cooled motors (without an external fan). This option can be used in combination with brakes of type KFB. This option cannot be used in combination with brakes of type 2LM8.
- ¹⁰⁾ Order code **H00** provides mechanical protection for encoders.
- 11) Not possible in combination with HOG 9 DN 1024 I rotary pulse encoder (order code G05) and/or brake 2LM8 (order code F01).

- ¹²⁾ Not possible in combination with 2LM8 brake (order code **F01**).
- 13) Not possible for type of construction IM V3
- 14) In connection with mountings, the respective technical specifications must be observed, please inquire before ordering.
- ¹⁵⁾ Up to frame size 160 not possible when brake is mounted.
- 16) Standard version for motors from frame size 280 and higher.
- 17) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes Y58, Y59 and L05 the following applies:
 - Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables for "Dimensions")
 - Dimensions E and EA ≤ 2 x length E (standard) of the shaft extension.
 For an explanation of the order codes, see Catalog Section 1
 "Introduction".
- ¹⁸⁾ Wearing parts (bearings) are excluded from the warranty extension.
- 19) The delivery time for the factory test certificate may differ from the delivery time for the motor.
- 20) The Operating Instructions (Compact) are available in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/10803948/133300.
- ²¹⁾ Not possible in combination with UL.

Article No. supplements and special versions

Accessories

Overview

Slide rails with fixing bolts and tensioning screws according to DIN 42923

Slide rails are used to tension the belt of a machine easily and conveniently when there is no belt-tensioning pulley. They are fixed to the base using stone bolts or foundation blocks.

The assignment of slide rails to motor size can be found in DIN 42923. For motors of frame sizes 355 to 450, there are no standardized slide rails (please inquire).

Available from:

Lütgert & Co. GmbH Postfach 42 51 33276 Gütersloh, Germany Phone +49 (5241) 7407-0 Fax +49 (5241) 7407-90

www.luetgert-antriebe.de Email: info@luetgert-antriebe.de

Foundation block according to DIN 799

The foundation blocks are inserted into the stone foundation and embedded in concrete. They are used for fixing machines of medium size, slide rails, pedestal bearings, base frames, etc. After the fixing bolts have been unscrewed, the machines can be shifted without them having to be lifted.

When the machine is initially installed, the foundation block that is bolted to the machine (without washers) and fitted with taper pins is not embedded with concrete until the machine has been fully aligned. In this case, the machine is positioned 2 to 3 mm lower. The difference in shaft height is compensated by inserting shims on final installation. The taper pins safeguard the exact position of the machine when it is repeatedly removed and replaced without the need for realignment.

Available from:

Lütgert & Co. GmbH Postfach 42 51 33276 Gütersloh, Germany Phone +49 (5241) 7407-0 Fax +49 (5241) 7407-90

www.luetgert-antriebe.de Email: info@luetgert-antriebe.de

Taper pins according to DIN 258 with threaded ends and constant taper lengths

Taper pins are used for components that are repeatedly removed. The drilled hole is conically ground using a conical reamer until the pin can be pushed in by hand until the cone shoulder lies approx. 3 to 4 mm above the rim of the hole.

It can then be driven in using a hammer until it is correctly seated. The pin is removed from the drilled hole by screwing on the nut and tightening it.

Standardized taper pins are commercially available.

For instance, available from:

Otto Roth GmbH & Co. KG Rutesheimer Strasse 22 70499 Stuttgart, Germany Phone +49 (711) 1388-0 Fax. +49 (711) 1388-233

www.ottoroth.de Email: info@ottoroth.de

Couplings

The motor from Siemens is connected to the machine or gear unit through a coupling. Siemens is an important coupling manufacturer with a wide range of products.

For standard applications, Siemens recommends that flexible couplings, types N-EUPEX and RUPEX or torsionally rigid couplings, types ARPEX and ZAPEX are used. For special applications, FLUDEX and ELPEX-S couplings are recommended.

Available from:

Siemens contact partner - ordering from catalog Siemens MD 10.1 "FLENDER Standard Couplings"

or

Siemens AG Kupplungswerk Mussum Industriepark Bocholt Schlavenhorst 100 46395 Bocholt, Germany Phone +49 (2871) 922185 Fax +49 (2871) 922579

www.siemens.com

Email: flendercouplings@siemens.com

Article No. supplements and special versions

Accessories

More information

Replacement motors and repair parts

- Commitment to provide replacement motors and repair parts following delivery of the motor:
 - For up to 3 years after delivery of the original motor, in the event of total motor failure, Siemens will supply a comparable spare motor with regard to the mounting dimensions and functions (the type series may vary).
 - If a spare motor is provided within the 3-year period, this will not mean that the warranty restarts.
 - Replacement motors delivered after the active production of the machine series are also identified as spare motors on the rating plate.
 - Spare parts are offered only for these spare motors on request; repair and replacement are not possible.
 - After a period of 3 years (after the delivery of the original motor), it is only possible to repair these motors (depending on the availability of the spare parts required).
 - For up to 5 years after the delivery of the original motor, spare parts will be available and for a further 5 years, Siemens will provide information about spare parts and will supply documents when required.

- When repair parts are ordered, the following details must be provided:
 - Designation and part number
 - Article No. and factory number of the motor.
- For bearing types, see Catalog Section 1 "Introduction".
- For standard components, a commitment to supply repaired parts does not apply.
- Support hotline In Germany Phone +49 (0) 911 895 7222

You will find telephone numbers for other countries on our Internet site:

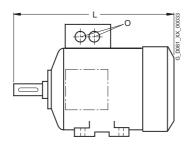
www.siemens.com/automation/service&support

Dimensions

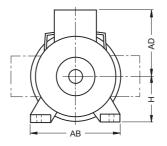
Overall dimensions

Overview

Overall dimensions



Frame	Туре	Dimensi	ion			
size		L	AD	Н	AB	0
100 L	Aluminum series,	self-vent	tilated			
	1LE1092	395.5 ¹⁾	166	100	196	$2 \times M32 \times 1.5$
	Cast-iron series,	self-venti	lated			
	1LE1592	397.5	193	100	196	$2 \times M32 \times 1.5$
112 M	Aluminum series,	self-vent	tilated			
	1LE1092	389 ¹⁾	177	112	226	$2 \times M32 \times 1.5$
	Cast-iron series,	self-venti	lated			
	1LE1592	390.5	195	112	226	$2 \times M32 \times 1.5$
132 S/M	Aluminum series,	self-vent	tilated			
	1LE1092	465 ¹⁾	202	132	256	$2 \times M32 \times 1.5$
	Cast-iron series,	self-venti	lated			
	1LE1592	466.5	214.5	132	256	$2 \times M32 \times 1.5$
160 M/L	Aluminum series,	self-vent	tilated			
	1LE1092	604 ¹⁾	236.5	160	300	$2 \times M40 \times 1.5$
	Cast-iron series,	self-venti	lated			
	1LE1592	606	265	160	300	$2 \times M40 \times 1.5$
180 M/L	Cast-iron series,	self-venti	lated			
	1LE1592- 1EA2 1EB2,1EB4	668 698	286	180	339	2 × M40 × 1.5



Frame size	Туре	Dimens L	ion AD	Н	AB	0
200 L	Cast-iron series,	self-vent	ilated			
	1LE1592- 2AA4, 2AA5, 2AB5	721	315	200	378	2 × M50 × 1.5
225 S	Cast-iron series,	self-vent	ilated			
	1LE1592- 2BB0	788	338	225	436	2 × M50 × 1.5
225 M	Cast-iron series,	self-vent	ilated			
	1LE1592- 2BA2, 2BB2	848	338	225	436	2 × M50 × 1.5
250 M	Cast-iron series,	self-vent	ilated			
	1LE1592- 2CA2, 2CB2	887	410	250	490	2 × M63 × 1.5
280 S/M	Cast-iron series,	self-vent	ilated			
	1LE1592- 2DA0, 2DA2, 2DB0, 2DB2	960	433	280	540	2 × M63 × 1.5
315 S	Cast-iron series,	self-vent	ilated			
	1LE1592- 3AB0	1082	515	315	610	2 × M63 × 1.5
315 M	Cast-iron series,	self-vent	ilated			
	1LE1592- 3AB2	1247	515	315	610	2 × M63 × 1.5
315 L	Cast-iron series,	self-vent	ilated			
	1LE1592- 3AB4, 3AB5	1402	515	315	610	2 × M63 × 1.5

 $^{^{\}rm 1)}$ The length is specified as far as the tip of the fan cover.

Dimensions

Notes on the dimensions – Dimension sheet generator (part of the DT Configurator)

Overview (continued)

Notes on the dimensions

■ Dimensional drawings according to EN 50347 and IEC 60072.

■ Fits

The shaft extensions specified in the dimension tables (DIN 748) and centering spigot diameters (EN 50347) are machined with the following fits:

Dimension designation	ISO fit DIN ISO 286	o-2
D, DA	to 30 over 30 to 50 over 50	j6 k6 m6
N	to 250 over 250	j6 h6
F, FA		h9
K		H17
S	flange (FF)	H17

The drilled holes of couplings and belt pulleys should have an ISO fit of at least H7.

■ Dimension tolerances

For the following dimensions, the admissible deviations are given below:

Dimension designation	Dimension	Admissible deviation
Н	to 250 over 250	- 0.5 - 1.0
E, EA		- 0.5

Keyways and feather keyways (dimensions GA, GC, F and FA) are made in compliance with DIN 6885 Part 1.

■ All dimensions are specified in mm.

Dimension sheet generator

(part of the DT Configurator)

A dimensional drawing can be created in the DT Configurator for every configurable motor. A dimensional drawing can be requested for every other motor.



When a complete Article No. is entered with or without order codes, a dimensional drawing can be called up under the "Documentation" tab.

These dimensional drawings can be presented in different views and sections and printed.

The corresponding dimension sheets can be exported, saved and processed further in DXF format (interchange/import format for CAD systems) or as bitmap graphics.

Online access in the Siemens Industry Mall

The DT Configurator is integrated in the Siemens Industry Mall and can be used on the Internet without installation.

German: www.siemens.de/dt-konfigurator English: www.siemens.com/dt-configurator

Offline access in the Interactive Catalog CA 01

The DT Configurator is also integrated on the DVD of the Interactive Catalog CA 01 – the offline version of Siemens Industry Mall. CA 01 can be ordered from the relevant Siemens sales office or via the Internet:

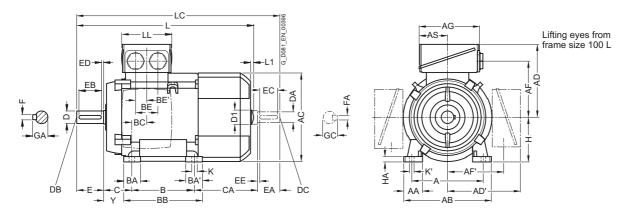
www.siemens.com/automation/CA01

Dimensions

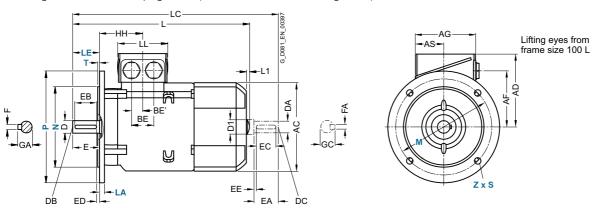
Aluminum series, self-ventilated – Standard Efficiency · Frame sizes 100 L to 160 L

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1



For mot	or		Dime	ensic	n des	signat	ion acc	. to IEC																
Frame size	Motor type 1LE1092	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA	Н	НА	Υ
100 L	All	2, 4	160	42	196	198	166	166	125.5	125.5	135	63.5	140	37.5	37.5	176	33.5	50	25	63	141	100	12	45
112 M	All	2, 4	190	46	226	222	177	177	136.5	136.5	135	63.5	140	37.5	37.5	176	26	50	25	70	129.7	112	12	52
132 S	All	2, 4	216	53	256	262	202	202	159.5	159.5	155	70.5	140	38	76	218	26.5	48	24	89	128.5	132	15	69
132 M	All	2, 4	216	53	256	262	202	202	159.5	159.5	155	70.5	178	38	76	218	26.5	48	24	89	128.5	132	15	69
160 M	All	2, 4	254	60	300	314	236.5	236.5	190	190	175	77.5	210	44	89	300	47	57	28.5	108	148	160	18	85
160 L	All	2, 4	254	60	300	314	236.5	236.5	190	190	175	77.5	254	44	89	300	47	57	28.5	108	148	160	18	85

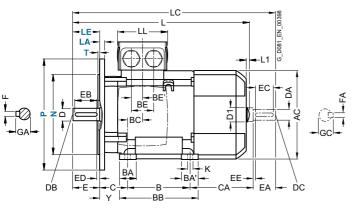
Dimensions

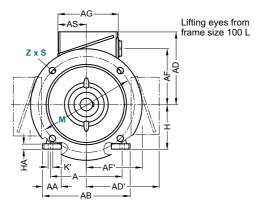
Aluminum series, self-ventilated – Standard Efficiency · Frame sizes 100 L to 160 L

Dimensional drawings (continued)

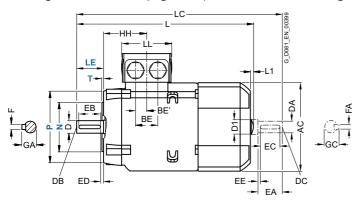
Type of construction IM B35

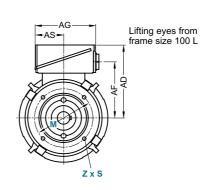
For flange dimensions, see page 1/53 (Z = the number of retaining holes)





Type of construction IM B14





For mot	or		Dimens	sion d	lesign	ation ac	c. to II	EC			DE s	shaft ex	ctensic	on				NDE	E shaft	extens	sion			
Frame size	Motor type 1LE1092	No. of poles	HH	K	K'	L ¹⁾	L1	D1	LC	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
100 L	All	2, 4	96.5	12	16	395.5	7	32	454	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4	96	12	16	389	7	32	450	112	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	2, 4	115.5	12	16	465	8.5	39	535.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	2, 4	115.5	12	16	465	8.5	39	535.5	130	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	2, 4	155	15	19	604	10	45	730	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4	155	15	19	604	10	45	730	145	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

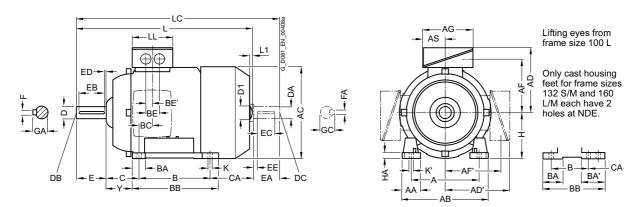
¹⁾ The length is specified as far as the tip of the fan cover.

Dimensions

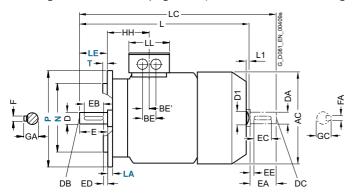
Cast-iron series, self-ventilated – Standard Efficiency · Frame sizes 100 L to 160 L

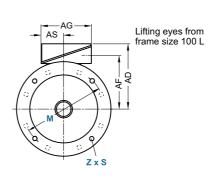
Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1





For mot	or		Dime	ensio	n des	signation	n acc. to) IEC																
Frame size	Motor type 1LE1592	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA	Н	НА	Υ
100 L	All	2, 4	160	42	196	217	193	193	147	147	163	80.5	140	48	48	176	37.5	48	24	63	141	100	12	45
112 M	All	2, 4	190	46	226	239	195	195	150	150	163	80.5	140	48	48	176	30	48	24	70	130	112	12	52
132 S	All	2, 4	216	53	256	281	214.5	214.5	169	169	163	80.5	140	52 ¹⁾	891)	218 ²⁾	26.5	48	24	89	166.5	132	15	69
132 M	All	2, 4	216	53	256	281	214.5	214.5	169	169	163	80.5	178	52 ¹⁾	89 ³⁾	218	26.5	48	24	89	128.5	132	15	69
160 M	All	2, 4	254	60	300	333.5	265	265	213	213	190	92	210	73 ⁴⁾	117 ⁴⁾	300 ⁵⁾	37	60	30	108	192	160	18	85
160 L	All	2, 4	254	60	300	333.5	265	265	213	213	190	92	254	73 ⁴⁾	117 ⁶⁾	300	37	60	30	108	148	160	18	85

¹⁾ With screwed-on feet, this dimension is 41 mm.

²⁾ With screwed-on feet, this dimension is 180 mm.

³⁾ With screwed-on feet, this dimension is 79 mm.

⁴⁾ With screwed-on feet, this dimension is 51 mm.

 $^{^{5)}}$ With screwed-on feet, this dimension is 256 mm.

⁶⁾ With screwed-on feet, this dimension is 95 mm.

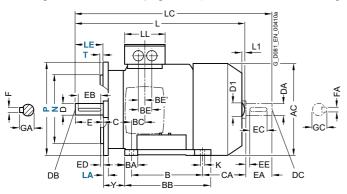
Dimensions

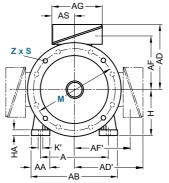
Cast-iron series, self-ventilated – Standard Efficiency · Frame sizes 100 L to 160 L

Dimensional drawings (continued)

Type of construction IM B35

For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)



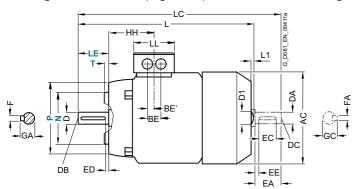


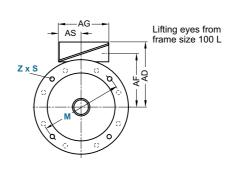
Lifting eyes from frame size 100 L

Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Type of construction IM B14





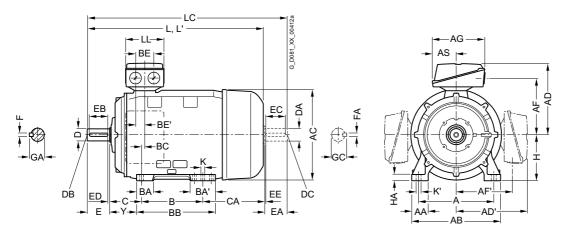
For moto	or	Dimension designation				nation a	cc. to	IEC			DE	shaft e	xtensic	n				NDE	E shaft e	extens	ion			
Frame size	Motor type 1LE1592	No. of poles	HH	K	K'	L	L1	D1	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	G C
100 L	All	2, 4	100.5	12	16	397.5	7	32	454	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4	100.5	12	16	390.5	7	32	450	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	2, 4	115.5	12	16	466.5	8.5	39	535.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	2, 4	115.5	12	16	466.5	8.5	39	535.5	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	2, 4	145	14.5	18	606	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2. 4	145	14.5	18	606	10	45	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

Dimensions

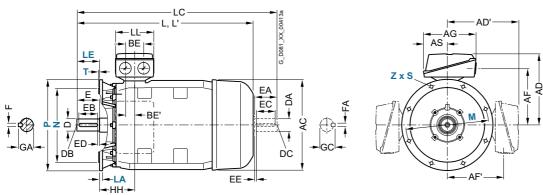
Cast-iron series, self-ventilated – Standard Efficiency · Frame sizes 180 M to 250 M

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1 For flange dimensions, see page 1/53 ($\bf Z$ = the number of retaining holes)



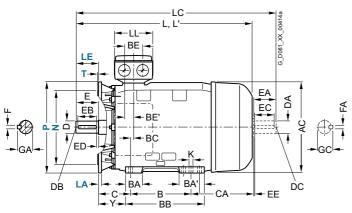
For moto	or		Dime	ension o	designa	ation ac	cc. to II	EC													
Frame size	Motor type 1LE1592-	No. of poles	Α	AA	AB	AC	AD	AD′	AF	AF′	AG	AS	В	ВА	BA′	BB	ВС	BE	BE′	С	CA
180 M 180 L	1EA2 1EB2 1EB4	2 4 4	279	65	339	356	286	286	234	234	190	92	241 279	85	120	328	34	60	30	121	202
200 L	2AA4 2AA5 2AB5	2 2 4	318	70	378	396	315	315	259	259	266	112	305	104	104	355	31	85	42.5	133	177
225 S 225 M	2BB0 2BA2 2BB2	4 2 4	356	80	436	449	338	338	282	282	266	112	311	92	117	361	15	85	42.5	149	253
250 M	2CA2 2CB2	2 4	406	100	490	497	410	410	322	322	319	145	349	102	102	409	24	110	55	168	230

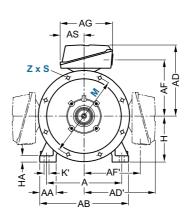
Dimensions

Cast-iron series, self-ventilated – Standard Efficiency · Frame sizes 180 M to 250 M

Dimensional drawings (continued)

*Type of construction IM B35*For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)





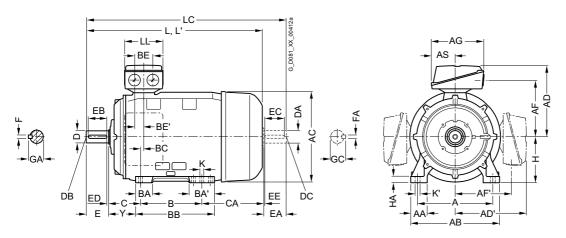
For motor		Dim	ensic	n des	signat	ion a	acc.	to IEC	•			DE	shaft e	xtens	ion				ND	E shaft	exten	sion				
Frame size	Motor type 1LE1592-	No. of poles	Н	НА	Υ	НН	K	Κ´	L	L′	LC	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
180 M 180 L	1EA2 1EB2 1EB4	2 4 4	180	20	95	155	15	19	668 698	668 698	784 814	165	48	M16	110	100	5	14	52	48	M16	110	100	5	14	51.5
200 L	2AA4 2AA5 2AB5	2 2 4	200	25	108	164	19	25	721	755	835	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
225 S 225 M	2BB0 2BA2 2BB2	4 2 4	225	34	124	164	19	25	788 818 848	- 852 -	903 933 963	197	60 55 60	M20	140 110 140	125 100 125	10 5 10	18 16 18	64 59 64	55 48 55	M20 M16 M20	110	100	5	16 14 16	59 51.5 59
250 M	2CA2 2CB2	2 4	250	40	138	192	24	30	887	924 -	1002 1032	233	60 65	M20	140	125	10	18	64 69	55 60	M20	110 140	100 125	5 10	16 18	59 64

Dimensions

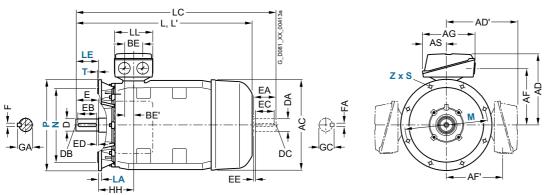
Cast-iron series, self-ventilated – Standard Efficiency · Frame sizes 280 S to 315 L

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1 For flange dimensions, see page 1/53 (\mathbf{Z} = the number of retaining holes)



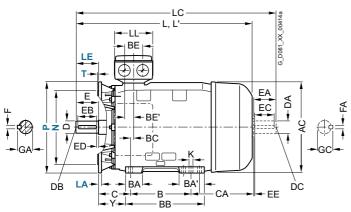
For motor	r		Dime	nsion o	designa	ation a	cc. to I	EC													
Frame size	Motor type 1LE1592-	No. of poles	Α	AA	AB	AC	AD	AD′	AF	AF′	AG	AS	В	ВА	BA´	BB	ВС	BE	BE′	С	CA
280 S	2DA0 2DB0	2 4	457	100	540	551	433	433	345	345	319	145	368	101	152	479	20	110	55	190	267
280 M	2DA2 2DB2	2 4	457	100	540	551	433	433	345	345	319	145	419	101	152	479	20	110	55	190	216
315 S	3AB0	4	508	120	610	616	515	515	404	404	374	164	406	113	170	527	22	110	55	216	295
315 M	3AB2 ¹⁾	4	508	120	610	616	515	515	404	404	374	164	457	113	170	578	22	110	55	216	409
315 L ¹⁾	3AB4 3AB5	4	508	120	610	616	515	515	404	404	374	164	508	113 176	170 227	578 648	22	110	55	216	358 513

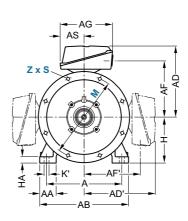
¹⁾ For orders with screwed-on feet (order code **H01**), these screwed-on feet have 3 drilled holes on the NDE side with the dimension B 406 mm, 457 mm, and 508 mm respectively; the dimension BB is 666 mm.

Cast-iron series, self-ventilated – Standard Efficiency · Frame sizes 280 S to 315 L

Dimensional drawings (continued)

*Type of construction IM B35*For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)





For moto	For motor		Dim	ensic	n des	sianat	ion a	acc.	to IEC				DE:	shaft ex	ktensi	on				NDE	E shaft	exter	nsion			
Frame size	Motor type 1LE1592-	No. of poles	Н	НА		НН	K	Κ΄	L	Ľ	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC		FA	GC
280 S	2DA0 2DB0	2 4	280	40	160	210	24	30	960	998 -	1105	233	65 75	M20	140	125	10	18 20	69 79.5	60 65	M20	140	125	10	18	64 69
280 M	2DA2 2DB2	2 4	280	40	160	210	24	30	960	998 -	1105	233	65 75	M20	140	125	10	18 20	69 79.5	60 65	M20	140	125	10	18	64 69
315 S	3AB0	4	315	50	181	238	28	35	1082	-	1227	299	80	M20	170	140	25	22	85	70	M20	140	125	10	20	74.5
315 M	3AB2	4	315	50	181	238	28	35	1247	-	1392	299	80	M20	170	140	25	22	85	70	M20	140	125	10	20	74.5
315 L ¹⁾	3AB4	4	315	50	146	238	28	35	1247 1402	-	1547	299	80	M20	170	140	25	22	85	70	M20	140	125	10	20	74.5
	3AB5	4																								

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SIMOTICS XP 1MB1 explosion-proof motors





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SIMOTICS XP 1MB1 explosion-proof motors

Overview



In many industrial and public sectors, explosion protection or explosion hazards are ever-present, e.g. in the chemicals industry, in refineries, on drilling platforms, at gas stations, in feed manufacturing and in sewage treatment plants.

The risk of explosion is always present when gases, fumes, mist or dust are mixed with oxygen in the air in an explosive ratio close to sources of ignition that are able to release the so-called minimum ignition energy.

In the chemical and petrochemical industries in particular, when crude oil and natural gas are transported, or in mining, milling (e.g. grain and granular solids), this can result in serious injury to persons and damage to equipment.

To ensure maximum safety in these areas, legislators in most countries have implemented appropriate stipulations in the form of laws and regulations based on national and international standards.

Explosion-protected equipment is designed such that an explosion can be prevented when it is used properly.

The explosion-protected equipment can be designed in accordance with various types of protection.

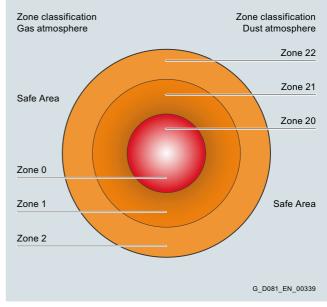
The local conditions must be subdivided into specified zones by the user with the assistance of the responsible authorities in accordance with the frequency of occurrence of an explosion hazard. Device (equipment) categories are assigned to these zones. The zones are then subdivided into possible types of protection and therefore into possible equipment (product) types.

Classification of zones

Areas subject to explosion hazard are divided into zones. Division into zones depends on the chronological and geographical probability of the presence of a hazardous, potentially explosive atmosphere. Information and specifications for classification of the zones are laid down in the following standards:

- IEC/EN 60079-10-1 for gas atmospheres
- IEC/EN 60079-10-2 for dust atmospheres

Further, a distinction is made between various explosion groups as well as temperature classes and these are included in the hazard assessment.



Depending on the particular zone and therefore the associated hazard, operating equipment must comply with defined minimum requirements regarding the type of protection. The different types of protection require corresponding measures to prevent ignition that should be implemented at the motor in order to prevent a surrounding explosive atmosphere from being ignited.

Note:

According to the IEC/EN 60079-7:2015 standard, the previous designations of the types of protection Ex e and Ex nA have been changed to **Ex eb** and **Ex ec**. Expiration date of the previous designations is the 07/31/2018.

			_		
Zone		Zone definition acc. to			
Gas 1) 2)	Dust 1) 2)	IEC/EN 60079-10-1 for gas atmospheres IEC/EN 60079-10-2 for dust atmospheres	Assigned types of protection	Category according to 2014/34/EU	Equipment protection level acc. to IEC/EN 60079-0
0	-	An area in which there is an explosive gas atmosphere constantly , over a long period or frequently .	Low voltage motors not permitted	1	Ga
1	-	An area in which it is expected that an explosive gas atmosphere will occur occasionally during normal operation.	Ex eb, Ex de, Ex d	2	Gb
2	-	An area in which it is expected that an explosive gas atmosphere will occur only rarely and then only briefly during normal operation.	Ex ec	3	Gc
-	20	An area in which there is an explosive gas atmosphere comprising a dust-air mixture constantly , over a long period or frequently .	Low voltage motors not permitted	1	Da
-	21	An area in which it is expected that an explosive gas atmosphere comprising a dust-air mixture will occur occasionally during normal operation.		2	Db
-	22	An area in which it is expected that an explosive gas atmosphere in the form of a cloud of flammable dust in air will occur only rarely and then only briefly during normal operation.	Ex tc ³⁾	3	Dc

- 1) Motors of
 - Zone 1 can also be used in Zone 2
 - Zone 21 can also be used in Zone 22

- Motors which are certified for gas or dust protection must not be used in hybrid mixtures! Hybrid mixtures: When explosive gas and dust atmospheres occur simultaneously.
- 3) Ex tc motors are not approved for operation in environments containing conductive dust.

Overview (continued)

Types of protection

Type of protection "Increased safety" **Ex eb** acc. to IEC/EN 60079-7

Additional measures are taken to prevent the possibility of high temperatures and to prevent sparks or arcs from occurring on the inside and on external components of the motor.

Motors of the 1MA6 and 1MA7 series are designed with "Increased safety" – see Catalog D 81.1 · July 2011.

Type of protection "Explosion-proof enclosure" **Ex d** acc. to IEC/EN 60079-1

The components that can ignite an explosive atmosphere are located in a housing that is not damaged by an internal explosion and flameproof joints prevent flames from escaping to the explosive atmosphere on the outside.

The motors in series 1MD5 and 1PS5 are designed with "Explosion-proof housing" **Ex d** – see Catalog D 83.1.

Type of protection "Non-sparking" **Ex ec** acc. to IEC/EN 60079-15

The type of protection **Ex ec** ensures that a motor in normal operation as well as when operated under deviating conditions as specified in the standard is not able to ignite a surrounding explosive gas atmosphere.

1MB103, 1MB153 and 1MB163 motors are available in the **Ex ec** version. For motors of the 1LA7/9, 1LA6 and 1LG series, see Catalog D 81.1 · July 2011.

Certification

IEC motors for use in hazardous zones are certified according to the EU Directive 2014/34/EU (ATEX) and are marked according to the following schematic:

Type of protection "Dust explosion protection" **Ex tb, Ex tc** acc. to IEC/EN 60079-31

This type of protection applies for electrical equipment protected using a housing and with limited surface temperature for use in areas in which combustible dust can occur in concentration levels that could cause a fire or an explosion.

The following motor series are available with type of protection Ex tb or Ex tc:

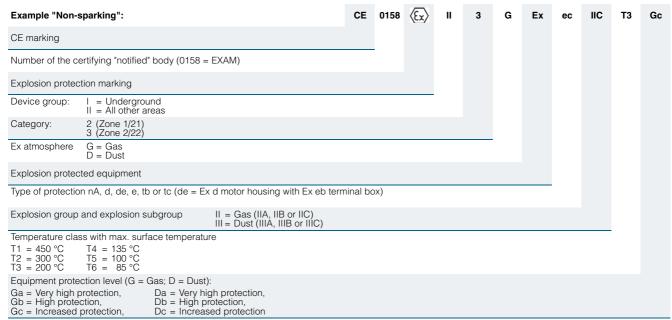
- 1MB101, 1MB151 and 1MB161 in version Ex tb
- 1MB102, 1MB152 and 1MB162 in version Ex tc

For motors of the 1LA7/9, 1LA6 and 1LG series, see Catalog D 81.1 · July 2011.

Explosion-proof motors for converter operation

Basically, explosion-proof motors (except for Ex eb) can be fed from converters. Particular attention must be paid to the interaction between the motor and converter system, especially with regard to the following aspects:

- The harmonic content of the supply voltage raises the motor temperature, so the motor power must be reduced
- Less cooling of the motor at speeds below the rated speed
- · Voltage stress on the motor winding
- · Bearing currents



Additional information on the subject of explosion protection, types of protection and zones is provided in the Siemens brochure "Explosion Protection".

SIMOTICS XP 1MB1 explosion-proof motors

Overview (continued)

Overview of SIMOTICS XP 1MA/1MB1/1LA/1LG/1PQ8 explosion-proof motors

The table below contains a complete overview of our products, their types of protection and the assignment of motor types to categories. It is important to note that depending on whether the motor is used for converter operation or line operation, different order codes are required for unique selection of the required product.

Sector	Cate- gory	Zone	Frequency of occurrence of the Ex atmosphere	Type of protection	Tempera- ture class	Equip- ment protec- tion level	of pro-	Motor type and if applicable order code	Operation	Order code	Utilization according to tem- perature class	Standard
Gases and vapors (G)	1G	0	constantly or long-term	Not admissible v	vith low-volta	ge motors	3					
	2G	1	occasionally	Ex de IIC 1)	T1 – T4	Gb	IP55	1MD5,	Line	-	130 (B)	IEC/EN 60079-0
				(explosion-proof enclosure)				1PS5	Converter	A15 A16	155 (F)	IEC/EN 60079-1 IEC/EN 60079-7
				Ex eb IIC 1) (increased safety)	T1 – T3	Gb	IP55	1MA6, 1MA7	Line	-	130 (B)/ 155 (F) ³⁾	IEC/EN 60079-0 IEC/EN 60079-7
	3G	2	rarely or	Ex ec IIC 1)	T1 – T3	Gc	IP55	1LA6, 1LA7, 1LA8, 1PQ8 ²⁾ ,	Line	M72	130 (B)	IEC/EN 60079-0
			briefly	(non- sparking)				1LA8, 1PQ8 ²⁾ , 1LA9, 1LG4/6	Converter	M73	-	IEC/EN 60079-15
								1MB103,	Line		-	
								1MB153, 1MB163	Converter	B40 B41	-	
	1D	20	constantly or long-term	Not admissible v	vith low-volta	ge motors	3					
	2D	21	occasionally	Ex tb IIIC 1):	Max.	Db	IP65	1LA5, 1LA6,	Line	M34	130 (B)	IEC/EN 60079-0
				conductive and non-conductive dust	tempera-			1LA5, 1LA6, 1LA7, 1LA8 ⁴), 1PQ8 ²), 1LA9, 1LG4/6	Converter	M38		IEC/EN 60079-31
	3D	22	rarely or	Ex tc IIIB 1):	125 °C ⁶⁾	Dc	IP55	•	Line	M35	•	
			briefly	non-conductive dust					Converter	M39		
				adot				1MB101/2,	Line		- -	
								1MB151/2, 1MB161/2	Converter	B40 B41		
Gases and	2G	1 or	occasionally	Ex de IIC 1)	T1 – T4/	Gb	IP65	1MD5,	Line	W21	130 (B)	IEC/EN 60079-0
vapors (G) and dusts (D) ⁵⁾	2D	21		(explosion-proof enclosure)/ Ex tb IIIC 1): conductive and non-conductive dust	housing tempera- ture T 135 °C	Db		1PS5	Converter	W23	155 (F)	TIEC/EN 60079-1 TIEC/EN 60079-31
	3G 3D	2 or 22	rarely or briefly	Ex nA IIC 1) (Non-Sparking)/	T1 – T3/ Max.	Gc Dc	IP55	1LA6, 1LA7, 1LA9, 1LG4/6	Line	M74	130 (B)	IEC/EN 60079-0 IEC/EN 60079-15
	30	J	,	Èx tc IIİB:	enclosure	20			Converter	W1/5	_	IEC/EN 60079-31
				non-conductive dust	tempera- ture T 125 °C ⁶⁾			1MB103 +B30 1MB153 +B30 1MB163 +B30	Line Converter	B40 B41	-	

Highest explosion group IIC includes IIB and IIA. IIIA stands for lint, IIIB for non-conductive dust and IIIC for conductive dust. 1MD5/1PS5 optionally with Ex d terminal box.

¹PQ8 not possible for Zone 21. Zones 2 and 22 for 1PQ8 available on request. Utilization according to temperature class 155 (F).

³⁾ See EU type-examination certificate.

¹LA8 only available for Zone 22 (order codes M35, M39). Converter: Utilization as standard according to temperature class 155 (F)

The Ex motor is not admissible in an explosive atmosphere of dust and air (hybrid). A standard is not currently available that describes the product requirements for a hybrid mixture.

⁶⁾ For 1MB1

IE1: T140 °C IE2: T120 °C (except T130 °C for 1MB1.11-1AD5, 1MB1.11-3AD6, 1MB1.21-1AD5 and 1MB1.21-3AD6) IE3: T120 °C

Benefits

The explosion-proof motors from Siemens offer the user numerous advantages:

- The motors are designed in accordance with Directive 2014/34/EU. As product supplier, Siemens accepts responsibility for compliance with the applicable product standards for the selected equipment.
- By using this product, the plant operating company satisfies Directive 1999/92/EC in accordance with Appendix II B (ATEX 137 previously ATEX 118a). The plant manufacturer or plant operating company is responsible for correct selection and proper usage of the equipment.
- Comprehensive series of Ex motors for protection against gas and dust.
- Individual versions of motors are possible thanks to the numerous catalog options.
- Further special versions are possible on request.
- Factory certificates 2.1 are available for a defined spectrum of Siemens motors/converters.
- The Operating Instructions (Compact) are available in all 23 official EU languages as well as Russian and Chinese.

For applications in harsh environments: SIMOTICS XP motors with a cast-iron housing

The right motor for various challenges

The following motor series are available with cast-iron housings for applications in harsh, hazardous environments:

- Basic Line: rugged, reliable motors for machine construction
- Performance Line: Motors for the process industry with reinforced bearings and a more rugged coating - for requirements that extend beyond the Basic Line

Comparison: Basic Line versus Performance Line

	Basic Line – 1MB15	Performance Line – 1MB16
Bearing size	62 (63 from frame size 280 upwards)	63
Relubrication	Optional (standard from frame size 280 upwards)	Standard from frame size 160 upwards (optional for frame size 100 to 132)
Paint system	Standard coating, corrosion class C2	Special coating, corrosion class C3
Motor protection	Optional	PTC
Warranty	12 months	36 months

Application

The explosion-proof motors are used in the following sectors to prevent explosion hazards that result in serious injury to persons and severe damage to equipment.

- Chemical and petrochemical industry
- Production of mineral oil and gas
- Gas works
- Gas supply companies

- · Petrol stations
- · Coking plants
- Mills (e.g. grain, solids)
- · Sewage treatment plants
- Wood processing (e.g. sawdust, tree resin)
- Other industries subject to explosion hazards

SIMOTICS XP 1MB1 explosion-proof motors

Technical specifications

General information

Ex motors are suitable for operation in electrical power systems with a voltage tolerance of ± 10 %.

Ex motors in vertical type of construction with shaft extension pointing down must have a protective cover.

Operating Instructions (Compact) are supplied as standard with explosion-proof motors in English and German. Translations are also available in all the other official EU languages as well as in Russian and Chinese.

For all explosion-proof motors, designs according to UL and CSA are not possible.

Motor connection

Certified metric cable glands/sealing plugs are included in the scope of supply of 1MB1 motors.

The certificates for the motors for hazardous areas are stored with the documentation in the "DT Configurator".

Certified motor protection switches/tripping units must always be used for motor protection, see Catalog IC 10.

Zone 1 with type of protection Ex eb II increased safety "e"

See Catalog D 81.1 · July 2011.

Zone 1 with type of protection Ex de IIC explosion-proof enclosure "d

See Catalog D 83.1.

Type of protection Ex ec for use in Zone 2

- Standard version for paint film thicknesses < 200 µm Ex ec IIC T3 Gc. For further information about paint and paint film thicknesses, see Chapter 1, from Page 1/21 onwards.
- Optional version for paint film thicknesses > 200 µm to < 2 mm Ex ec IIB T3 Gc (order code B31). For further information about paint and paint film thicknesses, see Chapter 1, from Page 1/21 onwards.

1MB1, 1LA or 1LG motors are modified for this purpose in the "non-sparking" version and are suitable for use in hazardous areas of Zone 2 for temperature classes T1 to T3. The maximum surface temperature that can occur during operation must lie below the limit temperature of the respective temperature class. The ventilation system must be in accordance with IEC/EN 60079-0. The motors are equipped with an external grounding terminal. The terminal box is similar to the Ex eb

Please inquire in the case of:

- Utilization according to temperature class 155 (F)
- For pole-changing versions

For motors in the "non-sparking" version, a type-examination certificate is available from a recognized testing authority.

Ambient temperature

- Standard: -20 to +40 °C
- Optional: -40 to +40 °C (order code **D03**)
- Optional: -20 to +60 °C (order codes N05, N06, N07, N08)

From 40 °C, the power is reduced.

Other temperatures are available on request.

The rating plate or the additional rating plate contains the text:

⟨Ex⟩ II 3G Ex ec IIC T3 Gc and number of the "type test certificate"

- 1) Zone 21 only up to frame size 315 L.
- ²⁾ Zone 21 includes conductive and non-conductive dust.
- IE1: T140 °C IE2: T120 °C (except T130 °C for 1MB1.11-1AD5, 1MB1.11-3AD6, 1MB1.21-1AD5 and 1MB1.21-3AD6)

Type of protection Ex tb IIIC and Ex tc IIIB for use in Zones 21 and 22

The distinction between Zones 21 and 22 is as follows:

- Ex tb IIIC acc. to IEC/EN 60079-31 ¹⁾ for Zone 21
 Version for Zone 21 ²⁾, as well as Zone 22 for conductive dust (IP65) and line operation (1MB101, 1MB151, 1MB161)
- Ex tc IIIB acc. to IEC/EN 60079-31 1) for Zone 22
- Version for Zone 22 for non-conductive dust (IP55) and line operation (1MB102, 1MB152, 1MB162)

The 1MB1 motors are modified for this purpose for use in zones subject to dust explosion hazards. The surface temperature is \leq 120 °C for rated operation ³⁾.

An external grounding terminal and a metal external fan are fitted to the motors.

Pole-changing versions are not possible for Zone 21 – they are possible for Zone 22 on request.

Certification:

- Zone 21: EU type-examination certificate (ATEX) and EU Declaration of Conformity
- Zone 22: EU type-examination certificate and EU Declaration of Conformity

Identification on the rating plate:

- Zone 21: (Il 2D Ex tb IIIC T120 °C Db 3)
- ⟨Ex⟩ II 3D Ex tc IIIB T120 °C Dc 3)

Ambient temperature

- Standard: -20 to +40 °C
- Optional: -40 to +40 °C (order code **D03**)
 Optional: -20 to +60 °C (order codes **N05**, **N06**, **N07**, **N08**)

From 40 °C, the power is reduced.

Other temperatures are available on request.

Type of protection Ex ec/Ex tc for use in Zone 2/22 4)

The motors must be ordered with:

• Version for Zones 2 or 22 for non-conductive dust for line operation – order code **B30** ⁴⁾

The Ex motor is not admissible in an explosive atmosphere of dust and air (hybrid). A standard is not currently available that describes the product requirements for a hybrid mixture.

Zone 2/22: (Ex) II 3G Ex ec IIC T3 Gc

(Ex) II 3D Ex tc IIIB T120 °C Dc 3)

The Ex motor is not admissible in an explosive atmosphere of dust and air (hybrid). A standard is not currently available that describes the product requirements for a hybrid mixture.

Technical specifications (continued)

Converter operation

General information

All the data listed in Catalog D 81.1 is applicable for a 50 Hz line supply. During converter operation, the reduced torques for constant torque and drives for fans, pumps and compressors must be observed due to the harmonic content of the supply. This data is available in the "Drive Technology Configurator" (DT Configurator). Higher noise levels must be expected than for 50 Hz line operation for motors operating with converters due to the harmonic content of the supply.

Maximum voltage load on the motor winding in converter operation:

Frame sizes: 71 to 315:

- Û_{phase-to-phase}: ≤ 1500 V (3000 V peak-peak values (V_{pk/pk}))
- $\hat{U}_{phase-to-ground}$: $\leq 1100 \text{ V} (2200 \text{ V} \text{ peak-peak values } (\hat{V}_{pk/pk}))$

The following generally applies to Siemens converters (SINAMICS):

- U_{line} : = 500 V ± 10 % (BLM = Basic Line Module; DFE = Direct Front End)
- $U_{\rm line}$: \leq 460 V \pm 10 % (ALM = Active Line Module; AFE = Active Front End); $U_{\rm dc}$ <720 V
- U_{line} : = 690 V ± 10 % (only permissible with SINAMICS G180 that has a reinforced dv/dt filter (standard option G180: L10).

Further configuration notes are documented in the factory certificate 2.1 and in the EU type-examination certificates.

Order handling for 1MB1 motors for converter operation

PTC thermistor

For converter operation, Ex motors must always be monitored using PTC thermistors. The motors must therefore be ordered with the 15th position of the Article No.

- **B** PTC thermistor for tripping or alternatively:
- C PTC thermistor for alarm and tripping

General information regarding the PTC thermistors:

- B in 15th position of the Article No.: The motors are equipped with 3 PTC thermistors for tripping in the motor winding
- B in 15th position of the Article No.: The motors are equipped with 3 PTC thermistors for alarm and 3 PTC thermistors for tripping in the motor winding.

Certified tripping units are required for this purpose, see Catalog IC 10.

Selection of the frequency converters

The SINAMICS frequency converters are categorized into 2 product groups (order code B40 and B41). Each product group is a data record with motor operating data each assigned to one frequency converter. The converter type is stamped on the rating plate. Alternative, approved SINAMICS converters can be selected, by adding the order code Y68.

Product group 1 (basic version):

Order code **B40** – version for converter operation in basic version with operating data SINAMICS G120 with PM240-2 Product group 1 (alternative SINAMICS converter):

Order codes B40 + Y68

Operating data such as order code **B40** with alternative SINAMICS converters on the rating plate

- Y68 with plain text (C-text) G120 with PM230 Y68 with plain text (C-text) G120 with PM240 Y68 with plain text (C-text) G120C

- Y68 with plain text (C-text) G120P with PM230
- Y68 with plain text (C-text) G120P with PM240-2 Y68 with plain text (C-text) G120P with PM240P-2
- Y68 with plain text (C-text) G120P with PM330
- Y68 with plain text (C-text) G130 Y68 with plain text (C-text) G150
- Y68 with plain text (C-text) G180
- Y68 with plain text (C-text) S120 (BLM/SLM)
- Y68 with plain text (C-text) V20

Product group 2 (basic version):

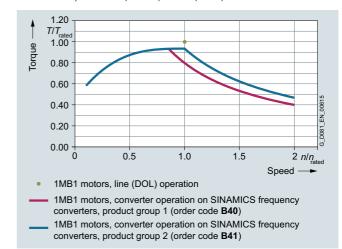
Order code **B41** – version for converter operation in basic version with operating data SINAMICS S150

Product group 2 (alternative SINAMICS converter):

Order codes B41 + Y68

Operating data such as order code B41 with alternative SINAMICS converters on the rating plate:

Y68 with plain text (C-text) S120 (ALM)



Insulated bearings

Frame sizes 225 and 250: For converter operation it is recommended that an "insulated bearing cartridge NDE" - order code L51 be used.

Frame sizes 280 and 315: When ordering with the order codes B40/B41, the "insulated bearing cartridge NDE" is included as standard

Rating plate

The operating data for line operation is specified on the rating plate - on an additional rating plate, 4 rated operating points are possible in the following variants, according to the selected product:

Possible variants	Rated operating points in Hz				Additional identification code voltage code 12th and 13th position of the Article No. and order code
50 Hz field weakening range	5	25	50	f_{max}	50 Hz voltage: e.g. " 90 " and M4A
60 Hz field weakening range	6	30	60	f _{max}	60 Hz voltage: e.g. " 90 " and M1E
87 Hz characteristic	5	25	87	f _{max}	87 Hz at 400 VΔ: " 90 " and M3A

f_{max} see page 5/9

SIMOTICS XP 1MB1 explosion-proof motors

Technical specifications (continued)

These rated operating points on the additional plate apply for both constant torque drives and pump/fan/compressor drives. For a constant torque drive, the resulting thermal motor torques in the positioning range must be taken into account.

Example motor ID:

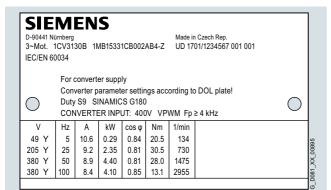
Motor rating plate with line operation data and additional plate with converter operation data:

Non-sparking motor Ex ec (Zone 2) for operation on SINAMICS G180:

1MB15331CB090AB4-Z

M4A+B40+Y68 Plain text Y68: SINAMICS G180

3∼Mot. IEC/EN 6			_	IP55	AB4-Z L	1701/	7	¬ 113G	0158
67kg	Th.Cl.	155(F)	-20°	C <=TAM	B<=40°C		$\dashv \langle \epsilon$	(x)	
		earing					Ex	ec IIC T3 Gc	
_	1-	208-2Z0 208-2Z0	- 1						
							FT.	ZU 13 ATEX 0	055
V	Hz	Α	kW	cos φ	NOM.EFF	1/min	IE-CL		
400 Y	50	10.8	5.5	0.82	89.6	1470	IE3		



For all motors, an additional rating plate complete with the operating data for the motor on the converter is fitted.

The converter type and the associated operating data are on the rating plate.

The reasons for stamping the converter type on the additional rating plate are the different control levels for the converter output voltage, pulse frequency, output frequency, harmonic content and the associated derating for the motor.

For compliance with the permissible temperature class 130 (B), derating is necessary in the case of converter operation. The reduction in torque depends on the choice of converter type. The data can be viewed in the "Drive Technology Configurator" (DT Configurator) and used as the basis for configuration.

The factory certificate 2.1 for the specified converters is stored with the documentation for low-voltage motors in the "Drive Technology Configurator" (DT Configurator).

Zone 21 includes conductive and non-conductive dust

The Ex motor is not admissible in an explosive atmosphere of dust and air (hybrid). A standard is not currently available that describes the product requirements for a hybrid mixture.

To ensure unambiguous order handling for the voltage, each approved voltage code/voltage order code is assigned only "one" voltage/frequency, as seen below:

Voltage code 12th and 13th posi- tion of the Article No.	Order code	Line frequency	Line voltage
27	_	50 Hz	500 VY, 50 Hz power
40	-	50 Hz	500 V∆, 50 Hz power
90	M4A	50 Hz	400 VY, 50 Hz power
90	M4B	50 Hz	400 V∆, 50 Hz power
90	M2C	60 Hz	440 VY, 50 Hz power
90	M1C	60 Hz	440 VY, 60 Hz power
90	M2D	60 Hz	440 VΔ, 50 Hz power
90	M1D	60 Hz	440 VΔ, 60 Hz power
90	M2E	60 Hz	460 VY, 50 Hz power
90	M1E	60 Hz	460 VY, 60 Hz power
90	M2F	60 Hz	460 VΔ, 50 Hz power
90	M1F	60 Hz	460 VΔ, 60 Hz power
90	M2G	60 Hz	575 VY, 50 Hz power
90	M1G	60 Hz	575 VY, 60 Hz power
90	M2H	60 Hz	575 V∆, 50 Hz power
90	M1H	60 Hz	575 VΔ, 60 Hz power
90	M2K	60 Hz	480 VY; 50 Hz power
90	M1K	60 Hz	480 VY; 60 Hz power
90	M2L	60 Hz	480 V∆, 50 Hz power
90	M1L	60 Hz	480 V∆, 60 Hz power
90	M1Y (non-standard winding)	50 or 60 Hz	Plain text (max. 460 VY, 50 or 60 Hz)
90	M3A ³⁾	50 Hz	At 87 Hz, 400 VΔ: (4-pole to 8-pole)

Converter operation specially for motors in type of protection "Ex ec" (Zone 2) and VIK-Ex ec version

IEC/EN 60079-15 specifies that the motor and converter must be tested as a unit (individual test). The individual test is available for motors of "n" type of protection on the specified converters SINAMICS G, SINAMICS S and SINAMICS V20. For details, see factory certificate 2.1.

Individual testing can be performed for non-Siemens converters on request (additional charge); the customer may be required to supply the non-Siemens converter for individual tests.

The test will cost more when using non-Siemens converters (especially on commissioning). Commissioning personnel must be provided by the customer for setup and operation during the test, if required.

Converter operation specially for motors in type of protection "Ex tb" (Zone 21) and "Ex tc" (Zone 22)

The drive system comprising motors protected against dust explosions operating on SINAMICS ${\sf G}$, SINAMICS ${\sf S}$ and SINAMICS V20 converters has been tested. For details, see factory certificate 2.1. Please inquire about operation with non-Siemens converters.

Converter operation specially for motors in type of protection "Ex ec/Ex tc" (Zone 2/22)

For the 1MB1.3 Ex ec motors, the order code **B30** version (IP55) for Zones 2 and 22 must also be specified in the case of nonconductive dust. Factory certificate 2.1 analogous to that for Zones 2, 21 and 22. Please inquire about non-Siemens converters

³⁾ The motor contains winding version 50 Hz 230 $V\Delta$.

SIMOTICS XP 1MB1 explosion-proof motors

Technical specifications (continued)

Mechanical limit speeds of the explosion-proof motors SIMOTICS XP 1MB15, 1MB16 Ex ec, Ex tb and Ex tc

Motor frame size	Motor type	2-pole ¹⁾ n _{max} rpm	f _{max} Hz	4-pole n _{max} rpm	f _{max} Hz	6-pole n _{max} rpm	f _{max} Hz	8-pole n _{max} rpm	f _{max} Hz
1MB15, 1ME	316								
71 M	1MB15	6000	100	3000	100	2000	100	1500	100
80 M	1MB15	6000	100	3000	100	2000	100	1500	100
90 L	1MB15	6000	100	3000	100	2000	100	1500	100
100 L	1MB10, 1MB15, 1MB16	5100	85	3000	100	2000	100	1500	100
112 M	1MB10, 1MB15, 1MB16	5100	85	3000	100	2000	100	1500	100
132 S/M	1MB10, 1MB15, 1MB16	3800	63.3	3000	100	2000	100	1500	100
160 M/L	1MB10, 1MB15, 1MB16	4500	75	3000	100	2000	100	1500	100
180 M/L	1MB15, 1MB16	4500	75	3000	100	2000	100	1500	100
200 L	1MB15, 1MB16	4500	75	3000	100	2000	100	1500	100
225 S/M	1MB15, 1MB16	3600	60	3000	100	2000	100	1500	100
250 M	1MB15, 1MB16	3600	60	3000	100	2000	100	1500	100
280 S/M	1MB15, 1MB16	3600	60	3000	100	2000	100	1500	100
315 S/M/L	1MB15, 1MB16	_ 2)	_ 2)	2600	87	2000	100	1500	100

Special technology

"Special technology" comprises technology that is compatible with explosion-proof motors.

Explosion-proof motors can be implemented in a broader range of applications when explosion-proof rotary pulse encoders or explosion-proof separately driven fans are mounted.

The use of a separately driven fan is recommended to increase motor utilization at low speeds and to limit noise generation at speeds significantly higher than the synchronous speed.

Both are normally only appropriate with converter-fed operation.

For explosion-proof motor versions with explosion-proof rotary pulse encoders or explosion-proof separately driven fans, see the tables below.

The following explosion-proof motor versions are available with explosion-proof rotary pulse encoders:

Type of protection Ex tb (Zone 21)	Motor type + order code 1MB101 1MB151 1MB161	Frame size 100 L 160 L 100 L 315 L 100 L 315 L
Ex tc (Zone 22)	1MB102 1MB152 1MB162	100 L 160 L 100 L 315 L 100 L 315 L
Ex ec (Zone 2)	1MB103 1MB153 1MB163	100 L 160 L 100 L 315 L 100 L 315 L
Ex ec or Ex tc (Zone 2/22)	1MB103 + B30 1MB153 + B30 1MB163 + B30	100 L 160 L 100 L 315 L 100 L 315 L

Order code for explosion-proof rotary pulse encoder

G30: Mounting of explosion-proof rotary pulse encoder for use in Zones 2, 21, and 22.

Note:

The maximum speed of the rotary pulse encoder is limited to $n_{\text{max}} = 4200 \text{ rpm}$.

The following explosion-proof motor versions are available with explosion-proof separately driven fans:

Type of protection	Motor type + order code	Frame size	Order code for explosion-proof separately driven fan
Ex tb (Zone 21)	1MB151 1MB161	225 S 315 L 225 S 315 L	F70: "Mounting of explosion-proof separately driven fan Ex tb for use in Zone 21".
Ex tc (Zone 22)	1MB102 1MB152 1MB162	100 L 160 L 100 L 315 L 100 L 315 L	F70: "Mounting of explosion-proof separately driven fan Ex tc for use in Zone 22".
Ex ec (Zone 2)	1MB103 1MB153 1MB163	100 L 160 L 100 L 315 L 100 L 315 L	F70: "Mounting of explosion-proof separately driven fan Ex ec for use in Zone 2".
Ex ec or Ex tc (Zone 2/22)	1MB103 + B30 1MB153 + B30 1MB163 + B30	100 L 160 L 100 L 315 L 100 L 315 L	On request

Notes:

- The motor operating data with the explosion-proof separately driven fan is available in the "Drive Technology Configurator" (DT Configurator).
- Alternatively, explosion-proof separately driven fans can also be used in line operation for special applications.

be used in line operation for special applications.

²⁾ For frame size 315, converter operation is not permissible with 2 poles.

SIMOTICS XP 1MB1 explosion-proof motors

Technical specifications (continued)

Explosion-proof rotary pulse encoder

The rotary pulse encoder can only be mounted on a standard non-drive end (NDE), i.e. a second shaft extension cannot be supplied.

By virtue of its design, the explosion-proof rotary pulse encoder does not have insulated bearings (please inquire).

The type of protection of the rotary pulse encoder must be observed. The relevant data is stamped on the rating plate of the rotary pulse encoder.

Attaching an explosion-proof rotary pulse encoder increases the length of the motor by Δl .

For an explanation of the additional dimensions and weights, see "Dimensions and weights of explosion-proof rotary pulse encoders".

LL 841 900 013 rotary pulse encoder (HTL version)

This encoder has a rugged construction and is therefore also suitable for difficult operating conditions. It is resistant to shock and vibration.

The LL 841 900 013 explosion-proof rotary pulse encoder is supplied with the already mounted ADS diagnostic system for early detection of errors in the encoder.

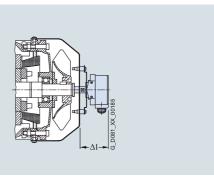
Order code **G30**

Technical specifications for LL 841 900 013 (HTL version)

Supply voltage U _B	+9 +30 V
Current input without load	max. 80 mA
Admissible load current per output	40 mA
Pulses per revolution	1024
Outputs	6 short-circuit proof square-wave pulses A, A', B, B', 0, 0', high current HTL
	Floating switching output for ADS signal
Pulse offset between the two outputs	90° ±2 5° el.
Output amplitude	$U_{\text{High}} > U_{\text{B}} - 4 \text{ V}$ $U_{\text{Low}} < 2.5 \text{ V}$
Mark space ratio	1:1 ± 10 %
Maximum frequency	100 kHz with 350 m cable length
Maximum speed	4200 rpm (the maximum permissible speed must be observed during the configuration)
Temperature range	−40 +70 °C
Degree of protection	IP65
Maximum adm. radial cantilever force	150 N
Maximum adm. axial force	100 N
Connection system	Terminal strips in encoder/cable connection M20 x 1.5 radial (screw terminals)
Weight, approx.	1.7 kg

Manufacturer: Leine und Linde AG Olivehällsvägen 8 64542 Strängnäs, Sweden Phone: +46 152 265 00 Fax: +46 152 265 05

www.leinelinde.com Email: info@leinelinde.se Dimensions and weights of the explosion-proof rotary pulse encoders



Explosion-proof rotary pulse encoder (on cover), order code G30

1MB10, 1MB15, 1MB16 motors					
Frame size	ΔΙ	Weight approx.			
	mm	kg			
100	110	2			
112	110	2			
132	110	2			
160	110	2			
180	110	2			
200	110	2			
225	100	3			
250	100	3			
280	100	3			
315	100	3			

A protective cover of non-corrosive sheet steel is available for the explosion-proof rotary pulse encoders from the "special technology".

For motors in the shaft heights

- 100 to 200: a protective cover is always provided
- 225 to 315: Order code G43 –
 "Mechanical protection for encoder" (protective cover analogous to order code H00)

The length of the motor is also increased in the case of the following shaft heights:

- 100 to 200 by up to 146 mm
- 225 to 315 by up to 25 mm

SIMOTICS XP 1MB1 explosion-proof motors

Technical specifications (continued)

Explosion-proof separately driven fan

The use of a separately driven fan is recommended to increase motor utilization at low speeds or to limit noise generation at speeds significantly higher than the synchronous speed. Both of these results can only be achieved with converter operation. Please inquire about traction and vibratory operation.

In the case of explosion-proof motors, the explosion-proof separately driven fan is available already mounted. Order code **F70**

Notes:

- The order code F70 applies to all types of protection because the type of protection is already defined by the article number of the motor. Order code F70 determines the additional charge for the separately driven fan in the assigned type of protection.
- The motor operating data with the explosion-proof separately driven fan is available in the "Drive Technology Configurator" (DT Configurator).

The supply voltage for the explosion-proof motors with separately driven fan is specified as follows:

Type 2CW2 has a wide-range voltage winding (see page 5/12 "Technical specifications of separately driven fans for 1MB1 explosion-proof motors (frame sizes 100 to 200) in the Ex tc (Zone 22) and Ex ec (Zone 2) versions").

These explosion-proof motors with separately driven fan up to frame size 200 have a rated voltage (rated voltage range) with tolerances according to IEC/EN 60034-1, range A.

A rating plate with the operating data is fitted to each explosion-proof motor with separately driven fan.

The type of protection of the explosion-proof motor with separately driven fan corresponds to that of the associated explosion-proof basic motor. Please note the direction of rotation of the separately driven fan (axial-flow fan) when connecting it.

Please inquire regarding coolant temperatures outside the range -20 to +40 °C.

The Ex ec /Ex tc motor with separately driven fan has the degree of protection IP55 as standard; Ex tb: IP65. (Higher degrees of protection with Ex ec are available on request.)

Motors with a separately driven fan must be equipped with a PTC thermistor as motor protection (15th position of the Article No.): In the event of a fault in the forced ventilation, the PTC thermistor must reliably trip the 1MB1 explosion-proof motor.

For assignments and article numbers, see the tables "Technical specifications of separately driven fans for explosion-proof motors 1MB1..." on the following pages. A rating plate listing all the important data is fitted to the separately driven fan. Please inquire in the case of supply voltages outside of the rated voltage range. Please note the direction of rotation of the separately driven fan (axial-flow fan) when connecting it. The permissible coolant temperatures are CT_{\min} –20 °C and CT_{\max} +40 °C. Lower coolant temperatures are available on request.

When the separately driven fan is mounted, the length of the motor increases by ΔI . For an explanation of the additional dimensions and weights, see "Dimensions and weights of explosion-proof separately driven fans".

SIMOTICS XP 1MB1 explosion-proof motors

Technical specifications (continued)

Technical specifications of separately driven fans for 1MB1 explosion-proof motors (frame sizes 100 to 200) in the Ex tc (Zone 22) and Ex ec (Zone 2) versions

Technical specifi	cations of separately driven far	s (according to tolerances of	EN 60034-1)	
Frame size	Rated voltage range	Frequency	Power consumption	Rated current
	V	Hz	kW	А
100	1 AC 220 277	50	0.066	0.28
	3 AC 200 303 Δ	50	0.091	0.37
	3 AC 346 525 Y	50	0.091	0.22
	1 AC 220 277	60	0.075	0.30
	3 AC 220 332 Δ	60	0.087	0.31
	3 AC 380 575 Y	60	0.087	0.18
112	1 AC 220 277	50	0.071	0.28
	3 AC 200 303 Δ	50	0.097	0.35
	3 AC 346 525 Y	50	0.097	0.20
	1 AC 220 277	60	0.094	0.37
	3 AC 220 332 Δ	60	0.103	0.31
	3 AC 380 575 Y	60	0.103	0.18
132	1 AC 230 277	50	0.098	0.40
	3 AC 200 303 Δ	50	0.124	0.58
	3 AC 346 525 Y	50	0.124	0.33
	1 AC 230 277	60	0.149	0.57
	3 AC 220 332 Δ	60	0.148	0.44
	3 AC 380 575 Y	60	0.148	0.25
160 200	1 AC 230 277	50	0.253	0.97
	3 AC 200 303 Δ	50	0.247	0.87
	3 AC 346 525 Y	50	0.247	0.50
	3 AC 220 332 Δ	60	0.360	0.93
	3 AC 380 575 Y	60	0.360	0.56

Technical specifications of separately driven fans for 1MB1 explosion-proof motors (frame sizes 225 to 315) in the Ex tb (Zone 21), Ex tc (Zone 22) and Ex ec (Zone 2) versions

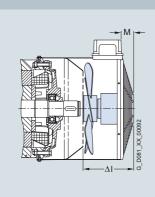
Frame size	Designation on rating plate of separately driven fan	Rated voltage range	Frequency	Rated speed	Power consumption	Rated current for rated voltage
		V	Hz	rpm	kW	А
225 M 280 M	1LA7073-2AA62-Z	3 AC 230 A	50	2800	0.550	1.36
		3 AC 400 Y	50	2800	0.550	0.79
		3 AC 460 Y	60	3400	0.630	1.32
315 – 2-pole	1LA9073-2LA92-Z	3 AC 230 A	50	2780	0.700	1.73
		3 AC 400 Y	50	2780	0.700	1.00
		3 AC 460 Y	60	3385	0.700	1.64
315 - 4, 6, 8-pole	1LA7073-2AA62-Z	3 AC 230 A	50	2800	0.550	1.36
		3 AC 400 Y	50	2800	0.550	0.79
		3 AC 460 Y	60	3400	0.630	1.32

SIMOTICS XP 1MB1 explosion-proof motors

Technical specifications (continued)

Dimensions and weights of the explosion-proof separately driven fans (order code ${\bf F70}$)

1MB102, 1MB152, 1MB162, 1MB103, 1MB153, 1MB163 Frame sizes 100 to 200 Explosion-proof separately driven fans Ex tc, Ex ec



1MB151, 1MB161, 1MB152, 1MB162, 1MB153, 1MB163 Frame sizes 225 to 315 Explosion-proof separately driven fans Ex tb, Ex tc, Ex ec

	Type of protection/motor type Ex tc (Zone 22)/1MB102, 1MB152, 1MB162 Ex ec (Zone 2)/1MB103, 1MB153, 1MB163			
Frame size	ΔΙ	Weight approx.		
	mm	kg		
100	141	4		
112	158	4.5		
132	177	5.5		
160	227	7		
180	269	10		
200	272	11		

	Type of protection/motor type Ex tb (Zone 21)/1MB151, 1MB1 Ex tc (Zone 22)/1MB152, 1MB1 Ex ec (Zone 2)/1MB153, 1MB10	62
Frame size	ΔΙ	Weight approx.
	mm	kg
225	267	24.5
250	272	27.5
280	270	30.5
315	280	38.5

SIMOTICS XP 1MB1 explosion-proof motors

Technical specifications (continued)

VIK version

VIK = Verband der Industriellen Energie- und Kraftwirtschaft e.V. (German Association of the Energy and Power Supply Industry)

VIK standard version –

1LE1 + order code C02

"VIK" identification on rating plate.

→ Product range in Catalog Section 2.

• VIK-Ex ec version for line operation -

1MB1.3 + order code C02

"VIK" and "Ex ec IIC T3 Gc" marking on the rating plate according to Directive 2014/34/EU (ATEX).

→ Product range in this Catalog Section.

VIK Ex ec version for converter operation –

1MB1.3 + order code **C02+B40/B41**+...

"VIK" and "Ex ec IIC T3 Gc" markings on the rating plate and motor operating data for converter operation on the additional rating plate according to Directive 2014/34/EU (ATEX).

Both versions include technology for Zone 2 to type of protection Ex ec IIC T3 Gc. Motors up to frame size 355 can be supplied in accordance with the technical requirements of the VIK recommendation.

Minimum efficiency class:

- VIK standard version:
 - IE3 from 0.75 kW in accordance with legal requirements.
- VIK-Ex ec version:

At least IE3 in accordance with January 2018 edition of VIK recommendation.

Notes:

- 8-pole motors or all motors < 0.75 kW are still possible as these motors are outside the power range specified for IE stamping.
- Motors in VIK standard version (1LE1) with mountings (brake, rotary pulse encoder and separately driven fan) are not compatible with Zone 2. Versions for Zone 21/22 are not possible.
- 1LA/1LG VIK motors: See Catalog D 81.1 · July 2011.

Ex certification EAC for the Eurasian customs union (Russia, Belarus, and Kazakhstan) EAC = Eurasian Conformity

For the import and commissioning of explosion-proof motors in the Eurasian customs union, approval is required from a named Russian testing authority.

"Ex certificate EAC for the Eurasian customs union" Order code **D35**

The explosion-proof motors in this catalog section all have Eurasian ex certification except for the following:

- 1MB10, frame sizes 80 and 90
- 1MB15, frame sizes 71 to 90
- 1MB15/6, frame sizes 225 to 315, in type of protection Ex tb
- 1MB1 in version for converter operation

When motors are ordered with order code **D35**, they are fitted with an additional rating plate displaying the logo "EAC Ex" and the Russian Ex marking.



UD 1303/123456-001-001

2Ex ec IIC T3 Gc NANIO CCVE N° TC RU C-DE.ГБ05.В00409*) Открывать, отключив от сети!

Example: Additional rating plate

The "EAC Ex" logo can also be found on the package label. The motor must have an "EAC Ex certificate", although the certificate does not generally have to be shipped with the motor. The customs authorities use the motor article number to check the motor certification.

A copy of the EAC Ex certificate must be in the customer's possession before the motor is commissioned.

The certificates are available from the SIOS (Siemens Industry Online Support) portal as well as the "Drive Technology Configurator" (DT Configurator).

Coolant temperature

Coolant temperature –40 to +40 °C for explosion-proof motor

For all 1MB10 motors, frame sizes 100 to 160 and 1MB15/6, frame sizes 100 to 315 in explosion protection types Ex ec or Ex t (Zone 21/22), the operating ambient temperature range can be optionally increased to $-40\,^{\circ}\text{C}$. Extensive technical measures are necessary in this case.

Order code D03

Order code **D03** is not possible in combination with order code **H02** "Vibration-proof version".

SIMOTICS XP 1MB1 explosion-proof motors

Article number code

Selection and ordering data

The article number consists of a combination of digits and letters and is divided into three hyphenated blocks to provide a better overview, e.g.:

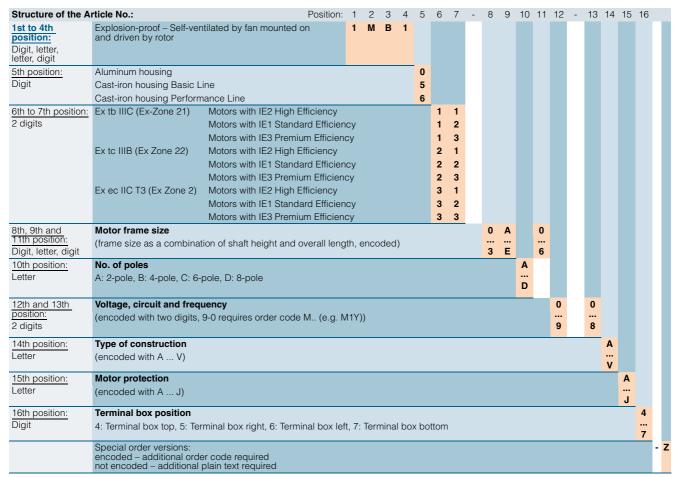
1MB1511-1DB22-2AB4-Z

The first block (positions 1 to 7) identifies the motor type. The second block (positions 8 to 12) defines the motor frame size and length, the number of poles and in some cases the frequency/voltage. In the third block (positions 13 to 16), the frequency/voltage, type of construction and further design features are encoded.

For deviations in the second and third block from the catalog codes either **Z** or **90** should be used as appropriate.

Ordering data:

- Complete Article No. and order code(s) or plain text
- If a quotation has been requested, please specify the quotation number in addition to the Article No.
- When ordering a complete motor as a spare part, please specify the works serial No. for the previously supplied motor as well as the Article No.



Ordering example

Ordering example		
Selection criteria	Requirement	Structure of the Article No.
Motor type 1MB1	Self-ventilated motor with explosion protection of type Ex tb IIIC (Ex Zone 21), cast-iron version, with IE2 High Efficiency, IP55 degree of protection	1MB1511-
Motor frame size/No. of poles/Speed	160 M/4-pole/1500 rpm	1MB1511-1DB2
Rated power	11 kW	
Voltage and frequency	230 VΔ/400 VY, 50 Hz	1MB1511-1DB22-2
Type of construction with special version	IM B3	1MB1511-1DB22-2A
Motor protection	Motor protection with PTC thermistor with 3 embedded temperature sensors for tripping	1MB1511-1DB22-2AB■
Terminal box position	Terminal box at top	1MB1511-1DB22-2AB4
Special version	Rotation of the terminal box through 90°, entry from DE	1MB1511-1DB22-2AB4-Z R10



SIMOTICS XP 1MB1 explosion-proof motors

Self-ventilated motors with IE3 Premium Efficiency · Aluminum series 1MB10

OCII	UOIII	natoa	mote	/10 W				mea	лоу	Aluli		•		J				
Sele	ction	and o	rderir	ng da	ata													
			Opera	iting v	alues at ra											Aluminum series		
P _{ra-}	P _{ra-}	Frame size		T _{ra-}	Different IE class	η _{rated}	η _{rated} 50 Hz,	η_{rated}	cos φ_{rated}	I _{rated} ,			$T_{\rm B}/T_{\rm ra-}$	L _{pfA,} 50 Hz	L _{WA} ,	1MB1	m _{IM B3}	J
ted, 50 Hz	ted, 60 Hz		ted, 50 Hz	ted, 50 Hz	60 Hz/P60	30 ⊓Z, 4/4	3/4	2/4	50 Hz,	50 Hz, 400 V		I _{ra-} ted	ted	30 HZ	30 HZ			
									4/4							Article No.		. 2
kW	kW	FS	rpm	Nm	44\	%	%	%		Α				dB(A)	dB(A)		kg	kgm ²
		self-ver y accord			60034-30: I	IE3 Pre	mium	Efficie	ncy									
							ass F),	IP55 c	legree o	of prot	ectio	n, uti	lizati	on in a	ccorda	nce with thermal class 130	temperat	ure class B)
		o rpm a 80 M	2850	2, 360 2.5	0 rpm at 6	80.7	82.2	81.9	0.86	1.56	2.6	6.2	3	60	71	1MB10=3-0DA2=-	11	0.0011
1.1	1.27	80 M	2885	3.6		82.7	83.9	83.1	0.85	2.25	3	7.1	3.3	60	71	1MB10 3-0DA3 -		0.0011
1.5	1.75	90 S	2910	4.9		84.2	84.6	83.2	0.86	3	2.7	8.1	4.2	65	77	1MB10=3-0EA0=-	15	0.0021
2.2	2.55	90 L	2910	7.2		85.9	86.8	86.1	0.88	4.2	2.6	8.3	4	65	77	1MB10=3-0EA4=-		0.0031
<u>3</u>	3.45	100 L	2920	9.8		87.1	87.9	87.5	0.88	5.6	3.2	8.1	4.6	67	79	1MB10=3-1AA4=-		0.0054
5.5	4.55 6.3	112 M 132 S	2950 2950	13 18		88.1 89.2	88.7 90.1	88.2 89.7	0.89	7.4 9.9	2.5 1.9	8.7 7.3	3.7	69 68	81 80	1MB10 3-1BA2 - 1MB10 3-1CA0 - 1MB10		0.012
7.5	8.6	132 S	2950	24		90.1	90.9	90.7	0.92	13.1	2.1	8.3	4	68	80	1MB10 3-1CA1 -		0.024
11	12.6	160 M	2955	36		91.2	91.3	90.2	0.87	20	2.5	7.6	3.8	70	82	1MB10=3-1DA2=-	75	0.053
15	17.3	160 M	2960	48		91.9	91.9	91	0.87	27	2.8	8.8	4.3	70	82	1MB10=3-1DA3=-		0.061
18.5	21.3	160 L	2955	60	0 rom et-C	92.4	92.8	92.3	0.9	32	2.8	8.3	3.9	70	82	1MB10=3-1DA4=-	94	0.068
	e: 150 0.63	o rpm a 80 M	t 50 Hz 1440	2, 180 3.6	0 rpm at 6	80.8	81.1	79.3	0.78	1.26	2.1	5.9	3.1	53	64	1MB10=3-0DB2=-===	11	0.0021
	0.86	80 M	1450	4.9		82.5	82.3	79.9	0.75	1.75	2.7	7.1	3.9	53	64	1MB10 3-0DB2 -		0.0021
1.1	1.27	90 S	1440	7.3		84.1	84.7	83.4	0.78	2.4	2.9	6.9	3.6	56	68	1MB10=3-0EB0=-===	16	0.0036
1.5	1.75	90 L	1445	10		85.3	85.9	84.9	0.8	3.15	2.7	7.2	3.6	56	68	1MB10=3-0EB4=-		0.0049
2.2	2.55	100 L	1465	14.3		86.7	87	85.9	0.83	4.4	3.2	8.4	4.4	60	72	1MB10=3-1AB4=-		0.014
<u>3</u>	3.45 4.55	100 L 112 M	1460 1460	19.6 26		87.7 88.6	88.5 89.2	87.9 88.6	0.83	5.9 7.9	2.5	8.3 7.1	3.9	60 58	72 70	1MB10 3-1AB5 - 1MB10 3-1BB2 - 1MB10 3-1BB2		0.014
5.5	6.3	132 S	1470	36		89.6	90	89.4	0.82		2.4	8.6	3.7	64	76	1MB10 3-1CB0 -		0.017
7.5	8.6	132 M	1465	49		90.4	91.1	90.8	0.84	14.3	2.6	8.2	3.7	64	76	1MB10 3-1CB2 -		0.046
11	12.6	160 M	1475	71		91.4	91.8	91.2	0.84	20.5	2.6	7.6	3.4	65	77	1MB10=3-1DB2=-	83	0.083
15	17.3	160 L	1475	97		92.1	92.3	91.5	0.82	28.5	2.5	8.5	3.8	65	77	1MB10=3-1DB4=-	100	0.099
				·	0 rpm at 6		70.1	CO 4	0.00	1.1	0.0	4.0	0.7	40	EO	1MD10=2 0DC0=	10	0.0005
0.37	0.43	80 M 80 M	940 935	3.8 5.6		73.5 77.2	73.1 77	69.4 73.9	0.66	1.1	2.3	4.2	2.7	42 42	53 53	1MB10 3-0DC2 - 1MB10 3-0DC3 - 1MB10 3-0DC3		0.0025
0.75	0.86	90 S	945	7.6		78.9	80	78.8	0.7	1.96	2.2	4.6	2.6	43	55	1MB10=3-0EC0=-		0.004
1.1	1.27	90 L	940	11	IE1	81	82	80.5	0.69	2.85	2.3	4.6	2.7	43	55	1MB10=3-0EC4=-	19	0.0048
1.5	1.75	100 L	970	14.8		82.5	83.1	81.5	0.73	3.6	1.9	5.2	2.8	59	71	1MB10=3-1AC4=-		0.014
3	2.55 3.45	112 M 132 S	970 980	22 29	IE2	84.3 85.6	85 86.3	83.9 85.7	0.75 0.76	5 6.7	2.2	5.6 6.3	2.8	65 63	74 75	1MB10 3-1BC2 - 1MB10 3-1CC0 1 MB10 3-1CC	43	0.014
4	4.55	132 M	975	39		86.8	87.7	87.4	0.76	8.8	2	6.1	2.8	63	75	1MB10 3-1CC0 -		0.029
5.5	6.3	132 M	975	54		88	88.9	88.5	0.76		2	6.3	2.9	63	75		52	0.037
7.5	8.6	160 M	980	73		89.1	89.8	89.2	0.76	16	2	5.1	2.3	67	79	1MB10=3-1DC2=-	93	0.098
11	12.6	160 L	975	108		90.3	91.1	90.7	0.77	23	2	5.1	2.4	67	79	1MB10=3-1DC4=-	115	0.12
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For o	ptions	see froi	m page	5/38												1MB10■3■-■■■■	-Z+.	++

For footnotes, see page 5/27



SIMOTICS XP 1MB1 explosion-proof motors

Self-ventilated motors with IE3 Premium Efficiency · Cast-iron series 1MB15, 1MB16

Selection and ordering data Operating values at rated power Cast-iron series 1MB15.3 – Basic Line 1MB16.3 – Performance Line P_{ra}- $T_{\text{ra-}}$ Different η_{rated} , η_{rated} , η_{rated} , cos P_{ra} . Frame n_{ra} . Irated, TLR/ ILR/ TB/ LpfA, LWA, $m_{\rm IM~B3}$ J IE class 50 Hz, 50 Hz, $\varphi_{\rm rated}$, $\varphi_{\rm rated}$, 50 Hz, $T_{\rm ra}$ size ted. 50 Hz 60 Hz 50 Hz 50 Hz 60 Hz/P60 4/4 3/4 2/4 50 Hz, 400 V ted ted ted 4/4 Article No. kgm² kW kW FS rpm Nm % dB(A) dB(A) Cooling: self-ventilated (IC 411) Efficiency according to IEC 60034-30: IE3 Premium Efficiency Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) 2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz 1) **0.37 0.43 71 M** 2850 1.2 69.7 0.76 1MB15 3-0CA2 - 13 0.00045 73.8 73.3 0.95 3.5 5.8 3.5 52 0.55 0.63 71 M 2860 1.8 77.8 77.5 74.5 0.76 1.34 3.7 6.1 1MB15 3-0CA3 - 14.5 0.00056 0.75 0.88 80 M 2850 2.5 80.7 82.2 81.9 0.86 1.56 2.6 6.2 71 1MB1 5 3-0DA2 - 18 0.0011 3 1MB15 3-0DA3 - 21 0.0013 1.1 1.27 80 M 2885 36 827 83.9 83.1 0.85 2.25 3 71 33 60 71 1.5 1.75 90 S 2910 49 84 2 84 6 83.2 0.86 3 27 81 42 65 77 1MB15 3-0EA0 - 25.5 0.0021 1MB15 3-0EA4 - 32 2910 72 85.9 0.0031 2.2 2.55 90 L 86.8 86 1 0.88 42 2.6 8.3 4 65 77 3.2 8.1 79 1MB1 3-1AA4 36 0.0054 3 3.45 100 L 2920 9.8 87.1 87.9 87.5 0.88 5.6 4.6 67 4 4.55 112 M 2950 13 88.1 88.7 88.2 0.89 2.5 8.7 4 69 81 1MB1 3-1BA2 - 45 0.012 7.4 5.5 6.3 132 S 2950 18 89.2 90.1 89.7 0.9 9.9 1.9 7.3 3.7 68 80 1MB1 3-1CA0 - 58 0.024 1MB1 3-1CA1 - 73 7.5 8.6 132 S 2950 90.1 90.9 90.7 0.92 13.1 8.3 4 68 80 0.031 160 M 2955 1MB1 3-1DA2 - 100 91.3 7.6 3.8 0.053 11 12.6 91.2 90.2 0.87 20 70 82 15 17.3 160 M 2960 48 91.9 91.9 91 0.87 27 2.8 8.8 4.3 70 82 1MB1 3-1DA3 - 110 0.061 21.3 160 L 2955 60 92.4 92.8 2.8 8.3 3.9 70 1MB1 3-1DA4 127 0.068 18.5 92.3 0.9 32 82 22 24.5 180 M 2950 71 927 93 924 0.89 38.5 2.3 7.5 3.5 67 80 **1MB1=3-1EA2=-===** 160 0.08 **33.5 200 L** 2955 97 30 93.3 93.6 93.3 0.87 53 2.5 7 3.3 67 80 1MB1 3-2AA4 2-225 0.134 37 41.5 **200 L** 2955 120 93.7 93.9 93.5 0.88 65 2.5 7.1 3.2 67 80 1MB1 3-2AA5 - 250 0.158 45 225 M 2960 94.5 94.4 0.89 24 6.9 1MB1 3-2BA2 315 0.26 51 145 94 78 3.3 73 87 1MB1 3-2CA2 385 2.3 6.7 55 62 **250 M** 2975 177 94.3 94.5 93.9 0.89 95 3 1 73 87 0.46 75 280 S 2975 241 94.7 94.8 3 **1MB1 3-2DA0 - 510** 0.77 84 IE2 94.1 0.89 128 2.4 6.8 74 88 90 101 **280 M** 2975 289 95 95.1 94.6 0.9 152 2.4 7.2 3.1 74 88 1MB1 3-2DA2 - 590 0.94 **315 S** 2982 352 95.2 95.4 94.9 0.91 2.4 7.1 3.1 75 89 1MB1 3-3AA0 - 750 1.4 110 123 183 89 1MB1 3-3AA2 - 880 132 148 315 M 2982 423 95.4 95.5 95.2 0.91 220 2.5 7.2 3.1 75 1.6 **315 L** 2982 **1MB1 3-3AA4 - 98**0 160 180 512 IE2 95.6 95.7 95.2 0.92 265 7.8 3.3 91 1.9 2.8 77 2982 1MB1 3-3AA5 - 1150 200 224 315 L 640 95.8 95.9 95.5 0.92 330 2.5 7.2 3 91 2.3 **Basic Line** Performance Line Zone 21 (occasionally conductive and non-conductive dust) Ex tb IIIC 2 Zone 22 (rarely conductive or temporarily non-conductive dust) Ex tc IIIB Zone 2 (rarely explosive or temporarily explosive gases) Ex ec IIC Version Order code 60 Hz 1) 460 VY 50 Hz 230 VΔ/400 VY Standard 2 4 7 0 2 3 2 4 50 Hz 400 VΔ/690 VY 60 Hz ¹⁾ 460 VΔ Standard 50 Hz 500 VY Without additional charge 50 Hz 500 VΔ Without additional charge 9 0 For other voltages 1) and more information, see from page 5/29 Types of construction Version Order code Without flange IM B3²⁾ Standard IM B5 ²⁾ With flange With additional charge IM B14²⁾ With flange With additional charge For other types of construction and more information, see from page 5/32 Motor protection Version Only possible for Basic Line Standard Without PTC thermistor with 3 temperature sensors **Basic Line** With additional charge В В Performance Line Standard For other motor protection and more information, see from page 5/35 Terminal box position Version

Standard

For options, see from page 5/42

For other terminal box positions and more information, see from page 5/37

Terminal box at top

Special versions

Order code(s)

1MB1■■3- ■-■■■■-Z . . . +. . . +. . . +. .

Motors in type of protection Ex tb, Ex tc, Ex ec for use in Zones 21, 22, 2 SIMOTICS XP 1MB1 explosion-proof motors



Self-ventilated motors with IE3 Premium Efficiency · Cast-iron series 1MB15, 1MB16

Selection and ordering data (continued) Operating values at rated power Cast-iron series 1MB15.3 – Basic Line 1MB16.3 – Performance Line Irated, TLR/ ILR/ TB/ LpfA, LWA, P_{ra} P_{ra} Frame n_{ra} $T_{\text{ra-}}$ Different η_{rated} , η_{rated} , η_{rated} , cos $m_{\rm IM~B3}$ J IE class 50 Hz, 50 Hz, 50 Hz, φ_{rated} , 50 Hz, T_{ra} size ted. ted, 50 Hz 60 Hz 50 Hz 50 Hz 60 Hz/P60 4/4 3/4 2/4 50 Hz, 400 V ted ted ted 4/4 Article No. kgm² kW kW FS rpm Nm % dB(A) dB(A) kg Cooling: self-ventilated (IC 411) Efficiency according to IEC 60034-30: IE3 Premium Efficiency Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) 4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz 1) 1MB1 5 3-0CB2 - 13 0.00095 **0.25 0.29 71 M** 1395 1.7 73.5 73.6 70.4 0.72 0.68 2.5 4.2 2.6 44 0.37 0.43 71 M 1410 2.6 77.3 76.8 73.2 0.7 0.99 3.1 4.8 3.1 67 1MB1 5 3-0CB3 - 16 0.0014 0.55 0.63 80 M 1440 3.6 80.8 81.1 79.3 0.78 1.26 2.1 5.9 3.1 53 64 1MB1 5 3-0DB2 - 18.5 0.0021 1MB1 5 3-0DB3 - 22.5 0.75 0.88 80 M 1450 49 82.5 82.3 799 0.75 1.75 27 7.1 3.9 53 64 0.0029 1440 7.3 1.1 1.27 90 S 84 1 84 7 83 4 0.78 24 2.9 6.9 3.6 56 68 1MB1 5 3-0EB0 - 25 0.0036 **1MB1 5 3-0EB4 - 3**1 1445 10 2.7 7.2 3.6 56 0.0049 1.5 1.75 90 L 85.3 85.9 84.9 0.8 3.15 68 1465 14.3 1MB1 3-1AB4 40 0.014 2.2 2.55 100 L 86.7 87 85.9 0.83 4.4 3.2 8.4 4.4 60 72 3 3.45 100 L 1460 19.6 87.7 88.5 87.9 0.83 5.9 2.5 8.3 3.9 60 72 1MB1 3-1AB5 - 40 0.014 4 4.55 112 M 1460 26 88.6 89.2 88.6 0.82 7.9 2.4 7.1 3.7 58 70 1MB1 3-1BB2 - 46 0.017 1MB1 3-1CB0 - 74 5.5 6.3 132 S 1470 36 89.6 90 89.4 0.82 10.8 2.9 8.6 3.7 64 76 0.046 91.1 2.6 8.2 3.7 1MB1 3-1CB2 - 80 0.046 7.5 **132 M** 1465 49 90.4 90.8 0.84 14.3 76 8.6 64 11 **12.6 160 M** 1475 71 91.4 91.8 91.2 0.84 20.5 2.6 7.6 3.4 65 77 1MB1 3-1DB2 - 109 0.083 2.5 8.5 3.8 65 1MB1 3-1DB4 127 0.099 15 17.3 160 L 1475 97 92.1 92.3 91.5 0.82 77 18.5 21.3 180 M 1470 120 92.6 93.1 93 0.82 35 2.5 7.2 3.3 66 73 **1MB1 3-1EB2 - 165** 0.13 22 25.3 180 L 1470 143 93 93.6 93.6 0.83 41 2.3 6.8 3.3 68 75 1MB1 3-1EB4 - 170 0.14 30 34.5 200 L 1470 195 IE2 93.6 94.2 94.2 0.84 55 2.6 7.3 3.1 65 72 1MB1 3-2AB5 - 240 0.22 37 1478 239 94.5 6.4 1MB1 3-2BB0 - 285 0.42 42.5 225 S IE2 93.9 94.4 0.86 66 2.5 2.7 65 78 1MB1 3-2BB2 320 45 52 225 M 1478 291 IF2 94 2 94.9 95 1 0.86 80 2.6 6.4 27 65 78 0.47**250 M** 1482 95.1 2.5 6.8 2.9 79 1MB1 3-2CB2 420 55 63 354 IE2 94.6 95 0.87 96 66 0.85 75 **280 S** 1485 482 IE2 95 95.3 95 0.86 133 2.5 6.9 3 69 83 1MB1 3-2DB0 - 570 1.4 86 90 **280 M** 1485 579 95.5 95.3 0.87 2.6 7.2 3 1MB1 3-2DB2 - 670 1.7 104 95.2 157 70 84 1MB1 3-3AB0 - 760 110 127 **315 S** 1488 706 95.4 95.8 95.5 0.87 191 2.6 6.8 2.9 70 84 22 132 **315 M** 1490 846 95.6 95.9 95.9 0.87 230 2.8 7.3 3 73 87 **1MB1 3-3AB2 - 96**0 2.9 152 87 3.1 160 184 315 L 1490 1025 95.8 96.1 96.1 0.87 275 2.9 7.3 3.1 73 **1MB1 3-3AB4 - 99**0 200 315 L 1488 1284 IE2 3.2 7.4 87 1MB1 3-3AB5 - 1190 3.7 230 96 96.3 96.1 0.88 340 3 **Basic Line Performance Line** Zones Zone 21 (occasionally conductive and non-conductive dust) Ex tb IIIC 2 Zone 22 (rarely conductive or temporarily non-conductive dust) Ex tc IIIB Zone 2 (rarely explosive or temporarily explosive gases) Ex ec IIC Voltages 3) Version Order code 60 Hz 1) 460 VY 50 Hz 230 VΔ/400 VY Standard 3 60 Hz ¹⁾ 460 VΔ 50 Hz 400 VΔ/690 VY Standard 4 7 0 50 Hz 500 VY Without additional charge 2 4 9 50 Hz 500 VΔ Without additional charge For other voltages 1) and more information, see from page 5/29 0 Types of construction Version Order code IM B3²⁾ Without flange Standard IM B5²⁾ With flange With additional charge IM B14²⁾ With additional charge With flange For other types of construction and more information, see from page 5/32 Motor protection Version Without Only possible for Basic Line Standard PTC thermistor with 3 temperature sensors **Basic Line** With additional charge В В **Performance Line** Standard For other motor protection and more information, see from page 5/35 Terminal box position Version Terminal box at top Standard For other terminal box positions and more information, see from page 5/37 Special versions Order code(s) 1MB1■■3- ■-■■■■-Z . . . +. . . +. For options, see from page 5/42



SIMOTICS XP 1MB1 explosion-proof motors

Self-ventilated motors with IE3 Premium Efficiency · Cast-iron series 1MB15, 1MB16

Selection and ordering data (continued) Operating values at rated power Cast-iron series 1MB15.3 – Basic Line 1MB16.3 – Performance Line P_{ra} P_{ra} Frame n_{ra} $T_{\text{ra-}}$ Different η_{rated} , η_{rated} , η_{rated} , cos I_{rated}, T_{LR}/ I_{LR}/ T_B/ L_{pfA}, L_{WA}. $m_{\rm IM~B3}$ J ted, IE class 50 Hz, 50 Hz, 50 Hz, $\varphi_{\rm rated}$, 50 Hz, $T_{\rm ra-}$ size ted. 50 Hz 60 Hz 50 Hz 50 Hz 60 Hz/P60 4/4 3/4 2/4 50 Hz, 400 V ted ted ted 4/4 Article No. kgm² kW kW FS rpm Nm % dB(A) dB(A) kg Cooling: self-ventilated (IC 411) Efficiency according to IEC 60034-30: IE3 Premium Efficiency Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) 6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz 1) 1MB1 5 3-0CC2 - 12.5 **0.18 0.21 71 M** 885 63.9 64.6 60.8 0.69 0.59 2.3 2.8 2.3 39 0.001 0.25 0.29 71 M 900 2.7 68.6 69.5 66.2 0.69 2.6 3.2 2.6 57 1MB1 5 3-0CC3 - 15.5 0.0015 0.37 0.43 80 M 940 3.8 73.5 73.1 69.4 0.66 2.3 4.2 2.7 42 53 1MB1 5 3-0DC2 - 18.5 0.0025 1.1 1MB1 5 3-0DC3 - 22.5 0.55 0.63 80 M 935 5.6 77 2 77 73.9 0.67 1.53 2.5 4.5 2.8 42 53 0.0031 0.75 0.88 90 S 945 76 78.9 80 788 0.7 1.96 22 4.6 2.6 43 55 1MB1 5 3-0EC0 - 26.5 0.004 1MB1 5 3-0EC4 - 32 940 81 82 80.5 2 85 0.0048 1.1 1.27 90 L 11 IF1 0.692.3 4.6 2.7 43 55 1MB1 3-1AC4 - 36 14.8 IE2 0.011 1.5 1.75 100 L 970 82.5 83.1 81.5 0.73 3.6 1.9 5.2 2.8 59 71 2.2 2.55 **112 M** 970 22 IE2 84.3 85 83.9 0.75 2.2 5.6 2.8 65 74 1MB1 3-1BC2 - 53 0.017 5 3 3.45 132 S 980 29 85.6 86.3 85.7 0.76 6.7 2 6.3 3 63 75 1MB1 3-1CC0 - 70 0.037 1MB1 3-1CC2 - 70 4 4.55 **132 M** 975 39 86.8 87.7 87.4 0.76 8.8 2 6.1 2.8 63 75 0.037 11.9 2 2.9 63 1MB1 3-1CC3 83 5.5 6.3 132 M 975 88.5 0.76 6.3 75 0.037 88 88.9 7.5 8.6 **160 M** 980 73 89.1 89.8 89.2 0.76 16 5.1 2.3 67 79 1MB1 3-1DC2 - 122 0.098 91.1 90.7 2 5.1 2.4 67 1MB1 3-1DC4 147 0.12 11 12.6 160 L 975 108 90.3 0.77 23 79 15 18 180 L 975 147 IF2 912 919 919 0.8 29.5 23 5.9 2.8 61 68 **1MB1 3-1EC4 - 180** 0.19 18.5 22 200 L 978 181 IE2 91.7 92.5 92.5 0.79 37 2.5 5.6 2.6 64 71 1MB1 3-2AC4 215 0.28 22 26.5 200 L 978 215 IE2 92.2 93.1 93.2 0.79 43.5 2.5 5.6 2.6 61 68 1MB1 3-2AC5 - 230 0.32 30 225 M 982 IE2 93.6 93.5 0.83 6.6 1MB1 3-2BC2 325 0.67 36 292 92.9 56 2.6 3 64 77 1MB1 3-2CC2 405 37 44.5 250 M 985 359 IF2 93.3 94 94 0.85 67 7 29 62 75 54 **280 S** 988 93.7 94.3 6.8 2.8 74 1MB1 3-2DC0 - 510 45 435 IE2 94.2 0.85 82 3 60 1.4 55 66 280 M 988 532 IE2 94.1 94.6 94.4 0.85 99 3.2 7.2 3 60 74 1MB1 3-2DC2 - 560 1.6 75 **315 S** 990 723 94.6 94.9 944 0.84 2.6 7.5 3.1 78 1MB1 3-3AC0 - 750 2.6 90 136 63 1MB1 3-3AC2 - 890 90 108 315 M 991 867 IF2 94.9 95.2 949 0.85 161 2.5 6.7 28 63 78 3.1 110 132 315 L 991 1060 IE2 95.1 95.5 95.3 0.84 199 7.2 78 1MB1 3-3AC4 990 3.9 2.8 3 63 132 158 315 L 991 1272 IE2 95.4 95.9 95.8 0.84 240 7.2 3 67 82 1MB1 3-3AC5 - 1110 4.4 192 315 L 1542 IE2 95.8 7.7 1MB1 3-3AC6 - 1160 160 991 95.6 95.4 0.83 290 3.3 3.5 67 82 4.6 **Basic Line Performance Line** Zone 21 (occasionally conductive and non-conductive dust) Ex tb IIIC 2 Zone 22 (rarely conductive or temporarily non-conductive dust) Ex tc IIIB Zone 2 (rarely explosive or temporarily explosive gases) Ex ec IIC Voltages 3) Version Order code 60 Hz 1) 460 VY 50 Hz 230 VΔ/400 VY Standard 60 Hz ¹⁾ 460 VΔ 3 4 7 0 50 Hz 400 VΔ/690 VY Standard 2 4 9 50 Hz 500 VY Without additional charge 50 Hz 500 VΔ Without additional charge For other voltages 1) and more information, see from page 5/29 0 Version Types of construction Order code IM B3²⁾ Without flange Standard IM B5²⁾ With flange With additional charge With flange IM B14²⁾ With additional charge For other types of construction and more information, see from page 5/32 Motor protection Version Without Only possible for Basic Line Standard PTC thermistor with 3 temperature sensors **Basic Line** With additional charge В В **Performance Line** Standard For other motor protection and more information, see from page 5/35 Terminal box position Version Terminal box at top Standard For other terminal box positions and more information, see from page 5/37 Special versions Order code(s) 1MB1■■3- ■-■■■ -Z . . . +. . . +. . . +. . For options, see from page 5/42

1152

1MB10■1-....■-■■■■-Z ...+...+...+...

SIMOTICS XP 1MB1 explosion-proof motors

Self-ventilated motors with IE2 High Efficiency · Aluminum series 1MB10

Selection and ordering data Operating values at rated power Aluminum series **1MB1** $T_{\rm ra-}$ Different $\eta_{\rm rated}$, $\eta_{\rm rated}$, $\eta_{\rm rated}$, cos P_{ra} . P_{ra} . Frame n_{ra} . I_{rated}, T_{LR}/ I_{LR}/ L_{pfA} L_{WA} $m_{\rm IM~B3}$ J ted, IE class 50 Hz, 50 Hz, 50 Hz, $\varphi_{\rm rated,5}$ 50 Hz, $T_{\rm rated,5}$ size ted. 50 Hz 60 Hz 50 Hz 50 Hz 60 Hz/P60 4/4 3/4 2/4 0 Hz, 400 V ted ted ted 4/4 Article No kgm² kW kW FS rpm Nm % % dB(A) dB(A) kg Cooling: self-ventilated (IC 411) Efficiency according to IEC 60034-30: IE2 High Efficiency Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) 2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz 1) 0.75 0.86 80 M 2805 2.6 1MB10=1-0DA2=-===== 9 77.4 80 80.1 0.84 1.67 1.9 4.9 2.3 60 0.0008 1MB10 1-0DA3 - 11 **1.1 1.27 80 M** 2835 3.7 79.6 81.3 80.9 0.83 2.4 2.7 6 3.1 60 71 0.0011 1.75 90 S 2885 4.9 79.8 0.84 27 1MB10 1-0EA0 - 13 0.0017 1.5 81.3 817 3 15 6.9 3.6 65 77 2.2 2.55 90 L 2890 7.3 83.2 83.7 82 0.85 4.5 2.5 7.1 3.7 65 77 1MB10=1-0EA4=-==== 15 0.0021 1MB10=1-1AA4=-===== 21 0.0044 3 3.45 100 L 2905 84.6 85.5 84.6 0.84 2.3 3.3 67 79 1MB10 1-1BA2 - 27 4 4.55 112 M 2945 13 85.8 86.2 85.1 0.85 7.9 8 3.6 69 81 0.0092 **6.3 132 S** 2950 0.87 6.6 2.9 1MB10=1-1CA0=-==== 39 5.5 87 88 87.6 10.5 1.8 68 80 0.02 7.5 8.6 132 S 2950 24 88.1 88.5 87.6 0.87 14.1 2.2 7.5 3.1 68 80 1MB10=1-1CA1=-==== 43 0.024 11 12.6 160 M 2955 36 89.4 89.3 88 0.87 20.5 2.1 7.4 3.2 70 82 **1MB10■1-1DA2■-■■■** 67 0.045 15 17.3 160 M 2955 48 90.3 90.7 90 0.88 27 2.4 7.6 3.4 70 82 1MB10 1-1DA3 - 75 0.053 18.5 21.3 160 L 2955 60 90.9 91.3 90.6 0.88 2.9 7.9 3.6 1MB10=1-1DA4=-===== 84 0.061 33.5 70 82 4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz 1440 3.6 0.55 0.63 80 M 77.1 76.8 73.7 0.74 1.39 2.2 5.3 3.1 53 64 **1MB10=1-0DB2=-====** 10 0.0017 1MB10 1-0DB3 - 11 79.9 77.5 22 3 1 53 0.75 0.86 80 M 1440 796 0.76 1 79 56 64 0.0021 1.1 1.27 90 S 1425 7 4 81.4 81.8 80 0.78 2.5 2.3 5.6 2.9 56 68 1MB10 1-0EB0 - 13 0.0028 1MB10=1-0EB4=-==== 16 1.75 90 L 1435 10 82.8 83.5 82.2 0.793.3 2.6 6.4 3.4 56 68 0.0036 2.2 2.55 100 L 1455 14 84.3 85.1 84.2 0.81 4.65 2.1 6.9 3.3 60 72 1MB10=1-1AB4=-==== 21 0.0086 1MB10-1-1AB5----------25 3 3.45 100 L 1455 20 85.5 86.4 85.6 0.82 6.2 2 6.9 3.1 60 72 4 4.55 112 M 1460 86.6 87.3 86.4 0.81 8.2 2.5 7.1 3.2 58 70 1MB10 1-1BB2 - 29 0.014 26 5.5 6.3 132 S 1465 88.4 87.6 0.8 11.3 2.3 6.9 2.9 64 76 1MB10 1-1CB0 - 42 0.027 7.5 132 M 1465 88.7 89.8 89.8 0.83 14.7 2.3 6.9 2.9 64 76 1MB10 1-1CB2 - 49 0.034 8.6 2.1 2.8 1MB10=1-1DB2=-==== 71 1470 67 77 0.065 11 12.6 160 M 89.8 91 90.9 0.85 21 65 15 **17.3 160 L** 1475 97 90.6 91.2 90.8 0.85 28 23 7.3 3 65 77 1MB10=1-1DB4=-===== 83 0.083 Zones Zone 21 (occasionally conductive and non-conductive dust) Ex tb IIIC Zone 22 (rarely conductive or temporarily non-conductive dust) Ex tc IIIB Zone 2 (rarely explosive or temporarily explosive gases) Ex ec IIC **Voltages** Version Order code 60 Hz 1) 460 VY 50 Hz 230 VA/400 VY 2 Standard 2 3 2 4 9 60 Hz ¹⁾ 460 VΔ 4 50 Hz 400 VΔ/690 VY Standard 7 50 Hz 500 VY Without additional charge 0 50 Hz 500 VΔ Without additional charge For other voltages 1) and more information, see from page 5/28 0 Types of construction Version Order code IM B3²⁾ Without flange Standard IM B5²⁾ With flange With additional charge IM B14²⁾ With flange With additional charge For other types of construction and more information, see from page 5/30 Version Motor protection Standard Without PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200) With additional charge В For other motor protection and more information, see from page 5/34 **Terminal box position** Version Terminal box at top Standard For other terminal box positions and more information, see from page 5/36 Special versions Order code(s)

For footnotes, see page 5/27

For options, see from page 5/38



SIMOTICS XP 1MB1 explosion-proof motors

Self-ventilated motors with IE2 High Efficiency · Aluminum series 1MB10

Selection and ordering data (continued) Operating values at rated power Aluminum series **1MB1** $T_{\rm ra-}$ Different $\eta_{\rm rated,}$ $\eta_{\rm rated,}$ $\eta_{\rm rated,}$ cos P_{ra-} P_{ra} . Frame n_{ra} . I_{rated} , $T_{\text{LR}}/I_{\text{LR}}/T_{\text{B}}/I_{\text{DfA}}$, L_{WA} $m_{\rm IM~B3}$ J ted, IE class 50 Hz, 50 Hz, 50 Hz, φ_{rated} , 50 Hz, $T_{\text{ra-}}$ size ted, 50 Hz 60 Hz 50 Hz 50 Hz 60 Hz/P60 4/4 3/4 2/4 50 Hz, 400 V ted ted ted 4/4 Article No. kgm² kW kW FS rpm Nm % % dB(A) dB(A) Cooling: self-ventilated (IC 411) Efficiency according to IEC 60034-30: IE2 High Efficiency Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) 6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz 1) **0.37 0.43 80 M** 925 64.4 0.69 1.14 2.1 4 2.4 42 1MB10=1-0DC2=-===== 9 0.0017 67.6 67.9 53 1MB10 1-0DC3 - 12 **0.55 0.63 80 M** 935 5.6 73.1 73.8 70.8 0.66 1.65 2.5 4.4 2.9 42 53 0.0025 0.86 90 S 935 7 7 74.5 0.7 2.05 1MB10 1-0EC0 - 13 0.003 0.75 75.9 76.8 2 4 1 25 43 55 1.1 1.27 90 L 935 11 IE1 78.1 79.3 77.7 0.7 2.9 2.2 4.4 2.6 43 55 1MB10=1-0EC4=-==== 16 0.004 3.7 5.4 2.8 1MB10 1-1AC4 - 25 0.011 1.5 1.75 100 L 970 15 79.8 80.5 79 0.73 59 71 1MB10 1-1BC2 - 29 2.8 2.2 2.55 **112 M** 965 81.8 82.7 81.7 0.75 5.2 5 62 74 0.014 **3.45 132 S** 970 83.4 81 0.72 7.2 5 2.5 63 75 1MB10 1-1CC0 - 38 0.024 3 30 83.3 1.6 4 **4.55 132 M** 970 84.6 85.5 84.3 0.75 9.1 1.6 5 2.3 63 75 1MB10=1-1CC2=-===== 43 0.029 5.5 6.3 **132 M** 970 86 87.1 86.4 0.76 12.1 1.9 5.6 2.6 63 75 1MB10=1-1CC3=-==== 52 0.037 54 1MB10 1-1DC2 - 77 7.5 8.6 **160 M** 975 73 87.2 87.9 87.2 0.74 16.8 1.9 4.7 2.2 67 79 0.075 **12.6 160 L** 975 88.7 89.7 89.3 0.76 1.9 4.8 2.2 67 1MB10=1-1DC4=-==== 93 0.098 11 108 23.5 79 900 rpm at 60 Hz 1 8-pole: 750 rpm at 50 Hz 0.75 0.86 100 L 705 66.2 65.7 61.6 0.61 2.7 1.5 3.2 2.1 60 72 1MB10=1-1AD4=-===== 21 0.0086 1MB10 1-1AD5 - 25 1.27 100 L 72.3 3 45 32 19 72 1.1 695 70.8 696 0.65 14 60 15 1.5 **1.75 112 M** 725 20 74.1 73.9 71.2 0.63 4.65 1.6 4 2.4 63 75 1MB10=1-1BD2=-===== 34 0.017 1MB10 1-1CD0 - 46 0.034 2.2 2.55 132 S 725 77.6 78.2 76.6 0.62 6.6 1.4 3.5 2 75 3 **3.45 132 M** 720 40 IE1 80 80.7 79.2 0.62 8.7 1.4 3.7 63 75 1MB10=1-1CD2=-==== 52 0.037 2 75 0.065 4 4.55 **160 M** 730 52 81.9 826 814 0.67 10.5 1.6 3.7 19 63 1MB10=1-1DD2=-===== 69 5.5 6.3 160 M 730 72 83.8 84.2 83 0.67 14.1 1.7 3.9 2 63 75 1MB10 1-1DD3 - 82 0.083 7.5 8.6 160 L 725 85.3 86.4 86 0.7 1.6 3.8 1.9 63 75 1MB10 1-1DD4 - 94 0.098 Zones Zone 21 (occasionally conductive and non-conductive dust) Ex tb IIIC Zone 22 (rarely conductive or temporarily non-conductive dust) Ex tc IIIB 2 3 Zone 2 (rarely explosive or temporarily explosive gases) Ex ec IIC Version Order code 60 Hz 1) 460 VY 50 Hz 230 VΔ/400 VY Standard 2 3 2 4 9 2 4 7 0 60 Hz ¹⁾ 460 VΔ 50 Hz 400 VΔ/690 VY Standard 50 Hz 500 VY Without additional charge 50 Hz 500 VA Without additional charge For other voltages 1) and more information, see from page 5/28 0 Types of construction Version Order code IM B3²⁾ Without flange Standard IM B5 2) With flange With additional charge IM B14²⁾ With flange With additional charge For other types of construction and more information, see from page 5/30 **Motor protection** Version Standard Without В PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200) With additional charge For other motor protection and more information, see from page 5/34 Terminal box position Version Terminal box at top Standard For other terminal box positions and more information, see from page 5/36

Special versions

For options, see from page 5/38

Order code(s)

1MB10■1- ■-■■■■-Z

SIMOTICS XP 1MB1 explosion-proof motors

Self-ventilated motors with IE2 High Efficiency · Cast-iron series 1MB15, 1MB16

Selection and ordering data Operating values at rated power Cast-iron series 1MB15.1 - Basic Line $T_{\rm ra-}$ Different $\eta_{\rm rated,}$ $\eta_{\rm rated,}$ $\eta_{\rm rated,}$ cos P_{ra} P_{ra} Frame n_{ra} Irated, TLR/ ILR/ TB/ LpfA, LWA, $m_{\rm IM~B3}$ J 1MB16.1 - Performance Line IE class 50 Hz, 50 Hz, 50 Hz, $\varphi_{\rm rated}$, 50 Hz, $T_{\rm ra-}$ $I_{\rm ra-}$ size 50 Hz 60 Hz 50 Hz 50 Hz 60 Hz/P60 4/4 3/4 2/4 50 Hz, 400 V ted ted ted 4/4 Article No. kgm² kW kW FS rpm Nm % dB(A) dB(A) Cooling: self-ventilated (IC 411) Efficiency according to IEC 60034-30: IE2 High Efficiency Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) 2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz 1) 67.9 0.81 1MB1 5 1-0CA2 - 11.5 0.00035 **0.37 0.43 71 M** 2770 1.3 69.5 70.5 0.95 2.5 4.1 2.5 58 **0.55 0.63 71 M** 2780 1.9 74.1 75.2 72.9 8.0 1.34 2.6 4.6 2.6 58 1MB1 5 1-0CA3 - 13 0.00045 0.75 0.86 80 M 2805 2.6 77.4 80 0.84 1.9 4.9 2.3 60 71 **1MB1 5 ■1-0DA2 ■- ■ ■ ■** 16 0.0008 80.1 **1MB1 5 ■1-0DA3 ■-■■■** 18 1.1 1.27 80 M 2835 3.7 79.6 81.3 മറ മ 0.83 24 2.7 6 3.1 60 71 0.0011 1.5 1.75 90 S 2885 4.9 81.3 817 798 0.84 3 15 2.7 6.9 3.6 65 77 1MB1 5 1-0EA0 - 23 0.0017 2890 7.3 83.2 82 2.5 7.1 3.7 65 77 1MB1 5 1-0EA4 - 25.5 0.0021 2.2 2.55 90 L 83.7 0.854.5 84.6 2.3 7 79 1MB1 -1-1AA4 - 32 0.0044 3 3.45 100 L 2905 9.9 85.5 84.6 0.84 6.1 3.3 67 4 **4.55 112 M** 2945 13 85.8 86.2 85.1 0.85 7.9 2.1 8 3.6 69 81 **1MB1 1-1BA2 - 39** 0.0092 5.5 6.3 132 S 2950 18 87 88 87.6 0.87 10.5 1.8 6.6 2.9 68 80 1MB1 1-1CA0 - 57 0.02 1MB1 1-1CA1 - 61 87.6 7.5 8.6 132 S 2950 88.1 88.5 0.87 2.2 7.5 3.1 68 80 0.024 2.1 7.4 3.2 70 **12.6 160 M** 2955 1MB1 11-1DA2 - 96 0.045 11 89.4 89.3 88 0.87 82 15 17.3 160 M 2955 48 90.3 90.7 90 0.88 27 2.4 7.6 3.4 70 82 1MB1 -1-1DA3 - 104 0.053 18.5 21.3 160 L 2955 60 90.9 91.3 0.88 2.9 7.9 3.6 70 1MB1 -1-1DA4 - 113 0.061 90.6 33.5 82 22 24.5 180 M 2940 71 91.3 91.6 90.9 0.87 40 2.7 7.4 3.6 77 84 **1MB1 1-1EA2 - 145** 0.069 30 33.5 200 L 2960 97 92 92.1 91.5 0.87 54 2.5 6.9 3.3 78 85 1MB1 11-2AA4 2-200 0.13 37 **41.5 200 L** 2960 119 92.5 92.7 92.1 0.88 66 2.7 7.4 3.5 78 85 **1MB1 1-2AA5 - 225** 0.15 45 **225 M** 2965 92.9 93.1 7.8 3.7 89 1MB1 1-2BA2 - 295 0.23 51 145 92.5 0.88 79 76 1MB1 1-2CA2 - 360 2.3 6.8 55 62 **250 M** 2970 177 93.2 93.3 924 0.88 97 3.1 76 89 0.4 75 280 S 2978 240 93.6 2.5 7.2 3.2 76 1MB1 = 1-2DA0 = - 490 0.71 84 93.8 92.4 0.86 134 89 90 101 280 M 2975 289 94.1 94.2 93.5 0.88 157 2.5 7.1 3.1 76 89 **1MB1 1-2DA2 - 53**0 0.83 315 S 2982 352 94.3 94.2 0.9 2.4 7.3 3 91 1MB1 1-3AA0 - 720 1.3 110 123 93.3 187 77 91 132 148 315 M 2982 423 94.6 94 7 94 1 0.91 220 2.4 7.2 3.1 77 **1MB1 1-3AA2 - 188** 880 1.6 **315 L** 2982 512 **1MB1 1-3AA4 - 93**0 160 180 94.8 94.9 94.3 0.92 265 2.3 7 80 95 1.8 3.1 315 L 2982 640 1MB1 -1-3AA5 - 1130 200 224 95 95.2 94.8 0.92 7.3 3 95 2.2 **Basic Line** Performance Line Zones Zone 21 (occasionally conductive and non-conductive dust) Ex tb IIIC Zone 22 (rarely conductive or temporarily non-conductive dust) Ex tc IIIB 2 3 Zone 2 (rarely explosive or temporarily explosive gases) Ex ec IIC Version Order code 60 Hz 1) 460 VY 50 Hz 230 VΔ/400 VY Standard 2 3 2 4 2 4 7 0 50 Hz 400 VΔ/690 VY 60 Hz ¹⁾ 460 VΔ Standard 50 Hz 500 VY Without additional charge 50 Hz 500 VΔ Without additional charge 9 0 For other voltages 1) and more information, see from page 5/29 Version Types of construction Order code Without flange IM B3²⁾ Standard IM B5 ²⁾ With flange With additional charge IM B14²⁾ With flange With additional charge For other types of construction and more information, see from page 5/32 Motor protection Version Only possible for Basic Line Standard Without PTC thermistor with 3 temperature sensors **Basic Line** With additional charge В В Performance Line Standard For other motor protection and more information, see from page 5/35 Terminal box position Version Terminal box at top Standard For other terminal box positions and more information, see from page 5/37 **Special versions** Order code(s) 1MB1■■1-.... ■-■■■■-Z ...+...+...+... For options, see from page 5/42

For footnotes, see page 5/27



SIMOTICS XP 1MB1 explosion-proof motors

Self-ventilated motors with IE2 High Efficiency · Cast-iron series 1MB15, 1MB16

Selection and ordering data (continued) Operating values at rated power Cast-iron series 1MB15.1 – Basic Line Frame $n_{\rm ra}$ P_{ra} P_{ra} $T_{\text{ra-}}$ Different η_{rated} , η_{rated} , η_{rated} , cos I_{rated}, T_{LR}/ I_{LR}/ T_B/ L_{pfA}, $m_{\rm IM~B3}$ J ted, IE class 50 Hz, 50 Hz, 50 Hz, \$\phi_{rated}\$, \$\text{fated}\$, \$\text{fate 1MB16.1 - Performance Line size ted, 50 Hz 60 Hz 50 Hz 50 Hz 60 Hz/P60 4/4 3/4 2/4 50 Hz, 400 V ted ted ted 4/4 Article No. kgm² kW kW FS rpm Nm % % Α dB(A) dB(A) Cooling: self-ventilated (IC 411) Efficiency according to IEC 60034-30: IE2 High Efficiency Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) 4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz 1) 64.2 0.69 1MB1 5 1-0CB2 - 12 0.00076 **0.25 0.29 71 M** 1395 1.7 68.5 68.4 0.76 2.4 3.7 2.5 50 **0.37 0.43 71 M** 1380 2.6 72.7 73.2 69.9 0.72 1.02 2.3 3.8 2.4 50 1MB1 5 1-0CB3 - 13 0.00095 0.55 0.63 80 M 1440 3.6 77.1 76.8 73.7 0.74 1.39 2.2 5.3 3.1 53 64 1MB1 5 ■1-0DB2 ■-■■■ 17 0.0017 1MB1 5 1-0DB3 - 18.5 0.75 0.86 80 M 1440 5 796 799 77.5 0.76 1 79 2.2 5.6 3.1 53 64 0.0021814 1MB1 5 1-0EB0 - 23 1.1 1.27 90 S 1425 74 81.8 80 0.78 25 2.3 5.6 2.9 56 68 0.0028 828 68 1MB1 5 1-0EB4 - 25 0.0036 1.5 1.75 90 L 1435 10 83.5 82 2 0.793.3 2.6 6.4 3.4 56 1MB1 1-1AB4 - 32 2.1 6.9 3.3 60 2.55 100 L 84.3 72 0.0086 2.2 1455 14 85.1 84.2 0.81 4.65 3 3.45 100 L 1455 20 85.5 86.4 85.6 0.82 6.2 6.9 3.1 60 72 1MB1 11-1AB5 - 37 0.011 2 4 **4.55 112 M** 1460 86.6 87.3 86.4 0.81 8.2 2.5 7.1 3.2 58 70 1MB1 11-1BB2 - 46 0.014 5.5 1MB1 1-1CB0 - 61 6.3 132 S 1465 87.7 88.4 87.6 8.0 11.3 2.3 6.9 2.9 64 76 0.027 2.3 6.9 2.9 64 1MB1 1-1CB2 - 75 **132 M** 1465 14.7 0.034 7.5 8.6 88.7 89.8 89.8 0.83 76 11 **12.6 160 M** 1470 71 89.8 91 90.9 0.85 21 2.1 6.7 2.8 65 77 1MB1 11-1DB2 - 96 0.065 **17.3 160 L** 1475 97 91.2 2.3 7.3 3 1MB1 11-1DB4 104 0.083 15 90.6 90.8 0.85 28 65 77 **1MB1 1-1EB2 - 16**0 18.5 21.3 180 M 1465 121 912 92 919 0.84 35 2.5 7.2 3.4 61 74 0.12 2.6 7.3 3.5 69 22 25.3 180 L 1465 143 91.6 92.2 91.9 0.84 41.5 76 1MB1 1-1EB4 - 170 0.13 30 34.5 200 L 1470 195 92.3 92.8 92.5 0.84 56 2.5 6.7 3.7 70 77 1MB1 1-2AB5 - 230 0.2 37 42.5 225 S 1470 93.5 93.5 2.3 6.6 2.9 1MB1 1-2BB0 - 280 0.42 240 92.7 0.88 65 66 79 1MB1 1-2BB2 - 305 45 52 225 M 1475 291 93 1 93.8 93.7 0.87 80 2.5 6.9 3.1 66 79 0.46 93.9 93.5 2.7 6.8 3 79 1MB1 1-2CB2 - 385 0.75 55 63 250 M 1480 355 93.5 0.85 100 66 75 86 **280 S** 1485 482 94.2 93.8 0.87 132 2.5 6.8 3 85 1MB1 1-2DB0 - 550 1.3 90 280 M 1486 578 94.2 94.3 93.6 2.6 7.3 3.1 71 85 1MB1 1-2DB2 - 570 1 4 104 0.87 159 86 1MB1 1-3AB0 - 740 110 127 **315 S** 1490 705 94.5 946 94 0.86 195 2.7 7.4 3 72 2 152 315 M 1490 846 94.7 94.9 94.6 0.87 230 7.1 2.9 75 89 1MB1 1-3AB2 - 870 2.3 132 2.7 91 160 184 315 L 1490 1025 94.9 95 94.5 0.87 280 7.2 3.1 **1MB1 1-3AB4 - 1 1** 940 2.8 315 L 1490 94.7 0.87 350 3.1 7.5 3.2 1MB1 1-3AB5 - 1140 3.5 200 230 1282 95.1 95.3 92 **Basic Line Performance Line** Zone 21 (occasionally conductive and non-conductive dust) Ex tb IIIC 2 Zone 22 (rarely conductive or temporarily non-conductive dust) Ex tc IIIB Zone 2 (rarely explosive or temporarily explosive gases) Ex ec IIC Voltages 3) Version Order code 60 Hz 1) 460 VY 50 Hz 230 VΔ/400 VY 2 Standard 2 3 4 9 60 Hz ¹⁾ 460 VΔ 4 7 0 50 Hz 400 VΔ/690 VY Standard 50 Hz 500 VY Without additional charge 50 Hz 500 VA Without additional charge For other voltages 1) and more information, see from page 5/29 0 Version Types of construction Order code IM B3²⁾ Without flange Standard IM B5²⁾ With flange With additional charge With flange IM B14²⁾ With additional charge For other types of construction and more information, see from page 5/32 Motor protection Version Without Only possible for Basic Line Standard PTC thermistor with 3 temperature sensors **Basic Line** With additional charge В В Performance Line Standard For other motor protection and more information, see from page 5/35 Terminal box position Version Terminal box at top Standard For other terminal box positions and more information, see from page 5/37 Special versions Order code(s) 1MB1■■1- ■-■■■■ -Z . . . +. . . +. . . +. . For options, see from page 5/42

SIMOTICS XP 1MB1 explosion-proof motors

Self-ventilated motors with IE2 High Efficiency · Cast-iron series 1MB15, 1MB16

Sele	ction	and o	rderii	ng da	ata (cont	inued)												
P _{ra} -	P _{ra} -	Frame size	n _{ra-}	T _{ra-}	values at ra Different IE class	η_{rated}	$\eta_{ m rated}$			I _{rated} ,	T _{LR} /		T _B /	L _{pfA} ,	L _{WA} ,	Cast-iron series 1MB15.1 – Basic 1MB16.1 – Perfo	Line	m _{IM B3}	J
ted, 50 Hz	ted, 60 Hz	0.20	ted, 50 Hz	ted, 50 Hz	60 Hz/P60	50 HZ, 4/4	50 Hz, 3/4	2/4	Prated,50 Hz,4/4	50 HZ, 400 V	T _{ra-} ted	I _{ra-} ted	T _{ra-} ted	50 HZ	50 Hz	Article No.			
kW	kW	FS	rpm	Nm		%	%	%		Α				dB(A)) dB(A)	Alticle No.		kg	kgm ²
		self-ven accord			11) 60034-30:	IE2 Hiç	ıh Effic	iency											
					5 (tempera 0 rpm at 6		ass F)	, IP55 (degree	of pro	ectic	n, ut	ilizati	ion in a	accorda	nce with thermal	class 130	(temperat	ture class B)
			875	2	o ipini at c	56.6	56.9	52.7	0.68	0.68	2.2	2.5	2.3	46	57	1MB15■1-0CC	2	11.5	0.0008
0.25	0.29	71 M	870	2.7		61.6	62.7	59.2	0.7	0.84	2.3	2.6	2.3	46	57	1MB15■1-0CC	3 -	12.5	0.0010
0.37	0.43		925	3.8		67.6	67.9	64.4	0.69	1.14	2.1	4	2.4	42	53	1MB1 5 ■1-0DC		_	0.0017
0.55		80 M	935	5.6		73.1	73.8	70.8 74.5	0.66	1.65	2.5	4.4	2.9	42	53 55	1MB1 5 1-0DC		18.5 23	0.0025
0.75 1.1	0.86 1.27	90 S 90 L	935 935	7.7	IE1	75.9 78.1	76.8 79.3	77.7	0.7	2.05	2.2	4.1	2.5	43	55	1MB1 5 1-0EC		26.5	0.003
1.5	1.75	100 L	970	15	ILI	79.8	80.5	79	0.73	3.7	2.2	5.4	2.8	59	71	1MB1 1-1AC			0.004
2.2	2.55	112 M	965	22		81.8	82.7	81.7	0.75	5.2	2	5	2.8	62	74	1MB1■■1-1BC		41	0.014
3	3.45	132 S	970	30		83.3	83.4	81	0.72	7.2	1.6	5	2.5	63	75	1MB1■■1-1CC	0	56	0.024
4	4.55	132 M	970	39		84.6	85.5	84.3	0.75	9.1	1.6	5	2.3	63	75	1MB1 1-1CC			0.029
5.5	6.3	132 M	970	54		86	87.1	86.4	0.76	12.1	1.9	5.6	2.6	63	75	1MB1 1-1CC			0.037
7.5 11	8.6 12.6	160 M 160 L	975 975	73 108		87.2 88.7	87.9 89.7	87.2 89.3	0.74	16.8 23.5	1.9	4.7	2.2	67 67	79 79	1MB1 1-1DC		106	0.075
15	18	180 L	975	147		89.7	90.1	89.5	0.78	31	2.5	6	3.1	57	70	1MB1 1-1EC		155	0.030
18.5	22	200 L	978	181	IE1	90.4	91.3	91.2	0.82	36	2.4	5.8	2.6	63	76	1MB1 1-2AC		200	0.25
22	26.5	200 L	978	215	IE1	90.9	91.7	91.4	0.82	42.5	2.5	6.2	2.6	63	76	1MB1■■1-2AC	5	220	0.3
30	36	225 M	980	292	IE1	91.7	92.5	92.3	0.83	57	2.5	5.6	2.7	65	78	1MB1■■1-2BC		300	0.58
37	44.5	250 M	982	360	IE1	92.2	93.1	93.1	0.83	70	2.8	6	2.5	62	77	1MB1 1-2CC		370	0.86
45 55	54 66	280 S 280 M	985 985	436 533	IE1	92.7	93.4	93.2	0.84	83 99	2.7	6.3	2.6	65 65	79 79	1MB1 1-2DC		460	1.1
75	90	315 S	988	725	IE1	93.1	93.9	93.6	0.84	138	2.5	6.7	2.8	65	79	1MB1 1-2DC		660	2.1
90	108	315 M	988	870	IE1	94	94.3	93.6	0.84	165	2.6	6.9	2.8	65	79	1MB1 1-3AC		730	2.5
110	132	315 L	988	1063		94.3	94.6	94.5	0.86	196	2.7	7	2.8	68	82	1MB1 1-3AC		940	3.6
132	158	315 L	988	1276		94.6	94.9	94.7	0.86	235	3	7.5	2.9	69	84	1MB1■■1-3AC	5 -	990	4.0
160	192	315 L	988	1546	6	94.8	94.7	94.4	0.86	285	3.1	7.7	3.3	69	84	1MB1 1-3AC	6	1160	4.7
	Line															5			
Zone		e Line														6			
	-	casiona	lly cor	nductiv	ve and nor	ı-condu	ctive d	ust) Ex	tb IIIC							1			
	`	,			mporarily exporarily ex					IIB						2 3			
Volta	ges ³⁾				4)								Vers	ion				Orde	er code
		/Δ/400 V			z ¹⁾ 460 VY									ndard			2 2	-	
	2 400 V 2 500 V	'Δ/690 V '~	Υ	60 H	z ¹⁾ 460 VΔ									ndard	ditional	oborgo	3 4 2 7	_	
	2 500 V 2 500 V														ditional ditional	•	4 0		
			and r	nore i	nformation	, see fr	om pac	ae 5/29					VVILII	out aa	antionar	onargo	3 4 2 7 4 0 9 0		
		nstruct					,						Vers	ion					er code
	ut flan	ge		IM B										ndard			Α	-	
	lange			IM B											onal cha	•	F	-	
	flange ther tyr	nes of co	nstru	IM B	14 ²⁾ and more ii	nformet	ion se	e from	nage 5	/32			With	additi	onal cha	ırge	K	-	
	r prote						Line		P~90 0	, 52			Vers	ion					
Witho	-								ble for l	Basic	Line			ndard			A		
PTC 1	hermis	stor with	3 tem	peratu	ire sensors	3		ic Line	e nce Line	e				additi	onal cha	ırge	B B		
For o	ther mo	otor prot	ection	and r	more inforn	nation,													
Term	inal bo	x posit	ion										Vers	ion					
		x at top											Star	ndard			4	1	
			ox pos	sitions	and more	informa	ation, s	ee from	page :	5/37								<u> </u>	
-	ial ver		n nos	0 E/40												1MD1==1			er code(s)
Lot 0	ptions,	see fror	ıı pag	e 5/42												1MB1 ■■ 1		-2+	+ +

For footnotes, see page 5/27



SIMOTICS XP 1MB1 explosion-proof motors

Self-ventilated motors with IE2 High Efficiency · Cast-iron series 1MB15, 1MB16

Selection and ordering data (continued) Operating values at rated power Cast-iron series Different $\eta_{\rm rated}$, $\eta_{\rm rated}$, $\eta_{\rm rated}$, $t_{\rm rate$ 1MB15.1 - Basic Line Frame n_{ra} Pra-P_{ra-} $T_{\text{ra-}}$ Different η_{rated} , η_{rated} , η_{rated} , cos L_{WA}. $m_{\rm IM~B3}$ J 1MB16.1 - Performance Line size 50 Hz 60 Hz 50 Hz 50 Hz 60 Hz/P60 4/4 3/4 2/4 50 Hz, 400 V ted ted ted 4/4 Article No. kgm² kW kW FS rpm Nm % dB(A) dB(A) kg Cooling: self-ventilated (IC 411) Efficiency according to IEC 60034-30: IE2 High Efficiency Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) 8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz 1) 0.67 1MB1 5 1-0CD2 - 11.5 **0.09 0.11 71 M** 630 1.4 40.6 35.8 0.50 1.7 1.6 1.7 59 0.00077 0.12 0.14 71 M 640 1.8 40.1 39.6 34.7 0.66 0.65 1.8 1.8 1.8 59 1MB1 5 1-0CD3 - 12.5 0.00100 0.18 0.21 80 M 690 2.5 45.9 43.6 37.8 0.60 0.93 1.7 2.2 2.1 62 1MB1 5 1-0DD2 - 16.5 0.00175 51 1MB1 5 1-0DD3 - 18.5 0.25 0.29 80 M 705 34 50.6 48 1 419 0.55 1.30 2.0 2.5 2.5 51 62 0.00246 0.37 0.43 90 S 675 52 56.1 55.6 496 0.711.34 1.4 2.6 1.7 53 65 1MB1 5 1-0ED0 - 20 0.00225 **1MB1 5 1-0ED4 - 21.5** 59.8 1.5 2.7 0.00305 0.55 0.63 90 L 665 7.9 617 63 4 0.741 74 1.7 53 65 1MB1 1-1AD4 - 32 0.0086 0.75 0.86 100 L 705 10 66.2 65.7 61.6 0.61 2.7 1.5 3.2 2.1 60 72 1MB1 1-1AD5 - 36 15 70.8 72.3 3.45 1.4 3.2 72 0.011 1.1 1.27 100 L 695 69.6 0.65 1.9 60 1.5 1.75 112 M 725 20 74.1 73.9 71.2 0.63 4.65 1.6 4 2.4 63 72 1MB1 1-1BD2 - 53 0.017 2.2 2.55 132 S 725 29 77.6 78.2 76.6 0.62 6.6 1.4 3.5 2 63 75 1MB1 = 1-1CD0 = - = = 64 0.034 **1MB1 ■ 1-1CD2 ■ - ■ ■ ■** 67 3 3.45 132 M 720 40 IE1 80 80.7 79.2 0.62 8.7 1.4 3.7 63 75 0.037 4 160 M 730 82.6 3.7 1.9 75 1MB1 1-1DD2 - 98 0.065 52 81.9 81.4 0.67 10.5 1.6 63 4.55 5.5 6.3 160 M 730 72 83.8 84.2 83 0.67 14.1 1.7 3.9 2 63 75 1MB1 1-1DD3 - 111 0.083 160 L 725 85.3 1.6 3.8 1.9 63 1MB1 1-1DD4 - 123 0.098 7.5 8.6 99 86.4 86 0.7 18.1 75 **1MB1 1-1ED4 - 15** 11 13.2 180 L 720 146 IF1 86.9 88 87.6 0.7 26 2.3 4.9 2.6 72 75 0.195 1MB1 1-2AD5 - 220 15 200 L 199 88 89.5 89.9 0.76 2.4 5.4 2.8 80 0.344 18 718 32.5 58 18.5 22 225 S 730 242 89 89.9 89.5 0.78 38.5 2.2 5.4 2.7 59 72 1MB1 1-2BD0 - 250 0.43 22 26.5 225 M 730 288 90.3 91.3 91.1 8.0 2.3 5.5 58 71 1MB1 1-2BD2 - 270 0.5 2.4 5.6 2.7 1MB1 1-2CD2 - 370 **250 M** 732 73 30 36 391 91.3 92.2 92 0.8 59 60 0.86 37 280 S 736 91.9 92.5 92.1 0.78 75 2.3 5.4 2.4 63 1MB1 1-2DD0 - 460 44.5 480 1.1 45 54 280 M 738 582 92.4 92.8 92.4 0.79 2.5 5.7 2.5 66 80 1MB1 1-2DD2 - 510 1.4 55 **315 S** 740 710 92.9 93.3 92.9 0.8 2.2 5.8 2.6 69 1MB1 1-3AD0 - 640 2 66 107 83 75 90 315 M 738 970 93.5 94.4 94.5 0.81 143 2.3 5.9 2.7 69 84 1MB1 1-3AD2 - 720 2.5 1MB1 1-3AD4 - 860 90 108 315 L 740 1161 93.5 94.3 94.4 0.83 167 5.8 2.5 69 84 3.1 2.2 88 **1MB1 1-3AD5 - 98**0 110 132 315 L 740 1419 94.2 95 0.82 205 6.7 2.9 74 3.9 132 158 315 L 740 1703 94.4 94.8 94.4 0.81 7.2 90 1MB1 1-3AD6 - 1070 4.5 250 2.9 3.3 Basic Line Performance Line Zone 21 (occasionally conductive and non-conductive dust) Ex tb IIIC Zone 22 (rarely conductive or temporarily non-conductive dust) Ex tc IIIB Zone 2 (rarely explosive or temporarily explosive gases) Ex ec IIC Voltages 3) Version Order code 60 Hz 1) 460 VY 50 Hz 230 VΔ/400 VY 2 Standard 2 3 2 4 9 60 Hz ¹⁾ 460 VΔ 4 7 0 50 Hz 400 VΔ/690 VY Standard 50 Hz 500 VY Without additional charge 50 Hz 500 VΔ Without additional charge For other voltages 1) and more information, see from page 5/29 0 Types of construction Version Order code IM B3²⁾ Without flange Standard IM B5 ²⁾ With flange With additional charge IM B14²⁾ With flange With additional charge For other types of construction and more information, see from page 5/32 Motor protection Version Without Only possible for Basic Line Standard В PTC thermistor with 3 temperature sensors **Basic Line** With additional charge Performance Line Standard For other motor protection and more information, see from page 5/35 Terminal box position Version Terminal box at top Standard For other terminal box positions and more information, see from page 5/37 Order code(s)

For options, see from page 5/42

1MB1■■1-.... ■-■■■■-Z ...+...+...+.

SIMOTICS XP 1MB1 explosion-proof motors

Self-ventilated motors with IE1 Standard Efficiency · Aluminum series 1MB10

Sele	ction	and or	derina	data														
						rated po	wer								Aluminum series			
P _{ra-}	P _{ra-}	Frame	n _{ra-}	$T_{\rm ra-}$	$\eta_{ m rated}$		$\eta_{ m rated}$	cos	I _{rated} ,	T _{LR} /	I _{LR} /	$T_{B}/$	L _{pfA} .	L _{WA} .	1MB1	m	IM B3	J
ted,	ted,	size	ted,	ted,	50 Hz,	50 Hz,	50 Hz,	φ_{rated} ,	50 Hz,	T _{ra-}	I _{ra-}	$T_{\rm ra-}$	50 Hz	50 Hz			IIVI DO	
50 Hz	60 Hz		50 Hz	50 Hz	4/4	3/4	2/4	50 Hz, 4/4	400 V	ted	ted	ted			Article No.			
kW	kW	FS	rpm	Nm	%	%	%	4/4	Α				dB(A)	dB(A)		kį	9	kgm ²
• Coc	oling: s	self-venti	lated (I	C 411)														
• Effi	ciency	accordi	ng to IE al class	C 600 155 (t	34-30: I empera	E1 Stan ture cla:	dard E1 ss F). IF	ficiency 255 dea	/ ree of i	orotec	tion. ı	ıtilizat	ion in a	ecordai	nce with thermal class 13	30 (tei	nperatu	ire class B
		orpm at					,,	00 0.09								(
3	3.45	100 L	2835	10	81.5	83.2	82.8	0.87	6.1	3.2	6.4	3.5	67	79	1MB10=2-1AA4=-==	20)	0.0034
4	4.55	112 M	2935	13	83.1	83	80.8	0.85	8.2	3.3	8.3	4.2	69	81	1MB10=2-1BA2=-==	2	5	0.0067
5.5	6.3	132 S	2910	18	84.7	85.9	85.7	0.88	10.7	1.8	5.7	2.6	68	80	1MB10=2-1CA0=-==	35	5	0.013
7.5	8.6	132 S	2925	24	86	86.7	86.1	0.88	14.3	2.2	6.8	3.1	68	80	1MB10=2-1CA1=-==	40)	0.016
11	12.6	160 M	2925	36	87.6	88	87.1	0.86	21	2	5.7	2.7	70	82	1MB10=2-1DA2=-==	1 60)	0.03
15	17.3	160 M	2935	49	88.7	88.9	87.7	0.85	28.5	2.4	6.8	3.2	70	82	1MB10=2-1DA3=-==	1 68	3	0.036
18.5	21.3	160 L	2935	60	89.3	89.7	89.3	0.87	34.5	2.7	7.6	3.4	70	82	1MB10=2-1DA4=-==	78	3	0.044
4-pol	e: 15 <u>0</u> 0	rpm at	50 Hz, 1	800 r	om at <u>6</u> 0) Hz ¹⁾												
2.2	2.55	100 L	1425	15	79.7	80.3	78.1	0.81	4.9	2.3	5.1	2.7	60	72	1MB10=2-1AB4=-==	18	3	0.0059
3	3.45	100 L	1425	20	81.5	82.6	81.5	0.85	6.3	2.4	5.4	2.6	60	72	1MB10■2-1AB5■-■■	22	2	0.0078
4	4.55	112 M	1435	27	83.1	84.3	83.7	0.83	8.4	2.5	6.1	2.9	58	70	1MB10=2-1BB2=-==	2	7	0.010
5.5	6.3	132 S	1450	36	84.7	85.3	84.2	0.82	11.4	2.3	5.7	2.7	64	76	1MB10■2-1CB0■-■■	38	3	0.019
7.5	8.6	132 M	1450	49	86	86.5	85.4	0.82	15.4	2.6	6.6	3.1	64	76	1MB10=2-1CB2=-==			0.024
11	12.6	160 M	1460	72	87.6	87.9	86.7	0.81	22.5	2.7	6.9	3.3	65	77	1MB10■2-1DB2■-■■			0.044
15	17.3	160 L	1460	98	88.7	89.1	88	0.82	30	3	7.5	3.6	65	77	1MB10=2-1DB4=-==	 73	3	0.056
Zone	s																	
Zone	21 (oc	casionally	y condu	ctive a	and non-	-conduc	tive dus	t) Ex tb	IIIC						1			
Zone	22 (rar	ely condu	uctive o	r temp	orarily n	on-cond	ductive of	dust) Ex	tc IIIB						2			
Zone	2 (rar	ely explo	sive or t	empoi	rarily exp	olosive g	gases) E	Ex ec IIC							3			
Volta	_											Versi					Order	code
		Δ/400 VY		—	460 VY							Stan			2 2		-	
		∆/690 VY	60) Hz ¹⁾	460 V∆							Stan			3 4		-	
	2 500 V													itional ch	narge 2 7		-	
	z 500 V.											Witho	out add	itional ch			_	
		Itages 1)		e infor	mation,	see fror	n page	5/28							9 0			
		nstructio		2)								Versi					Order	code
	ut flanç	ge		I B3 ²⁾								Stan			A		-	
	lange			I B5 ²⁾	2)									nal charg			-	
	lange			I B14 ²		f 12			F/00			With	addition	nal charc	ge K		-	
		oes of cor	nstructio	n and	more in	iormatio	n, see t	rom pag	ge 5/30			1/0==:	0.0					
	r prote	CHON										Versi				^		
Witho		tor with ?	tompor	oturo	oppore							Stan		aal abara	20	A B		
		tor with 3				ation of	o from	naga El	24			AAITLI	audilioi	nal charg	Je			
		otor prote		u mor	e iriiorm	alion, se	e irom	page 5/	54			Versi	on					
		x position	111									Stan				1		
		at top	v nooitia	ne or	d more :	nformo+	on 000	from no	IGO E /0/	3		Sian	uard			4		
	iner ter ial vers	minal box	x positio	nis and	I BIOIL	mormati	on, see	пош ра	ige 5/36)							Order	code(s)
•			paga F	/20											1MR10=2	7		` '
1-01-0	ptions,	see from	page 5	130											1MB10■2 ■-■■		+	

For footnotes, see page 5/27



SIMOTICS XP 1MB1 explosion-proof motors

Self-ventilated motors with IE1 Standard Efficiency · Aluminum series 1MB10

Selection and ordering data (continued)

		and ore			alues at		ower								Aluminum series		
P _{ra} -	P _{ra-}	Frame	n _{ra-}	T _{ra-}		$\eta_{\rm rated}$		cos	I _{rated} ,	T_{LR}	I _{LR} /	$T_{B}/$	L_{pfA}	L _{WA} .	1MB1	m _{IM B3}	J
ted,	ted,	size	ted,	ted,	50 Hz,	50 Hz,	50 Hz,	φ_{rated} ,	50 Hz,	$T_{\rm ra-}$	I _{ra-}	$T_{\rm ra-}$	50 Hz	50 Hz		IIVI DO	
50 Hz	60 Hz		50 Hz	50 Hz	4/4	3/4	2/4	50 Hz, 4/4	400 V	ted	ted	ted			Article No.		
kW	kW	FS	rpm	Nm	%	%	%	4/4	Α				dB(A)	dB(A)		kg	kgm ²
• Co	oling: s	self-venti accordii	lated (I	C 411)													
• Effi	iciency ulation	accordii : Therma	ng to IL Il class	-C 600 155 (t	34-30: I empera	E1 Stan ture cla	idard E1 ss F). IF	ficienc 255 dea	y ree of i	orotec	tion.	utiliza	tion in a	accordai	nce with thermal class 130	(temperat	ure class B
		rpm at															
1.5	1.75	100 L	940	15	75.2	75.6	72.3	0.74	3.9	2	4	2.2	59	71	1MB10=2-1AC4=-	19	0.0065
2.2	2.55	112 M	940	22	77.7	78.5	76.3	0.72	5.7	2.6	4.6	2.7	57	69	1MB10=2-1BC2=-====	25	0.0092
3	3.45	132 S	955	30	79.7	79.9	77.1	0.74	7.3	2	4.6	2.6	63	75	1MB10=2-1CC0=-====	34	0.017
4	4.55	132 M	955	40	81.4	82.6	81.9	0.76	9.3	2.3	5.2	2.6	63	75	1MB10=2-1CC2=-===	39	0.021
5.5	6.3	132 M	955	55	83.1	84	83	0.75	12.7	2.7	5.7	3	63	75	1MB10=2-1CC3=-		0.027
7.5	8.6	160 M	970	74	84.7	84.8	83.2	0.73	17.5	2.1	5.5	2.9	67	79	1MB10=2-1DC2=-		0.056
11	12.6	160 L	965	109	86.4	86.8	85.9	0.77	24	1.9	5.9	2.7	67	79	1MB10=2-1DC4=-	92	0.078
		rpm at 50							0.05	4.0				70			0.0050
0.75	0.86	100 L	705	10	61.2	58.1	50.5	0.62	2.85	1.9	3	2.2	60	72	1MB10=2-1AD4=-		0.0056
1.1	1.27	100 L	690	15	66.5	66	61.8	0.61	3.9	2	3.2	2.3	60	72	1MB10=2-1AD5=-		0.0078
1.5 2.2	1.75 2.55	112 M 132 S	700 715	20 29	70.2 74.2	71.1 74.1	68.7 71.4	0.66	4.65 6.5	1.9	3.5	2.1	63 63	75 75	1MB10=2-1BD2=-===== 1MB10=2-1CD0=-=====		0.0094
3	3.45	132 S 132 M	715	40	77	77.4	71.4	0.68	8.3	1.7	3.9	2.4	63	75	1MB10=2-1CD0=-		0.019
4	4.55	160 M	720	53	79.2	79.3	76.3	0.67	10.9	1.6	4.1	2.3	63	75	1MB10=2-1CD2=-		0.024
5.5	6.3	160 M	720	73	81.4	81.9	80.3	0.68	14.3	1.6	4.1	2.2	63	75	1MB10 2-1DD3 -		0.056
7.5	8.6	160 L	715	100	83.1	83.7	82.4	0.69	18.9	1.7	3.8	2.2	63	75	1MB10 2-1DD4 -		0.077
Zone																	
	_	casionally	/ condi	ictive a	and non-	-conduc	tive dus	t) Ex th	IIIC						1		
	,	ely condu						,									
	,	ely explo						,							2 3		
Volta		,,			,		9, -					Vers	ion			Orde	r code
50 Hz	z 230 V	Δ/400 VY	60) Hz ¹⁾	460 VY							Stan	dard		2 2	_	
50 Hz	z 400 V	Δ/690 VY	60) Hz ¹⁾	460 VΔ							Stan	dard		3 4	_	
50 Hz	z 500 V	Υ										With	out addi	tional ch	arge 2 7	_	
50 Hz	z 500 V	Δ										With	out addi	tional ch	2 2 3 4 arge 2 7 arge 4 0	-	
For o	ther vol	ltages 1) a	and mo	re info	rmation,	see from	m page	5/28							9 0		
Туре	s of co	nstructio	n									Vers	ion			Orde	r code
Witho	out flanç	ge		1 B3 ²⁾								Stan	dard		Α	-	
With	flange			1 B5 ²⁾								With	addition	nal charg	e F	-	
With	flange		IN	1 B14 ²	2)							With	addition	nal charg	e K	_	
		es of cor	nstructio	on and	more in	formatio	n, see f	rom pag	ge 5/30								
	r prote	ection										Vers					
Witho													dard		A		
		tor with 3										With	addition	nal charg	В		
		otor prote		nd mor	e inform	ation, se	ee from	page 5/	34			.,					
		x positio	n									Vers					
	inal box	•			-1			f		,		Stan	dard		4		
		minal box	position	ons and	a more i	ntormat	ion, see	irom pa	ige 5/30	0						0 1	1.()
Spec	ial vers	sions														Orde	r code(s)

For options, see from page 5/38

1MB10■2-....■-■■■■-Z ...+...+...+.

Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.

³⁾ Parallel supply lines are required in the case of connection to ≤ 240 V. For frame size 315 with connection to ≤ 240 V, due to the high current, a drilled, removable entry plate (order code R52) or a larger terminal box (order code R50) can be used. Order codes R52 and R50 alter the motor dimensions.

⁴⁾ No IE class for 50 and 60 Hz because the motor is outside the validity for the efficiency classes according to IEC 60034-30-1:2014.

SIMOTICS XP 1MB1 explosion-proof motors

Voltages · Aluminum series 1MB10

Selection and ordering data

Selection and ordering data											
Voltages	Article No	. supplement	Frame	size					Motor ve	rsion	
	Voltage	Additional	80	90	100	112	132	160			
	code	identification	1MB1	0.3					IEC	Ex tb (Zone 21),	IE3
	12th and 13th	code with order code	1MB1	0.1						Ex tc (Zone 22),	IE2
	position	and plain text	t		1MB1	0.2				Ex ec (Zone 2)	IE1
	of the Article	if required									
	No.										
1MB10		Order code									
				_	_	_	_	_			
Voltage at 50 Hz or 60 Hz (50 Hz pov 50 Hz 230 VΔ/400 VY, 60 Hz 460 VY	2 2	_	0	-	0	_		_			
50 Hz 400 VΔ/690 VY, 60 Hz 460 VΔ	3 4	_		-		-		-			
50 Hz 500 VY	2 7	_	0	0	0	0	0	0			
50 Hz 500 VΔ	4 0	_	-		0	0	0	0			
50 Hz 220 VΔ/380 VY, 60 Hz 440 VY	2 1	_	√	√	✓ ✓	<u>✓</u>	✓	✓ ✓			
50 Hz 380 VΔ/660 VY, 60 Hz 440 VΔ	3 3	_	✓	<u> </u>	√	✓	✓	<i>'</i>			
50 Hz 240 VΔ/415 VY, 60 Hz 480 VY	2 3	_	✓	√	√	✓	✓	<i>'</i>			
50 Hz 415 VΔ, 60 Hz 480 VΔ	3 5	_	✓	<u> </u>	1	✓ ✓	✓	✓			
50 Hz 400 VY, 60 Hz 460 VY ¹⁾	0 2	_	0	0	0	0	0	0			
50 Hz 400 VΛ, 60 Hz 460 VΛ ²⁾	0 4	_	0	0	0	0	0	0			
60 Hz 220 VΔ/380 VY	1 7	_	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	NI-+ f	1MD10.0	
60 Hz 230 VΔ/380 VY		_	-	✓ ✓	1		✓ ✓	✓ ✓	Not for:	1MB10.2	
60 Hz 230 VΔ/400 VY 60 Hz 380 VΔ/660 VY	1 8		1		1	✓ ✓			Not for:	1MB10.2	
60 Hz 400 VΔ/690 VY	3 1	-	1	✓ ✓	/	✓ ✓	√ ✓	✓ ✓	Not for:	1MB10.2	
50 Hz 400 VY		M4A	✓		1			0	Not for:	1MB10.2	
	9 0		0	0	0	0	0				
50 Hz 400 VΔ	9 0	M4B	0	0	0	0	0	0	_		
Voltage at 60 Hz (50 Hz power)		140.4	,								
220 VΔ/380 VY; 50 Hz power ³⁾	9 0	M2A	/	/	√	/	/	<i>\</i>			
220 VΔ/380 VY; 60 Hz power	9 0	M1A	1	√	1	√	√	/			
380 VΔ/660 VY; 50 Hz power ³⁾	9 0	M2B	1	/	1	/	/	/			
380 VΔ/660 VY; 60 Hz power	9 0	M1B	1	√	1	√	√	1			
440 VY; 50 Hz power ³⁾	9 0	M2C	1	√	1	√	√	√			
440 VY; 60 Hz power	9 0	M1C	1	✓	1	/	√	/			
440 VΔ; 50 Hz power ³⁾	9 0	M2D	1	√	1	√	√	√			
440 VΔ; 60 Hz power	9 0	M1D	1	√	1	/	√	/			
460 VY; 50 Hz power ³⁾	9 0	M2E	/	✓	✓	✓	✓	✓			
460 VY; 60 Hz power	9 0	M1E	0	0	0	0	0	0			
460 VΔ; 50 Hz power ³⁾	9 0	M2F	✓	✓	√	✓	✓	√			
460 VΔ; 60 Hz power	9 0	M1F	0	0	0	0	0	0			
575 VY; 50 Hz power ³⁾	9 0	M2G M1G	1	√	1	√	√	√			
575 VY; 60 Hz power 575 VΔ; 50 Hz power ³⁾			1	√	1	✓ ✓	<i>\</i>	√			
575 VΔ; 50 Hz power 57	9 0	M2H	1	√	1			√			
	9 0	M1H	√	✓ <u> </u>	1	<i>\</i>	√	1			
400 VΔ/690 VY; 50 Hz power	9 0	M2J	√	✓ <u> </u>	1	<i>\</i>	√	1			
400 VΔ/690 VY; 60 Hz power	9 0	M1J	1	√	1	√	√	√			
480 VY; 50 Hz power	9 0	M2K	1	√	√	√	√	√			
480 VY; 60 Hz power 480 VΔ; 50 Hz power	9 0	M1K M2L	1	√	1	√	√	√			
480 VΔ; 50 Hz power 480 VΔ; 60 Hz power	9 0	M1L	1	√	1	√	√	√			
·	9 0	M2M	1	√	1	√ /	√ /	√			
230 VA/400 VY; 50 Hz power			1	✓ ✓	1	✓ ✓	<i>J</i>	√			
230 VΔ/400 VY; 60 Hz power	9 0	M1M	1	V	7	<i>-</i>	V	✓			
Voltage at 87 Hz (87 Hz power) 400 VΔ ⁵⁾	0 0	MOA	,	,		,	,	,			
	9 0	МЗА	1	√	1	√	✓	√			
Non-standard voltage and/or freque Non-standard winding ⁴⁾	ncies 9 0	Mive	1	,	1	1	,	,			
Non-standard winding "	9 0	M1Y • and	1	✓	•	V	✓	1			
		customer									
		specifications	3								

- Standard version
- Without additional charge With additional charge

- Not possible This order code only determines the price of the version Additional plain text is required.

Delta connection is not possible.

Star connection is not possible.

A power of 3.7 kW is stamped on the rating plate for versions

1MB1... - 1BA2, 1MB1... - 1BB2, 1MB1... - 1CC2 and 1MB1... - 1DD2 at

60 Hz with 50 Hz power in accordance with the international efficiency classification to IEC 60034-30

⁴⁾ Plain text must be specified in the order: Voltage between 200 and 690 V (voltages outside this range are available on request), frequency, circuit, for 60 Hz additionally required rated power in kW.

Only possible for 4-pole, 6-pole and 8-pole motors and in combination with the order codes **B40** and **B41**. The operating data for converter operation is also provided in a table on the additional rating plate. The motor contains winding version 50 Hz 230 VA.

SIMOTICS XP 1MB1 explosion-proof motors

Voltages · Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Selection and ordering data

Voltages	Art	ticle No	. supplement	Frai	me si:	7 e .											Motor	version	
Voltagoo		ltage	Additional	71		90	100	112	132	160	180	200	225	250	280	315	WIOTOI	VOI 01011	
	СО	de	identifica-			Basi											IEC	Ex tb (Zone 21),	IE3
	12	th and	tion code with order				_		B Perf	orma	nce L	ine						Ex tc (Zone 22),	
		sition	code and	1 M	315.1	Basi												Ex ec (Zone 2)	IE2
		the ticle	plain text				_		Perf	orma	nce L	ine							
	No		if required																
1MB15	-	■.																	
1MB16	-	■.	Order code																
Voltage at 50 Hz or 60 Hz																			
50 Hz 230 VΔ/400 VY, 60 Hz 460 VY	2	2	_			_			_				_	_	_				
50 Hz 400 VΔ/690 VY, 60 Hz 460 VΔ	3	4	_																
50 Hz 400 VY, 60 Hz 460 VY ¹⁾	0	2	_	0	0	0	0	0	0	0	0	0	0	0	0	0. R.			
50 Hz 400 VΔ, 60 Hz 460 VΔ ²⁾	0	4	_	0	0	0	0	0	0	0	0	0	0	0	0	0			
50 Hz 500 VY	2	7	_	0	0	0	0	0	0	0	0	0	0	0	0	0			
50 Hz 500 VΔ	4	0	_	_	_	_	0	0	0	0	0	0	0	0	0	0			
50 Hz 220 VΔ/380 VY, 60 Hz 440 VY		1	_	1	/	/	1	/	/	/	/	/	/	/	/	/			
50 Hz 380 VΔ/660 VY, 60 Hz 440 VΔ		3	_	1	1	1	1	1	1	1	1	1	1	1	1	1			
50 Hz 240 VΔ/415 VY, 60 Hz 480 VY		3	_	1	1	1	/	1	1	<i>\</i>	1	1	1	1	1	1			
		5	_	1	1	1	1	1	1	1	1	1	1	1	1	1			
	1	7	_	1	1	1	1	1	1	1	1	1	1	1	1	0. R.			
		8	_	1		1	1	<i>'</i>	1		· /		/	/	/	O. R.			
-		0	_	1	<u> </u>	1	1	<u> </u>	· /	<u> </u>	<u> </u>	✓							
·		1	_	1	<u> </u>		/	<u>/</u>					<u> </u>	<u> </u>	1				
		0	M4A	0	0	0	0	0	0	0	0	0	0	0	0	0			
		0	M4B	0	0	0	0	0	0	0	0	0	0	0	0	0	_		
Voltage at 60 Hz and required pov																			
	9		M2A	1	/	/	1	/	/	/	/	/	/	/	/	/			
		0	M1A	1		1	1	<i>'</i>			1		/	/	1	/	_		
		0	M2B	_	_	_	1	<u> </u>	· /	<u> </u>	<u> </u>	<u> </u>	_						
		0	M1B	_	_	_	/	<u> </u>	· /	<u> </u>	<u> </u>	<u> </u>							
		0	M2C	_	_	_	1	1	1		· /		1	1	1	1	_		
		0	M1C	_	_	_	1	<u></u>			<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u> </u>			
		0	M2D	_	_	_	1				<u> </u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>			
		0	M1D	_		_	1	✓	<u> </u>	1	<u> </u>	<u> </u>	1	<u> </u>	1	√			
		0	M2E	_	_	_	1	<u> </u>	1	<u> </u>	<u> </u>	√							
		0	M1E	_		_	0	0	0	0	0	0	0	0	0	0			
		0	M2F	_	_	_	7	<u>✓</u>	1	1	<u>✓</u>	✓ ✓	<u> </u>	<u> </u>	7	✓			
		0	M1F	_	_	_	0	0	0	0	0	0	0	0	0	0			
· · · · · · · · · · · · · · · · · · ·		0	M2G	_	_	_	✓	7	<i>-</i>	7	<i>-</i>	<u> </u>	7	7	7	<u>√</u>			
		0	M1G	_	_	_	1	<u> </u>	1	<u> </u>	<u> </u>	√							
		0	M2H	_			√	<u> </u>	<u> </u>	√									
		0	M1H	_	_	_	1	<u>/</u>	1	<u>/</u>	✓		/	/	✓	√			
, , , , , , , , , , , , , , , , , , ,		0	M2J	/	<i>-</i>	<u> </u>	✓	<u> </u>	<u> </u>	1	<u> </u>	<u> </u>	<u> </u>	/	/	√			
	9		M1J	1	<u> </u>	1	1	1	1	1	1	1	/	1	/	1			
	9		M2K	1	✓	√	√	✓	✓	√									
The state of the s	9	_	M1K	1	✓ ✓	✓	1	✓ ✓	✓	✓ ✓	✓ ✓	✓ ✓	✓	√	✓	✓ ✓			
		0	M2L	1	√	✓	√	✓	✓	✓	✓ ✓	✓	✓	✓	✓	√			
		0	M1L	1	<u></u>	<u> </u>	✓	<u> </u>	<u> </u>	<u> </u>	✓	✓	✓	/	✓	✓			
•	9		M2M	1	√	<u> </u>	✓	<u>/</u>	<u> </u>	<u>/</u>	<u> </u>	<u> </u>	✓	✓	✓	O. R.			
. , , , ,	9		M1M	1	-/	-/	√	✓	✓	<u>/</u>	<u>/</u>	-/	√	✓	√	O. R.			
Voltage at 87 Hz (87 Hz power)	3	J	1V1 1 1V1	٧	v				_		•	·	v	v	v	O. 11.			
	9	0	МЗА	1	/	/	1	/	/	/	/	/	/	1	1	1			
Non-standard voltage and/or freg			oA	•		•	Ť	•	_				•	•	•	•			
<u> </u>	9		M1Y • and	1	/	1	1	1	1	/	1	1	1	/	/	1			
Non-standard willding	3	3	customer specifica- tions	•				•	•	•	•								

- Standard version
- o Without additional charge
- With additional charge
- 1) Delta connection is not possible.
- ²⁾ Star connection is not possible.
- A power of 3.7 kW is stamped on the rating plate for versions 1MB1... - 1BA2, 1MB1... - 1BB2, 1MB1... - 1CC2 and 1MB1... - 1DD2 at 60 Hz with 50 Hz power in accordance with the international efficiency classification to IEC 60034-30.
- Not possible
- This order code only determines the price of the version Additional plain text is required.
- 4) Plain text must be specified in the order: Voltage between 200 and 690 V (voltages outside this range are available on request), frequency, circuit, for 60 Hz additionally required rated power in kW.
- Only possible for 4-pole, 6-pole and 8-pole motors and in combination with the order codes **B40** and **B41**. The operating data for converter operation is also provided in a table on the additional rating plate. The motor contains winding version 50 Hz 230 VA.

Article No. supplements and special versions SIMOTICS XP 1MB1 explosion-proof motors

Types of construction · Aluminum series 1MB10

Selection and ordering data											
Types of construction	Article No.	supplement	Frame	size					Motor v	/ersion	
Types of Constituction	Type of	For types of	80	90	100	112	132	160	IVIOLOI	76151011	
	construc-	construction	1MB10		100	112	132	100	IEC	Ex tb (Zone 21)	IE3
	tion code letter 14th	with order code(s)	1MB10						iLO	Ex tc (Zone 22) Ex ec (Zone 2)	IE2
	position	Article No.	11.12	••	1MB10	.2				Ex ec (Zone 2)	IE1
	of the	with additional identification									
	Article No.	code -Z									
1MB10		Order code									
Without flange				_	_	_	_	_			
IM B3	A	_	_	_	_	_	_	-			
			_	_	_	_	_	_			
IM B6 ¹⁾	Т	-	0								
₩°)											
IM B7 ¹⁾	U	_	0								
IM B8 ¹⁾	- v	_	_	_		_	_	_			
50			_	_	_	_	_	_			
((◎))											
IM V6 ¹⁾	D	-									
<u> </u>											
IM V5 with	С	H00	1	1	1	/	/	√			
protective cover 1) 2)	C	поо	•	•	•	•	•	•			
With flange	Acc. to EN Acc. to DII	50347 N 42 948	FF165 A 200		FF215 A 250						
IM B5	፲ 	_	1	✓	✓	1	1	1			
'내니	!										
IM V1 with	G	H00	1	/	/	/	/	1			
protective cover 1) 2)	_	1.00	ľ	•	ľ	•	•	•			
T											
IM V3 ¹⁾	Н	-	1	1	✓	1	1	1			
IM B35	l J	-	1	1	/	/	√	1			
au T											

SIMOTICS XP 1MB1 explosion-proof motors

Types of construction · Aluminum series 1MB10

Types of construction			supplement	Frame		400	440	400	400	Motor	version			
1MR1	0	tion code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code -Z Order code	1MB10 1MB10		100 1MB10	112	132	160	IEC	Ex tb (Zone 2 Ex tc (Zone 2 Ex ec (Zone	22),	IE3 IE2 IE1	
With flange		Acc. to EN	50347	FT100		FT130		FT165	FT215					
IM B14 ¹⁾	£	Acc. to DIN	l 42 948 _	C 120	C 140 ✓	C 160 ✓	C 160	C 200	C 250					
IM V19 ¹⁾			-	✓	✓	V	✓	✓	√					
IM V18 with protective cover 1) 2)		М	H00	√	✓	V	✓	√	√					
IM B34		N	-	✓	1	✓	1	✓	1					
With special flange next largest		Acc. to EN Acc. to DIN	50347 42 948	FT130 C 160	FT130 C 160	FT165 C 200	FT165 C 200	FT215 C 250	FT265 C 300					
IM B14 ¹⁾	£	K	P01	✓	√	√	√	✓	-					
IM V19 ¹⁾			P01	-	-	✓	✓	√	-					
IM V18 with protective cover 1) 2)		М	P01+H00	-	-	1	1	1	-					
IM B34		N	P01	-	-	√	√	✓	-					

- Standard version
- With additional charge Not possible

The following applies for explosion-proof motors: In the case of the types of construction with shaft extension down, the version "with protective cover" is required. For types of construction with shaft extension pointing upwards, a suitable cover must be implemented to prevent small parts from falling into the fan cover (see the standard IEC/EN 60079-0). The cover must not block the cooling air flow.

²⁾ The "Standard cylindrical shaft extension (second shaft extension)" option (order code L05) is not possible.

SIMOTICS XP 1MB1 explosion-proof motors

Types of construction · Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Selecti	on and or	dering da	ta																	
Types of construc	f ction	Article No.	supplement	Fram	ne size	9												Motor	r version	
		Type of construc-	For types of construction	71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L			
		tion code letter 14th	with order code(s) Article No.	1MB	15.3 E	Basic												IEC	Ex tb (Zone 21) Ex tc (Zone 22)	, IE3
		position of the	with additional	1MB	15.1 E	Basic		316.3	Perfor	manc	e Line	9							Ex ec (Zone 2)	
1MB15	5		identification code -Z					316.1 I	Perfor	manc	e Line	е								
	3		Order code																	
Without	flange																			
IM B3		A	_	0	_	0	_		_		_	_	_	_		_	_			
IM B6			-	0	0	0	0	_	0	0	0	0	0	0	_	0	0			
IM B7		U	-	0	0	-	0	_	0	0	_	0	0	0	_	-	-			
IM B8 1)		V	-	0	0	0	0		0	0	0	0	0	0	0	0	0			
IM V6		D	-	0	_	_	_	_	_	_	_	_	0	0	_	_	_			
IM V5 with protec- tive cover 1) 2)		C	H00	✓	✓	✓	V	✓	✓	✓	1	✓	√	√	✓	✓	✓			
With fla	nge	Acc. to EN	50347 N 42 948												0 FF500 A 550					
IM B5		F	-	J	1	1	1	1	✓	✓	✓	✓	1	1	1	1	-			
IM V1 with protec- tive cover 1) 2)		G	H00	1	√	✓	✓	1	V	1	V	V	1	1	V	✓	✓			
IM V3		Н		1	✓	✓	√	V	V	V	√	√	✓	✓	✓	✓	-			
IM B35	4	J	-	J	1	1	1	1	1	1	1	1	1	1	1	1	1			

SIMOTICS XP 1MB1 explosion-proof motors

Types of construction · Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Types of construction	Article No.	supplement	Fram	ne size	Э												Moto	r version	
	Type of construc-	For types of construction	71	80	90	100	112	132	160	180	200	225	250	280	315 S/M				
	tion code letter 14th	with order code(s)	1MB	15.3 I	Basic												IEC	Ex tb (Zone 21), Ex tc (Zone 22),	IE3
	position of the	Article No. with additional	1MB	15.1 I	Basic		316.3	Perfor	manc	e Line	•							Ex ec (Zone 2)	IE2
1MB15		identification code -Z					316.1 I	Perfor	manc	e Line									
1MB16	• •	Order code																	
With flange	Acc. to EN	N 50347 N 42 948			FT115 C 140		0 FT130 0 C 160				Ξ	_	Ξ	=	Ξ	_			
IM B14) ^K	-	1	✓	✓	1	1	✓	✓	-	-	-	-	-	-	-			
IM V19		-	1	✓	1	✓	1	1	1	-	-	-	-	-	-	-			
IM V18 with protective cover 1) 2)	M	H00	✓	√	√	V	√	√	✓	-	-	-	-	-	-	-			
IM B34] N	-	1	✓	1	✓	1	1	✓	-	-	-	-	-	-	-			
With special flange next largest	e Acc. to EN Acc. to DI				FT130 C 160		5 FT169 C 200												
IM B14) ^K	P01	1	✓	1	1	✓	✓	-	-	-	-	-	-	-	-			
IM V19	l	P01	1	✓	1	✓	1	1	-	-	-	-	-	-	-	-			
IM V18 with protective cover 1) 2)	M	P01+ H00	V	✓	✓	✓	√	1	-	-	-	-	-	-	-	-			
IM B34	N	P01	1	1	1	1	1	1	-	-	-	-	-	-	-	-			

- □ Standard version✓ With additional charge
- Not possible

The following applies for explosion-proof motors: In the case of the types of construction with shaft extension down, the version "with protective cover" is required. For types of construction with shaft extension pointing upwards, a suitable cover must be implemented to prevent small parts from falling into the fan cover (see the standard IEC/EN 60079-0). The cover must not block the cooling air flow.

The "Standard cylindrical shaft extension (second shaft extension)" option (order code **L05**) is not possible.

SIMOTICS XP 1MB1 explosion-proof motors

Motor protection · Aluminum series 1MB10

Selection and ordering data

Motor protection	Article No.	supplement	Frame size	:					Motor	version
	Motor	Additional	80	90	100	112	132	160		
	protection code letter	identifica- tion code	1MB10.3						IEC	Ex tb (Zone 21), IE3
	15th	with order	1MB10.1							Ex tc (Zone 22), IE2 Ex ec (Zone 2)
	position of the	code and plain text,			1MB10.2					Ex ec (Zone 2) IE1
	Article No.	if required								
1MB10		Order code								
Motor protection										
None (standard)	A	_								
1 or 3 PTC thermistors – for tripping (2 terminals) 1)	В	-	1	✓	1	✓	1	1		
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) 1)	С	-	✓	√	1	✓	1	✓		
1 KTY84-130 temperature sensor (2 terminals) 1)	F	-	1	✓	✓	✓	✓	✓		
2 KTY84-130 temperature sensors (4 terminals) 1)	G	-	1	✓	1	✓	1	1		
3 Pt100 resistance thermometers – 2-wire input (6 terminals) 1) 2)	Н	-	-	-	1	1	✓	✓		
1 Pt1000 resistance thermometers (2 terminals) 1)	K	-	1	✓	✓	✓	✓	✓		
2 Pt1000 resistance thermometers (4 terminals) 1)	L	-	✓	✓	1	✓	1	1		

■ Standard version✓ With additional charge

Not possible

Evaluation with associated tripping unit (see Catalog IC 10) is recommended. In converter operation, PTC thermistor motor protection is always required.

²⁾ In combination with the 15th position of the Article No. "H", the order codes Q02 and Q03 are not possible for frame sizes 100 to 160. It can only be supplied with a star or delta winding for direct switch-on (3 terminals).

SIMOTICS XP 1MB1 explosion-proof motors

Motor protection · Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Selection and ordering data

Motor protection	Article No.	supplement Additional	Frai	me siz	ze 90	100	112	132	160	180	200	225	250	280	315	Motor ve	rsion
	protection code letter 15th position of the Article No.	identifica-	1MI	B15.3	Basic	1MI Line	9 B16.3	Perfo	ormar	nce Li	ne		200			IEC	Ex tb (Zone 21), IE3 Ex tc (Zone 22), Ex ec (Zone 2)
1MB15 1MB16	■.	Order code															
Motor protection																	
None (standard)	A	-	0								_					Only for:	1MB15 Basic Line
1 or 3 PTC thermistors – for tripping (2 terminals) 1)	В	-	1	1	1	1	1	1	1	1	1	1	1	1	1		
2 or 6 PTC thermistors – for alarm and tripping	С	-	1	1	1	1	1	1	1	1	1	/	1	1	1	Only for:	1MB15 Basic Line
(4 terminals) ²⁾			-	-	-		_	_	_	_	_	_	_	_	_	Only for:	MB16 Performance Line
1 KTY84-130 temperature sensor (2 terminals) ²⁾	F	-	1	1	1	1	✓	1	✓	1	✓	1	1	/	1		
2 KTY84-130 temperature sensor (4 terminals) ²⁾	G	-	1	1	1	1	✓	1	✓	1	✓	✓	1	1	1		
3 Pt100 resistance thermometers – 2-wire input (6 terminals) ^{2) 3)}	Н	-	1	1	1	1	✓	✓	1	1	✓	1	1	1	1		
6 Pt100 resistance thermometers – 2-wire input (12 terminals) ²⁾	J	-	-	-	-	-	-	-	-	1	✓	1	1	1	1		
1 Pt1000 resistance thermometer (2 terminals) ²⁾	K	-	1	1	1	1	1	✓	1	1	1	1	1	1	1		
2 Pt1000 resistance thermometers (4 terminals) ²⁾	L	-	1	1	1	1	1	1	1	1	1	1	1	/	1		

- Standard version
- With additional charge
- Not possible

For the Performance Line, motor protection by means of PTC thermistors with 3 built-in temperature sensors for tripping (motor protection code B) is already included in the basic price. For the Performance Line, the option "without motor protection" (motor protection code A) is not possible.

²⁾ Evaluation with associated tripping unit (see Catalog IC 10) is recommended. In converter operation, PTC thermistor motor protection is always required.

³⁾ In combination with the 15th position of the Article No. "H", the order codes Q02 and Q03 are not possible for frame sizes 100 to 160. It can only be supplied with a star or delta winding for direct switch-on (3 terminals).

SIMOTICS XP 1MB1 explosion-proof motors

Terminal box position · Aluminum series 1MB10

Selection and ordering data

Terminal box position	Article No.	supplement	Frame size)					Motor	version
4	Terminal	Additional	80	90	100	112	132	160		
	box position	identifica- tion code	1MB10.3						IEC	Ex tb (Zone 21), IE3
6 (1) 5	code 16th	with order	1MB10.1							Ex tc (Zone 22), IE2 Ex ec (Zone 2) IE1
	position of the	code and plain text,			1MB10.2					IE1
7	Article No.	if required								
1MB10	•	Order code								
Terminal box position										
Terminal box top 1)	4	_								
Terminal box right-hand side 2	5	_	1	✓	1	✓	✓	✓		
Terminal box left-hand side 2)	6	-	1	✓	✓	✓	✓	✓		
Terminal box at bottom ^{2) 3)}	7	-	-	-	1	✓	✓	✓		

Standard versionWith additional charge

¹⁾ For types of construction with feet, cast feet are standard.

 $^{^{2)}\,\,}$ For foot-mounted designs, screwed-on feet are standard.

³⁾ Not generally possible for motors with feet.

SIMOTICS XP 1MB1 explosion-proof motors

Terminal box position · Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Selection and ordering data

Terminal box position	Article No.	supplement	Fran	ne siz	ze											Motor	version	
4	Terminal	Additional	71	80	90	100	112	132	160	180	200	225	250	280	315			
	box position	identifica- tion code	1ME	315.3	Basic	: Line										IEC	Ex tb (Zon	
6 () 5	code 16th	with order				1ME	316.3	Perfo	rmar	nce Li	ine						Ex tc (Zon Ex ec (Zor	e 22), ne 2)
	position of the	code and plain text,	1ME	315.1	Basic	: Line											LX 00 (20)	IE2
7	Article	if required				1ME	316.1	Perfo	rmar	nce Li	ine							
	No.	,																
1MB15	•																	
1MB16	•	Order code																
Terminal box position																		
Terminal box top 1)	4	-																
Terminal box right-hand side 23	5	_	-	1	1	1	1	1	1	1	✓	1	1	1	✓			
Terminal box left-hand side 2)	6	-	-	1	1	1	1	1	1	1	1	✓	1	✓	/			
Terminal box bottom 3)	7	_	-	-	-	1	1	1	1	-	-	-	-	-	-			

- Standard version
- With additional charge
- Not possible

¹⁾ For types of construction with feet, cast feet are standard.

 $^{^{2)}\,\,}$ For foot-mounted designs, screwed-on feet are standard.

³⁾ Not generally possible for motors with feet.

Article No. supplements and special versions SIMOTICS XP 1MB1 explosion-proof motors

Options · Aluminum series 1MB10

Selection and ordering data									
Special versions	Additional	Frame	Size					Motor ve	reion
Opecial versions	identification	80	90	100	112	132	160	WOLOT VE	131011
	code -Z with order code	1MB1					100	IEC	Ex tb (Zone 21), IE3
	and plain text	1MB1	0.1						Ex tc (Zone 22), Ex ec (Zone 2)
	if required			1MB10).2				IE1
1MB10Z	Order code								
Explosion-proof version									
Version (IP55) for Zones 2 or 22, for non-conductive dust 1) 14)	B30	1	✓	✓	✓	✓	✓	Only for:	1MB103. – Ex ec (Zone 2)
Design for Zone 2 in Ex ec IIB T3 Gc	B31	0	0	0	0	0	0	Only for:	1MB103. – Ex ec (Zone 2)
VIK version	C02	✓	✓	1	1	✓	1	Only for:	1MB1033 – Ex ec IE3 (Zone 2), 1MB1031 – Ex ec IE2 (Zone 2)
Version for converter operation									
Version for converter operation in basic version with operating data SINAMICS G120 with PM240-2. ¹⁵⁾	B40	✓	✓	1	✓	✓	1		
Version for converter operation in basic version with operating data SINAMICS \$150.	B41	✓	✓	✓	1	✓	1		
Operating data such as order code B40 with alternative SINAMICS converters on the rating plate G120 with PM230 G120 with PM240 G120C G120P with PM240-2 G120P with PM240-2 G120P with PM240-2 G120P with PM330 G130, G150, G180 S120 (BLM/SLM) V20 Operating data such as order code B41 with alternative SINAMICS converters on the rating plate S120 (ALM)	Y68 • and converter type	0	0	0	0	0	0		
Motor protection		•							
1 Pt1000 resistance thermometer (2 terminals)	Q35	✓	✓	✓	✓	✓	√		
2 Pt1000 resistance thermometers (4 terminals)	Q36	✓	1	✓	✓	1	✓		
Motor connection and terminal box									
External grounding									
Rotation of the terminal box through 90°, entry from DE	R10	0	0	0	0	0	0		
Rotation of the terminal box through 90°, entry from NDE	R11	0	0	0	0	0	0		
Rotation of the terminal box through 180°	R12	0	0	0	0	0	0		
Metal cable gland, maximum configuration, certified according to ATEX	R18	✓	✓	1	✓	✓	1		
Larger terminal box	R50			-	-	-	-		
Windings and insulation									
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 % ²⁾	N05	✓	✓	✓	/	1	✓		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 $^{\circ}$ C, derating approx. 8 % 2	N06	✓	✓	✓	✓	✓	√		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 $^{\circ}$ C, derating approx. 13 $^{\circ}$		✓	✓	✓	✓	✓	√		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	N08	1	✓	1	1	✓	1		
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	N30	1	1	1	1	1	✓		

For legends and footnotes, see page 5/41.

SIMOTICS XP 1MB1 explosion-proof motors

Options · Aluminum series 1MB10

Special versions	Additional	Frame	size					Motor ve	rsion	
	identification code -Z with	80	90	100	112	132	160			
	order code and plain text	1MB10						IEC	- i /7 - 00(' -	E3
	if required	1MB10).1	1MB10).2				Ex ec (Zone 2)	E2 E1
1MB10 Z	Order code									
Windings and insulation (continued)										
Increased air humidity/temperature with 60 to 100 g water per m ³ of air	N31	✓	✓	1	✓	1	✓			
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	and spec. power, CT°C or IA m above sea level	√	V	V	V	√	V			
Colors and paint finish Special paint finish in RAL 7030			_		_					
stone gray		_								
Unpainted (only cast-iron parts primed)		0	0	0	0	0	0			
Unpainted, only primed	S01 S02	1	<i>J</i>	1	<i>J</i>	<i>J</i>	<i>/</i>			
Special paint finish C3 Special paint finish sea air resistant C4	S02	1	<i></i>	1	<i></i>	✓ ✓	<u> </u>			_
Top coat polyurethane ¹²⁾	S06	√	<u>✓</u>	√	<u>✓</u>	<u> </u>	<u> </u>	Only for:	1MB103. – Ex ec	
									(Zone 2)	
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7014, 7014, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	Y53 • and paint finish RAL	√	V	7	,	V	V			
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	Y56 • and paint finish RAL	✓ 	√	V	√	✓	<i>,</i>			
Modular technology – Basic versions										
Mounting of explosion-proof separately driven fan ¹⁷⁾	F70	-	_	-	_	_	_	Ĺ	1MB101. – Ex tb (Zone 21)	
Special technology			_	<i>y</i>	✓ 	/	<i>,</i>	Only for:	1MB102. – Ex tc (Zone 22), 1MB103. – Ex ec (Zone 2)	
Special technology Mounting of explosion-proof rotary pulse.	G30	_	_	1	ſ		/			
encoder for use in Zones 2, 21 and 22 (6) Mechanical version and degrees of process of p		-	_	·				_	_	
Low-noise version for 2-pole motors	F77	-	-	-	-	✓	✓			
with clockwise direction of rotation Low-noise version for 2-pole motors with	F78	-	-	-	-	1	✓			
counterclockwise direction of rotation Mechanical protection for encoder	G43			-						_
<u>'</u>										
Protective cover Vibration-proof version; vibration	H00 H02	1	<i>J</i>	1	1	<i>J</i>	/			_
resistance to Class 3M4 according to IEC 60721-3-3:1994	1102	•	·	·	·	•	·			
Condensation drainage holes 6)	H03	1	✓	1	✓	✓	✓			
Rust-resistant screws (externally)	H07	√	✓	✓	✓	✓	√			
Degree of protection IP65 4)	H20	1	1	1	1	1	✓	Only for:	1MB103. – Ex ec (Zone 2)	
Degree of protection IP56 ⁵⁾	H22	1	1	1	1	✓	1	Only for:	1MB103. – Ex ec (Zone 2)	
Drive-end seal for flange-mounting motors, oil-tight to 0.1 bar ³⁾	H23	✓	1	1	1	1	✓		· · · · · ·	
Coolant temperature and installation	altitude									
Coolant temperature -40 °C to +40 °C	D03	1	1	1	1	✓	✓			
Versions in accordance with standard		ations								
EAC Ex certificate for the Eurasian customs union ¹⁸⁾	D35	_	-	1	/	1	✓			
IEC Ex certification	D37	1	1	-	-	-	-	Only for:	1MB101. – Ex tb (Zone 21)	
		√	1	1	1	1	1	Only for:	1MB102. – Ex tc (Zone 22), 1MB103. – Ex ec (Zone 2)	

For legends and footnotes, see page 5/41.

Article No. supplements and special versions SIMOTICS XP 1MB1 explosion-proof motors

Options · Aluminum series 1MB10

Special versions	Additional	Frame siz	ze					Motor ver	rsion	
	identification code -Z with	80	90	100	112	132	160			
	order code	1MB10.3						IEC	Ex tb (Zone 21),	IE3
	and plain text if required	1MB10.1							Ex tc (Zone 22), Ex ec (Zone 2)	IE2
1MB10Z				1MB10.	2					IE1
	Craci ccac		_	_	_	_				
Bearings and lubrication	1.00		,					_		
Located bearing DE	L20	1	√	√	<i>\</i>	<i>\</i>				
Located bearing NDE	L21 L22	_	✓	1	1	1				
Bearing design for increased cantilever forces ¹³⁾	LZZ	_	_	•	•	•	•			
Regreasing device	L23	_	_	1	/	1	1			
Bearings reinforced at both ends for	L25	_	-	1	1	✓	1			
DE and NDE, bearing size 63	2.1									
Measuring nipple for SPM shock pulse measurement for bearing inspection	Q01	-	_	/	1	✓	√			
Balance and vibration severity							_			
Vibration severity grade A Vibration severity grade B ¹⁹⁾	L00	□ ✓	<u>□</u> ✓	□ ✓						
Half-key balancing	LUU	0								
Balancing without feather key	L01	✓	<i>-</i>	√						
Full-key balancing	L02	1	1	1	1					
Shaft and rotor	LUZ	·	•		_		_			
Shaft extension with standard dimensions, without feather keyway	L04	-	-	1	1	1	1			
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	L05	1	1	1	√	1	1			
Standard shaft made of stainless steel (e.g. 1.4021)	L06	✓	✓	1	1	✓	✓			
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L07	1	1	1	1	✓	1			
Concentricity of shaft extension, coaxiality and linear movement in accordance with DIN 42955 Tolerance R for flange-mounted motors	L08	1	1	1	1	/	1			
Non-standard cylindrical shaft extension DE 7)	Y58 • and customer specifications	1	√	1	√	1	/			
Non-standard cylindrical shaft extension NDE 7)	Y59 • and customer specifications	1	1	1	1	1	<i>y</i>			
Heating and ventilation		_	_					0 1 (W. F	
Metal external fan 8)	F76			-	-	_	_	Only for:	1MB103. – Ex ed (Zone 2)	С
		0	0	1	1	1	1	Only for:	1MB101. – Ex tb (Zone 21), 1MB102. – Ex to (Zone 22)	
Anti-condensation heating for 230 V (2 terminals) 9)	Q02	✓	✓	1	1	✓	✓		,	
Anti-condensation heating for 115 V (2 terminals) 9)	Q03	1	1	1	1	✓	1			
Rating plate and additional rating plat	es									
Second rating plate, loose	M10	✓	✓	✓	✓	✓	✓			
Rating plate, stainless steel	M11	✓	✓	✓	/	✓	✓			
Additional rating plate with deviating rating plate data	Y80 • and customer specifications	✓	√	√	✓	✓	√			
Additional rating plate with customer specifications	Y82 • and customer specifications	√	√	1	√	√	V			
Additional information on rating plate and on package label (max. 20 characters)	Y84 • and customer specifications	1	√	1	√	√	/			

For legends and footnotes, see page 5/41.

SIMOTICS XP 1MB1 explosion-proof motors

Options · **Aluminum** series 1MB10

Special versions	identificati	identification code -Z with		dentification 80 90 100 112 132 160		160	Motor ve	rsion			
	order code	9	1MB10.3						IEC	Ex tb (Zone 21),	IE3
	and plain t	text	1MB10.1							Ex tc (Zone 22), Ex ec (Zone 2)	IE2
	· ·				1MB10.2						IE1
1MB10Z	Order cod	е									
Packaging, safety notes, documentat	ion and tes	t cert	ificates								
Printed Operating Instructions (Compact) for explosion-proof motors enclosed in English and German ¹¹⁾			0	0			0	0			
Acceptance test certificate 3.1 according to EN 10204 10)	B02		✓	1	1	1	✓	1			
Printed German/English Operating Instructions enclosed	B04		✓	1	1	✓	✓	1			
Type test with heat run for horizontal motors, with acceptance	B83		✓	✓	1	✓	✓	✓			
"Basic" documentation package	B90	New!	✓	✓	✓	✓	✓	✓			
"Advanced" documentation package	B91	New!	✓	✓	✓	✓	✓	✓			
"Projects" documentation package	B92	New!	1	✓	✓	✓	✓	✓			
Wire-lattice pallet packaging	B99		0	0	0	0	0	0			
Connected in star for shipping	M01		-	-	✓	✓	✓	✓			
Connected in delta for dispatch	M02		-	-	✓	✓	✓	✓			
Printed Operating Instructions (Compact) for explosion-proof motors enclosed in other official EU languages ¹¹⁾	Y98 • and customer specifications		✓	√	√	√	√	✓			

- Standard version
- Without additional charge 0
- This order code only determines the price of the version Additional plain text is required.
- With additional charge
- Not possible
- Please inquire regarding combination with order codes D03 and C02. Not possible in combination with order codes H20 and H22
- There is no derating in combination with order codes M2A, M2B, M2C, M2D, M2E, M2F, M2G, M2H.
- Not possible for type of construction IM V3.
- For Zone 21, IP65 degree of protection is standard. Not possible for Zone 22, because only IP55 degree of protection is required.
- Not admissible for Zone 21 (IP65 degree of protection) and Zone 22 (IP55 degree of protection)
- Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If the condensation drainage holes are required for motors of the IM B6, IM B7 or IM B8 type of construction (feet on side or top), the motors must be ordered in the respective type of construction and with order code **H03**, so that the condensation drainage holes will be placed in the correct position
- When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes **Y58**, **Y59** and **L05** the following applies:

 − Dimensions D and DA ≤ ball bearing inner diameter

 - (see dimension tables for "Dimensions")

 Dimensions E and EA ≤ 2 × length E (standard) of the shaft extension For an explanation of the order codes, see Catalog Section 1 "Introduction"
- The metal external fan is not possible in combination with the low-noise version - order code F77 or F78.
- In combination with the 15th position of the article number "H", the order codes Q02 and Q03 are not possible for frame sizes 100 to 160. It can only be supplied with a star or delta winding for direct switch-on

- ¹⁰⁾ The delivery time for the acceptance test certificate may differ from the delivery time for the motor
- $^{11)}\,$ The Operating Instructions (Compact) are available in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/10803948/133300
- $^{12)}$ Order code $\mathbf{S06}$ cannot be combined with order code $\mathbf{S00}$ and $\mathbf{S01}$. It can be combined with Y53 and Y56 on request.
- $^{13)}$ A minimum cantilever force $F_{\rm min}$ of 0.5 \cdot $F_{\rm max}$ is required for NU bearings (cylindrical roller bearings) in contrast to ball bearings. Cylindrical roller bearings are not suitable for coupling output or for brief periods of no-load operation without cantilever force.
- ¹⁴⁾ The Ex motor is not admissible in an explosive atmosphere of dust and air (hybrid). A standard is not currently available that describes the product requirements for a hybrid mixture.
- 15) In combination with order codes **B40** and **B41**, "B" or "C" must be added to the 15th position of the Article No. . For compliance with the admissible temperature class 130 (B), derating is necessary in the case of converter operation in Zones 2, 21 and 22. The operating data for SINAMICS converters from Siemens are on the rating plate – the torque is reduced in contrast to line operation. The motor operating data for converter operation is available in the DTC selection and ordering tool. For converter operation, voltage codes/order codes are only admissible with one voltage only. When used in hazardous zones, the frequency converter must have a certified trip unit for motors of device category 1 (Zone 21). A certified trip unit is also recommended for motors of device category 3 (Zones 2 and 22). Alternatively, an external, certified trip unit can be used (see Catalog IC 10).
- ¹⁶⁾ Can be combined with order codes N30, N31, L51 and F70 on request. Not admissible in combination with order code **L05**. Combination with protective cover as standard for frame sizes 100 to 200. Protective cover not possible for frame sizes 225 to 315.
- In combination with order codes N05, N06, N07, N08, N30, N31, D03, G30, C02, H20 and H22 on request. Not admissible with order code L05 The type of protection of the separately driven fan must match that of the
- ¹⁸⁾ Cannot be combined with converter operation.
- ¹⁹⁾ Vibration severity grade B not admissible in combination with converter operation (order code B40/B41)

SIMOTICS XP 1MB1 explosion-proof motors

Options · Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Selection and ordering data																		
Special versions	Additiona		Fra	me si	ze											Motor ve	rsion	
	identificat code -Z w order cod	vith le		80 B15.3	90 Basi			132	160	180	200	225	250	280	315	IEC	Ex tb (Zone 2	
1MB15Z	and plain if required		1 M	B15.1	Basi			Perf	orma	nce l	_ine						Ex tc (Zone 2 Ex ec (Zone 2	
1MB16Z		de						l Perf	orma	nce l	_ine							
Explosion-proof version																		
Version (IP55) for Zones 2 or 22, for non-conductive dust 1) 16)	B30		1	✓	/	✓	✓	✓	✓	✓	✓	√	√	✓	✓	,	1MB1.3. – Ex (Zone 2)	
Version for Zone 2 in Ex ec IIB T3 Gc	B31		0	0	0	0	0	0	0	0	0	0	0	0	0	Only for:	1MB1.3. – Ex (Zone 2)	ec
VIK version	C02		/	✓	1	1	1	1	1	1	1	1	/	✓	1	Only for:	1MB1.3. – Ex (Zone 2)	ec
Version for converter operation																		
Version for converter operation in basic version with operating data SINAMICS G120 with PM240-2. 17) 20) 21) 22)	B40		✓	✓	1	1	✓	✓	1	1	✓	√	1) 🖊 20)			
Version for converter operation in basic version with operating data SINAMICS S150. 17 20 21 22	B41		1	1	✓	1	1	✓	✓	1	1	1	1	√ ²⁰) / 20))		
Operating data such as order code B40 with alternative SINAMICS converters on the rating plate ²⁰⁾ • G120 with PM230 • G120 with PM240 • G120C • G120P with PM240-2 • G120P with PM240-2 • G120P with PM240-2 • G120P with PM330 • G130, G150, G180 • S120 (BLM/SLM) • V20 Operating data such as order code B41 with alternative SINAMICS converters on the rating plate ²⁰⁾ • S120 (ALM)	Y68 • and converter type		0	0	0	0	0	0	0	0	0	0	0	0	0			
Motor protection																		
1 Pt1000 resistance thermometer (2 terminals)	Q35		-	_	_	1	✓	✓	√	/	✓	✓	1	✓	✓			
2 Pt1000 resistance thermometers (4 terminals)	Q36		-	-	-	1	/	1	/	/	/	1	/	1	1			
2 Pt100 screw-in thermometers in basic configuration for bearings (2 terminals) ^{2) 3)}	Q72		-	-	-	-	-	-	-	1	1	✓	1	✓	✓			
2 Pt100 screw-in thermometers in 3-wire input for bearing (6 terminals) 2) 3)	Q78		_	-	-	-	-	-	-	/	✓	1	1	1	1			
2 Pt100 double screw-in thermometers in 3-wire input for bearing (12 terminals) 2) 3)	Q79		-	-	-	-	-	-	-	-	-	-	-	✓	1			
Motor connection and terminal box					_		_	_	_		_	_			_			
External grounding Rotation of the terminal box through 90°,	P10	_	0	0	0	0	0	0	0									
entry from DE																		
Rotation of the terminal box through 90°, entry from NDE			0	0	0	0	0	0	0	1	√	√	✓	√	√			
Rotation of the terminal box through 180°	R12		0	0	0	0	0	0	0	✓		/		<i></i>	1			
Stud terminal for cable connection, accessories pack (3 items)	R17		_	-	-	-	-	-	-	-	-	-	1	√	1	Only for:	1MB1.1. – Ex (Zone 21), 1MB1.2. – Ex (Zone 22)	
Metal cable gland, maximum configuration, certified according to ATEX	R18		1	1	✓	✓	1	✓	✓	1	✓	1	1	1	1			
Saddle terminal for connection without cable lug, accessories pack	R19		_	-	-	-	-	-	-	-	-	-	1	1	✓	Only for:	1MB1.1. – Ex (Zone 21), 1MB1.2. – Ex (Zone 22)	
						0		_						_		Only for:	1MB1.3. – Ex (Zone 2)	ec
Larger terminal box ¹⁵⁾	R50		1	1	/	1	/	/	/	/	1	1	1	1	1		(2010 2)	
Cast-iron auxiliary terminal box (small)	R62		_	_	_	_	_	_	_	1	1	/	1	1	/			

For legends and footnotes, see page 5/46.

SIMOTICS XP 1MB1 explosion-proof motors

Options · Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Special versions	Additional identificat code -Z worder cod and plain	ion rith e	71			c Lir	ie					225	250	280	315	Motor ver	Ex tb (Zone 21), Ex tc (Zone 22),	IE3
1MB15 Z	if roquiroc		2100	osta s	. Dooi			3 Perf	orma	ınce	Line					-	Ex ec (Zone 2)	IE2
1MB15Z		10	IIVII	515.1	Basi	_		l Perf	orma	nco l	Lino							IE2
	order coc	ie.				IIVI	510.1	rei	Ullila	liice	LIIIE							
Windings and insulation																		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 % 4)	N05		/	/	/		/	/	/	/	/	/	/	/	/			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 % 41	N06		1	1	1	1	1	1	1	1	1	1	/	✓	1			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 % ⁴⁾	N07		1	✓	1	1	✓	1	✓	1	1	1	1	✓	1			
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	N08		1	1	1	1	1	1	1	1	1	/	1	1	/			
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	N30		1	1	1	1	1	1	1	1	1	1	1	1	1			
Increased air humidity/temperature with 60 to 100 g water per m ³ of air	N31		1	1	1	1	1	1	1	1	1	1	1	1	1			
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	Y50 • and spec. power, CT °C or IA m above sea level		1	✓	✓	1	✓	✓	✓	✓	✓	1	1	✓	✓			
Colors and paint finish																		
Standard paint finish C2 in RAL 7030 stone gray			_	_	_		_	_	_	_	_	_	_	_	_	Only for:	1MB15	
Unpainted (only cast-iron parts primed)	S00		0	0	0	0	0	0	0	0	0	0	0	0	0			
Unpainted, only primed	S01		✓	/	✓	1	/	1	1	1	1	/	1	1	/			
Special paint finish C3	S02		✓	/	/	✓	/	1	1	1	1	1	✓	✓	1	-	1MB15	
		_	-	_	-											Only for:	1MB16	
Special paint finish sea air resistant C4	S03	_	1	1	1	√ ✓	1	1	/	1	1	1	1	1	1			
Special paint finish for use offshore C5 Top coat polyurethane ¹²⁾	S04		1	1	1	1	1	./	1	1	1	1	1	1	1	Only for:	1MB1.3. – Ex ec	
Paint finish in other standard RAL	Y53 •		′			′								•	· /	_ ′	(Zone 2) 1MB15	
colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	and paint finish RAL		•	•	•	•	•		•			•	•	•	•	Offily Iof.	IIWID IS	
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	Y56 • and paint finish RAL		✓	✓	1	✓	✓	✓ 	√	<i>y</i>	✓ 	<i>y</i>	✓	✓	✓			
Modular technology – Basic versions																		
Mounting of explosion-proof separately driven fan ¹⁹⁾	F70	New!	_	-	-	-	-	-	-	-	-	√	1	1	/		1MB1.1. – Ex tb (Zone 21)	
			-	-	-	/	/	✓	/	✓	/	/	/	/	√		1MB1.2. – Ex tc (Zone 22)	
			_	-	-	/	/	/	/	/	/	/	/	1	/	Only for:	1MB1.3. – Ex ec (Zone 2)	
Special technology																		
Mounting of explosion-proof rotary pulse encoder for use in Zones 2, 21 and 22 18)	G30	New!	_	-	-	1	1	1	1	1	1	1	1	1	1			

Article No. supplements and special versions SIMOTICS XP 1MB1 explosion-proof motors

Options · Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Special versions	Additional identification code -Z w	ion	Fra:	me si 80	ze 90	100	112	132	160	180	200	225	250	280	315	Motor ver	rsion	
	order cod	e text	1MI	B15.3	B Basi		ne B16.3	B Perf	orma	ınce l	Line					IEC	Ex tb (Zone 21 Ex tc (Zone 22 Ex ec (Zone 2)),
1MB15 Z	if required		1MI	B15.1	Basi												LX 00 (2010 2)	IE2
1MB16 Z	Order cod	le				1M	B16.1	Perf	orma	ince l	Line							
Mechanical version and degrees of pr	rotection																	
Low-noise version for 2-pole motors with clockwise direction of rotation	F77		-	-	_	-	-	✓	✓	✓	/	✓	✓	✓	1			
Low-noise version for 2-pole motors with counterclockwise direction of rotation	F78		-	-	-	-	-	1	✓	/	1	1	1	✓	1			
Mechanical protection for encoder	G43		-	-	-							1	1	1	1			
Protective cover	H00		1	1	1	1	1	1	1	1	1	1	1	1	1			
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	H02		✓	1	✓	✓	1	✓	✓	1	✓	1	✓	✓	1			
Condensation drainage holes 7)	H03		✓	1	1													
Rust-resistant screws (externally)	H07		/	/	/	/	/	/	/	/	/	/	/	/	/			
Degree of protection IP65 5)	H20		1			/								✓	√	ĺ	1MB1.3. – Ex 6 (Zone 2)	
Degree of protection IP56 ⁶⁾	H22		✓	✓	✓	✓	/	1	1	/	1	/	1	✓	1	Only for:	1MB1.3. – Ex 6 (Zone 2)	:C
Drive-end seal for flange-mounting motors, oil-tight to 0.1 bar Not possible for type of construction IM V3	H23		✓	1	✓	1	√	√	✓	√	✓	1	1	1	1			
Coolant temperature and installation	altitude																	
Coolant temperature -40 °C to +40 °C	D03		1	✓	1	✓	1	1	1	1	1	1	1	1	1			
Versions in accordance with standard	ls and spec	cificat	ions															
Ex certification for China	D32	New!	✓ -	✓	_	1	√	√	√	√	1	√ ✓	√ ✓	✓ ✓	1	Only for:	1MB15 1MB16	
China Energy Efficiency Label	D34	New!	0	0	0	0	0	0	0	0	0	0	0	0	0	Only for:	1MB15 1MB16	
EAC Ex certificate for the Eurasian customs union ¹³)	D35		-	-	-	✓	✓	✓	✓	✓	✓	√	√	✓	1	C1y 1.011		
IEC Ex certification	D37		/	/	/	1	1	/	1	1	1	/	/	1	/			
Bearings and lubrication																		
Regreasing device with M10 ×1 grease nipple according to DIN 71412-A	L19		-	-	-	-	-	-	-	✓	✓	✓	✓	0	0			
Located bearing DE	L20		/	1	1	✓	1	1	1	1	1	1	1	1	1			
Located bearing NDE	L21		✓	1	1	1	1	1										
Bearing design for increased cantilever forces ¹⁴⁾	L22		1	✓	1	1	1	1	1	1	1	1	✓	✓	1			
Regreasing device	L23		_	-	_	√ √	√ √	√ √	✓	✓	✓	✓ □	✓ □			Only for:	1MB15 1MB16	
Bearings reinforced at both ends for DE and NDE, bearing size 63	L25		√	√	√	✓ □	· -	· -	<u>√</u>	/ 		/ 	/ 	_ 	0	Only for: Only for:	1MB15	
Bearing insulation NDE ²⁰⁾	L51		-	_	-	1	1	1	1	1	1	/	1	/ 20) / 20)			
Measuring nipple for SPM shock pulse measurement for bearing inspection	Q01		1	✓	1	1	✓	✓	✓	✓	1	1	✓	✓	1			
Balance and vibration severity																		
Vibration severity grade A ²¹⁾																		
Vibration severity grade B ^{21) 22) 23)}	L00		✓	✓	1	✓	✓	✓	✓	✓	1	✓	✓	✓	1			
Half-key balancing																		
Balancing without feather key	L01		1	/	1	✓	1	1	1	1	1	1	1	✓	1			
Full-key balancing	L02		1	1	1	1	1	1	/	1	1	1	1	/	1			

SIMOTICS XP 1MB1 explosion-proof motors

Options · Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Special versions	Additional identification	on		ne si		100	112	132	160	180	200	225	250	280	315	Motor vei	rsion		
	code -Z wi	Э				ic Lin	e							200	0.0	IEC	Ex tb (Zone Ex tc (Zone		IE3
1MB15Z	and plain t if required	lexi	1 ME	315 1	Rasi	1ME ic Lin		Perf	orma	nce l	Line						Ex ec (Zone	2)	IE2
1MB16Z	Order code	е		313.1	Dus			Perf	orma	nce l	Line								162
Shaft and rotor																			
Shaft extension with standard dimensions, without feather keyway	L04		-	-	-	✓	1	✓	1	1	✓	✓	1	✓	1				
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	L05		✓	1	1	1	1	1	1	1	✓	1	1	/	1				
Standard shaft made of stainless steel (e.g. 1.4021)	L06		1	1	✓	✓	1	✓	✓	1	✓	1	1	✓	1				
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L07		✓	1	1	1	1	✓	✓	1	1	1	1	1	1				
Concentricity of shaft extension, coaxiality and linear movement in accordance with DIN 42955 Tolerance R for flange-mounted motors	L08		1	1	✓	✓	✓	✓	✓	1	1	1	1	1	✓				
Non-standard cylindrical shaft extension DE ⁸⁾	Y58 • and customer specifications		✓	✓	✓	✓	✓	✓	√	✓	✓	✓	✓	✓	✓				
Non-standard cylindrical shaft extension NDE 8)	Y59 • and customer specifications		V	✓	✓	✓	✓	✓	√	✓	✓	<i>y</i>	✓	✓	1				
Heating and ventilation Metal external fan ⁹⁾	F76		✓	1	✓	✓	1	1	✓	1	1	✓	✓	✓	1	Only for:	1MB1.3. – E. (Zone 2)	x ec	
Anti-condensation heating for 230 V (2 terminals) 3)	Q02		1	1	✓	✓	1	✓	✓	1	✓	1	1	✓	1				
Anti-condensation heating for 115 V (2 terminals) 3)	Q03		1	1	1	1	1	1	1	1	✓	1	1	✓	1				
Rating plate and additional rating plat																			
Second rating plate, loose	M10		√	√	<u>/</u>	<u>/</u>	√	✓	<u>/</u>	√	<u>/</u>	<u>✓</u>	<u>/</u>	<u>✓</u>	<u> </u>	0 1 (4MD45		
Rating plate, stainless steel	M11		_	_	_	<u> </u>		<u> </u>	<u> </u>				-	-			1MB15		
Additional rating plate with deviating rating plate data	Y80 • and customer specifications		1	1	✓	7	<u>√</u>	<u>√</u>	7	7	7	<u>-</u>	7	7	1	Offiny for.	TWIE TO		
Additional rating plate with customer specifications	Y82 • and customer specifications		✓	✓	✓	✓	✓	✓	✓	✓	✓	1	✓	✓	✓				
Additional information on rating plate and on package label (max. 20 characters)	Y84 • and customer specifications		J	✓	✓	✓	✓	✓	1	✓	✓	✓	✓	✓	1				
Printed Operating Instructions	on and tes	t cert	_																
Printed Operating Instructions (Compact) for explosion-proof motors enclosed in English and German 11)					_	_		_	_		_	_		_	_				
Acceptance test certificate 3.1 according to EN 10204 10)	B02		1	1	1	1	1	1	1	1	1	1	1	1	1				
Printed German/English Operating Instructions enclosed	B04		-	-	-	1	1	1	1	1	✓	✓	1	1	1				
Type test with heat run for horizontal motors, with acceptance	B83		1	1	1	1	✓	1	1	1	1	1	1	✓	✓				
"Basic" documentation package	B90	,,,,,,	1	1	1	✓	✓	✓	✓	1	✓	✓	✓	✓	✓				
"Advanced" documentation package	B91	New!	,	1	1	1	1	1	√	1	1	√	√	√	√				
"Projects" documentation package	B92	New!	✓	✓	✓	✓	✓	✓	✓	✓	_	√	√	√	/				
Wire-lattice pallet packaging Connected in star for shipping	B99 M01		√	√	✓ ✓	✓ ✓	√	✓ ✓	✓ ✓			- /			- /				
Connected in star for shipping	M02		1	<u>/</u>	✓	<u> </u>	✓	<u> </u>	√	<u>/</u>	<u> </u>	<u> </u>	÷	÷					
Printed Operating Instructions (Compact) for explosion-proof motors enclosed in other official EU languages 11)	Y98 • and customer specifications		1	1	1	1	1	1	1	1	1	7	7	7	<u>-</u> ✓				

For legends and footnotes, see page 5/46.

SIMOTICS XP 1MB1 explosion-proof motors

Options · Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

- Standard version
- o Without additional charge
- This order code only determines the price of the version Additional plain text is required.
- ✓ With additional charge
- Not possible

- Please inquire regarding combination with order codes D03 and C02. Not possible in combination with order codes H20 and H22.
- Evaluation with associated tripping unit (see Catalog IC 10) is recommended. A certified tripping unit is necessary for use in hazardous areas.
- 3) In combination with the 15th position of the Article No. "H", the order codes Q02 and Q03 are not possible for frame sizes 100 to 160. It can only be supplied with a star or delta winding for direct switch-on (3 terminals).
- 4) There is no derating in combination with order codes M2A, M2B, M2C, M2D, M2E, M2F, M2G, M2H.
- Order code H20 (IP65 degree of protection) can only be ordered for Zone 2. For Zone 21, IP65 degree of protection is standard. Not possible for Zone 22, because only IP55 degree of protection is required.
- 6) Order code H22 IP56 degree of protection is only possible for Zone 2. Degree of protection IP56 is not permissible for Zone 21 (IP65 degree of protection) and Zone 22 (IP55 degree of protection).
- 7) Supplied with the condensation drainage holes sealed at the drive end DE and non-drive end NDE (IP55, IP56, IP65). If the condensation drainage holes are required for motors of the IM B6, IM B7 or IM B8 type of construction (feet on side or top), the motors must be ordered in the respective type of construction and with order code H03, so that the condensation drainage holes will be placed in the correct position.
- 8) When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Not valid for: Conical shafts, non-standard threaded journals, non-standard shaft tolerances, friction welded journals, extremely "thin" shafts, special geometry dimensions (e.g. square journals), hollow shafts. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case.

For order codes **Y58**, **Y59** and **L05** the following applies:

- Dimensions D and DA ≤ ball bearing inner diameter (see dimension tables in "Dimensions")
- Dimensions E and EA \leq 2 × length E (standard) of the shaft extension For an explanation of the order codes, see Catalog Section 1 "Introduction".
- 9) The metal external fan is not possible in combination with the low-noise version – order code F77 or F78.
- 10) The delivery time for the factory test certificate may differ from the delivery time for the motor.
- 11) The Operating Instructions (Compact) are available in PDF format for all official EU languages at
 - http://support.automation.siemens.com/WW/view/en/10803948/133300

- 12) Order code S06 cannot be combined with order code S00, S01 and S02. It can be combined with Y53 and Y56 on request.
- 13) Available soon: Explosion protection type Ex tb (Zone 21) for 1MB15 in frame sizes 71 to 90 and for 1MB15/6 in frame sizes 225 to 315); version for converter operation for 1MB15/6 in frame sizes 71 to 315.
- $^{14)}$ A minimum cantilever force $F_{\rm min}$ of 0.5 \cdot $F_{\rm max}$ is required for NU bearings (cylindrical roller bearings) in contrast to ball bearings. Cylindrical roller bearings are not suitable for coupling output or for brief periods of no-load operation without cantilever force.
- 15) Standard version in combination with the order code Q02, Q03 and/or 15th position of the Article No. "H" for frame sizes 71 to 90.
- 16) The Ex motor is not admissible in an explosive atmosphere of dust and air (hybrid). A standard is not currently available that describes the product requirements for a hybrid mixture.
- 17) In combination with order codes **B40** and **B41**, "B" or "C" must be added to the 15th position of the Article No. . For compliance with the admissible temperature class 130 (B), derating is necessary in the case of converter operation in Zones 2, 21 and 22. The operating data for SINAMICS converters from Siemens are on the rating plate the torque is reduced in contrast to line operation. The motor operating data for converter operation is available in the DTC selection and ordering tool. For converter operation, voltage codes/order codes are only admissible with one voltage only. When used in hazardous zones, the frequency converter must have a certified trip unit for motors of device category 1 (Zone 21). A certified trip unit is also recommended for motors of device category 3 (Zones 2 and 22). Alternatively, an external, certified trip unit can be used (see Catalog IC 10).
- (Can be combined with order codes N30, N31, L51 and F70 on request. Not admissible in combination with order code L05. Combination with protective cover as standard for FS 100 to 200. Protective cover not possible for FS 225 to 315.
- ¹⁹⁾ In combination with order codes N05, N06, N07, N08, N30, N31, D03, G30, C02, H20 and H22 on request. Not admissible with order code L05 The type of protection of the separately driven fan must match that of the motor.
- 20) The frame sizes 280 and 315 in combination with order code B40 or B41 are equipped with "Bearing insulation NDE" as standard (order code L51 is included in B40/B41).
- 21) Not admissible for frame size 315, 2-pole. An exception is elastic installation (please inquire).
- 22) Not admissible in combination with converter operation (order code B40, B41).
- ²³⁾ On request for 2-pole motors (concerns frame sizes 225 to 315).

SIMOTICS XP 1MB1 explosion-proof motors

Accessories

Overview

Couplings for use in hazardous areas

The motor from Siemens is connected to the machine or gear unit through a coupling. Siemens is an important coupling manufacturer with a wide range of products.

For standard applications, Siemens recommends that flexible couplings, types N-EUPEX and RUPEX or torsionally rigid couplings, types ARPEX and ZAPEX are used. For special applications, FLUDEX and ELPEX-S couplings are recommended. These coupling types are suitable for use in areas subject to explosion hazards and are offered with declaration of conformity and type test certificate according to Directive 94/9/EC.

Available from:

Siemens contact partner - ordering from catalog Siemens MD 10.1 "FLENDER Standard Couplings"

Or

Siemens AG Kupplungswerk Mussum Industriepark Bocholt Schlavenhorst 100 46395 Bocholt, Germany Phone +49 2871 922185 Fax +49 2871 922579

www.siemens.com

Email: flendercouplings@siemens.com

Taper pins according to DIN 258 with threaded ends and constant taper lengths

Taper pins are used for components that are repeatedly removed. The drilled hole is conically ground using a conical reamer until the pin can be pushed in by hand until the cone shoulder lies approx. 3 to 4 mm above the rim of the hole.

It can then be driven in using a hammer until it is correctly seated. The pin is removed from the drilled hole by screwing on the nut and tightening it.

Standardized taper pins are commercially available.

For instance, available from:

Otto Roth GmbH & Co. KG Rutesheimer Strasse 22 70499 Stuttgart, Germany Tel. +49 711 1388-0 Fax. +49 711 1388-233

www.ottoroth.de Email: info@ottoroth.de

Foundation block according to DIN 799

The foundation blocks are inserted into the stone foundation and embedded in concrete. They are used for fixing machines of medium size, slide rails, pedestal bearings, base frames, etc. After the fixing bolts have been unscrewed, the machines can be shifted without them having to be lifted.

When the machine is initially installed, the foundation block that is bolted to the machine (without washers) and fitted with taper pins is not embedded with concrete until the machine has been fully aligned. In this case, the machine is positioned 2 to 3 mm lower. The difference in shaft height is compensated by inserting shims on final installation. The taper pins safeguard the exact position of the machine when it is repeatedly removed and replaced without the need for realignment.

Available from:

Lütgert & Co. GmbH Postfach 42 51 33276 Gütersloh, Germany Phone +49 5241 7407-0 Fax +49 5241 7407-90

www.luetgert-antriebe.de Email: info@luetgert-antriebe.de

Slide rails with fixing bolts and tensioning screws according to DIN 42923

Slide rails are used to tension the belt of a machine easily and conveniently when there is no belt-tensioning pulley. They are fixed to the base using stone bolts or foundation blocks.

The assignment of slide rails to motor size can be found in DIN 42923. For motors of frame sizes 355 to 450, there are no standardized slide rails (please inquire).

Available from:

Lütgert & Co. GmbH Postfach 42 51 33276 Gütersloh, Germany Phone +49 5241 7407-0 Fax +49 5241 7407-90

www.luetgert-antriebe.de Email: info@luetgert-antriebe.de

More information

Replacement motors and repair parts

- Commitment to provide replacement motors and repair parts following delivery of the motor:
 - For up to 3 years after the delivery of the original motor, in the event of total motor failure – with regard to the mounting dimensions and functions – Siemens will supply a comparable replacement motor (the type series may vary).
 - If a spare motor is supplied within the 3-year period, this does not mean that the warranty restarts.
 - Replacement motors delivered after the active production of the machine series are also identified as spare motors on the rating plate.
 - Spare parts are offered only for these spare motors on request; repair and replacement are not possible.
- After a period of 3 years (after the delivery of the original motor), it is only possible to repair these motors (depending on the availability of the spare parts required).

- For up to 5 years after the delivery of the original motor, spare parts will be available and for a further 5 years, Siemens will provide information about spare parts and will supply documents when required.
- When repair parts are ordered, the following details must be provided:
 - Designation and part number
 - Article No. and factory number of the motor.
- For bearing types, see Catalog Section 1 "Introduction".
- Repair parts are available for 1MB1 motors on request.
- For standard components, a commitment to supply repaired parts does not apply.
- Support hotline
 In Germany
 Phone +49 911 895 7 222

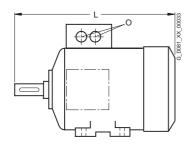
You will find telephone numbers for other countries on our Internet site:

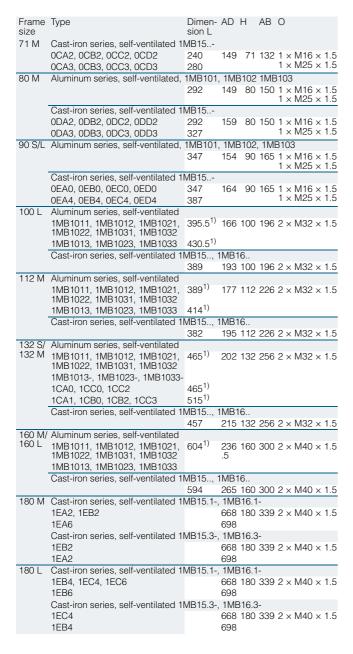
www.siemens.com/automation/service&support

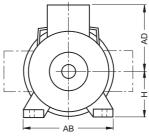
SIMOTICS XP 1MB1 explosion-proof motors

Overall dimensions

Overview







Frame size	Туре	Dimen- sion L	AD	Н	AB	0		
200 L	Cast-iron series, self-ventilated 2AA4, 2AA5, 2AB5, 2AC4, 2AC5					2、	× M50	v 15
	2AA6	746	010	200	010	_ ′	A IVIOO	A 1.0
	Cast-iron series, self-ventilated	1MB15.3-	, 1ME	316.3	3-			
	2AA4, 2AC4	721	315	200	378	2 >	× M50	× 1.5
225 S	2AA5, 2AB5, 2AC5 Cast-iron series, self-ventilated	746 1MR15.1-	11/1	316 1	l_			
2200	2BB0, 2BD0	788				2 >	× M50	× 1.5
	Cast-iron series, self-ventilated	1MB15.3-						
005.14	2BB0	788				2 >	× M50	× 1.5
225 IVI	Cast-iron series, self-ventilated 2BA2, 2BA6	1MB15.1- 818				2、	× M50	v 15
	2BB2, 2BB6, 2BC2, 2BC6, 2BD6		000	220	400	_ ′	A IVIOU	A 1.0
	Cast-iron series, self-ventilated	1MB15.3-	, 1ME	316.3	3-			
	2BA2	818	338	225	436	2 >	× M50	× 1.5
250 M	2BB2, 2BC2 Cast-iron series, self-ventilated	848 1MR15 1-	11/1	316 1	l_			
230 IVI	2CA2, 2CA6, 2CB2, 2CC2,	887				2 >	× M63	× 1.5
	2CC6, 2CD2, 2CD6							
	2CB6	957	4 5 45	240.0				
	Cast-iron series, self-ventilated 2CA2, 2CB2, 2CC2	1MB15.3- 887				2 \	× M63	× 1.5
280 S	Cast-iron series, self-ventilated						X IVIOO	X 1.0
	2DA0, 2DB0, 2DC0, 2DD0	960				2 >	× M63	× 1.5
	Cast-iron series, self-ventilated							
280 M	2DA0, 2DB0, 2DC0 Cast-iron series, self-ventilated	960 1MB15.1-				2)	× M63	× 1.5
200 IVI	2DA2, 2DB2, 2DC2, 2DC6, 2DD2, 2DD6	960				2 >	× M63	× 1.5
	2DA6, 2DB6	1070						
	Cast-iron series, self-ventilated	1MB15.3-						
	2DC2	960	433	280	540	2 >	× M63	× 1.5
315 S	2DA2, 2DB2 Cast-iron series, self-ventilated	1070 1MB15 1-	1MF	316 1	l-			
0100	3AA0	1052				2 >	× M63	× 1.5
	3AB0, 3AC0, 3AD0	1082						
	Cast-iron series, self-ventilated					ο.	. Mca	4 5
	3AA0 3AB0, 3AC0	1052 1082	515	315	610	2)	× M63	X 1.5
315 M	Cast-iron series, self-ventilated		, 1ME	316.1	l-			
	3AC2, 3AD2	1082	515	315	610	2 >	× M63	× 1.5
	3AA2	1217 1247						
	3AB2 Cast-iron series, self-ventilated		1MF	316.3	3_			
	3AA2	1217				2 >	× M63	× 1.5
0451	3AB2, 3AC2	1247	4 5 45	240				
315 L	Cast-iron series, self-ventilated 3AA4	1217 1217				2、	× M63	v 15
	3AB4, 3AC4, 3AC5, 3AD4,	1247	010	010	010	_ ′	A IVIOO	A 1.0
	3AD5, 3AD6							
	3AA5, 3AA6 3AB5, 3AB6, 3AC6	1372 1402						
	Cast-iron series, self-ventilated		, 1MF	316.3	3-			
	3AA4	1217				2 >	× M63	× 1.5
	3AB4, 3AC4	1247						
	3AA5	1372 1402						
	3AB5, 3AC5, 3AC6	1402						

SIMOTICS XP 1MB1 explosion-proof motors

Notes on the dimensions · Dimension sheet generator (part of the Drive Technology Configurator)

Overview

Notes on the dimensions

- Dimensional drawings according to EN 50347 and IEC 60072.
- Fits

The shaft extensions specified in the dimension tables (DIN 748) and centering spigot diameters (EN 50347) are machined with the following fits:

Dimension designation	ISO fit DIN ISO 286-2	
D, DA	to 30 over 30 to 50 over 50	j6 k6 m6
N	to 250 over 250	j6 h6
F, FA		h9
K		H17
S	flange (FF)	H17

The drilled holes of couplings and belt pulleys should have an ISO fit of at least H7.

■ Dimension tolerances

For the following dimension designations, the admissible deviations are given below:

Dimension designation	Dimension	Admissible deviation
Н	to 250 over 250	- 0.5 - 1.0
E, EA		- 0.5

Keyways and feather keyways (dimensions GA, GC, F and FA) are made in compliance with DIN 6885 Part 1.

All dimensions are specified in mm.

Dimension sheet generator

(within the Drive Technology Configurator)

A dimensional drawing can be created in the Drive Technology (DT) Configurator for every configurable motor. A dimensional drawing can be requested for every other motor.



When a complete Article No. is entered with or without order codes, a dimensional drawing can be called up under the "Documentation" tab.

These dimensional drawings can be presented in different views and sections and printed.

The corresponding dimension sheets can be exported, saved and processed further in DXF format (interchange/import format for CAD systems) or as bitmap graphics.

Online access in the Siemens Industry Mall

The "DT Configurator" is integrated into the Siemens Industry Mall and can be used on the Internet without installation.

German: www.siemens.de/dt-konfigurator English: www.siemens.com/dt-configurator

Offline access in the Interactive Catalog CA 01

The "DT Configurator" is also integrated on the DVD of the Interactive Catalog CA 01 – the offline version of Siemens Industry Mall. CA 01 can be ordered from the relevant Siemens sales office or via the Internet:

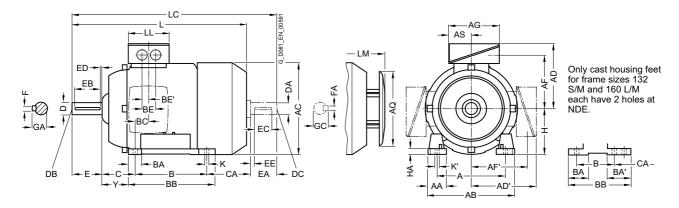
www.siemens.com/automation/CA01

SIMOTICS XP 1MB1 explosion-proof motors

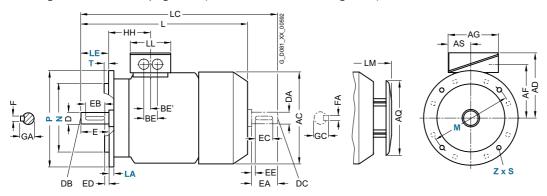
Aluminum series, self-ventilated - IE3 · Frame sizes 80 M to 160 L

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1



For mot	tor		Dime	ensior	n des	ignat	ion acc	. to IE (2																
Frame size	Motor type 1MB10.3-		Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AQ	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA	Н	НА	Υ
80 M	0DA2, 0DB2, 0DC3 0DA3,	2, 4, 6	125	30.5	150	159	121	121	96.5	96.5	93	155	43	100	32	32	118	23	36	18	50	113	80	8	4
	ODAS, ODB3, ODC3																								
90 S	All	2, 4, 6	140	30.5	165	178	126	126	101.5	101.5	93	155	43	100	33	33	143	22.5	36	18	56	159	90	10	47
90 L	All	2, 4, 6	140	30.5	165	178	126	126	101.5	101.5	93	155	43	125	33	33	143	22.5	36	18	56	199	90	10	47
100 L	All	2, 4	160	42	196	198	166	166	125.5	125.5	135	195	63.5	140	37.5	-	176	33.5	50	25	63	176	100	12	45
112 M	All	2, 4	190	46	226	222	177	177	136.5	136.5	135	195	63.5	140	35.4	-	176	26	50	25	70	155	112	12	52
132 S	1CA0, 1CC0	2, 6	216	53	256	262	202	202	159.5	159.5	155	260	70.5	140	38	76	218	26.5	48	24	89	128.5	132	15	69
	1CA1, 1CB0	2, 4																				178.5			
132 M	1CC2	6	216	53	256	262	202	202	159.5	159.5	155	260	70.5	178	38	76	218	26.5	48	24	89	128.5	132	15	69
	1CB2, 1CC3	4, 6																				178.5			
160 M	All	2, 4, 6	254	60	300	314	236.5	236.5	190	190	175	260	77.5	210	44	89	300	47	57	28.5	108	148	160	18	85
160 L	All	2, 4, 6	254	60	300	314	236.5	236.5	190	190	175	260	77.5	254	44	_	300	47	57	28.5	108	208	160	18	85

¹⁾ With screwed-on feet, dimension BA' is 43 mm.

 $^{^{2)}\,}$ With screwed-on feet, dimension BB is 180 mm.

 $^{^{3)}}$ With screwed-on feet, dimension BA' is 51 mm.

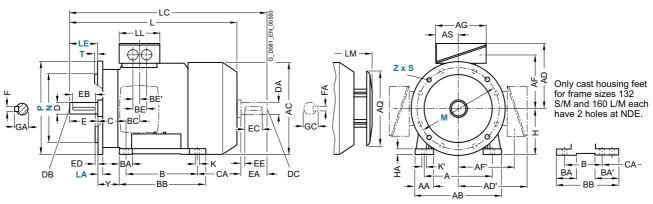
⁴⁾ With screwed-on feet, dimension BB is 256 mm.

SIMOTICS XP 1MB1 explosion-proof motors

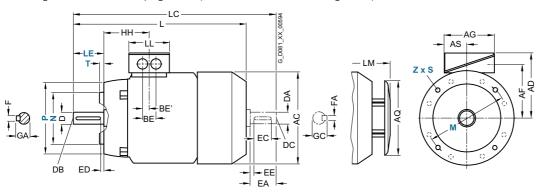
Dimensional drawings (continued)

Type of construction IM B35

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



Type of construction IM B14



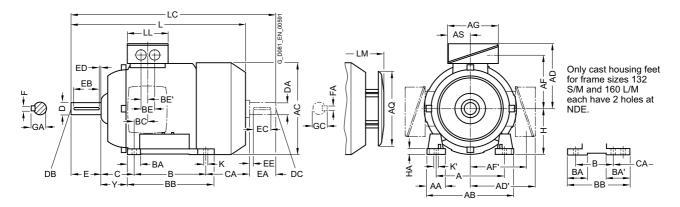
F	.		D:	_:		_4!	- +- 150			DE	-lf4						NIDE	14					
For mo	tor		וחen	sion (aesign	ation ac	c. to IEC			DE	shaft ex	xtensi					NDE	E shaft		sion			
Frame size	Motor type 1MB10.3-	No. of poles	HH	K	K'	L	LC	LL	LM	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	0DA2, 0DB2, 0DC3	2, 4, 6	73	9.5	13.5	292	343	79	328	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
	0DA3, 0DB3, 0DC3					327																	
90 S	All	2, 4, 6	78.5	10	14	347	405	79	383	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
90 L	All	2, 4, 6	78.5	10	14	387	445	79	383	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
100 L	All	2, 4	100.5	12	16	418	489	112	463.5	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4	100.5	12	16	401	475	112	447	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0, 1CC0	2, 6	115.5	12	16	449.5	535.5	130	516.5	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CA1, 1CB0	2, 4				499.5	585.5		550.5														
132 M	1CC2	6	115.5	12	16	449.5	535.5	130	516.5	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CB2, 1CC3	4, 6				499.5	585.5		550.5														
160 M	All	2, 4, 6	145	15	19	586	730	145	654	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6	145	15	19	646	790	145	714	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

SIMOTICS XP 1MB1 explosion-proof motors

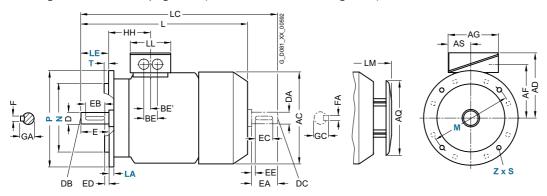
Aluminum series, self-ventilated - IE2 and IE1 · Frame sizes 80 M to 160 L

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1



F			D:						_																
For mo	otor		DIM	ensio	n aes	signai	ion acc	c. to IE	L .																
Frame size	Motor type 1MB10.1, 1MB10.2	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AQ	AS	В	BA	BA'	BB	BC	BE	BE'	С	CA	Н	НА	Υ
80 M	1MB10.1	2, 4, 6	125	30.5	150	159	149	149	96.5	112.5	119.5	155	61.5	100	32	32	118	23	36	18	50	112.5	80	8	41
90 S	1MB10.1	2, 4, 6	140	30.5	165	178	154	154	101.5	117.5	119.5	155	62.5	100	33	54	143	22.5	36	18	56	159	90	10	47
90 L	1MB10.1	2, 4, 6	140	30.5	165	178	154	154	101.5	117.7	119.5	155	62.5	125	33	54	143	22.5	36	18	56	134	90	10	47
100 L	All	2, 4, 6, 8	160	42	196	198	166	166	125.5	125.5	135	195	63.5	140	37.5	37.5	176	33.5	50	25	63	141	100	12	45
112 M	All	2, 4, 6, 8	190	46	226	222	177	177	136.5	136.5	135	195	63.5	140	35.4			26	50	25	70	129.7	112	12	52
132 S	All	2, 4, 6, 8	216	53	256	262	202	202	159.5	159.5	155	260	70.5	140	38	76 ¹⁾	218 ²⁾	26.5	48	24	89	128.5 ³⁾	132	15	69
132 M	All	2, 4, 6, 8	216	53	256	262	202	202	159.5	159.5	155	260	70.5	178	38	76	218	26.5	48	24	89	128.5 ³⁾	132	15	69
160 M	All	2, 4, 6, 8	254	60	300	314	236.5	236.5	190	190	175	260	77.5	210	44	89 ⁴⁾	300 ⁵⁾	47	57	28.5	108	148 ⁶⁾	160	18	85
160 L	All	2, 4, 6, 8	254	60	300	314	236.5	236.5	190	190	175	260	77.5	254	44	89	300	47	57	28.5	108	148 ⁶⁾	160	18	85

¹⁾ With screwed-on feet, dimension BA' is 38 mm.

²⁾ With screwed-on feet, dimension BB is 180 mm.

³⁾ With screwed-on feet, dimension CA is 166.5 mm.

⁴⁾ With screwed-on feet, dimension BA' is 44 mm.

⁵⁾ With screwed-on feet, dimension BB is 256 mm.

⁶⁾ With screwed-on feet, dimension CA is 192 mm.

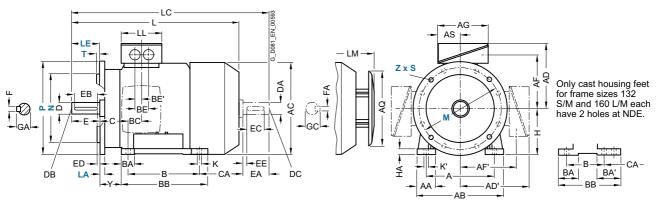
SIMOTICS XP 1MB1 explosion-proof motors

Aluminum series, self-ventilated – IE2 and IE1 · Frame sizes 80 M to 160 L

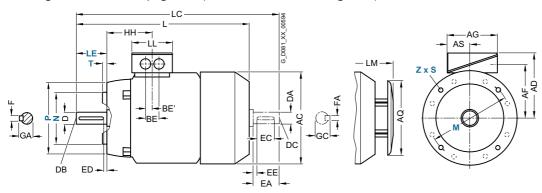
Dimensional drawings (continued)

Type of construction IM B35

For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)



Type of construction IM B14



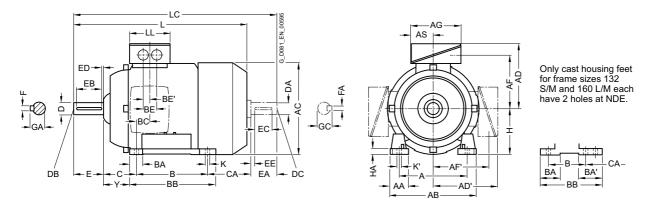
For mo	tor		Dimen	sion d	esigna	tion acc	to IEC			DE s	shaft ex	tensio	n				NDE	E shaft	extens	ion			
Frame size	Motor type 1MB10.1, 1MB10.2	No. of poles	HH	K	K'	L	LC	LL	LM	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	1MB10.1	2, 4, 6	73	9.5	13.5	253	342.5	123	328	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S/L	1MB10.1	2, 4, 6	78.5	10	14	294.5	405	123	383	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
90 L	1MB10.1	2, 4, 6	78.5	10	14	294.5	405	123	383	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
100 L	All	2, 4, 6, 8	96.5	12	16	388.5	454	112	428.5	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4, 6, 8	96	12	16	382	450	112	422	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	All	2, 4, 6, 8	115.5	12	16	456.5	535.5	130	516.5	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	2, 4, 6, 8	115.5	12	16	456.5	535.5	130	516.5	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	2, 4, 6, 8	155	15	19	594	730	145	654	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6, 8	155	15	19	594	730	145	654	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

SIMOTICS XP 1MB1 explosion-proof motors

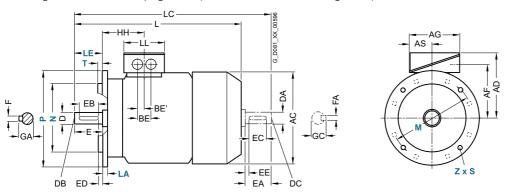
Cast-iron series, self-ventilated - IE3 · Frame sizes 71 M to 160 L

Dimensional drawings (continued)

Type of construction IM B3



Types of construction IM B5 and IM V1



For mot	tor		Dim	ension	desi	gnatio	on acc.	to IEC																
Frame size	Motor type 1MB15.3-, 1MB16.3-	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA	Н	НА	. Y
71 M	0CA2, 0CB2, 0CC2	2, 4, 6	112	30.5	132	145	149	149	112	112	126	62	90	32	32	106	21	36	18	45	83	71	7	37
	0CA3, 0CB3, 0CC3																28							
80 M	0DA2, 0DB2, 0DC2	2, 4, 6	125	30.5	150	162	159	159	122	122	126	62	100	32	32	118	22.5	36	18	50	112.5	80	8	41
	0DA3, 0DB3, 0DC3																							
90 S	All	2, 4, 6	140	30.5	165	180	164	164	127	127	126	62	100	33	54	143	24.5	36	18	56	149	90	10	47
90 L	All	2, 4, 6	140	30.5	165	180	164	164	127	127	126	62	125	33	54	143	24.5	36	18	56	164	90	10	47
100 L	All	2, 4, 6	160	42	196	198	193	193	147	147	163	80.5	140	40	40	176	37.5	48	24	63	176	100	12	45
112 M	All	2, 4, 6	190	46	226	222	195	195	150	150	163	80.5	140	40	40	176	30	48	24	70	155	112	12	52
132 S	1CA0, 1CC0	2, 6	216	53	256	262	214.5	214.5	169	169	163	80.5	140	44	81 ¹⁾	218 ²⁾	26.5	48	24	89	128.5	132	15	69
	1CA1, 1CB0	2, 4													-						178.5			
132 M	1CC2	6	216	53	256	262	214.5	214.5	169	169	163	80.5	178	44	81 ¹⁾	218	26.5	48	24	89	128.5	132	15	69
	1000 1000	4 C													_						178.5			
	1CB2, 1CC3	4, 6																						
160 M	All	2, 4, 6	254	60	300	314	261	261	213	213	190	92	210	73	117 ³⁾		⁾ 37	60	30	108		160	18	85

¹⁾ With screwed-on feet, dimension BA' is 43 mm.

²⁾ With screwed-on feet, dimension BB is 180 mm.

³⁾ With screwed-on feet, dimension BA' is 51 mm.

⁴⁾ With screwed-on feet, dimension BB is 256 mm.

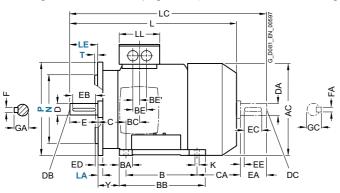
SIMOTICS XP 1MB1 explosion-proof motors

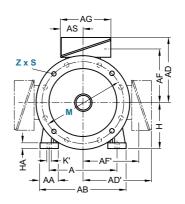
Cast-iron series, self-ventilated - IE3 · Frame sizes 71 M to 160 L

Dimensional drawings (continued)

Type of construction IM B35

For flange dimensions, see page 1/53 (Z = the number of retaining holes)

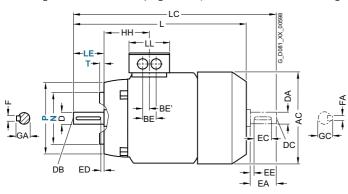


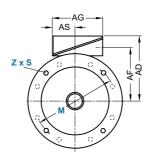


Only cast housing feet for frame sizes 132 S/M and 160 L/M each have 2 holes at NDE.



Type of construction IM B14





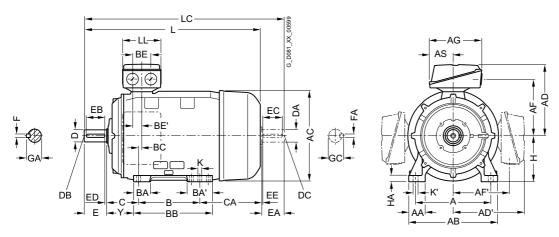
For mote	or		Dimen	eion d	lacian	ation ac	c. to IEC		DE	shaft ex	tancia	n				NIDE	shaft e	vtanci	on			
Frame	Motor type	No. of	HH	K	K'	L	LC LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
size	1MB15.3-, 1MB16.3-	poles																				
71 M	0CA2, 0CB2, 0CC2	2, 4, 6	63	7.5	7.5	240	278	102	14	M5	30	22	4	5	16	14	M5	30	22	4	5	16
	0CA3, 0CB3, 0CC3		70			280	318															
80 M	0DA2, 0DB2, 0DC2	2, 4, 6	72.5	10	13.5	292	342.5	102	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
	0DA3, 0DB3 0DC3					327	377.5															
90 S	All	2, 4, 6	80.5	10	10	347	405	102	24	M8	50	40	5	8	27	24	M8	50	40	5	8	27
90 L	All	2, 4, 6	80.5	10	10	387	445	102	24	M8	50	40	5	8	27	24	M8	50	40	5	8	27
100 L	All	2, 4, 6	100.5	12	16	418	489	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	All	2, 4, 6	100.5	12	16	402	475	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1CA0, 1CC0	2, 6	115.5	12	16	449.5	536	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CA1, 1CB0	2, 4				499.5	586															
132 M	1CC2	6	115.5	12	16	449.5	536	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
	1CB2, 1CC3	4, 6				499.5	586															
160 M	All	2, 4, 6	145	15	19	586	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6	145	15	19	646	790	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

SIMOTICS XP 1MB1 explosion-proof motors

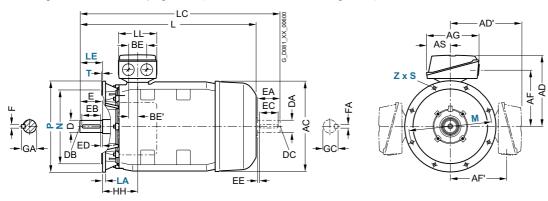
Cast-iron series, self-ventilated - IE3 · Frame sizes 180 M to 315 L

Dimensional drawings (continued)

Type of construction IM B3



Types of construction IM B5 and IM V1



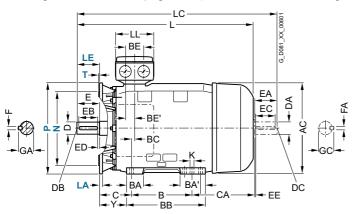
For mot	or		Dime	ension	desig	natior	acc.	to IEC	;													
Frame size	Motor type 1MB15.3-, 1MB16.3-	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	АН	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA
180 M	1EA2	2	279	65	339	356	286	286	234	234	190	468	92	241	85	120	328	34	60	30	121	202
	1EB2	4																				
180 L	1EB4	4	279	65	339	356	286	286	234	234	190	468	92	279	85	120	328	34	60	30	121	202
	1EC4	6																				
200 L	2AA4, 2AC4	2, 6	318	60	378	396	315	315	259	259	266	533	112	305	104	104	355	31	85	42.5	133	177
	2AA5, 2AB5, 2AC5	2, 4, 6																				
225 S	2BB0	4	356	80	436	449	338	338	282	282	266	556	112	286	92	117	361	15	85	42.5	149	218
225 M	2BA2	2	356	80	436	449	338	338	282	282	266	556	112	311	92	117	361	15	85	42.5	149	253
	2BB2, 2BC2	4, 6																				
250 M	2CA2	2	406	100	490	497	410	410	322	322	319	620	145	349	102	102	409	24	110	55	168	230
	2CB2, 2CC2	4, 6																				
280 S	2DA0	2	457	100	540	551	433	433	345	345	319	672	145	368	101	152	479	20	110	55	190	267
	2DB0, 2DC0	4, 6																				
280 M	2DA2	2	457	100	540	551	433	433	345	345	319	672	145	419	101	152	479	20	110	55	190	326
	2DB2	4																				
	2DC2	6																				216
315 S	3AA0	2	508	120	610	616	515	515	404	404	374	780	164	406	113	170	527	22	110	55	216	295
	3AB0, 3AC0	4, 6																				
315 M	3AA2	2	508	120	610	616	515	515	404	404	374	780	164	457	113	170	578	22	110	55	216	409
	3AB2, 3AC2	4, 6																				
315 L	3AA4	2	508	120	610	616	515	515	404	404	374	780	164	508	113	170	578	22	110	55	216	358
	3AB4, 3AC4	4, 6																				
	3AA5	2													176	227	648					513
	3AB5, 3AC5, 3AC6	4, 6																				

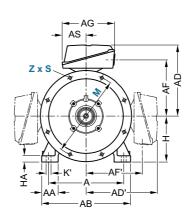
SIMOTICS XP 1MB1 explosion-proof motors

Cast-iron series, self-ventilated – IE3 · Frame sizes 180 M to 315 L

Dimensional drawings (continued)

Type of construction IM B35
For flange dimensions, see page 1/53 (Z = the number of retaining holes)





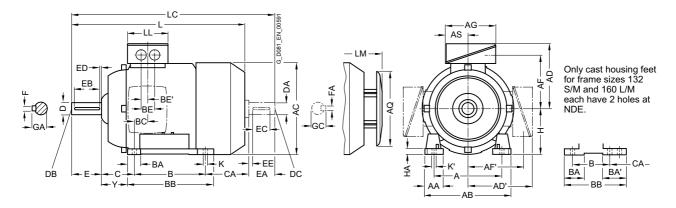
For mot	tor	Dimens	ion de	esig	natio	n acc	. to I	EC					DE	shaft (exten	sion				ND	E shaf	t exte	nsior	1		
Frame size	Motor type 1MB15.3-, 1MB16.3-	No. of poles	Н	HA	Υ	НН	K	K'	L	L' 1)	LC ²⁾	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
180 M	1EA2	2	180	20	95	155	15	19	698	698	814	165	48	M16	110	100	5	14	52	48	M16	110	100	5	14	51.5
	1EB2	4							668	668	784															
180 L	1EB4	4	180	20	95	155	15	19	698	698	814	165	48	M16	110	100	5	14	52	48	M16	110	100	5	14	51.5
	1EC4	6							668	668	784															
200 L	2AA4, 2AC4	2, 6	200	25	108	164	19	25	721	755	835	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
	2AA5, 2AB5, 2AC5	2, 4, 6							746	780	860															
225 S	2BB0	4	225	34	124	164	19	25	788	-	903	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
225 M	2BA2	2	225	34	124	164	19	25	818	852	933	197	55	M20	110	100	5	16	59	48	M16	110	100	5	14	51.5
	2BB2, 2BC2	4, 6							848	-	963		60		140	125	10	18	64	55	M20				16	59
250 M	2CA2	2	250	40	138	192	24	30	887	924	1002	233	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
	2CB2, 2CC2	4, 6								-	1032		65						69	60		140	125	10	18	64
280 S	2DA0	2	280	40	160	210	24	30	960	998	1105	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	2DB0, 2DC0	4, 6								-			75					20	79.5	65						69
280 M	2DA2	2	280	40	160	210	24	30	1070	1108	1105	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	2DB2	4								-	1215		75					20	79.5	65						69
	2DC2	6							960																	
315 S	3AA0	2	315	50	181	238	28	35	1052	1122	1197	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB0, 3AC0	4, 6							1082	-	1227		80		170	140	25	22	85	70					20	74.5
315 M	3AA2	2	315	50	181	238	28	35	1217	1287	1362	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB2, 3AC2	4, 6							1247	-	1392		80		170	140	25	22	85	70					20	74.5
315 L	3AA4	2	315	50	181	238	28	35	1217	1287	1362	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB4, 3AC4	4, 6							1247	-	1392		80		170	140	25	22	85	70					20	74.5
	3AA5	2			146				1372	1442	1517		65		140	125	10	18	69	60					18	64
	3AB5, 3AC5, 3AC6	4, 6							1402	-	1547		80		170	140	25	22	85	70					20	74.5

SIMOTICS XP 1MB1 explosion-proof motors

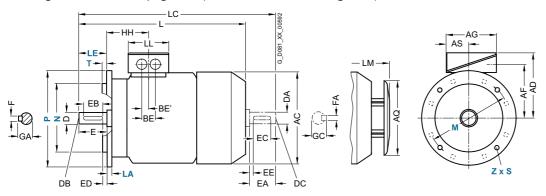
Cast-iron series, self-ventilated - IE2 · Frame sizes 71 M to 160 L

Dimensional drawings (continued)

Type of construction IM B3



Types of construction IM B5 and IM V1



For mot	or		Dim	ensio	n des	ignat	ion ac	c. to IE	С															
Frame size	Motor type 1MB15.1, 1MB16.1	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA	Н	НА	Υ
71 M	0CA2, 0CB2, 0CC2, 0CD2	2, 4, 6, 8	112	30.5	132	145	149	149	112	112	126	62	90	32	32	106	21	36	18	45	83	71	7	37
	0CA3, 0CB3, 0CC3, 0CD3																28							
80 M	0DA2, 0DB2, 0DC2, 0DD2	2, 4, 6, 8	125	30.5	150	162	159	159	122	122	126	62	100	32	32	118	22.5	36	18	50	112.5	80	8	41
	0DA3, 0DB3, 0DC3, 0DD3																							
90 S	All	2, 4, 6, 8	140	30.5	165	180	164	164	127	127	126	62	100	33	54	143	24.5	36	18	56	149	90	10	47
90 L	All	2, 4, 6, 8	140	30.5	165	180	164	164	127	127	126	62	125	33	54	143	24.5	36	18	56	124	90	10	47
100 L	All	2, 4, 6, 8	160	42	196	198	193	193	147	147	163	80.5	140	40	40	176	37.5	48	24	63	141	100	12	45
112 M	1BA2, 1BB2, 1BC2	2, 4, 6	190	46	226	222	195	195	150	150	163	80.5	140	40	40	176	30	48	24	70	129.7	112	12	52
	1BD2	8																						
132 S	All	2, 4, 6, 8	216	53	256	262	214.5	214.5	169	169	163	80.5	140	44	81 ¹⁾	218 ³⁾	26.5	48	24	89	167	132	15	69
132 M	All	2, 4, 6, 8	216	53	256	262	214.5	214.5	169	169	163	80.5	178	44	81 ¹⁾	218	26.5	48	24	89	129	132	15	69
160 M	All	2, 4, 6, 8	254	60	300	314	265	265	213	213	190	92	210	51	95 ²	⁾ 300 ⁴⁾	37	60	30	108	192	160	18	85
160 L	All	2, 4, 6, 8	254	60	300	314	265	265	213	213	190	92	254	51	95 ²	300	37	60	30	108	148	160	18	85

¹⁾ With screwed-on feet, dimension BA' is 43 mm.

²⁾ With screwed-on feet, dimension BA' is 51 mm.

³⁾ With screwed-on feet, dimension BB is 180 mm.

⁴⁾ With screwed-on feet, dimension BB is 256 mm

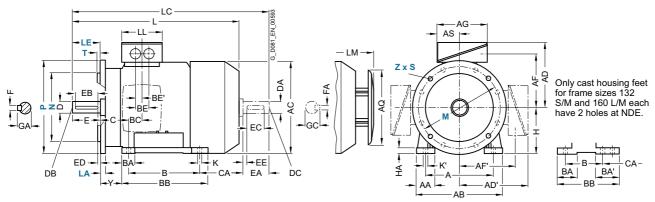
SIMOTICS XP 1MB1 explosion-proof motors

Cast-iron series, self-ventilated - IE2 · Frame sizes 71 M to 160 L

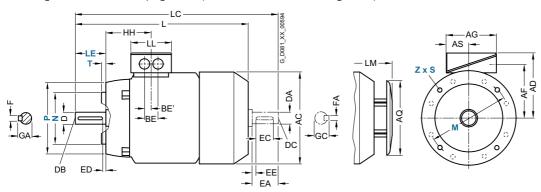
Dimensional drawings (continued)

Type of construction IM B35

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



Type of construction IM B14



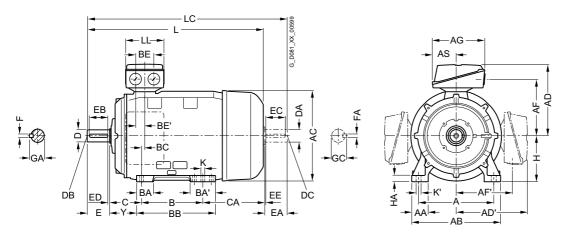
For mot	or		Dimens	sion d	lesigna	tion acc	. to IEC		DE s	shaft ex	tensio	n				NDE	Shaft e	extens	ion			
Frame size	Motor type 1MB15.1, 1MB16.1	No. of poles	НН	K	K'	L	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
71 M	0CA2, 0CB2, 0CC2, 0CD2	2, 4, 6, 8	63	7	7	240	278	102	14	M5	30	22	4	5	16	14	M5	30	22	4	5	16
	0CA3, 0CB3, 0CC3, 0CD3		70			280	318															
80 M	0DA2, 0DB2, 0DC2, 0DD2	2, 4, 6, 8	72.5	10	13.5	292	342.5	102	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
	0DA3, 0DB3, 0DC3, 0DD3					327	377.5															
90 S	All	2, 4, 6, 8	80.5	10	10	347	405	102	24	M8	50	40	5	8	27	24	M8	50	40	5	8	27
90 L	All	2, 4, 6, 8	80.5	10	10	387	445	102	24	M8	50	40	5	8	27	24	M8	50	40	5	8	27
100 L	All	2, 4, 6, 8	100.5	12	16	390.5	454	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	1BA2, 1BB2, 1BC2	2, 4, 6	100.5	12	16	390.5	450	134	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
	1BD2	8				408.5	475															
132 S	All	2, 4, 6, 8	115.5	12	16	458	536	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	All	2, 4, 6, 8	115.5	12	16	458	536	134	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	All	2, 4, 6, 8	145	15	19	596	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	All	2, 4, 6, 8	145	15	19	596	730	165	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

SIMOTICS XP 1MB1 explosion-proof motors

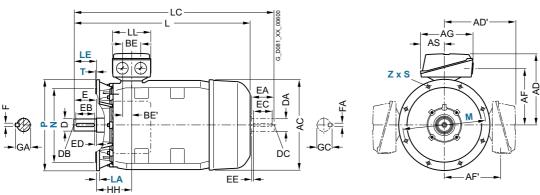
Cast-iron series, self-ventilated - IE2 · Frame sizes 180 M to 250 M

Dimensional drawings (continued)

Type of construction IM B3



Types of construction IM B5 and IM V1
For flange dimensions, see page 1/53 (Z = the number of retaining holes)



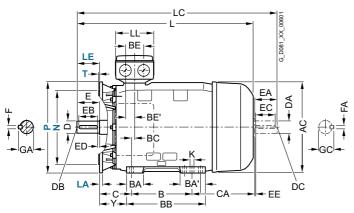
For mot	tor		Dime	ension	desi	gnatio	n acc	to IE	С													
Frame size	Motor type 1MB15.1-, 1MB16.1-	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	АН	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA
180 M/ 180 L	1EA2, 1EB24 1EC4, 1ED4 1EB4	2, 4 6, 8 4	279	65	339	356	286	286	234	234	190	468	92	241 279	85	120	328	34	60	30	121	202
200 L	All	2, 4, 6, 8	318	60	378	396	315	315	259	259	266	533	112	305	104	104	355	31	85	42.5	133	177
225 S/ 225 M	2BB0, 2BD0, 2BB2, 2BC2, 2BD2	4, 8 4, 6, 8	356	80	436	449	338	338	282	282	266	556	112	311	92	117	361	15	85	42.5	149	253
	2BA2	2																				
250 M	2CA2	2	406	100	490	497	410	410	322	322	319	620	145	349	102	102	409	24	110	55	168	230
250 M			406	100	490	497	410	410	322	322	319	620	145	349	102	102	409	24	110	55		168

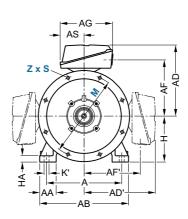
SIMOTICS XP 1MB1 explosion-proof motors

Cast-iron series, self-ventilated – IE2 · Frame sizes 180 M to 250 M

Dimensional drawings (continued)

Type of construction IM B35
For flange dimensions, see page 1/53 (Z = the number of retaining holes)





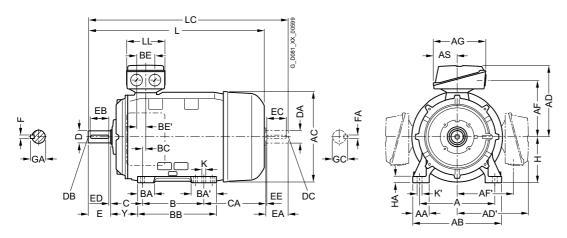
For mot	tor		Dim	ensid	on de	signa	ation	acc	to IE	C		DE :	shaft e	xtens	sion				NDE	E shaft	exte	nsior	ì		
Frame size	Motor type 1MB15.1-, 1MB16.1-	No. of poles	Н	НА	Υ	НН	K	K'	L	LC	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
180 M/ 180 L	1EA2, 1EB2 1EC4, 1ED4	2, 4 6, 8	180	20	95	155	15	19	668	784	165	48	M16	110	100	5	14	52	48	M16	110	100	5	14	51.5
	1EB4	4							698	814															
200 L	All	2, 4, 6, 8	200	25	108	164	19	25	721	835	197	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
225 S/	2BB0, 2BD0,	4, 8	225	34	124	164	19	25	788	903	197	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
225 M	2BB2, 2BC2, 2BD2	4, 6, 8							848	963															
	2BA2	2							818	933		55		110	100	5	16	59	48	M16				14	51.5
250 M	2CA2	2	250	40	138	192	24	30	887	1002	233	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
	2CB2, 2CC2, 2CD2	4, 6, 8								1032		65						69	60		140	125	10	18	64

SIMOTICS XP 1MB1 explosion-proof motors

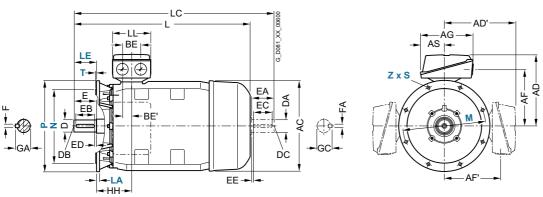
Cast-iron series, self-ventilated - IE2 · Frame sizes 280 S to 315 L

Dimensional drawings (continued)

Type of construction IM B3



*Types of construction IM B5 and IM V1*For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)



For mot	or		Dime	ension	desig	natior	n acc.	to IEC	;													
Frame size	Motor type 1MB15.1-, 1MB16.1-	No. of poles	Α	AA	AB	AC	AD	AD'	AF	AF'	AG	АН	AS	В	ВА	BA'	BB	ВС	BE	BE'	С	CA
280 S	2DA0	2	457	100	540	551	433	433	345	345	319	672	145	368	101	152	479	20	110	55	190	267
	2DB0, 2DC0, 2DD0	4, 6, 8																				
280 M	2DA2	2	457	100	540	551	433	433	345	345	319	672	145	419	101	152	479	20	110	55	190	216
	2DB2, 2DC2, 2DD2	4, 6, 8																				
315 S	3AA0	2	508	120	610	616	515	515	404	404	374	780	164	406	113	170	527	22	110	55	216	295
	3AB0, 3AC0, 3AD0	4, 6, 8																				
315 M	3AA2	2	508	120	610	616	515	515	404	404	374	780	164	457	113	170	578	22	110	55	216	409
	3AB2	4																				
	3AC2, 3AD2	6, 8															327					244
315 L	3AA4	2	508	120	610	616	515	515	404	404	374	780	164	508	113	170	578	22	110	55	216	358
	3AB4, 3AC4, 3AD4, 3AC5, 3AD5, 3AD6	4, 6, 8																				
	3AA5	2													176	227	648					513
	3AB5 ¹⁾ , 3AC6 ¹⁾	4, 6																				

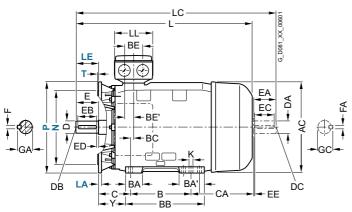
When ordering a terminal box positioned on the left-hand side or right-hand side, the feet are screwed on as standard. These screwed-on feet have 3 drill holes on the NDE with the respective dimension B 406, 457 and 508 mm; the dimension BB is 666 mm.

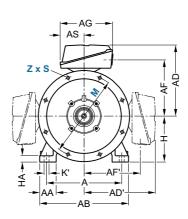
SIMOTICS XP 1MB1 explosion-proof motors

Cast-iron series, self-ventilated – IE2 · Frame sizes 280 S to 315 L

Dimensional drawings (continued)

Type of construction IM B35
For flange dimensions, see page 1/53 (Z = the number of retaining holes)





For mot	or		Dime	ensic	n des	signa	tion	acc.	to IEC			DE	shaft (exten:	sion				NDE	E shaft	exter	nsion			
Frame size	Motor type 1MB15.1-, 1MB16.1-	No. of poles	Н	НА	Υ	НН	K	K'	L	LC	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
280 S	2DA0	2	280	40	160	210	24	30	960	1105	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	2DB0, 2DC0, 2DD0	4, 6, 8										75					20	79.5	65						69
280 M	2DA2	2	280	40	160	210	24	30	960	1105	233	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	2DB2, 2DC2, 2DD2	4, 6, 8										75					20	79.5	65						69
315 S	3AA0	2	315	50	181	238	28	35	1052	1197	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB0, 3AC0, 3AD0	4, 6, 8							1082	1227		80		170	140	25	22	85	70					20	74.5
315 M	3AA2	2	315	50	181	238	28	35	1217	1362	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB2	4							1247	1392		80		170	140	25	22	85	70					20	74.5
	3AC2, 3AD2	6, 8							1082	1227															
315 L	3AA4	2	315	50	181	238	28	35	1217	1362	299	65	M20	140	125	10	18	69	60	M20	140	125	10	18	64
	3AB4, 3AC4, 3AD4, 3AC5, 3AD5, 3AD6	4, 6, 8							1247	1392		80		170	140	25	22	85	70					20	74.5
	3AA5	2			146				1372	1517		65		140	125	10	18	69	60					18	64
	3AB5, 3AC6	4, 6							1402	1547		80		170	140	25	22	85	70					20	74.5

Notes



6/2	Introduction
6/2	Overview
6/3	Smoke extraction motors
6/3	Orientation
6/3	Overview
6/4	Benefits
6/4 6/4	Application Technical specifications
	·
6/8 6/8	Article number code Selection and ordering data
6/9	<u> </u>
6/9	Selection and ordering data Self-ventilated or forced-air cooled
0,0	motors with IE3 Premium Efficiency
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 - Cast-iron series 1LE15 Basic Line, 1LE16 Performance Line
 - Cast-iron series 1LE55 Basic Line, 1LE56 Performance Line
 - Aluminum series 1MB10, cast-iron series 1MB15/1MB16

Introduction

Overview

With the designation SIMOTICS DP, Siemens offers a number of industry and application specific (**D**efinite **P**urpose) motors that differ from standard motors in that they have special industry/application-specific features:

SIMOTICS DP smoke extraction motors

Smoke extraction motors are characterized by the fact that they ensure operation of ventilation and heat extraction facilities in buildings and structures (e.g. tunnels) to keep escape routes free of smoke and increase the chances of survival in dangerous situations in accordance with standard EN 12101-3/2002, even at high temperatures.

Our smoke extraction motors in temperature class F200/F300 are therefore used in highly frequented public buildings, such as discos, shopping malls, movie theaters, theaters, airports, parking garages, stairwells, tunnels, and in industrial buildings.

You will find more information on smoke extraction motors on the following pages. Further variants (e.g. different numbers of poles) are possible on request.

SIMOTICS DP marine motors

Marine motors are exposed to air humidity and other hostile conditions on the high seas and must always perform their function reliably. Our marine motors meet the standards of the leading classification companies (DNV GL, BV, LR, RS, KR, ABS, RINA) and have type test certifications up to frame size 315 L. They are basically suitable for the higher ambient temperatures in engine rooms below deck. If requested, a representative of the marine classification society can be present in our factories to formally accept equipment.

You will find more information on marine motors on the following pages.

SIMOTICS DP steel plant motors

The steel plant motors are specially designed for applications in the steel industry with stringent requirements for vibrations and shocks according to class 3M4 (EN 60721-3-3). They provide an optimized technical and economic solution for numerous transportation tasks in the steel manufacturing process or in steel manufacturing facilities, in which no scale dust occurs. Steel plant motors can be operated at a constant speed directly on the line or are used together with the SINAMICS S120 converter for dynamic processes.

The ordering data for SIMOTICS DP steel plant motors can be found in the Catalog Add On D 81.1 AO – Motors for the steel industry.

SIMOTICS DP roller table and steel mill motors

SIMOTICS DP roller table and steel mill motors are designed for directly driving the rollers of working roller tables in reversing rolling mills. They are designed as completely enclosed three-phase induction motors, with a frame made of spheroidal graphite cast iron, ring ribs, and reinforced bearing shields. This makes the motors ideal for use with typical shocks and vibrations and severe dirt due to scale dust. On account of their special mechanical design, they meet the most stringent requirements demanded by this application. Of course, the motors are also designed for variable-speed reversing operation on frequency converters of the SINAMICS S and G series.

The ordering data for SIMOTICS DP roller table and steel mill motors can be found in the Catalog Add On D 81.1 AO – Motors for the steel industry.

SIMOTICS DP crane motors

Like marine motors, crane motors are exposed to extreme climatic conditions and must meet tough operating requirements. Our crane motors stand up to high humidity levels, salt-laden air, and high wind speeds. They are characterized by high overload capability and a large speed setting range, for example, to operate hoist mechanisms efficiently in converter operation. SIMOTICS DP crane motors are reliably protected against corrosion with especially elaborate paint systems and sealing. The rugged cast-iron motors are especially suitable for tough operation under hostile conditions, for indoor and outdoor use, e.g. in harbor facilities for rubber-tired gantry, rail-mounted gantry, and automatic stacking cranes. Special pulse encoders and brakes round off the product to form a perfectly adapted

The ordering data of the SIMOTICS DP crane motors can be found in Catalog CR 81 – Crane Motors (available soon).

Smoke extraction motors

Orientation

Overview



The low-voltage motors with squirrel-cage rotors in efficiency classes IE2 and IE3 for implementation in automatic smoke and heat extraction units to EN 12101-3 are mainly designed for driving smoke extraction fans. For this reason, they are known as smoke extraction motors. They are mainly used in buildings or structures in which smoke control is necessary due to their shape and arrangement.

Temperature/time classification according to EN 12101-3

- F200 corresponds to 200 °C for 120 min
- F300 corresponds to 300 °C for 60 min

Testing and test certificates

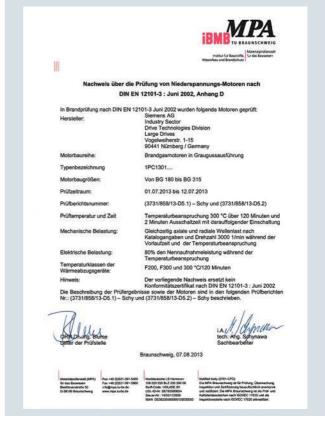
The Siemens smoke extraction motors have been tested in accordance with EN 12101-3 by the Materialprüfanstalt Braunschweig (Material Test Institute, Brunswick, Germany) in the "Institute for Building materials, concrete construction and fire protection".

Test conditions for F200/F300:

- Temperature 300 °C
- Time 120 min

With a test time of 120 min, in contrast to the standard test time of 60 min, the Siemens F200/F300 smoke extraction motors offer a great deal more reliability.

The test certificates are available



The motors are manufactured with aluminum or cast-iron housings depending on their frame sizes. The smoke extraction motors are based on the standard motors and comprise the following motor types:

Temperature/time classes F200 and F300

- Self-ventilated motors Aluminum series 1PC1300, 1PC1303 and cast-iron series 1PC1301, 1PC1304 version with integrated fan (metal)
- Forced-air cooled motors Aluminum series 1PC1300, 1PC1303 and cast-iron series 1PC1301, 1PC1304 (in each case Article No. with -Z and order code F90) – version without integrated fan; located in the air flow of the driven fan

The resonance of mountings and reactions from driven machines can cause high levels of vibration in the overall equipment unit. This has a significant effect on the expected lifetime of the bearing.

These vibrations are evaluated during continuous operation in accordance with Zones A and B according to ISO 10816.

To ensure safe operation of fans under standardized test conditions of 300 °C for a duration of 2 hours, the following limit values for radial vibrations on the bearing plate must be maintained even under these conditions.

Maximum admissible vibration values under standardized test conditions at 300 °C for a duration of 2 h in the test laboratory.

Frame size	Vibration velocity mm/s
80 112	15
132 200	20
225 315	25

Smoke extraction motors

Orientation

Benefits

The smoke extraction motors operate as so-called "dual-function motors":

- Normal operation (no instance of fire): Incoming/outgoing air flow
- Fault operation (in case of fire):
 - Removal of smoke from escape and access routes
 - Supporting fire fighting by creating a smoke-free zone
 - Protecting devices and equipment
 - Reducing the heat stress of components during a fire
 - Reducing secondary damage due to thermal byproducts and hot gases.

Admissible normal operating temperature:

-20 to 40 °C as standard

The smoke extraction motors offer the user a number of advantages:

- The assignment of standard powers is unchanged this means that a larger construction size is not required for smoke extraction motors
- IE2 and IE3 efficiency grades comply with the European EUP Directive
- Smoke extraction motors are generally equipped with located bearings at the drive-end (DE) of the motor
- A fire event plate is screwed onto the motor
- Freely protruding cables are included in the scope of supply
- Radial-flow and axial-flow fan drive are possible
 - Self-ventilated 1PC1300 and 1PC1301 series motors with a metal fan impeller can be used as radial-flow fan drives
 - Forced-air cooled 1PC1300 and 1PC1301 series motors can be implemented as axial flow fan drives (in each case Article No. with -Z and order code F90) taking into account the required volumetric flow for motor cooling. In this case the driven fan performs the ventilation.

Application

The smoke extraction motors are designed for use in automatic smoke and heat extraction units to EN 12101-3. Typical application examples include:

- Tunnels
- Single and multi-storey shopping centers

- · Industrial buildings and warehouses
- · Building complexes and atriums
- Theaters
- Indoor car parks
- Staircases

Technical specifications

Standards and regulations

In addition to the relevant standards and regulations, EN 12101-3 applies for non-portable fire-fighting systems:

Systems for controlling smoke and heat flows, part 3, specifications for smoke and heat extraction units.

Voltage and frequency

Rated voltages according to IEC 60038

- 230 V∆ 50 Hz
- 400 V∆ 50 Hz and 400 VY 50 Hz
- 500V∆ 50 Hz and 500 VY 50 Hz
- 690 VY 50 Hz

Non-standard voltages (voltage codes **9** in the 12th position of the Article No., **0** in the 13th position of the Article No. and order code **M1Y**) as well as 60 Hz on request for 4 to 6-pole machines. Converter operation is permissible up to a line voltage of $U_{\rm rated} \leq 460 \text{ V}$ (see section "Insulation system").

Measure's must be implemented in the plant by the system supplier for switchover to line operation in the event of a fire.

The following rating plates are available for the smoke extraction motors:

Rating plate

For the lister

For the listed rated voltages with 50 Hz power data including information on bearing types and optional regreasing data

• Fire event plate

Complete with number and year of issue of the European standard, temperature/time class and minimum duration of function

All plates are resistant to corrosion. A second set of plates is included with the motor, loose.

Rated power, duty type, number of poles

The rated power applies for continuous duty (normal duty) according to IEC 60034-1, for a frequency of 50 Hz, ambient temperatures up to 40 °C and installation altitudes up to 1000 m above sea level.

Derating is necessary at higher coolant temperatures and installation altitudes (reduction factor k_{HT}), see table below.

Reduction factor k_{HT} for different installation altitudes and/or coolant temperatures

Reduction factor k _H	Т						
Installation altitude above sea level	Ambient tempe	erature in °C					
m	< 30 °C	30 40 °C	45 °C	50 °C	55 °C	60 °C	
1000	1.07	1.00	0.96	0.92	0.87	0.82	
1500	1.04	0.97	0.93	0.89	0.84	0.79	
2000	1.00	0.94	0.9	0.86	0.82	0.77	
2500	0.96	0.90	0.86	0.83	0.78	0.74	
3000	0.92	0.86	0.82	0.79	0.75	0.70	
3500	0.88	0.82	0.79	0.75	0.71	0.67	
4000	0.82	0.77	0.74	0.71	0.67	0.63	

Coolant temperature and installation altitude are rounded to 5 °C and 500 m respectively

Smoke extraction motors

Orientation

Technical specifications (continued)

Operation in the event of a fire

In addition to normal duty, operation in the event of a fire as specified in EN 12101-3 is available.

At the end of the fire incident, the motor may be unfit for normal duty. For this reason, regulations stipulate that the motor must be replaced as a matter of course.

In the event of a fire, any "thermal motor protection" must be deactivated.

Standard number of poles

2. 4 and 6

For more poles and pole-changing motors, please inquire.

Insulation system

The special insulation systems are adapted to the respective temperature/time classes.

The insulation of the smoke extraction motors is designed such that converter operation is permissible for line voltages ≤ 460 V for frame sizes 80 to 200 and ≤ 500 V for frame sizes 225 to 315.

The following limit values (voltage values are peak values) must be complied with in all operating states:

Frame sizes 80 to 200:

- Üphase-to-phase ≤ 1500 V
- U_{phase-to-ground} ≤ 1100 V

Frame sizes 225 to 315:

- $\hat{U}_{phase-to-phase} \le 1600 \text{ V}$ $\hat{U}_{phase-to-ground} \le 1400 \text{ V}$

Voltage rise times of $t_s > 0.1 \,\mu s$.

In the event of a fault, the motors must be switched over from converter operation to line operation. If converter operation is also required in the event of a fire, this must be ensured through system testing and full acceptance testing by the fan manufacturer.

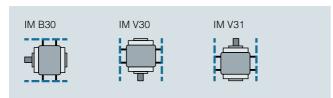
Drainage holes

Generally available; but closed if ordered according to IP55 degree of protection.

Bearing plates

All bearing plates of types of construction IM B3, IM B5 and IM B14 are cast iron.

For smoke extraction motors, it is also possible to order on request the special types of construction IM B30 (horizontal type of construction) as well as IM V30 and IM V31 (both vertical types of construction) in accordance with EN 60034-7. (clamp mounting, pad mounting, shaft fan mounting)



On the motor side, either 3 or 4 radial mounting threads can be provided on the housing or the IM B3 bearing plates at DE and NDE. These can be used to fix the motor centrally inside a pipe or a fan unit.

Connection system

Protruding cable with casing, without terminal box with cover plate or "nozzle cap". The cable length, core ends and diameter depend on the frame size.

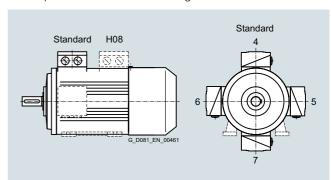
Frame size	Rated power	Number of cores	Cross- section	Length	Cable diameter ± 1 mm
	kW		mm ²	m	mm
80 112	0.37 4	7	1.5	1	12
132	3 7.5	7	1.5	1.5	12
160	7.5 18	7	4	1.5	16
180 200	15 37	7	10	1.5	25
225 280	30 55	7	10	2.5	25
280 315	75 90	2 × 4	16	2.5	24
315	110 132	2 × 4	$3 \times 35 + 25$	2.5	33
315	160 200	2 × 4	$3 \times 50 + 25$	2.5	38

Special versions of connecting cables are available on request.

Location of the terminal box base

Frame sizes 80 to 315:

- At top and at drive end (DE) as standard 16th position of the Article No. digit 4
- Terminal box base right 16th position of the Article No. digit 5
- Terminal box base left 16th position of the Article No. digit 6
- Terminal box base at bottom (not possible for IM B3) 16th position of the Article No. digit 7



Location of terminal box base with the corresponding digits in the 16th position of Article No. 0° position of cable outlet

Optional: Terminal box base at NDE

- Order code **H08**

When the terminal box base is rotated to the non-drive end of the motor, it is important to note that dimensions "C" and "CA" will not comply with the values specified in EN 50347. Please request a dimension drawing.

Direction of cable outlet

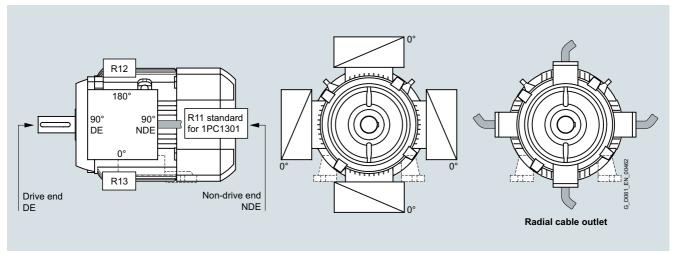
- Frame sizes 80 to 160 (aluminum): Further routing of the connecting cable only in radial direction with respect to the position of the terminal box base.
- Frame sizes 180 to 315 (cast iron): Further routing of the connecting cable towards NDE Option **R11** with respect to the position of the terminal box

Other options are also possible after R12 or R13. **R13** = Cable entry in 0° position as shown in diagram.

Smoke extraction motors

Orientation

Technical specifications (continued)



Location of the cable entries with corresponding order codes. The equipment is grounded with a protruding cable

Bearings, grease

Special bearing systems are used.

Deep-groove bearings of series 60, 62 or 63 without play are used depending on the individual frame sizes.

The located bearing is generally at the drive-end (DE).

The nominal bearing lifetime $L_{10\;h}$ (fan drive) is at least 20 000 hours at full rated load.

The motors of frame sizes 80 to 250 generally have bearings that are greased for life.

Paint finish

The motors are shipped as standard with a two-component paint finish (worldwide) in the color RAL 7030.

Required minimum cooling air flow in standard duty

Required cooling	air flow for 1PC130	0/1PC1303 motors											
Frame size	No. of poles	No. of poles											
	2	4	6										
	m ³ /min	m ³ /min	m ³ /min										
80	1.36	0.66	0.42										
90	2.66	1.34	0.87										
100	3.8	2.1	1.5										
112	5.0	2.9	1.9										
132	6.3	4.6	3.1										
160	10.9	6.7	5										

Required cooling	air flow for 1PC130	01/1PC1304 motors	
Frame size	No. of poles		
	2	4	6
	m ³ /min	m ³ /min	m ³ /min
180	12.4	7.8	5.2
200	14.3	10.6	7.9
225	21.5	18.5	15
250	30	20	20
280	26.5	32	24
315	40	40	30

In the motor version without an integrated fan (with order code **F90**), the motor is located in the airflow of the driven fan that must drive the minimum cooling airflow over the motor housing. The operating temperature of the motor can be reduced at higher air flow rates. The decisive factor for the effectiveness of the increased cooling airflow is the actual increase in the winding temperature during rated operation.

Admissible loading on the shaft extension

The values specified in the table "Admissible loading on the shaft extension" are the tested and approved maximum values (test duration two hours, temperature in case of fire 300 °C).

In standard duty at coolant temperatures up to CT 40 °C, a bearing lifetime $L_{10~\rm h}$ > 20 000 hours is achieved.

The values apply to all horizontal mounting positions and to all vertical mounting positions with shaft pointing downwards.

Please inquire in the case of:

- · Higher force pairings
- Motors with more poles
- Vertical arrangement, depending on the rotor mass and mounting location (shaft pointing downwards or shaft pointing upwards) of the smoke extraction motor. If necessary, higher forces can be approved.

Smoke extraction motors

Orientation

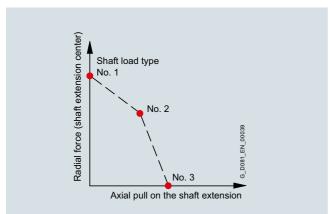
Technical specifications (continued)

Admissible loading on the shaft extension in the event of fire

Frame	Bearings	Туре	e of loading on shaft	Horizo	ntal shat	ft			Shaft pointing vertically downwards						
size	DE			2-pole		4-pole		6-pole		2-pole		4-pole		6-pole	
				F_{R}	F _{A tens}	F_{R}	F _{A tens}	F_{R}	F _{A tens}	F_{R}	F _{A tens}	F_{R}	F _{A tens}	F_{R}	F _{A tens}
		No.		Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν	Ν
80	6204	1	Radial force	400	0	490	0	540	0	360	0	450	0	540	0
		2	Radial force + axial tensile force	150	130	170	170	190	200	40	172	40	225	40	275
		3	Axial tensile force	0	215	0	265	0	320	0	197	0	250	0	300
90	6205	1	Radial force	650	0	730	0	795	0	590	0	730	0	795	0
		2	Radial force + axial tensile force	250	205	280	260	310	305	100	259	100	330	100	390
		3	Axial tensile force	0	343	0	415	0	480	0	310	0	384	0	450
100	6206	1	Radial force	890	0	1000	0	1080	0	820	0	1000	0	1080	0
		2	Radial force + axial tensile force	400	265	500	325	600	345	300	265	300	385	300	455
		3	Axial tensile force	0	490	0	600	0	675	0	432	0	540	0	625
112	6206	1	Radial force	870	0	980	0	1055	0	760	0	970	0	1055	0
		2	Radial force + axial tensile force	400	252	500	310	600	330	250	260	250	380	250	450
		3	Axial tensile force	0	478	0	595	0	675	0	403	0	510	0	590
132	6208	1	Radial force	1070	0	1415	0	1530	0	810	0	1060	0	1220	0
		2	Radial force + axial tensile force	450	315	550	450	650	480	250	300	250	520	250	585
		3	Axial tensile force	0	580	0	775	0	850	0	450	0	640	0	820
160	6209	1	Radial force	1440	0	1630	0	1760	0	1210	0	1580	0	1780	0
		2	Radial force + axial tensile force	700	450	800	570	900	650	500	335	500	525	500	665
		3	Axial tensile force	0	824	0	1015	0	1140	0	620	0	790	0	920
180	6210	1	Radial force	1540	0	1750	0	1900	0	1020	0	1400	0	1670	0
		2	Radial force + axial tensile force	770	430	900	545	1000	630	550	218	550	420	550	575
		3	Axial tensile force	0	815	0	1040	0	1183	0	453	0	733	0	875
200	6212	1	Radial force	2050	0	2380	0	2620	0	1450	0	1700	0	2090	0
		2	Radial force + axial tensile force	1200	770	1350	970	1500	1075	500	460	500	750	500	1600
		3	Axial tensile force	0	1350	0	1650	0	1875	0	720	0	1040	0	1905
225	6213	1	Radial force	2460	0	2720	0	2970	0	1910	0	2450	0	2900	0
		2	Radial force + axial tensile force	1370	900	1500	1095	1700	1200	500	660	500	1000	500	1250
		3	Axial tensile force	0	1560	0	1910	0	2170	0	920	0	1290	0	1520
250	6215	1	Radial force	2770	0	3230	0	3500	0	1490	0	2230	0	2700	0
		2	Radial force + axial tensile force	1400	840	1600	1095	1800	1340	500	460	500	815	500	1080
		3	Axial tensile force	0	1500	0	1865	0	2130	0	710	0	1090	0	1375
280	6315	1	Radial force	3180	0	5000	0	5500	0	3000	0	5600	0	6100	0
	(2-pole),	2	Radial force + axial tensile force	1700	1820	2000	2000	2300	2200	600	1085	600	2300	600	2750
	6317 (4, 6-pole)	3	Axial tensile force	0	2630	0	3050	0	3500	0	1380	0	2600	0	3100
315	6316	1	Radial force	3470	0	5300	0	5900	0	1000	0	3600	0	3850	0
3.0	(2-pole),	2	Radial force + axial tensile force	1750	2200	2000	2170	2300	2530	200	363	1000	1150	1000	1610
	6319 (4, 6-pole)	3	Axial tensile force	0	3000	0	3080	0	3560	0	463	0	1690	0	2100
	(4, 0-pole)	J	, sac terrollo foroc	J	5000	5	5555	3	5000	5	100	5	1000	5	_100

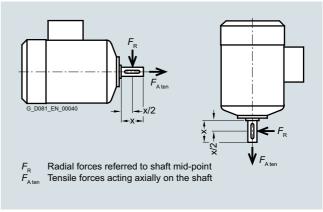
Note:

In the event of a fault (fire), the reduced loads given above must be observed and ensured by appropriate measures in the ventilation system.



Load types

Under normal operating conditions (CT 40 °C), the admissible loads specified in part 1 of the catalog under "Bearings and lubrication" must be complied with.



Forces on shaft extension

Article number code

Selection and ordering data

The article number consists of a combination of digits and letters and is divided into three hyphenated blocks to provide a better overview, e.g.:

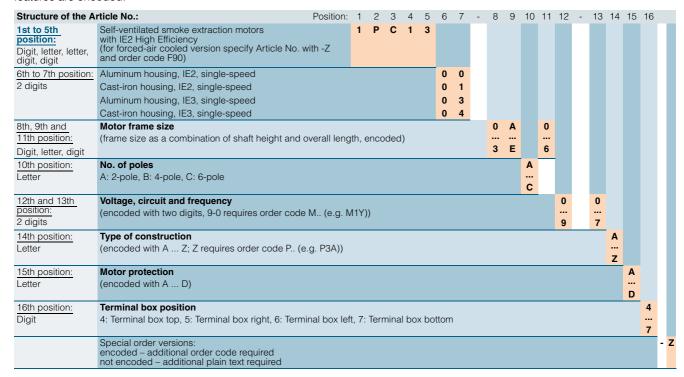
1PC1301-1EB22-2FB4-Z L22

The first block (positions 1 to 7) identifies the motor type. The second block (positions 8 to 12) defines the motor frame size and length, the number of poles and in some cases the frequency/voltage. In the third block (positions 13 to 16), the frequency/voltage, type of construction and further design features are encoded.

For deviations in the second and third block from the catalog codes either **Z** or **90** should be used as appropriate.

Ordering data:

- Complete Article No. and order code(s) or plain text
- If a quotation has been requested, please specify the quotation number in addition to the Article No.
- When ordering a complete motor as a spare part, please specify the works serial No. for the previously supplied motor as well as the Article No.



Ordering example

Selection criteria	Requirement	Structure of the Article No.
	•	
Motor type 1PC1304	Self-ventilated smoke extraction motor, cast-iron version, with IE3 High Efficiency, IP55 degree of protection	1PC1304-
Motor frame size/No. of poles/Speed	180 M/4-pole/1500 rpm	1PC1304-1EB2 E-EEEE
Rated power	18.5 kW	
Voltage and frequency	230 VΔ/400 VY, 50 Hz	1PC1304-1EB22-2
Type of construction with special version	IM B5	1PC1304-1EB22-2F
Motor protection	Motor protection with 1 or 3 PTC thermistors or PTC thermistors – for tripping (2 terminals)	1PC1304-1EB22-2FB■
Terminal box position	Terminal box at top	1PC1304-1EB22-2FB4
Special version	Bearing design for increased cantilever forces	1PC1304-1EB22-2FB4-Z L22



Smoke extraction motors

Self-ventilated or forced-air cooled motors with IE3 Premium Efficiency · Aluminum series 1PC1303

Selection and ordering data

Operating values at rated power Aluminum series																		
	P _{rated,} 60 Hz	Frame size	n _{rated,} 50 Hz	T _{rated} 50 Hz	50 Hz,	50 Hz,	50 Hz,	φ_{rated} ,	I _{rated} , 50 Hz, 400 V		I _{LR} / I _{rated}		L _{pfA,} 50 Hz		1PC1303		m _{IM B3}	J
					4/4	3/4	2/4	50 Hz, 4/4							Article No.			. 0
	kW	FS	rpm	Nm	%	%	%		Α				. ,	dB(A)	(10.1.10)		kg	kgm ²
Effici	ng: se ency a	ıt-ventii ccordin	ated (IC g to IE	C 6003	or with 34-30: II	oraer c E3 Pren	oae F91 nium E1	o torced ficienc	ı-aır co y, servi	oled w ce fact	/ithou tor (S	t exte F) 1.1	rnai tai 5	n and ta	n cover (IC418)			
				180 (te	mperat	ure cla	ss H), II	P55 deg	ree of	orotec	tion, ι	ıtilizat	ion in	accorda	nce with thermal class	130 (temperat	ure clas
•		rpm at 5					0.4.0									—		0.004
	_	80 M	2850	2.5	80.7	82.2	81.9	0.86	1.56	2.6	6.2	3.0	60	71	1PC1303-0DA2		11	0.001
	_	80 M	2885	3.6	82.7	83.9	83.1	0.85	2.25	3.0	7.1	3.3	60	71	1PC1303-0DA3		12	0.001
-	_	90 S	2910	4.9	84.2	84.6	83.2	0.86	3.00	2.7	8.1	4.2	65	77	1PC1303-0EA0		15	0.002
		90 L	2910	7.2	85.9	86.8	86.1	0.88	4.20	2.6	8.3	4.0	65	77	1PC1303-0EA4		19	0.003
		100 L	2920	9.8	87.1	88.0	87.5	0.88	5.60	2.8	8.0	4.3	67	79 81	1PC1303-1AA4		26	0.005
		112 M	2945	13	88.1	89.1	88.7	0.90	7.30	1.8	8.2 7.4	3.5	69	80	1PC1303-1BA2 - 1 1PC1303-1CA0 - 1		34	0.012
-	_	132 S	2950	18	89.2	90.0	89.7	0.90	9.90	1.8		3.6	68				43	0.024
	_	132 S	2950	24	90.1	91.0	91.0	0.92	13.1	1.9	8.3	3.9	68	80	1PC1303-1CA1		57	0.031
	_	160 M	2955	36	91.2	91.0	89.5	0.89	19.6	2.4	7.9	3.8	70	82	1PC1303-1DA2		75	0.053
		160 M	2960	48	91.9	92.1	91.2	0.87	27.0	2.7	8.7	4.3	70	82	1PC1303-1DA3		84	0.061
	_ 1500 •	160 L	2955	60	92.4	92.8	92.4	0.90	32.0	2.8	9.0	4.2	70	82	1PC1303-1DA4		94	0.068
		rpm at 5		0.0	00.0	01.1	70.0	0.70	1.00	0.1	F 0	0.1	F0	0.4	4B04000 0000		4.4	0.000
		80 M	1440	3.6	80.8	81.1	79.3	0.78	1.26	2.1	5.9	3.1	53	64	1PC1303-0DB2		11	0.002
. •	_	80 M	1450	4.9	82.5	82.3	79.9	0.75	1.75	2.7	7.1	3.9	53	64	1PC1303-0DB3		14	0.002
	_	90 S	1440	7.3	84.1	84.7	83.4	0.78	2.40	2.9	6.9	3.6	56	68	1PC1303-0EB0		16	0.003
•		90 L	1445	10	85.3	85.9	84.9	0.80	3.15	2.7	7.2	3.6	56	68	1PC1303-0EB4		19	0.004
_	_	100 L	1465	14	86.7	87.3	86.4	0.83	4.40	2.1	7.6	3.6	60	72	1PC1303-1AB4		30	0.014
	_	100 L	1460	20	87.7	88.4	88.2	0.83	5.90	2.3	7.3	3.7	60	72	1PC1303-1AB5		30	0.014
	_	112 M	1460	26	88.6	89.2	88.6	0.82	7.90	2.4	7.1	3.7	58	70	1PC1303-1BB2		34	0.017
•	_	132 S	1470	36	89.6	90.1	89.5	0.84	10.5	2.1	7.2	3.4	64	76	1PC1303-1CB0		59	0.046
	_	132 M	1470	49	90.4	91.1	90.8	0.84	14.3	2.4	7.4	3.5	64	76	1PC1303-1CB2	#	64	0.046
-	_	160 M	1475	71	91.4	91.9	91.4	0.84	20.5	2.2	6.9	3.2	65	77	1PC1303-1DB2	 	83	0.083
5		160 L	1475	97	92.1	92.3	91.5	0.82	28.5	2.5	8.5	3.8	65	77	1PC1303-1DB4■-■■		100	0.099
oltage							Λ	Notor pr	otection	1		Versi	on				Order	code
		otatable	4 x 90°	-														
		400 VY					Α	ny				Stan	dard		2 2		-	
		690 VY						ny				Stan			3 4		-	
	00 VY						A	ny						ditional c	J.		-	
	00 VΔ	1)						ny				With	out add	ditional c			-	
		iges 1) a		e inforr	mation,	see pag	ge 6/15								9 0			
		structio		- 2\								Versi					Order	code
	flange	:		B3 ²⁾								Stan				4	-	
ith fla	-			B5 ²⁾	1									nal char	~		-	
ith fla	0			B14 ²⁾		,			- 1.			With	additio	nal char	ge		-	
		s of con	structio	n and i	more in	formatic	n, see f	rom pag	ge 6/16									
	orotect											Versi	on					
		otatable	4 x 90°	-								•						
ithout												Stan				A		
		r with 1				,		,	or 100	to 200))	With	additio	nal char	ge	В		
		or protec		d more	informa	ation, se	ee page	6/19										
ermin		positio	า									Versi						
	al box a											Stan	dard			4		
		inal hav	nocitio	ne and	more in	nformati	on see	page 6	/20									
or othe			positio	no and	i illore ii		011, 000	page									_	
or othe	l versio							pago o							1PC1303■-■■			code(s)

Operating values at rated power for 60 Hz possible on request (for 4-pole and 6-pole).

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.

Smoke extraction motors



Self-ventilated or forced-air cooled motors with IE3 Premium Efficiency · Cast-iron series 1PC1304

Selection and ordering data Operating values at rated power Cast-iron series 1PC1304 P_{rated} , P_{rated} , Frame n_{rated} , T_{rated} , η_{rated} , η_{rated} , η_{rated} , cos-I_{rated}, $T_{LR}/I_{LR}/T_{B}/L_{pfA}$ LWA $m_{\rm IM~B3}$ J 50 Hz 50 Hz, size Prated, 50 Hz, Trated Irated Trated 50 Hz 50 Hz, 4/4 3/4 2/4 50 Hz, 400 V Article No 4/4 dB(A) dB(A) kgm² kW kW FS Nm rpm ka Cooling: self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) Efficiency according to IEC 60034-30: IE3 Premium Efficiency, service factor (SF) 1.15 Insulation: Thermal class 180 (temperature class H), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) e: 3000 rpm at 50 Hz 22 **180 M** 2950 71 92.7 93.2 92.9 0.89 38.5 2.3 7.5 3.5 80 1PC1304-1EA2 - 169 67 2.5 30 200 L 2955 97 93.3 93.5 92.9 0.87 53.0 7.0 3.3 80 1PC1304-2AA4 - 222 0.13 67 37 2955 93.7 94.2 94.0 0.88 65.0 2.5 7.1 3.2 80 1PC1304-2AA5 - 245 0.16 200 L 120 67 **225 M** 2960 87 1PC1304-2BA2 - 315 45 145 94.0 94.3 94.2 0.89 78.0 2.4 6.9 3.3 73 0.26 55 250 M 2975 177 94.3 94.3 93.7 0.89 95.0 2.3 6.7 3.1 73 87 1PC1304-2CA2 - 385 0.46 **1PC1304-2DA0 - 510** 0.89 75 280 S 2975 241 94.7 94.6 93.9 128 2.4 6.8 3.0 74 88 0.7790 280 M 2975 289 95.0 94.9 94.4 0.90 152 2.4 7.2 3.1 74 88 1PC1304-2DA2 - 590 0.94 110 2982 94.7 0.91 183 2.4 3.1 89 1PC1304-3AA0 - 750 315 S 352 95.2 95.2 1PC1304-3AA2 - 880 2982 2.5 132 315 M 423 95.4 95.3 95.0 0.91 220 7.2 3.1 75 89 1.6 1PC1304-3AA4 - 980 2982 95.6 265 2.8 7.8 160 315 L 512 95.6 95.1 0.92 3.3 77 91 1.9 95.8 200 315 L 2985 640 95.8 95.4 0.92 330 2.5 7.2 3.0 77 91 1PC1304-3AA5 - 1150 2.3 e: 1500 rpm at 50 Hz 4-pc 18.5 180 M 1470 120 92.6 93.1 929 0.82 35.0 2.5 7.2 3.3 66 73 1PC1304-1EB2 - 170 0.13 22 93.6 1PC1304-1EB4 - 180 180 L 1470 143 93.0 93.7 0.83 41.0 2.3 6.8 3.3 68 75 0.14 30 200 L 1470 195 93.6 94.0 93.7 0.84 55.0 2.6 7.3 3.1 65 72 1PC1304-2AB5 --0.22 37 225 S 1478 239 93.9 94.0 93.9 0.86 66.0 2.5 6.4 2.7 65 78 1PC1304-2BB0 - 285 0.42 1PC1304-2BB2 - 320 2.6 2.7 0.47 45 225 M 1478 291 94.2 94.5 94.7 0.86 80.0 6.4 65 78 2.5 2.9 1PC1304-2CB2 - 420 55 250 M 1482 354 94.6 94.9 94.8 0.87 96.0 6.8 66 79 0.85 75 280 S 1485 482 95.0 95.0 94.7 0.86 133 2.5 6.9 3.0 69 83 **1PC1304-2DB0 - 570** 1.4 90 280 M 1485 94.9 0.87 7.2 3.0 70 1PC1304-2DB2 - 670 1.7 579 95.2 95.1 157 2.6 84 84 1PC1304-3AB0 - 760 110 315 S 1488 706 95.4 95.5 95.2 0.87 191 2.6 6.8 2.9 70 2.2 _ 132 315 M 1490 846 95.6 95.7 95.7 0.87 230 7.3 3.0 87 1PC1304-3AB2 - 960 2.8 73 2.9 3.1 87 1PC1304-3AB4 - 990 160 315 L 1490 1025 95.8 95.9 95.9 0.87 275 2.9 7.3 73 3.1 200 315 L 1488 1284 96.0 96.1 95.9 0.88 340 3.2 7.4 3.0 73 87 1PC1304-3AB5 - 1190 3.7 Voltages Order code Version Cover plate rotatable 4 x 90° 2 50 Hz 230 VΔ/400 VY Standard 2 3 2 4 9 4 7 0 50 Hz 400 VΛ/690 VY Standard 50 Hz 500 VY Without additional charge Without additional charge 50 Hz 500 VΔ For other voltages 1) and more information, see page 6/15 0 Types of construction Version Order code IM B3²⁾ Without flange Standard IM B5 ²⁾ With additional charge For other types of construction and more information, see page 6/18 Motor protection Version Cover plate rotatable 4 x 90° Standard В 1 or 3 PTC thermistors - for tripping (2 terminals) With additional charge For other motor protection and more information, see page 6/19 Terminal box position Version Standard Terminal box at top For other terminal box positions and more information, see page 6/20 Special versions Order code(s)

Forced-air cooled motors w/o ext. fan/fan cover (IC418)

For options, see from page 6/23

Operating values at rated power for 60 Hz possible on request (for 4-pole and 6-pole).

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5) and from IM B5 (IM V3 and IM V1) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3 or IM B5 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.



Smoke extraction motors

Self-ventilated or forced-air cooled motors with IE2 High Efficiency · Aluminum series 1PC1300

Selection and ordering data

			Opera	ıtina va	lues at	rated p	ower								Aluminum series			
P	P.,,	Frame		_				cos-	leat-	T _{LD} /	I _{LR} /	T _P /	L_{pfA}	L _{WA} .	1PC1300	$m_{\rm IN}$	100	J
rated, 50 Hz	60 Hz	size	50 Hz		7/rated, 50 Hz, 4/4		7/rated, 50 Hz, 2/4	φrated, 50 Hz,	¹ rated, 50 Hz, 400 V				50 Hz		Article No.	77110	1 B3	J
1.347	1-147	- 0		Niss	·			4/4					-ID(A)	-ID(A)	Alticic IVO.	1		12
kW Cool	kW	FS If-ventil	rpm	Nm	%	%	% code E9	0 force	A Lair co	oled v	ıithou	t evte	. ,	dB(A)	n cover (IC418)	kg		kgm ²
Effic	ieńcy a	ıccordir	ıa to lE	C 6003	34-30: II	E2 Hiat	n Efficie	ncv. se	rvice fa	actor (S	SF) 1.	15						
				180 (te	mperat	ture cla	ss H), I	P55 deg	ree of	protec	tion, ι	utilizat	ion in	accorda	nce with thermal class	130 (tem	peratu	ire class
•		rpm at 5					00.4		4.07	4.0				= 1				
0.75	-	80 M	2805	2.6	77.4	80.0	80.1	0.84	1.67	1.9	4.9	2.3	60	71	1PC1300-0DA2			0.0008
1.1	-	80 M	2835	3.7	79.6	81.3	80.9	0.83	2.40	2.7	6.0	3.1	60	71	1PC1300-0DA3	11		0.0011
1.5	-	90 S	2885	5.0	81.3	81.7	79.7	0.84	3.15	2.7	6.9	3.6	65	77	1PC1300-0EA0			0.0017
2.2	-	90 L	2890	7.3	83.2	83.7	82.0	0.85	4.50	2.5	7.1	3.7	65	77	1PC1300-0EA4			0.0021
3	-	100 L	2905	9.9	84.6	85.5	84.6	0.84	6.10	2.3	7.0	3.3	67	79	1PC1300-1AA4			0.0044
1	_	112 M	2945	13	85.8	86.2	85.1	0.85	7.90	2.1	8.0	3.6	69	81	1PC1300-1BA2			0.0092
5.5	-	132 S	2950	18	87.0	88.0	87.6	0.87	10.5	1.8	6.6	2.9	68	80	1PC1300-1CA0	39		0.020
7.5	-	132 S	2950	24	88.1	88.5	87.6	0.87	14.1	1.8	6.7	2.9	68	80	1PC1300-1CA1			0.024
11	-	160 M	2955	36	89.4	89.3	88.0	0.87	20.5	2.1	7.4	3.2	70	82	1PC1300-1DA2			0.045
15	-	160 M	2955	48	90.3	90.7	90.0	0.88	27.0	2.4	7.6	3.4	70	82	1PC1300-1DA3			0.053
18.5	4500	160 L	2955	60	90.9	91.2	90.6	0.88	33.5	2.9	7.9	3.6	70	82	1PC1300-1DA4	84		0.061
		rpm at 5		0.0	77 4	70.0	70.7	0.74	1.00	0.0	F 0	0.1	F0	0.4	4004000 0000	- 40		0.001
0.55		80 M	1440	3.6 5.0	77.1 79.6	76.8 79.9	73.7 77.5	0.74	1.39	2.2	5.3 5.6	3.1	53 53	64 64	1PC1300-0DB2			0.0017
0.75		80 M	1440															
1.1	-	90 S	1425	7.4	81.4	81.8	80.0	0.78	2.50	2.3	5.6	2.9	56	68	1PC1300-0EB0			0.0028
1.5	_	90 L	1435	10	82.8	83.5	82.2	0.79	3.30	2.6	6.4	3.4	56	68	1PC1300-0EB4			0.0036
2.2	-	100 L	1455	14	84.3	85.1	84.2	0.81	4.65	2.1	6.9	3.3	60	72	1PC1300-1AB4	21		0.0086
3	_	100 L	1455	20	85.5	86.4	85.6	0.82	6.20	2.0	6.9	3.1	60	72	1PC1300-1AB5			0.011
	-	112 M	1460	26	86.6	87.3	86.4	0.81	8.20	2.5	7.1	3.2	58 64	70 76	1PC1300-1BB2			0.014
5.5 7.5	<u>-</u>	132 S 132 M	1465 1465	36 49	87.7 88.7	88.4 89.8	87.6 89.8	0.80	10.3	2.3	6.9	2.9	64	76	1PC1300-1CB0			0.027
7.5 11		160 M	1470	71	89.8	91.0	90.9	0.85	21.0	2.3	6.7	2.8	65	77	1PC1300-1CB2	71		0.034
15		160 L	1475	97	90.6	91.0	90.8	0.85	28.0	2.3	7.3	3.0	65	77	1PC1300-1DB2			0.003
		100 L	1473	91	90.0	31.2	90.0				7.5			//	TFC1300-1DB4			
/oltag		-4-4-61-	4 00	0				Motor	protect	ion		Versi	on				Order c	oae
		otatable /400 VY	4 X 90	_				Λ				Cton	المسما		2 2			
								Any				Stan					•	
		/690 VY						Any				Stan		litional al	3 4		•	
	500 VY 500 VΔ							Any						litional cl	J.			
		ages ¹⁾ a	ind mar	a infor	mation	200 00	aa 6/15	Any				VVILITO	Jul auc	litional cl	narge 4 0			
		structio		e iiiioii	nation,	see pa	ge 0/15					Versi	on		9 0		 Order c	ode
	t flange			I B3 ²⁾								Stan			Λ			Juo
With fla	_			l B5 ²⁾										nal char	ge F			
With fla	•			l B14 ²⁾)									nal char	-			
	•	s of con				formation	on see	from na	ne 6/16			*******	additio	ar onar	90			
	protec		21. 401.0	and		. J. Macil	, 500	o pa	50 5/10			Versi	on			أسراا		
	-	otatable	4 x 90	0								. 5. 51						
Withou			00	-								Stan	dard			Α		
		r with 1	or 3 ten	nperati	ire sen	sors (fra	ame size	es 80 90	or 100) to 200))			nal char		В		
		or protec				,			01 100	200	-,	· vitil	additio	ar onar	9~			
		positio					- o page	. 5, .0				Versi	on					
	al box	•										Stan				4		
		inal box	positio	ns and	l more i	nformat	ion see	nage 6	/20			Ctuii	_u.u					
	ioi terri		ρυσιτίυ	i io al iu	THOIC II	morrial	1011, 300	- page 0	120								Ordor o	ode(s)
	al verei	ons																
Specia	al versi	ons oled mot	ors w/o	ext fa	ın/fan c	over (IC	(418)								1PC1300 ■-■■			. ,

Operating values at rated power for 60 Hz possible on request (for 4-pole and 6-pole).

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.

Smoke extraction motors



1PC1300- ■-■■■■-Z . . . +. . . +. . . +. . .

Self-ventilated or forced-air cooled motors with IE2 High Efficiency - Aluminum series 1PC1300

Selection and ordering data (continued) Operating values at rated power Aluminum series 1PC1300 $m_{\rm IM~B3}$ P_{rated} , P_{rated} , Frame n_{rated} , T_{rated} , η_{rated} , η_{rated} , η_{rated} , cos- I_{rated} , T_{LR} / I_{LR} / I_{B} / I_{pfA} , LWA J 50 Hz 50 Hz, 50 Hz, size Prated, 50 Hz, Trated Irated Trated 50 Hz 50 Hz 60 Hz 50 Hz, 4/4 3/4 2/4 50 Hz, 400 V Article No 4/4 kW kW FS dB(A) dB(A) kgm² Nm rpm ka Cooling: self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) Efficiency according to IEC 60034-30: IE2 High Efficiency, service factor (SF) 1.15 Insulation: Thermal class 180 (temperature class H), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) 6-pole: 1000 rpm at 50 Hz 0.37 80 M 925 3.8 67.6 67.9 64.4 0.69 1.14 2.1 4.0 2.4 42 53 1PC1300-0DC2 - 9 0.0017 2.9 0.55 80 M 935 5.6 73.1 73.8 70.8 0.66 1.65 2.5 4.4 42 53 1PC1300-0DC3 - 12 0.0025 0.75 90 S 935 7.7 75.9 77.5 76.4 0.73 1.95 1.7 4.0 2.2 43 55 1PC1300-0EC0 -- 13 0.0030 935 2.6 1PC1300-0EC4 - 16 0.0040 1.1 90 L 11 78.1 79.3 77.7 0.70 2.90 2.2 4.4 43 1.5 100 L 970 15 79.8 80.5 79.0 0.73 3.70 2.0 5.4 2.8 59 71 1PC1300-1AC4 - 25 0.011 965 1PC1300-1BC2 - 29 2.2 112 M 22 81.8 82.7 81.7 0.75 5.20 2.0 5.0 2.8 62 74 0.014 3 132 S 970 30 83.3 83.4 81.0 0.72 7.20 1.6 5.0 2.5 63 75 1PC1300-1CC0 --38 0.024 4 132 M 970 39 84.6 85.5 84.3 0.75 9.10 1.6 2.3 1PC1300-1CC2 - 43 0.029 5.0 63 75 1PC1300-1CC3 --0.037 5.5 132 M 970 86.0 87.1 86.4 0.76 12.1 1.9 5.6 26 63 7.5 1.9 4.7 2.2 1PC1300-1DC2 - 77 0.075 160 M 975 73 87.2 87.9 87.2 0.74 16.8 67 79 11 160 L 975 108 88.7 89.7 89.3 0.76 23.5 1.9 4.8 2.2 67 79 1PC1300-1DC4 - 93 0.098 Voltages Order code Cover plate rotatable 4 x 90° 50 Hz 230 VΔ/400 VY Standard 2 3 2 4 2 4 7 50 Hz 400 VΔ/690 VY Standard 50 Hz 500 VY Without additional charge 0 50 Hz 500 VA Without additional charge For other voltages 1) and more information, see page 6/15 9 0 Types of construction Version Order code IM B3²⁾ Standard Without flange IM B5 ²⁾ With flange With additional charge IM B14²⁾ With flange With additional charge For other types of construction and more information, see from page 6/16 Motor protection Version Cover plate rotatable 4 x 90° Standard PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200) With additional charge В For other motor protection and more information, see page 6/19 Version Terminal box position Terminal box at top Standard For other terminal box positions and more information, see page 6/20 Order code(s) Special versions Forced-air cooled motors w/o ext. fan/fan cover (IC418) 1PC1300- ■-■■■ -Z F90 +. . . +. . . +. . .

For options, see from page 6/21

Operating values at rated power for 60 Hz possible on request (for 4-pole and 6-pole).

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5), from IM B5 (IM V3 and IM V1) and from IM B14 (IM V19 and IM V18) are possible, provided that no requirements exist for condensation drainage holes (H03) or stamping of the type on the rating plate. The basic type IM B3, IM B5 or IM B14 is stamped as standard on the rating plate. For orders with condensation drainage holes (H03), the type must be specified.



Smoke extraction motors

Self-ventilated or forced-air cooled motors with IE2 High Efficiency · Cast-iron series 1PC1301

Selection and ordering data

Selec	tion a	nd ord	lering	data													
Operating values at rated power															Cast-iron series		
Protod	Protod	Frame		_			$\eta_{\rm rated,}$	cos-	I _{rated}	T _{LD} /	I _{LR} /	T _D /	L_{pfA}	L _{WA} .	1PC1301	m _{IM B3}	J
50 Hz	60 Hz	size	50 Hz	50 Hz		50 Hz.		φ_{rated}					piA, d 50 Hz			WIN B3	Ü
			00 1 12	00112	4/4	3/4	2/4	50 Hz,	400 V	ratou	ratou	10100	. 00	00112	Article No.		
								4/4									. 2
kW	kW	FS	rpm	Nm	%	%	%		Α				. ,	dB(A)		kg	kgm ²
• Coo	ling: se	lf-ventil accordir	lated (IC	C411) o	r with c	order co	ode F90	forced	air coo	oled w	ithou	t exte	rnal fa	n and fa	in cover (IC418)		
• Insu	lation:	Therma	l class	C 0003. 180 (ter	nperati	ıre clas	s H). IP	55 dear	ee of p	rotect	ion. u	ı 5 ıtilizal	tion in	accorda	nce with thermal class 130	(temperat	ure class B
		rpm at 5		()			/,									(
22	_	180 M	2940	71	91.3	91.6	90.9	0.87	40.0	2.7	7.4	3.6	77	84	1PC1301-1EA2	145	0.069
30	_	200 L	2960	97	92.0	92.1	91.5	0.87	54.0	2.5	6.9	3.3	78	85	1PC1301-2AA4	200	0.13
37	_	200 L	2960	119	92.5	92.7	92.1	0.88	66.0	2.7	7.4	3.5	78	85	1PC1301-2AA5		0.15
45		225 M	2965	145	92.9	92.3	92.3	0.88	79.0	2.7	7.8	3.7	76	89	1PC1301-2BA2		0.13
														_		360	
55	_	250 M	2970	177	93.2	93.0	92.1	0.88	97.0	2.3	6.8	3.1	76	89	1PC1301-2CA2		0.40
75	-	280 S	2978	240	93.8	93.4	92.2	0.86	134	2.5	7.2	3.2	76	89	1PC1301-2DA0		0.71
90	-	280 M	2975	289	94.1	94.0	93.3	0.88	157	2.5	7.1	3.1	76	89	1PC1301-2DA2	530	0.83
110	-	315 S	2982	352	94.3	94.0	93.1	0.90	187	2.4	7.3	3.0	77	91	1PC1301-3AA0	720	1.3
132	-	315 M	2982	423	94.6	94.6	94.0	0.91	220	2.4	7.2	3.1	77	91	1PC1301-3AA2	880	1.6
160	-	315 L	2982	512	94.8	94.7	94.1	0.92	265	2.3	7.0	3.1	80	95	1PC1301-3AA4	930	1.8
200		315 L	2982	640	95.0	95.2	94.8	0.92	330	2.5	7.3	3.0	80	95	1PC1301-3AA5	1130	2.2
4-pole	: 1500	rpm at 5	60 Hz														
18.5	-	180 M	1465	121	91.2	92.0	91.9	0.84	35.0	2.5	7.2	3.4	61	74	1PC1301-1EB2	160	0.12
22	-	180 L	1465	143	91.6	92.2	91.9	0.84	41.5	2.6	7.3	3.5	69	76	1PC1301-1EB4	170	0.13
30	_	200 L	1470	195	92.3	92.8	92.5	0.84	56.0	2.5	6.7	3.3	70	77	1PC1301-2AB5	230	0.20
37	_	225 S	1470	240	92.7	93.0	93.0	0.88	65.0	2.3	6.6	2.9	66	79	1PC1301-2BB0	280	0.42
45	_	225 M	1475	291	93.1	93.4	93.3	0.87	80.0	2.5	6.9	3.1	66	79	1PC1301-2BB2	305	0.46
55	_	250 M	1480	355	93.5	93.5	93.1	0.85	100	2.7	6.8	3.0	66	79	1PC1301-2CB2	385	0.75
75	_	280 S	1485	482	94.0	93.9	93.5	0.87	132	2.5	6.8	3.0	71	85	1PC1301-2DB0	550	1.3
90	_	280 M	1485	579	94.2	94.1	93.8	0.87	159	2.6	7.3	3.1	71	85	1PC1301-2DB2	570	1.4
110	_	315 S	1490	705	94.5	94.3	94.2	0.86	195	2.7	7.4	3.0	72	86	1PC1301-3AB0	740	2.0
132	_	315 M	1490	846	94.7	94.6	94.5	0.87	230	2.7	7.1	2.9	75	89	1PC1301-3AB2 -	870	2.3
160	_	315 L	1490	1025	94.9	94.8	94.3	0.87	280	2.8	7.2	3.1	76	91	1PC1301-3AB4	940	2.8
200	_	315 L	1490	1282	95.1	94.6	94.0	0.87	350	3.1	7.5	3.2	77	92	1PC1301-3AB5 -	1140	3.5
Voltag		-4-4-61-	4 = 00	•								Versi	1011			Order	code
-	•	otatable	4 X 90	-													
		/400 VY											dard		2 2	_	
		/690 VY											dard		3 4	-	
	500 VY													ditional c	•	-	
	500 V∆	4)										With	out add	ditional c	<u> </u>	_	
		ages ¹⁾ a		e intorm	nation, s	see pag	e 6/15								9 0		
		structio	n									Version Order cod					
Withou	it flange	Э										Stan	dard		A	-	
With fl	_											With	additio	nal char	rge F	-	
	- 71	s of con	structio	n and n	nore info	ormatio	n, see p	age 6/1	8						•		
Motor	protec	tion										Versi	ion				
Cover	plate r	otatable	4 x 90	-													
Withou	ıt											Stan	dard		A		
1 or 3	PTC the	ermistors	s – for tr	ipping (2 termi	nals)						With	additio	nal char	rge B		
For oth	ner moto	or protec	ction an	d more	informa	tion, se	e page	6/19									
Termi	nal box	positio	n									Versi	ion				
	al box	-										Stan	dard		4		
		ninal box	positio	ns and	more in	formation	on, see	page 6/	20								
	al versi		, 5.00	2 30			., 500									Order	code(s)
-		olled mo	tors w/o	ext far	/fan co	ver (IC)	118)								1PC1301■-■■■■		, ,
					,, iai i 00	VOI (102	. 10)								1PC1301		
1-01 Op	uons, s	ee from	page o/	23											1701301	-4t	eter eter e

Operating values at rated power for 60 Hz possible on request (for 4-pole and 6-pole).

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5) and from IM B5 (IM V3 and IM V1) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3 or IM B5 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Smoke extraction motors



1PC1301- ■-■■■■-Z . . . +. . . +. . . +. . .

Self-ventilated or forced-air cooled motors with IE2 High Efficiency · Cast-iron series 1PC1301

Selection and ordering data (continued) Operating values at rated power Cast-iron series 1PC1301 I_{rated}, $m_{\rm IM~B3}$ P_{rated} , P_{rated} , Frame n_{rated} , T_{rated} , η_{rated} , η_{rated} , η_{rated} , cos- T_{LR} / I_{LR} / T_{B} / L_{pfA} , LWA J size 50 Hz 50 Hz 50 Hz, 50 Hz, 50 Hz, $\varphi_{\rm rated}$, 50 Hz, Trated Irated Trated 50 Hz 50 Hz 50 Hz 60 Hz 4/4 3/4 2/4 50 Hz, 400 V Article No. 4/4 kW kW FS dB(A) dB(A) kgm² Nm rpm ka Cooling: self-ventilated (IC411) or with order code F90 forced-air cooled without external fan and fan cover (IC418) Efficiency according to IEC 60034-30: IE2 High Efficiency, service factor (SF) 1.15 Insulation: Thermal class 180 (temperature class H), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B) e: 1000 rpm at 50 Hz 15 180 L 975 147 89.7 90.1 89.5 0.78 31.0 2.5 6.0 3.1 57 70 1PC1301-1EC4 - 155 0.17 2.4 2.6 1PC1301-2AC4 - 200 18.5 200 L 978 181 90.4 91.3 91.2 0.82 36.0 5.8 63 76 0.25 6.2 22 200 L 978 215 90.9 91.7 91.4 0.82 42.5 2.5 2.6 63 76 1PC1301-2AC5 - 220 0.30 225 M 980 2.5 2.7 78 1PC1301-2BC2 - 300 0.58 30 292 91.7 92.1 91.9 0.83 57.0 5.6 65 37 250 M 980 361 92.2 92.4 92.4 0.83 70.0 2.8 6.0 2.5 62 77 1PC1301-2CC2 - 370 0.86 1PC1301-2DC0 - 460 45 280 S 982 438 92.7 92.9 92.7 0.84 83.0 2.7 6.3 2.6 65 79 1.1 55 280 M 985 533 93.1 93.4 93.5 0.86 99.0 2.5 6.4 2.6 65 79 1PC1301-2DC2 - 510 1.4 75 315 S 988 725 93.7 93.5 93.1 0.84 2.8 65 79 1PC1301-3AC0 --2.1 138 6.7 1PC1301-3AC2 --2.5 90 315 M 988 870 94.0 93.8 93 1 0.84 165 26 6.9 28 65 79 988 2.8 1PC1301-3AC4 ----110 315 L 1063 94.3 94.2 94.1 0.86 196 2.7 7.0 68 82 940 3.6 132 315 L 988 1276 94.6 94.5 94.3 0.86 235 3.0 7.5 2.9 69 84 1PC1301-3AC5 --990 4.0 315 L 988 94.8 94.3 94.0 3.1 7.7 3.3 69 84 1PC1301-3AC6 --4.7 160 1546 0.86 285 Voltages Version Order code Cover plate rotatable 4 x 90° 50 Hz 230 VΔ/400 VY Standard 2 3 2 4 2 4 7 50 Hz 400 VΔ/690 VY Standard 50 Hz 500 VY Without additional charge 0 50 Hz 500 VΔ Without additional charge For other voltages 1) and more information, see page 6/15 9 Types of construction Version Order code IM B3²⁾ Standard Without flange IM B5 ²⁾ With flange With additional charge For other types of construction and more information, see page 6/18 Motor protection Version Cover plate rotatable 4 x 90° Standard В 1 or 3 PTC thermistors - for tripping (2 terminals) With additional charge For other motor protection and more information, see page 6/19 Terminal box position Version Terminal box at top Standard For other terminal box positions and more information, see page 6/20 Special versions Order code(s) Forced-air cooled motors w/o ext. fan/fan cover (IC418) 1PC1301-.... -- Z F90 +...+...+...

For options, see from page 6/23

Operating values at rated power for 60 Hz possible on request (for 4-pole and 6-pole).

Types derived from IM B3 (IM B6/7/8, IM V6 and IM V5) and from IM B5 (IM V3 and IM V1) are possible, provided that no requirement exists for stamping of the type on the rating plate. The basic type IM B3 or IM B5 is stamped as standard on the rating plate. If mounted in a different position, the position must be specified to ensure that the condensation drainage holes are positioned correctly.

Smoke extraction motors

Article No. supplements and special versions · Voltages · Aluminum series 1PC1300, 1PC1303

Selection and ordering data

Voltages	Article No. sup	olement	Frame siz	ze					Motor vers	sion
	Voltage code	Additional	80	90	100	112	132	160		
	12th and 13th position of the	identification code with	1PC1303						IEC	IE3
	Article No.	order code	1PC1300							IE2
1PC1303		and plain text if required								
1PC1300	■-■	Order code								
Voltage at 50 Hz or 60 Hz										
50 Hz 230 VΔ/400 VY	2 2	_								
50 Hz 400 VΔ/690 VY	3 4	-								
50 Hz 500 VY	2 7	-	0	0	0	0	0	0		
50 Hz 500 VΔ	4 0	-	-	-	0	0	0	0		
Non-standard voltage and/or t	requencies									
Non-standard winding 1)	9 0	M1Y • and customer specifications	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.		

- Standard version
- o Without additional charge
- This order code only determines the price of the version Additional plain text is required.
- O.R. Possible on request
- Not possible

Article No. supplements and special versions · Voltages · Cast-iron series 1PC1301, 1PC1304

Selection and ordering data

Voltages	Article No. su	oplement	Frame siz	ze					Motor ve	ersion
	Voltage code	Additional	180	200	225	250	280	315		
	12th and 13th position of the		1PC1304						IEC	IE3
	Article No.	order code	1PC1301							IE2
1PC1304	■-■	and plain text if required								
1PC1301		Order code								
Voltage at 50 Hz or 60 Hz										
50 Hz 230 VΔ/400 VY	2 2	-								
50 Hz 400 V∆/690 VY	3 4	-								
50 Hz 500 VY	2 7	-	0	0	0	0	0	0		
50 Hz 500 VΔ	4 0	-	0	0	0	0	0	0		
Non-standard voltage and/o	r frequencies									
Non-standard winding 1)	9 0	M1Y • and customer specifications	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.		

- Standard version
- o Without additional charge
- This order code only determines the price of the version –
 Additional plain text is required.
- O.R. Possible on request

¹⁾ Special voltages or 60 Hz on request.

Smoke extraction motors

Article No. supplements and special versions · Types of construction · Aluminum series 1PC1300, 1PC1303

Selection and ordering da	ata										
Types of construction	Article No. sup Type of construction code letter 14th position of the Article No.	Additional identification code with order code and plain text if required	Frame siz 80 1PC1303 1PC1300	90	100	112	132	160	Motor vei	rsion IE3 IE2	
1PC1303 1PC1300		Order code									
Without flange											
IM B3	A	-	0	0	0	0	0	0			
IM B6	T	-	0		0	0	0	0			
IM B7	U	-			0	0	0				
IM B8	V	-		0							
IM V6	D	-	0	0	0	0		0			
IM V5 without protective cover	С	-	0	0			0	0			
IM B30	Z	P3A	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.			
IM V30	Z	P3C	O. R.	O.R.	O. R.	O.R.	O.R.	O.R.			
IM V31	Z	P3D	O.R.	O.R.	O.R.	O.R.	O.R.	O.R.			

For legend, see page 6/17.

Smoke extraction motors

Article No. supplements and special versions · Types of construction · Aluminum series 1PC1300, 1PC1303

Types of construction	Article No. sup Type of	Additional	Frame siz	ze 90	100	112	132	160	Motor ve	rsion
	construction code letter 14th position of the Article No.	identification code with order code and plain text if required	1PC1303						IEC	IE3 IE2
1PC1303 1PC1300		Order code								
With flange	Acc. to EN 503 Acc. to DIN 42	947 948	FF165 A 200	FF165 A 200	FF215 A 250	FT215 A 250	FF265 A 300	FF300 A 350		
IM B5	F	-	✓	✓	✓	✓	✓	✓		
IM V1 without protective cover	G	-	<i>y</i>	1	1	1	1	1		
IM V3	Н	-	V	1	√	√	1	√		
IM B35	J	-	1	1	1	1	√	1		
With flange	Acc. to EN 503 Acc. to DIN 42	947 948	FT100 C 120	FT115 C 140	FT130 C 160	FT130 C 160	FT165 C 200	FT165 C 200		
IM B14	K	-	√	√	✓	✓	✓	✓		
IM V19		-	V	√	√	√	1	√		
IM V18 without protective cover	M	-	<i>y</i>	√	1	1	1	√		
IM B34	N	-	/	1	1	1	1	/		

□ Standard version
✓ With additional charge
O.R. Possible on request

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Smoke extraction motors

Article No. supplements and special versions · Types of construction · Cast-iron series 1PC1301, 1PC1304

Selection and ordering data Types of construction Article No. supplement Frame size Motor version Additional identification 200 315 L 315 L 2-pole 4-, 6-pole Type of construction 280 315 S/M 180 225 250 code letter 14th position code with order code 1PC1304 **IEC** IE3 and plain text if required of the Article No. 1PC1301 IE2 1PC1304-..... ■... 1PC1301-....-. ■.. Order code Without flange IM B3 IM B6 IM B7 IM B8 IM V6 IM V5 without protective cover IM B30 РЗА O. R. O. R. O. R. O.R. O.R. O.R. O. R. IM V30 РЗС O.R. O. R. 0. R. O.R. IM V31 P3D O. R. O. R. O. R. 0. R. 0. R. O.R. With flange IM B5 IM V1 without G protective cover IM V3 IM B35 /

- Standard version
- With additional charge
- Not possible
- O.R. Possible on request

Smoke extraction motors

Article No. supplements and special versions · Motor protection · Aluminum series 1PC1300, 1PC1303

Selection and ordering data

Motor protection	· · · · · · · · · · · · · · · · · · ·		Frame siz	е		Motor vers	sion			
	Motor	Additional	80	90	100	112	132	160		
	protection code letter	identification code with	1PC1303						IEC	IE3
	15th position	order code	1PC1300							IE2
	of the Article No.	and plain text if required								
1PC1303	■.									
1PC1300	■.	Order code								
Motor protection										
None (standard)	A	_								
1 or 3 PTC thermistors – for tripping (2 terminals)	В	-	1	✓	✓	✓	1	✓		
2 or 6 PTC thermistors – for alarm and tripping (4 terminals)	С	-	✓	√	√	✓	√	✓		
1 KTY84-130 temperature sensor (2 terminals)	F	-	1	1	✓	1	1	1		

- Standard version
- With additional charge

Article No. supplements and special versions · Motor protection · Cast-iron series 1PC1301, 1PC1304

Selection and ordering data

Motor protection	Article No. sup	plement	Frame siz	<u>ze</u>					Motor ver	rsion
	Motor	Additional	180	200	225	250	280	315		
	protection code letter	identification code with	1PC1304						IEC	IE3
	15th position	order code	1PC1301							IE2
	of the Article No.	and plain text if required								
1PC1304										
1PC1301		Order code								
Motor protection										
None (standard)	A	-								
1 or 3 PTC thermistors – for tripping (2 terminals)	В	-	✓	✓	1	✓	✓	✓		
2 or 6 PTC thermistors – for alarm and tripping (4 terminals)	С	-	1	1	1	√	1	1		
1 KTY84-130 temperature sensor (2 terminals)	F	-	✓	✓	1	✓	✓	1		

- Standard version
- □ **✓** With additional charge

Smoke extraction motors

Article No. supplements and special versions · Terminal box position · Aluminum series 1PC1300, 1PC1303

Selection and ordering data

Terminal box position	· · · · · · · · · · · · · · · · · · ·		Frame size							Motor version		
4	Motor	Additional	80	90	100	112	132	160				
	protection code letter	identification code with	1PC1303						IEC	IE3		
6 (((**))) 5	15th position	order code	1PC1300							IE2		
7	of the Article No.	and plain text if required										
1PC1303												
1PC1300		Order code										
Terminal box position 1)												
Terminal box at top	4	-										
Terminal box on right-hand side	5	-	✓	✓	✓	✓	✓	✓				
Terminal box on left-hand side	6	-	✓	1	✓	✓	✓	✓				
Terminal box bottom 2)	7	-	-	-	1	1	1	1				

- Standard version With additional charge
- Not possible

Article No. supplements and special versions · Terminal box position · Cast-iron series 1PC1301, 1PC1304

Selection and ordering data

Terminal box position	Article No. sup	plement	Frame siz	e					Motor vei	rsion
4	Terminal box	Additional	180	200	225	250	280	315		
	position code 16th position	identification code with	1PC1304						IEC	IE3
6 (1) 5	of the	order code	1PC1301							IE2
7	Article No.	and plain text if required								
1PC1304										
1PC1301		Order code								
Terminal box position 1)										
Terminal box at top	4	_								
Terminal box on right-hand side	e 5	_	1	/	✓	1	1	1		
Terminal box on left-hand side	6	_	1	/	✓	1	1	1		
Terminal box bottom 2)	7	_	O. R.	O. R.	0. R.	0. R.	O. R.	O. R.		

- Standard version
- With additional charge
- ✓ With additional chargeO. R. Possible on request

¹⁾ This refers to the position of the terminal box base on the housing.

²⁾ For motors without feet.

Smoke extraction motors

Article No. supplements and special versions · Options · Aluminum series 1PC1300, 1PC1303

Selection and ordering data								
Special versions	Additional	Frame	e size					Motor version
	identification	80	90	100	112	132	160	
	code -Z with order code	1PC1	303					IEC IE3
	and plain text	1PC1	300					IE2
1001000 7	if required							
1PC1303 Z 1PC1300 Z	Order code							
Motor connection and terminal box								
External grounding	H04	✓	✓	✓	✓	✓	✓	
Terminal box on NDE 1)	H08	✓	✓	✓	✓	✓	✓	
Rotation of the terminal box through 180°	R12	0	0	0	0	0	0	
Terminal box in position 0°; connection from right	R13	0	0	0	0	0	0	
One metal cable gland								
Windings and insulation								
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	N30	_	-	✓	✓	✓	✓	
Colors and paint finish		_			_		_	
Standard paint finish C2 in RAL 7030 stone gray	000							
Unpainted (only cast-iron parts primed)		0	0	0	0	0	0	
Unpainted, only primed	S01	√	√	√	<i>\</i>	√	<i>\</i>	
Special paint finish sea air resistant C4 Top coat polyurethane ²⁾	S03 S06	1	✓	✓ ✓	✓ ✓	✓	✓ ✓	
Paint finish in other standard RAL	Y53 •	1		<u> </u>	1	1	<i>y</i>	
colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	and paint finish RAL		·	·				
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	RAL	✓	√	/	✓	<i>,</i>	✓ 	
Mechanical version and degrees of pr								
Protective cover 3)	H00	√	√	<i>\</i>	√	<i>\</i>	√	
Screwed-on (instead of cast) feet	H01	✓ -	✓ □	✓ □	✓ □	<u>/</u>		
Condensation drainage holes	H07			✓	<u> </u>			
Rust-resistant screws (externally) IP65 degree of protection	H20	- /		<i></i>	<i>/</i>	<i>/</i>	<i></i>	
IP56 degree of protection	H22	✓ ✓		<i></i>	<i></i>	✓	<u> </u>	
Coolant temperature and installation		•				·		_
Coolant temperature -30 to +40 °C	D04	1	/	/	1	1	/	
Versions in accordance with standard	-	-	•			•		
CCC China Compulsory Certification	D01	1	/	_	_	_	-	
Bearings and lubrication								
Bearing design for increased cantilever forces 8)	L22	-	-	-	-	✓	✓	
Regreasing device	L23	-	-	✓	1	1	✓	
Measuring nipple for SPM shock pulse measurement for bearing inspection	Q01	-	-	✓	✓	✓	✓	
Bearing insulation DE	L50	O. R.	O. R.					
Bearing insulation NDE	L51	O. R.	O. R.	O.R.	O.R.	O. R.	O. R.	
Balance and vibration severity								
Vibration severity grade A								
Vibration severity grade B	L00	✓	√	√	√	√	√	
Half-key balancing (standard)								
Balancing without feather key	L01	1	/	/	/	✓ <u> </u>	<i>\</i>	
Full-key balancing	L02	✓	✓	✓	✓	✓	✓	

Smoke extraction motors

Article No. supplements and special versions · Options · Aluminum series 1PC1300, 1PC1303

Special versions	Additional identification code -Z with		Frame siz	e 90	100	112	132	160	Motor ve	
	order code and plain text		1PC1303 1PC1300						IEC	IE3 IE2
	if required		IPC1300							IE2
1PC1303 Z 1PC1300 Z	Order ands									
1 111	Order code									
Shaft and rotor	1.04		_					•		
Shaft extension with standard dimensions, without feather keyway	L04				√	✓	√	√		
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	L05		√	✓	✓	✓	✓	✓		
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L07		1	✓	✓	✓	1	/		
Concentricity of shaft extension, coaxiality and linear movement in accordance with DIN 42955 Tolerance R for flange-mounted motors	L08		V	√	/	1	✓	✓		
Non-standard cylindrical shaft extension DE ⁴⁾	Y58 • and customer specifications		1	✓	1	✓	1	1		
Non-standard cylindrical shaft extension, NDE ⁴⁾	Y59 • and customer specifications		1	✓	1	✓	1	1		
Special shaft steel as requested by customer	Y60 • and customer specifications		O. R.	O.R.	O.R.	O.R.	O.R.	O.R.		
Heating and ventilation										
Without external fan and without fan cover	F90		0	0	0	0	0	0		
Rating plate and additional rating plate	tes									
Additional rating plate for voltage tolerance 5)	B07		1	1	✓	✓	✓	1		
Second rating plate, loose	M10		✓	✓	1	1	✓	✓		
Additional rating plate with deviating rating plate data	Y80 • and customer specifications		✓	✓	✓	✓	/	/		
Additional rating plate with customer specifications	Y82 • and customer specifications		1	✓	1	✓	1	1		
Additional information on rating plate and on package label (max. 20 characters)	Y84 • and customer specifications		√	✓	1	1	1	1		
Packaging, safety notes, documentat		ificat	es							
Acceptance test certificate 3.1 according to EN 10204 6)	B02		1	1	1	1	✓	✓		
Printed German/English operating instructions enclosed ⁷⁾	B04		1	1	1	1	1	1		
Standard test (routine test) with acceptance	B65		1	1	1	1	1	1		
Type test with heat run for horizontal motors, with acceptance	B83		1	1	1	√	✓	√		
"Basic" documentation package	B90	New!	1	✓	1	✓	1	1		
"Advanced" documentation package	B91	New!	1	1	1	1	1	✓		
"Projects" documentation package	B92	New!	1	1	1	/	1	✓		

- Standard version
- o Without additional charge
- This order code only determines the price of the version Additional plain text is required.
- ✓ With additional charge
 - Not possible
- O.R. Possible on request
- 1) Important: Dimensions "C" and "CA" deviate from the EN 50347 standard. Note dimensions according to dimensions sheet generator!
- Order code S06 cannot be combined with order code S00 and S01. It can be combined with Y53 and Y56 on request.
- Order code **H00** provides mechanical protection.
- When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes Y58, Y59 and L05 the following applies:
 - Dimensions D and DA < ball bearing inner diameter (see dimension tables for "Dimensions")
 - (see dimension tables for "Dimensions") Dimensions E and EA \leq 2 × length E (standard) of the shaft extension. For an explanation of the order codes, see Catalog Section 1 "Introduction".

- 5) Can be ordered for 230 VΔ/400 VY or 400 VΔ/690 VY (voltage code "22" or "34").
- 6) The delivery time for the factory test certificate may differ from the delivery time for the motor.
- 7) The Operating Instructions (Compact) are available in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/10803948/133300.
- A minimum cantilever force F_{min} of 0.5 · F_{max} is required for NU bearings (cylindrical roller bearings) in contrast to ball bearings. Cylindrical roller bearings are not suitable for coupling output or for brief periods of no-load operation without cantilever force.

Smoke extraction motors

Article No. supplements and special versions · Options · Cast-iron series 1PC1301, 1PC1304

Selection a	and	ordering	data
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Selection and ordering data								
Special versions	Additional	Frame	size					Motor version
	identification	180	200	225	250	280	315	
	code -Z with order code	1PC13	04					IEC IE3
	and plain text	1PC13	01					IE2
	if required							
1PC1304 Z								
1PC1301 Z	Order code							
Motor connection and terminal box								
External grounding								
Terminal box on NDE 1)	H08	1	✓	✓	√	✓	1	
Rotation of the terminal box through	R12	0	0	0	0	0	0	
180°								
Terminal box in position 0°; connection from right	R13	0	0	0	0	0	0	
One metal cable gland								
Windings and insulation								
·	N30	1	/	/	/	/	/	
Increased air humidity/temperature with 30 to 60 g water per m ³ of air	NSU	•	•	•	•	•	1	
Colors and paint finish								
Standard paint finish C2 in RAL 7030								
stone gray								
Unpainted (only cast-iron parts primed)		0	0	0	0	0	0	
Unpainted, only primed	S01	✓	1	✓	1	✓	✓	
Special paint finish C3	S02	✓	1	✓	1	✓	✓	
Special paint finish sea air resistant C4	S03	✓	✓	✓	✓	✓	✓	
Internal coating	S05	✓	✓	✓	✓	✓	✓	
Top coat polyurethane 2)	S06	✓	✓	✓	✓	✓	✓	
Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5002, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001,	Y53 • and paint finish RAL	✓	✓	/	1	√	✓	
7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")								
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	paint finish RAL	✓	<i>,</i>	<i>'</i>	/	<i>,</i>	<i>,</i>	
Mechanical version and degrees of p								
Screwed-on (instead of cast) feet	H01	✓		<u>√</u>	<u> </u>		<u> </u>	
Condensation drainage holes								
Rust-resistant screws (externally)	H07	✓	√	✓	√	✓	✓	
IP65 degree of protection	H20	✓	✓	✓	✓	✓	✓	
IP56 degree of protection	H22	✓	√	✓	√	✓	✓	
Coolant temperature and installation								
Coolant temperature –30 to +40 °C	D04	✓	√	✓	√	✓	✓	
Bearings and lubrication	1.40					0		
Regreasing device with M10 ×1 grease nipple according to DIN 71412-A		/	<i>,</i>	<i>,</i>	<i></i>	0	0	
Bearing design for increased cantilever forces 8)	L22	✓	✓	✓	✓	-	-	
Regreasing device	L23	✓	<i>\</i>	✓	✓	-	-	
Measuring nipple for SPM shock pulse measurement for bearing inspection	Q01	✓	✓	✓	✓	✓	✓	
Bearing insulation DE	L50	-	-	O. R.	O.R.	O.R.	O. R.	
Bearing insulation NDE	L51	-	-	O. R.	O.R.	0. R.	O. R.	
Balance and vibration severity								
Vibration severity grade A								
Vibration severity grade B 3)	L00	✓	1	✓	1	✓	✓	
Half-key balancing (standard)								
Balancing without feather key	L01	✓	✓	✓	✓	✓	✓	
Full-key balancing	L02	✓	1	✓	1	1	1	
Shaft and rotor								
Shaft extension with standard dimensions, without feather keyway	L04	✓	✓	✓	✓	✓	√	
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	L05	1	✓	✓	1	1	✓	

Smoke extraction motors

Article No. supplements and special versions · Options · Cast-iron series 1PC1301, 1PC1304

Special versions	Additional identification code -Z with		Frame siz	ze 200	225	250	280	315	Motor vei	rsion
	order code		1PC1304	1					IEC	IE3
	and plain text		1PC1301							IE2
4004004	if required									
1PC1304 Z	0									
1PC1301 Z	Order code									
Shaft and rotor (continued)										
Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	L07		✓	✓	1	✓	✓	✓		
Concentricity of shaft extension, coaxiality and linear movement in accordance with DIN 42955 Tolerance R for flange-mounted motors	L08		1	√	/	/	√	1		
Non-standard cylindrical shaft extension, DE 4)	Y58 • and customer specifications		✓	✓	1	1	✓	√		
Non-standard cylindrical shaft extension, NDE ⁴⁾	Y59 • and customer specifications		✓	✓	1	/	1	1		
Special shaft steel as requested by customer	Y60 • and customer specifications		O.R.	O.R.	O. R.	O.R.	O.R.	O.R.		
Heating and ventilation										
Without external fan and without fan cover	F90		0	0	0	0	0	0		
Rating plate and additional rating plate	tes									
Additional rating plate for voltage tolerance 5)	B07		1	1	1	✓	✓	✓		
Second rating plate, loose	M10		✓	✓	1	✓	✓	✓		
Additional rating plate with deviating rating plate data	Y80 • and customer specifications		√	1	1	√	√	1		
Additional rating plate with customer specifications	Y82 • and customer specifications		✓	✓	1	✓	✓	√		
Additional information on rating plate and on package label (max. 20 characters)	Y84 • and customer specifications		✓	✓	√	✓	✓	√		
Packaging, safety notes, documentation	on and test cer	tificat	es							
Acceptance test certificate 3.1 according to EN 10204 6)	B02		✓	✓	✓	✓	✓	✓		
Printed German/English operating instructions enclosed ⁷⁾	B04		✓	1	✓	✓	✓	✓		
Standard test (routine test) with acceptance	B65		√	✓	✓	✓	✓	✓		
Type test with heat run for horizontal motors, with acceptance	B83		1	1	1	✓	1	1		
"Basic" documentation package	B90	New!	1	1	1	1	1	✓		
"Advanced" documentation package	B91	New!	1	1	1	1	1	✓		
"Projects" documentation package	B92	New!	1	✓	✓	✓	✓	✓		

- Standard version
- o Without additional charge
- This order code only determines the price of the version –
- Additional plain text is required.
- ✓ With additional charge
- Not possible
- O.R. Possible on request
- 1) Important: Dimensions "C" and "CA" deviate from the EN 50347 standard. Note dimensions according to dimensions sheet generator!
- Order code S06 can only be ordered in combination with S03, and cannot be combined with order code S00, S01 and S02. It can be combined with Y53 and Y56 on request.
- 3) On request for 2-pole motors (concerns frame sizes 225 to 315).
- When motors are ordered that have a longer or shorter shaft extension than normal, the required position and length of the feather keyway must be specified in a sketch. It must be ensured that only feather keys in accordance with DIN 6885, Form A are permitted to be used. The feather keyway is positioned centrally on the shaft extension. The length is defined by the manufacturer in accordance with the appropriate standard. Valid for non-standard shaft extensions DE or NDE. The feather keys are supplied in every case. For order codes Y58, Y59 and L05 the following applies:
 - Dimensions D and DA ≤ ball bearing inner diameter
 - (see dimension tables for "Dimensions") Dimensions E and EA \leq 2 × length E (standard) of the shaft extension. For an explanation of the order codes, see Catalog Section 1 "Introduction".

- 5) Can be ordered for 230 VΔ/400 VY or 400 VΔ/690 VY (voltage code "22" or "34").
- 6) The delivery time for the factory test certificate may differ from the delivery time for the motor.
- 7) The compact operating instructions are available in PDF format for all official EU languages at http://support.automation.siemens.com/WW/view/en/10803948/133300.
- 8) A minimum cantilever force F_{min} of 0.5 · F_{max} is required for NU bearings (cylindrical roller bearings) in contrast to ball bearings. Cylindrical roller bearings are not suitable for coupling output or for brief periods of no-load operation without cantilever force.
- 9) Not possible for 2-pole motors, frame size 315.

Smoke extraction motors

Article No. supplements and special versions · Accessories

Overview

Couplings

The motor from Siemens is connected to the machine or gear unit through a coupling. Siemens is an important coupling manufacturer with a wide range of products.

For standard applications, Siemens recommends that flexible couplings, types N-EUPEX and RUPEX or torsionally rigid couplings, types ARPEX and ZAPEX are used. For special applications, FLUDEX and ELPEX-S couplings are recommended.

Available from:

Siemens contact partner - ordering from catalog Siemens MD 10.1 "FLENDER Standard Couplings"

O

Siemens AG Kupplungswerk Mussum Industriepark Bocholt Schlavenhorst 100 46395 Bocholt, Germany Phone +49 2871 922185 Fax +49 2871 922579

www.siemens.com

Email: flendercouplings@siemens.com

Taper pins according to DIN 258 with threaded ends and constant taper lengths

Taper pins are used for components that are repeatedly removed. The drilled hole is conically ground using a conical reamer until the pin can be pushed in by hand until the cone shoulder lies approx. 3 to 4 mm above the rim of the hole.

It can then be driven in using a hammer until it is correctly seated. The pin is removed from the drilled hole by screwing on the nut and tightening it.

Standardized taper pins are commercially available.

For instance, available from:

Otto Roth GmbH & Co. KG Rutesheimer Strasse 22 70499 Stuttgart, Germany Tel. +49 711 1388-0 Fax. +49 711 1388-233

www.ottoroth.de Email: info@ottoroth.de

Foundation block according to DIN 799

The foundation blocks are inserted into the stone foundation and embedded in concrete. They are used for fixing machines of medium size, slide rails, pedestal bearings, base frames, etc. After the fixing bolts have been unscrewed, the machines can be shifted without them having to be lifted.

When the machine is initially installed, the foundation block that is bolted to the machine (without washers) and fitted with taper pins is not embedded with concrete until the machine has been fully aligned. In this case, the machine is positioned 2 to 3 mm lower. The difference in shaft height is compensated by inserting shims on final installation. The taper pins safeguard the exact position of the machine when it is repeatedly removed and replaced without the need for realignment.

Available from:

Lütgert & Co. GmbH Postfach 42 51 33276 Gütersloh, Germany Phone +49 5241 7407-0 Fax +49 5241 7407-90

www.luetgert-antriebe.de Email: info@luetgert-antriebe.de

Slide rails with fixing bolts and tensioning screws according to DIN 42923

Slide rails are used to tension the belt of a machine easily and conveniently when there is no belt-tensioning pulley. They are fixed to the base using stone bolts or foundation blocks.

The assignment of slide rails to motor size can be found in DIN 42923. For motors of frame sizes 355 to 450, there are no standardized slide rails (please inquire).

Available from:

Lütgert & Co. GmbH Postfach 42 51 33276 Gütersloh, Germany Phone +49 5241 7407-0 Fax +49 5241 7407-90

www.luetgert-antriebe.de Email: info@luetgert-antriebe.de

More information

Replacement motors and repair parts

- Commitment to provide replacement motors and repair parts following delivery of the motor:
 - For up to 3 years after the delivery of the original motor, in the event of total motor failure – with regard to the mounting dimensions and functions – Siemens will supply a comparable replacement motor (the type series may vary).
 - If a spare motor is supplied within the 3-year period, this does not mean that the warranty restarts.
 - Replacement motors delivered after the active production of the machine series are also identified as spare motors on the rating plate.
 - Spare parts are offered only for these spare motors on request; repair and replacement are not possible.
 - After a period of 3 years (after the delivery of the original motor), it is only possible to repair these motors (depending on the availability of the spare parts required).

- For up to 5 years after the delivery of the original motor, spare parts will be available and for a further 5 years, Siemens will provide information about spare parts and will supply documents when required.
- When repair parts are ordered, the following details must be provided:
 - Designation and part number
 - Article No. and factory number of the motor
- For bearing types, see the section "Introduction".
- For standard components, a commitment to supply repaired parts does not apply.
- Support hotline In Germany Phone +49 911 895 7 222

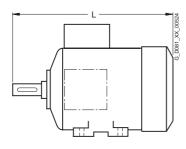
You will find telephone numbers for other countries on our Internet site:

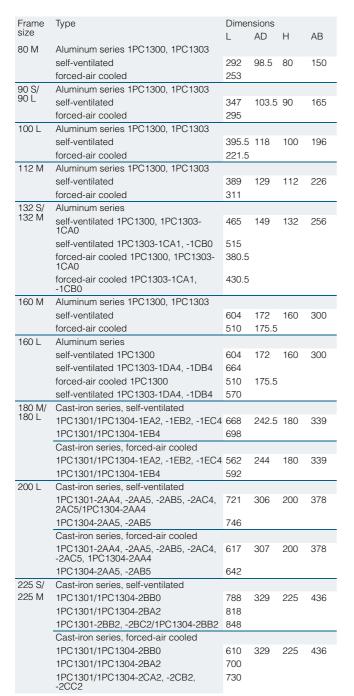
http://www.siemens.com/automation/service&support

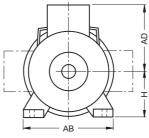
Smoke extraction motors

Dimensions · Overall dimensions

Overview







Cast-iron series, self-ventilated 1PC1301/1PC1304-2CA2, -2CB2, 2CC2 Cast-iron series, forced-air cooled 1PC1301/1PC1304-2CA2, -2CB2, 2CC2 Cast-iron series, self-ventilated	L 887 764	AD 398 375	H 250	AB 490
1PC1301/1PC1304-2CA2, -2CB2, 2CC2 Cast-iron series, forced-air cooled 1PC1301/1PC1304-2CA2, -2CB2, 2CC2 Cast-iron series, self-ventilated			250	490
2CC2 Cast-iron series, forced-air cooled 1PC1301/1PC1304-2CA2, -2CB2, 2CC2 Cast-iron series, self-ventilated			250	490
1PC1301/1PC1304-2CA2, -2CB2, -2CC2 Cast-iron series, self-ventilated	764	075		
2002 Cast-iron series, self-ventilated	764	275		
·		3/5	250	490
1PC1301/1PC1304-2DA0, -2DB0, -2DC0	960	421	280	540
1PC1304-2DA2, -2DB2	1070			
Cast-iron series, forced-air cooled				
1PC1301/1PC1304-2DA0, -2DB0, -2DC0	830	398	280	540
1PC1304-2DA2, -2DB2	940			
Cast-iron series, self-ventilated				
	1052	455	315	610
1PC1301-3AB0, -3AC0, 1PC1304-3AB0	1082			
Cast-iron series, forced-air cooled				
	905	455	315	610
1PC1301-3AB0, -3AC0, 1PC1304-3AB0	935			
Cast-iron series, self-ventilated				
1PC1301/1PC1304-3AA2	1217	455	315	610
1PC1301/1PC1304-3AB2	1247			
1PC1301-3AC2	1082			
Cast-iron series, forced-air cooled				
		455	315	610
	935			
<i>'</i>				
		455	315	610
1PC1301/1PC1304-3AB4, 1PC1301-3AC4, -3AC5	1247			
1PC1301/1PC1304-3AA5	1372			
1PC1301/1PC1304-3AB5, 1PC1301-3AC6	1402			
Cast-iron series, forced-air cooled				
1PC1301/1PC1304-3AA4	1070	455	315	610
1PC1301/1PC1304-3AB4, 1PC1301-3AC4, -3AC5	1100			
1PC1301/1PC1304-3AA5	1225			
1PC1301/1PC1304-3AB5, 1PC1301-3AC6	1255			
1; 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PC1301/1PC1304-2DA0, -2DB0, 2DC0 PC1304-2DA2, -2DB2 Cast-iron series, self-ventilated PC1301/1PC1304-3AA0 PC1301-3AB0, -3AC0, PC1301-3AB0, -3AC0, PC1301-3AB0, -3AC0, PC1301-3AB0, -3AC0, PC1304-3AB0 Cast-iron series, forced-air cooled PC1301/1PC1304-3AA2 PC1301/1PC1304-3AA2 PC1301/1PC1304-3AB2 PC1301/1PC1304-3AB2 PC1301/1PC1304-3AB2 PC1301/1PC1304-3AB2 PC1301/1PC1304-3AB2 PC1301/1PC1304-3AB2 PC1301/1PC1304-3AB2 PC1301/1PC1304-3AB4 PC1301/1PC1304-3AB4, PC1301/1PC1304-3AB5, PC1301/1PC1304-3AB4 PC1301/1PC1304-3AB5, PC1301/1PC1304-3AB4 PC1301/1PC1304-3AB5 PC1301/1PC1304-3AB5 PC1301/1PC1304-3AB5	PC1301/1PC1304-2DA0, -2DB0, 2DC0 PC1304-2DA2, -2DB2 940 PC1301/1PC1304-3AA0 1052 PC1301/3AB0, -3AC0, 2DB2 PC1301/1PC1304-3AA2 1217 PC1301/1PC1304-3AA2 1217 PC1301/1PC1304-3AB2 1247 PC1301/1PC1304-3AB2 1070 PC1301/1PC1304-3AB2 1070 PC1301/1PC1304-3AB2 1100 PC1301/1PC1304-3AB2 1100 PC1301/1PC1304-3AB2 1217 PC1301/3AC2 2DB2 PC1301/1PC1304-3AB2 1100 PC1301/3AC2 3DB2 PC1301/1PC1304-3AB4, 1247 PC1301/3AC4, -3AC5 PC1301/1PC1304-3AB5, 1372 PC1301/1PC1304-3AB4, 1247 PC1301-3AC6 PC1301/1PC1304-3AB4, 1070 PC1301/3AC6 PC1301/1PC1304-3AB4, 1070 PC1301/1PC1304-3AB4, 1070 PC1301/3AC6 PC1301/1PC1304-3AB4, 1070 PC1301/1PC1304-3AB4, 1070 PC1301/3AC4, -3AC5 PC1301/1PC1304-3AB4, 1070 PC1301/3AC4, -3AC5 PC1301/1PC1304-3AB5, 1225 PC1301/1PC1304-3AB5, 1225 PC1301/1PC1304-3AB5, 1225 PC1301/1PC1304-3AB5, 1255	PC1301/1PC1304-2DA0, -2DB0, 2DC0 PC1304-2DA2, -2DB2 PC1301/1PC1304-3AA0 PC1301/1PC1304-3AA0 PC1301/1PC1304-3AA0 PC1301/1PC1304-3AA0 PC1301/1PC1304-3AA0 PC1301/1PC1304-3AA0 PC1301/1PC1304-3AA0 PC1301/1PC1304-3AA2 PC1301/1PC1304-3AA2 PC1301/1PC1304-3AA2 PC1301/1PC1304-3AA2 PC1301/1PC1304-3AA2 PC1301/1PC1304-3AB2 PC1301/1PC1304-3AB4 PC1301/1PC1304-3AB4, 1247 PC1301-3AC4, -3AC5 PC1301/1PC1304-3AB5, 1402 PC1301/1PC1304-3AB4 PC1301/1PC1304-3AB5	PC1301/1PC1304-2DA0, -2DB0, 2DC0 PC1304-2DA2, -2DB2 PC1301/1PC1304-3AA0 PC1301/1PC1304-3AA0 PC1301/1PC1304-3AA0 PC1301/1PC1304-3AA0 PC1301/1PC1304-3AA0 PC1301/1PC1304-3AA0 PC1301/1PC1304-3AA0 PC1301/1PC1304-3AA2 PC1301/1PC1304-3AA2 PC1301/1PC1304-3AA2 PC1301/1PC1304-3AA2 PC1301/1PC1304-3AB2 PC1301/1PC1304-3AB4 PC1301/1PC1304-3AB5, 1247 PC1301/1PC1304-3AB5, 1402 PC1301/1PC1304-3AB5, 1402 PC1301/1PC1304-3AB4 PC1301/1PC1304-3AB4, 1070 PC1301/1PC1304-3AB4, 1100 PC1301/1PC1304-3AB5, 1225 PC1301/1PC1304-3AB5, 1225 PC1301/1PC1304-3AB5, 1225 PC1301/1PC1304-3AB5, 1225 PC1301/1PC1304-3AB5, 1255

Smoke extraction motors

Dimensions · Notes on the dimensions, dimension sheet generator (part of the DT Configurator)

Overview (continued)

Notes on the dimensions

■ Dimensional drawings according to EN 50347 and IEC 60072.

■ Fits

The shaft extensions specified in the dimension tables (DIN 748) and centering spigot diameters (EN 50347) are machined with the following fits:

ISO fit DIN ISO 286-2	
to 30 over 30 to 50 over 50	j6 k6 m6
to 250 over 250	j6 h6
	h9
	H17
flange (FF)	H17
	to 30 over 30 to 50 over 50 to 250 over 250

The drilled holes of couplings and belt pulleys should have an ISO fit of at least H7.

■ Dimension tolerances

For the following dimension designations, the admissible deviations are given below:

Dimension designation	Dimension	Admissible deviation
Н	to 250 over 250	- 0.5 - 1.0
E, EA		-0.5

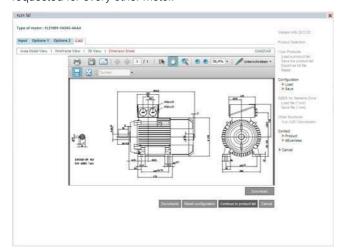
Keyways and feather keyways (dimensions GA, GC, F and FA) are made in compliance with DIN 6885 Part 1.

■ All dimensions are specified in mm.

Dimension sheet generator

(part of the DT Configurator)

A dimensional drawing can be created in the DT Configurator for every configurable motor. A dimensional drawing can be requested for every other motor.



When a complete Article No. is entered with or without order codes, a dimensional drawing can be called up under the "Documentation" tab.

These dimensional drawings can be presented in different views and sections and printed.

The corresponding dimension sheets can be exported, saved and processed further in DXF format (interchange/import format for CAD systems) or as bitmap graphics.

Online access in the Siemens Industry Mall

The DT Configurator is integrated in the Siemens Industry Mall and can be used on the Internet without installation.

German: www.siemens.de/dt-konfigurator English: www.siemens.com/dt-configurator

Offline access in the Interactive Catalog CA 01

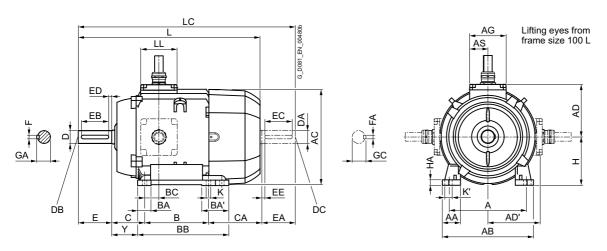
The DT Configurator is also integrated on the DVD of the Interactive Catalog CA 01 – the offline version of Siemens Industry Mall. CA 01 can be ordered from the relevant Siemens sales office or via the Internet: www.siemens.com/automation/CA01

Smoke extraction motors

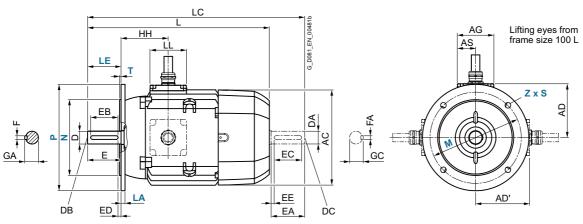
Dimensions · Aluminum series – IE2 and IE3 – self-ventilated · Frame sizes 80 M to 160 L

Dimensional drawings

Type of construction IM B3



Type of construction IM B5



For motor	Туре			Dime	nsion (design	ation a	acc. to	IEC												
Frame size			No. of poles	Α	AA	AB	AC	AD	AD'	AG	AS	В	ВА	BA'	ВВ	ВС	С	CA	Н	НА	Υ
80 M	1PC1300 1PC1303	All	2, 4, 6	125	30.5	150	159	98.5	98.5	37.5	75	100	32	32	118	23	50	113	80	8	41
90 S 90 L	1PC1300 1PC1303	All	2, 4, 6 2, 4, 6	140	30.5	165	178	103.5	103.5	37.5	75	100 125	33	54	143	22.5	56	159 134	90	10	47
100 L	1PC1300 1PC1303	All	2, 4, 6	160	42	196	198	115	115	47.5	95	140	37.5	37.5	176	33.5	63	141	100	12	45
112 M	1PC1300 1PC1303	All	2, 4, 6	190	46	226	222	126	126	47.5	95	140	37.5	37.5	176	26	70	130	112	12	52
132 S	1PC1300 1PC1303	All 1CA0 1CA1, 1CB0	2, 4, 6 2, 4	216	53	256	262	146	146	55	110	140	38	76 76 ¹⁾	218 218 ²	26.5)	89	167 128.5 ³⁾ 178.5	132	15	69
132 M	1PC1300 1PC1303	All 1CB2	2, 4, 6 2, 4	216	53	256	262	146	146	55	110	178	38	76	218	26.5	89	129 178.5	132	15	69
160 M	1PC1300 1PC1303	All 1DA2, 1DA3, 1DB2	2, 4, 6 2, 4	254	60	300	314	172	172	60	120	210	44	89 89 ⁴⁾	300 300 5	47	108	192 148 ⁶⁾	160	18	85
160 L	1PC1300 1PC1303	All 1DA4, 1DB4	2, 4, 6 2, 4	254	60	300	314	172	172	60	120	254	44	89 -	300	47	108	148 208	160	18	85

¹⁾ With screwed-on feet, dimension BA' is 38 mm.

 $^{^{2)}\,}$ With screwed-on feet, dimension BB is 180 mm.

 $^{^{3)}}$ With screwed-on feet, dimension CA is 166.5 mm.

⁴⁾ With screwed-on feet, dimension BA' is 44 mm.

⁵⁾ With screwed-on feet, dimension BB is 256 mm.

 $^{^{6)}\,}$ With screwed-on feet, dimension CA is 192 mm.

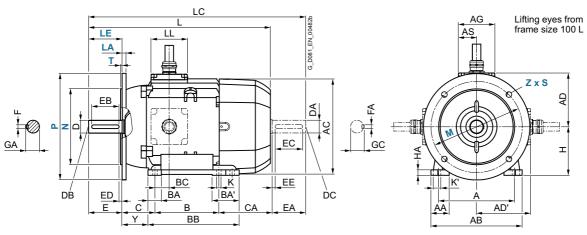
Smoke extraction motors

Dimensions · Aluminum series – IE2 and IE3 – self-ventilated · Frame sizes 80 M to 160 L

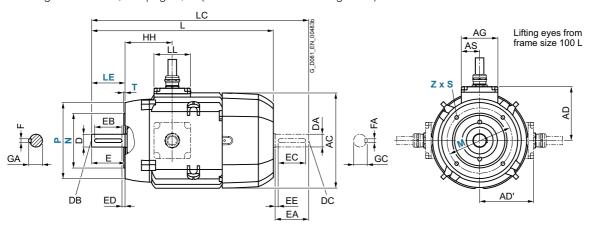
Dimensional drawings (continued)

Type of construction IM B35

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



Type of construction IM B14



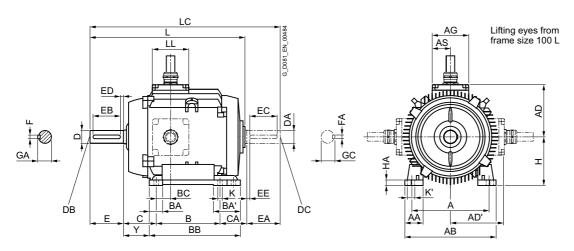
For motor	Туре			Dimen	sion	desigr	nation a	cc. to IE	С	DE	shaft e	extens	ion				NDI	E shaft	exter	nsion			
Frame size			No. of poles	НН	K	K'	L	LC	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	1PC1300 1PC1303	All	2, 4, 6	73	9.5	13.5	292	343	75	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S 90 L	1PC1300 1PC1303	All	2, 4, 6 2, 4, 6	78.5	10	14	347	405	75	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
100 L	1PC1300 1PC1303	All	2, 4, 6	96.5	12	16	395.5	454	95	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	1PC1300 1PC1303	All	2, 4, 6	96	12	16	389	450	95	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1PC1300 1PC1303	All 1CA0 1CA1, 1CB0	2, 4, 6 2, 4	115.5	12	16	465 515	535.5 585.5	110	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	1PC1300 1PC1303	All 1CB2	2, 4, 6 2, 4	115.5	12	16	465 515	535.5 585.5	110	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	1PC1300 1PC1303	All 1DA2, 1DA3, 1DB2	2, 4, 6 2, 4	155	15	19	604	730	120	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	1PC1300 1PC1303	All 1DA4, 1DB4	2, 4, 6 2, 4	155	15	19	604 664	730 739	120	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

Smoke extraction motors

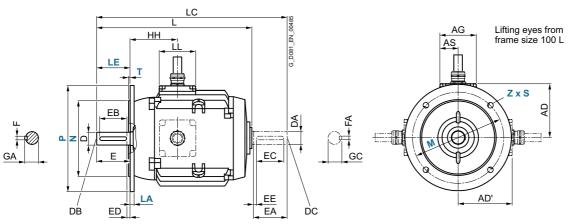
Dimensions · Aluminum series – IE2 and IE3 – forced-air cooled · Frame sizes 80 M to 160 L

Dimensional drawings

Type of construction IM B3



Type of construction IM B5



_	_																			
For motor	Туре			Dime	nsion c	lesigna	ation acc	c. to IEC												
Frame size			No. of poles	Α	AA	AB	AD	AD'	AG	AS	В	BA	BA'	BB	BC	С	CA	Н	НА	Υ
80 M	1PC1300 1PC1303	All	2, 4, 6	125	30.5	150	98.5	98.5	75	37.5	100	32	32	118	23	50	70	80	8	41
90 S 90 L	1PC1300 1PC1303	All	2, 4, 6 2, 4, 6	140	30.5	165	103.5	103.5	75	37.5	100 125	33	54	143	22.5	56	103 78	90	10	47
100 L	1PC1300 1PC1303	All	2, 4, 6	160	42	196	118	118	95	47.5	140	37.5	37.5	176	33.5	63	63	100	12	45
112 M	1PC1300 1PC1303	All	2, 4, 6	190	46	226	129	129	95	47.5	140	37.5	37.5	176	26	70	45	112	12	52
132 S	1PC1300 1PC1303	All 1CA0 1CA1, 1CB0	2, 4, 6 2, 4	216	53	256	149	149	110	55	140	38	76 76 ¹⁾ –	218 218 ²⁾	26.5	89	77 -	132	15	69
132 M	1PC1300 1PC1303	All 1CB2	2, 4, 6 2, 4	216	53	256	149	149	110	55	140 178	3	76 -	218	26.5	89	39 -	132	15	69
160 M	1PC1300 1PC1303	All 1DA2, 1DA3, 1DB2	2, 4, 6 2, 4	254	60	300	175.5	175.5	120	60	210	44	89 89 ³⁾	300 300 ⁴⁾	47	108	92	160	18	85
160 L	1PC1300 1PC1303	All 1DA4, 1DB4	2, 4, 6 2, 4	254	60	300	175.5	175.5	120	60	254	44	89	300	47	108	48	160	18	85

¹⁾ With screwed-on feet, dimension BA' is 38 mm.

²⁾ With screwed-on feet, dimension BB is 180 mm.

³⁾ With screwed-on feet, dimension BA' is 44 mm.

⁴⁾ With screwed-on feet, dimension BB is 256 mm.

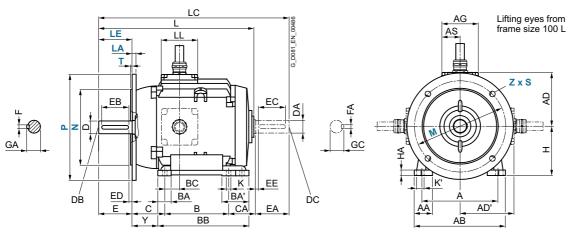
Smoke extraction motors

Dimensions · Aluminum series – IE2 and IE3 – forced-air cooled · Frame sizes 80 M to 160 L

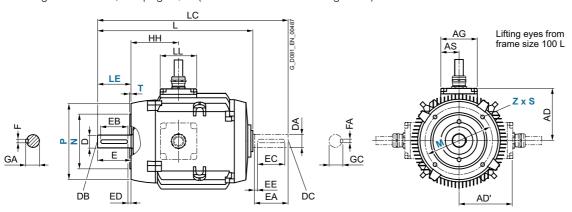
Dimensional drawings (continued)

Type of construction IM B35

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



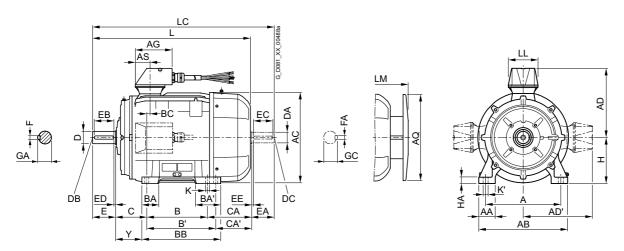
Type of construction IM B14



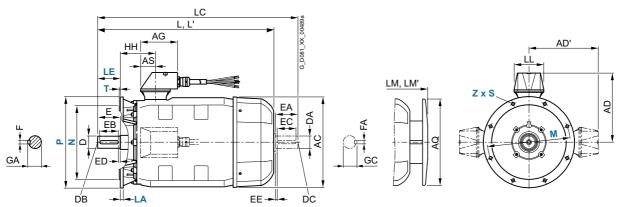
For	Туре			Dimens	sion d	lesigna	ition acc	c. to IE	C	DE	shaft e	extens	ion				ND	E shaft	exter	sion			
motor Frame size	,,		No. of poles	НН	K	K'	L	LC	LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	1PC1300 1PC1303	All	2, 4, 6	73	9.5	13.5	253	300	75	19	M6	40	32	4	6	21.5	19	M6	40	32	4	6	21.5
90 S 90 L	1PC1300 1PC1303	All	2, 4, 6 2, 4, 6	78.5	10	14	295	349	75	24	M8	50	40	5	8	27	19	M6	40	32	4	6	21.5
100 L	1PC1300 1PC1303	All	2, 4, 6	96.5	12	16	321.5	376	95	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
112 M	1PC1300 1PC1303	All	2, 4, 6	96	12	16	311	365	95	28	M10	60	50	5	8	31	24	M8	50	40	5	8	27
132 S	1PC1300 1PC1303	All 1CA0 1CA1, 1CB0	2, 4, 6 2, 4	115.5	12	16	380.5 430.5	446 496	110	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
132 M	1PC1300 1PC1303	All 1CB2	2, 4, 6 2, 4	115.5	12	16	380.5 430.5	446 496	110	38	M12	80	70	5	10	41	28	M10	60	50	5	8	31
160 M	1PC1300 1PC1303	All 1DA2, 1DA3, 1DB2	2, 4, 6 2, 4	155	15	19	510	630	120	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45
160 L	1PC1300 1PC1303	All 1DA4, 1DB4	2, 4, 6 2, 4	155	15	1	510 570	630 690	120	42	M16	110	90	10	12	45	42	M16	110	90	10	12	45

Dimensional drawings

Type of construction IM B3



Type of construction IM B5 For flange dimensions, see page 1/53 (\mathbf{Z} = the number of retaining holes)



For motor	Туре			Dim	ensic	n de	signa	ition a	cc. to I	EC																
Frame size			No. of poles	Α	AA	AB	AC	AD	AD'	AG	AS	АН	AQ	AS	В	B'	ВА	BA'	ВВ	ВС	С	CA	CA'	Н	НА	Υ
180 M	1PC1301/ 1PC1304	1EA2, 1EB2	2, 4	279	65	339	356	242.5	5 242.5	100	50	468	340	50	241	279	85	120	328	34	121	202	164	180	20	95
180 L	1PC1301/ 1PC1304	1EB4	4	279	65	339	356	242.5	5 242.5	100	50	468	340	50	241	279	85	120	328	34	121	232	194	180	20	95
	1PC1301	1EC4	6																			202	164			
200 L	1PC1301 1PC1304	2AA4, 2AA5, 2AB5, 2AC4, 2AC5 2AA4 2AA5, 2AB5	2 4, 6 6 2 2, 4	318	70	378	396	306	306	175	65	533	340	65	305	-	104	104	355	31	133	177	-	200	25	108
225 S	1PC1301/ 1PC1304	2BB0	4	356	80	436	449	328	328	175	65	556	425	65	286	311	92	117	361	15	149	218	193	225	34	124
225 M	1PC1301 1PC1304	2BA2 2BB2, 2BC2 2BA2 2BB2	2 4, 6 2 4	356	80	436	449	328	328	175	65	556	425	65	286	311	92	117	361	15	149	278	253	225	34	124
250 M	1PC1301 1PC1304	2CA2 2CB2, 2CC2 2CA2 2CB2	2 4, 6 2 4	406	100	490	497	398	398	224	90	620	470	90	349	-	102	102	409	24	168	235	-	250	40	138

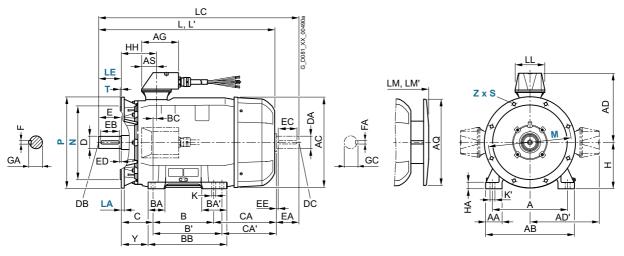
6

Smoke extraction motors

Dimensions · Cast-iron series – IE2 and IE3 – self-ventilated · Frame sizes 180 M to 250 M

Dimensional drawings (continued)

*Type of construction IM B35*For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)



For motor	Туре			Dime	ensic	on de	esigna	ation ac	c. to I	EC	DE	shaft e	xtens	ion				NDI	E shaft	extens	sion			
Frame size			No. of poles	НН	K	K'	L	LC 1)	LL	LM	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
180 M	1PC1301/ 1PC1304	1EA2, 1EB2	2, 4	155	15	19	668	784	100	758	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
180 L	1PC1301/ 1PC1304	1EB4	4	155	15	19	698	814	100	788	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
	1PC1301	1EC4	6				668	784		758														
200 L	1PC1301	2AA4, 2AA5, 2AB5, 2AC4, 2AC5	2 4, 6 6	164	19	25	721	835	130	811	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
	1PC1304	2AA4 2AA5, 2AB5	2 2, 4				746	860		836														
225 S	1PC1301/ 1PC1304	2BB0	4	164	19	25	788	903	130	888	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
225 M	1PC1301 1PC1304	2BA2 2BB2, 2BC2 2BA2	2 4, 6 2	164	19	25	818 848 818	933 963 933	130	948 918	60 55	M20	110 140 110	100 125 100	5 10 5	18 16	59 64 59	48 55 48	M16 M20 M16	110	100	5	16 14	51.5
		2BB2	4				848	963		948	60		140	125	10	18	64	55	M20				16	59
250 M	1PC1301 1PC1304	2CA2 2CB2, 2CC2 2CA2	2 4, 6 2	192	24	30	887	1002 1032 1002	180	987	60 65 60	M20	140	125	10	18	64 69 64	55 60 55	M20	110 140 110	100 125 100	5 10 5	16 18 16	
	2 100 1	2CB2	4					1032			65						69	60		140	125	10	18	

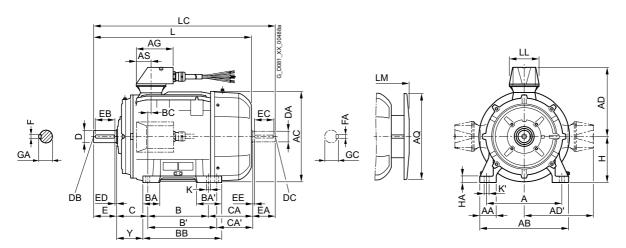
In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

Smoke extraction motors

Dimensions · Cast-iron series – IE2 and IE3 – self-ventilated · Frame sizes 280 S to 315 L

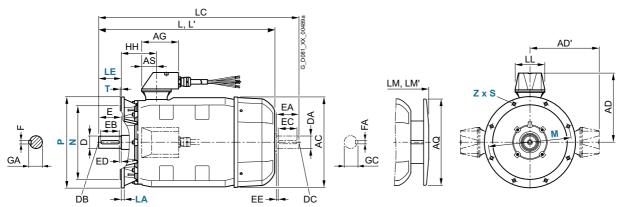
Dimensional drawings (continued)

Type of construction IM B3



Type of construction IM B5

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



For motor	Type						signat																		
Frame size			No. of poles	Α	AA	AB	AC	AD	AD'	AG	АН	AQ'	AS	В	B'	ВА	BA'	BB	ВС	С	CA	CA'	Н	НА	Υ
280 S	1PC1301	2DA0 2DB0, 2DC0	2 4, 6	457	100	540	551	421	421	224	672	525	90	368	419	101	152	479	20	190	267	216	280	40	160
	1PC1304	2DB0, 2DC0 2DA0 2DB0	4, 6 2 4																						
280 M	1PC1301	2DA2 2DB2 2DC2	2 4 6	457	100	540	551	421	421	224	672	525	90	368	419	101	152	479	20	190	267	216	280	40	160
	1PC1304	2DA2 2DB2	2																		377	326			
315 S	1PC1301	3AA0 3AB0, 3AC0	2 4, 6	508	120	610	616	455	455	242	780	590	121	406	457	113	170	527	22	216	295	244	315	50	181
	1PC1304	3AA0 3AB0	2																						
315 M ¹⁾	1PC1301	3AA2 3AB2	2 4	508	120	610	616	455	455	242	780	590	121	457	508	113	170	578	22	216	409	358	315	50	181
	1PC1304	3AC2 3AA2 3AB2	6 2 4												457 508			527 578				244 358			
315 L ¹⁾	1PC1301	3AA4 3AB4, 3AC4	2 4, 6	508	120	610	616	455	455	242	780	590	121	457	508	113	170	578	22	216	409	358	315	50	181
		3AA5 3AB5	4, 6 2 4													176	227	648			564	513			146
		3AC5	6														170				409				181
	1PC1304	3AC6 3AA4	6 2														227 170				564 409				146 181
		3AB4 3AA5 3AB5	4 2 4													176	227	648			564	-			146

When ordering with screwed-on feet (as standard for right-hand side and left-hand side terminal box positions; optional for top terminal box position – order code **H01**) these screwed-on feet have 3 drill holes on the NDE

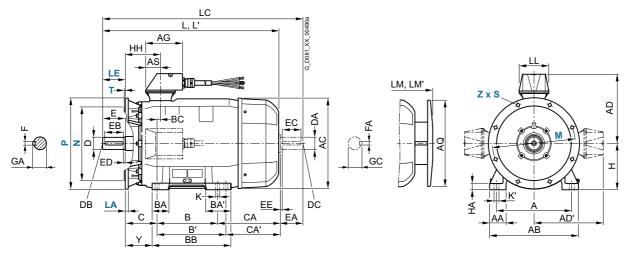
with the respective dimension B 406, 457 and 508 mm; the dimension BB is 666 mm.

Smoke extraction motors

Dimensions · Cast-iron series – IE2 and IE3 – self-ventilated · Frame sizes 280 S to 315 L

Dimensional drawings (continued)

*Type of construction IM B35*For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)

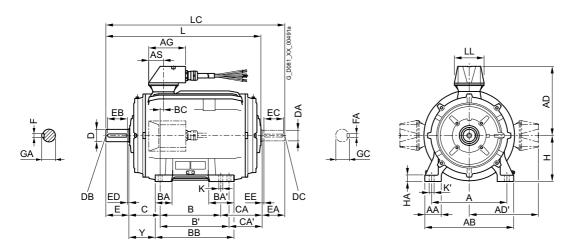


For motor	Type			Dim	ensi	ion (designa	ation ac	c. to	IEC	DE	shaft (extens	sion				ND	E shaf	t exte	nsion		
Frame size			No. of poles	НН	K	K'	L	LC 1)	LL	LM	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA GC
280 S	1PC1301 1PC1304	2DA0 2DB0, 2DC0 2DA0 2DB0	2 4, 6 2 4	210	24	30	960	1105	180	1070	65 75 65 75	M20	140	125	10	18 20 18 20	69 79.5 69 79.5	60 65 60 65	M20	140	125	10	18 64 69 64 69
280 M	1PC1301	2DA2 2DB2 2DC2	2 4 6	210	24	30	960	1105	180	1070	65 75	M20	140	125	10	18 20	69 79.5	60 65	M20	140	125	10	18 64 69
	1PC1304	2DA2 2DB2	2 4				1070	1215		1180	65 75					18 20	69 79.5	60 65					64 69
315 S	1PC1301 1PC1304	3AA0 3AB0, 3AC0 3AA0	2 4, 6	238	28	35	1052 1082 1052	1197 1227 1197	242	1162 1192 1162	65 80 65	M20	140 170 140	125 140 125	10 25 10	18 22 18	69 85 69	60 70 60	M20	140	125	10	18 64 20 74.5 18 64
	11 0 1304	3AB0	4				1082	1227		1192	80		170	140	25	22	85	70					20 74.5
315 M	1PC1301	3AA2 3AB2 3AC2	2 4 6	238	28	35	1217 1247 1082	1362 1392 1227	242	1327 1357 1192	65 80	M20	140 170	125 140	10 25	18 22	69 85	60 70	M20	140	125	10	18 64 20 74.5
	1PC1304	3AA2 3AB2	2				1217 1247	1362 1392		1327 1357	65 80		140 170	125 140	10 25	18 22	69 85	60 70					18 64 20 74.5
315 L	1PC1301	3AA4 3AB4, 3AC4 3AA5 3AB5 3AC5 3AC6	2 4, 6 2 4 6	238	28	35	1217 1247 1372 1402 1247 1402	1362 1392 1517 1547 1392 1547	242	1327 1357 1482 1512 1357 1512	65 80 65 80	M20	140 170 140 170	125 140 125 140	10 25 10 25	18 22 18 22	69 85 69 85	60 70 60 70	M20	140	125	10	18 64 20 74.5 18 64 20 74.5
	1PC1304	3AA4 3AB4 3AA5 3AB5	2 4 2 4				1217 1247 1372 1402	1362 1392 1517 1547		1327 1357 1482 1512	65 80 65 80		140 170 140 170	125 140 125 140	10 25 10 25	18 22 18 22	69 85 69 85	60 70 60 70					18 64 20 74.5 18 64 20 74.5

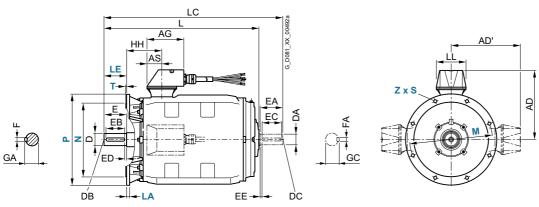
In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

Dimensional drawings

Type of construction IM B3



Types of construction IM B5 and IM V1 For flange dimensions, see page 1/53 (\mathbf{Z} = the number of retaining holes)



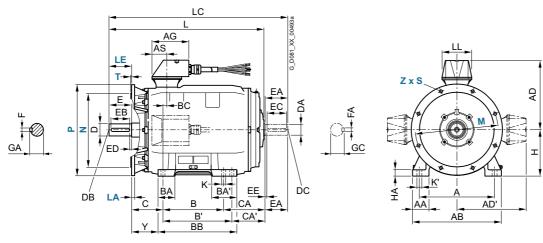
For motor	Туре			Dime	ensio	n desi	ignatio	on acc	. to IE	С													
Frame size			No. of poles	Α	AA	AB	AD	AD'	AG	АН	AS	В	B'	ВА	BA'	ВВ	ВС	С	CA	CA'	Н	НА	Υ
180 M	1PC1301/ 1PC1304	1EA2, 1EB2	2, 4	279	65	339	244	244	100	468	50	241	279	85	120	328	34	121	94	56	180	20	95
180 L	1PC1301/ 1PC1304	1EB4	4 4	279	65	339	244	244	100	468	50	241	279	85	120	328	34	121	124	86	180	20	95
	1PC1301	1EC4	6																94	56			
200 L	1PC1301 1PC1304	2AA4, 2AA5 2AB5, 2AC4 2AC5 2AA4 2AA5, 2AB5	2 4, 6 6 2 2, 4	318	70	378	307	307	175	533	65	305	-	104	104	355	31	133	76	-	200	25	108
225 S	1PC1301/ 1PC1304	2BB0	4	356	80	436	328	328	175	556	65	286	311	92	117	361	15	149	99	74	225	34	124
225 M	1PC1301	2BA2 2BB2, 2BC2	2 4, 6	356	80	436	328	328	175	556	65	286	311	92	117	361	15	149	159	134	225	34	124
	1PC1304	2BA2 2BB2	2									311	-							-			
250 M	1PC1301 1PC1304	2CA2 2CB2, 2CC2 2CA2 2CB2	2 4, 6 2 4	406	100	490	398	398	224	620	90	349	-	102	102	409	24	168	111	-	250	40	138

Smoke extraction motors

Dimensions · Cast-iron series – IE2 and IE3 – forced-air cooled · Frame sizes 180 M to 250 M

Dimensional drawings (continued)

Type of construction IM B35

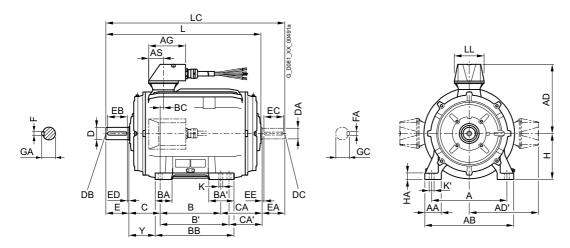


For motor	Туре			Dime IEC	ensio	n de	signat	ion ac	c. to	DE	shaft e	xtensi	on				NDE	E shaft e	extensi	on			
Frame size			No. of poles	НН	K	K'	L	LC ¹) LL	D	DB	Е	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
180 M	1PC1301/ 1PC1304	1EA2, 1EB2	2, 4	155	15	19	562	676	100	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
180 L	1PC1301/ 1PC1304	1EB4	4	155	15	19	592	706	100	48	M16	110	100	5	14	51.5	48	M16	110	100	5	14	51.5
	1PC1301	1EC4	6				562	676															
200 L	1PC1301	2AA4, 2AA5 2AB5, 2AC4, 2AC5	2 4, 6 6	164	19	25	617	734	130	55	M20	110	100	5	16	59	55	M20	110	100	5	16	59
	1PC1304	2AA4 2AA5, 2AB5	2 2, 4				642	759															
225 S	1PC1301/ 1PC1304	2BB0	4	164	19	25	610	724	130	60	M20	140	125	10	18	64	55	M20	110	100	5	16	59
225 M	1PC1301	2BA2 2BB2, 2BC2	4 4, 6	164	19	25	700 730	814 844	130	55 60	M20	110 140	100 125	5 10	18	59 64	48 55	M16 M20	110	100	5	14 16	51.5 59
	1PC1304	2BA2 2BB2	2 4				700 730	814 844		55 60		110 140	100 125	5 10	16 18	59 64	48 55	M16 M20				14 16	51.5 59
250 M	1PC1301	2CA2 2CB2, 2CC2	2 4, 6	192	24	30	764	878 908	180	60 65	M20	140	125	10	18	64 69	55 60	M20	110 140	100 125	5 10	16 18	59 64
	1PC1304	2CA2 2CB2	2					878 908		60 65						64 69	55 60		110 140	100 125	5 10	16 18	59 64

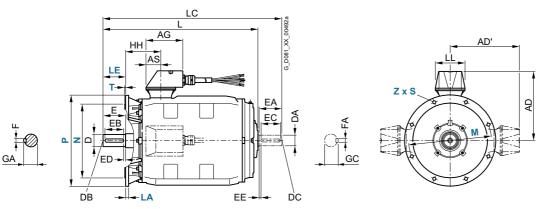
In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

Dimensional drawings (continued)

Type of construction IM B3



Types of construction IM B5 and IM V1 For flange dimensions, see page 1/53 (\mathbf{Z} = the number of retaining holes)



For motor	Type			Dime	ensior	desi	gnatic	n acc	. to IE	C													
Frame size			No. of poles	Α	AA	AB	AD	AD'	AG	АН	AS	В	B'	ВА	BA'	BB	ВС	С	CA	CA'	Н	НА	Υ
280 S	1PC1301	2DA0 2DB0, 2DC0	2 4, 6	457	100	540	398	398	180	672	90	368	419	101	152	479	20	190	137	86	280	40	160
	1PC1304	2DA0 2DB0	2 4																				
280 M	1PC1301	2DA2 2DB2, 2DC2	2 4, 6	457	100	540	398	398	180	672	90	368	419	101	152	479	20	190	137	86	280	40	160
	1PC1304	2DA2 2DB2	2 4									419	-						247	196			
315 S	1PC1301	3AA0 3AB0, 3AC0	2 4, 6	508	120	610	455	455	242	780	121	406	457	113	170	527	22	216	148	97	315	50	181
	1PC1304	3AA0 3AB0	2 4																				
315 M ¹⁾	1PC1301	3AA2 3AB2	2 4	508	120	610	455	455	242	780	121	457 406	508 457	113	170	578 527	22	216	262 148	211 97	315	50	181
	1PC1304	3AC2 3AA2 3AB2	6 2 4									457	508			578			262	211			
315 L ¹⁾	1PC1301	3AA4 3AB4, 3AC4	2 4, 6	508	120	610	455	455	242	780	121	457	508	113	170	578	22	216	262	211	315	50	181
		3AA5 3AB5	2 4											176	227	648			417	366			146
		3AC5 3AC6	6											113 176	170 227	578 648			262 417	211 366			181 146
	1PC1304	3AA4 3AB4	2									508	-	113	170				262	211			181
		3AA5 3AB5	2											176	227	648			477	366			146

When ordering with screwed-on feet (as standard for right-hand side and left-hand side terminal box positions; optional for top terminal box position - order code H01) these screwed-on feet have 3 drill holes on the NDE

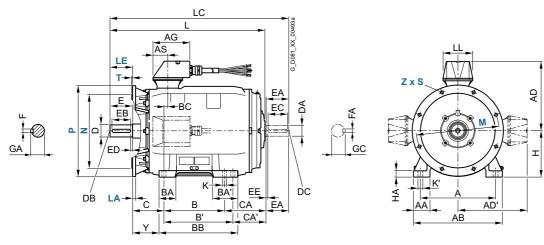
with the respective dimension B 406, 457 and 508 mm; the dimension BB is 666 mm.

Smoke extraction motors

Dimensions · Cast-iron series – IE2 and IE3 – forced-air cooled · Frame sizes 280 S to 315 L

Dimensional drawings (continued)

*Type of construction IM B35*For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)



For motor	Type			Dime	ensic	n d	esignatio	on acc. to	o IEC	DE	shaft e	xtensi	on				NDE	E shaft	extens	sion			
Frame size	,,		No. of poles	НН				LC 1)	LL	D	DB	Ε	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
280 S	1PC1301 1PC1304	2DA0 2DB0, 2DC0 2DA0 2DB0	2 4, 6 2 4	210	24	30	830	975	180	65 75 65 75	M20	140	125	10	18 20 18 20	69 79.5 69 79.5	60 65 60 65	M20	140	125	10	18	64 69 64 69
280 M	1PC1301 1PC1304	2DA2 2DB2, 2DC2 2DA2 2DB2	2 4, 6 2 4	210	24	30	830 940	975 1085	180	65 75 65 75	M20	140	125	10	18 20 18 20	69 79.5 69 79.5	60 65 60 65	M20	140	125	10	18	64 69 64 69
315 S	1PC1301 1PC1304	3AA0 3AB0, 3AC0 3AA0 3AB0	2 4, 6 2 4	238	28	35	905 935 905 935	1050 1100 1050 1100	242	65 80 65 80	M20	140 170 140 170	125 140 125 140	10 25 10 25	18 22 18 22	69 85 69 85	60 70 60 70	M20	140	125	10	18 20 18 20	64 74.5 64 74.5
315 M	1PC1301	3AA2 3AB2 3AC2	2 4 6	238	28	35	1070 1100 935	1215 1245 1100	242	65 80	M20	140 170	125 140	10 25	18 22	69 85	60 70	M20	140	125	10	18 20	64 74.5
	1PC1304	3AA2 3AB2	2 4				1070 1100	1215 1245		65 80		140 170	125 140	10 25	18 22	69 85	60 70					18 20	64 74.5
315 L	1PC1301	3AA4 3AB4, 3AC4 3AA5 3AB5 3AC5 3AC6	2 4, 6 2 4 6 6	238	28	35	1070 1100 1225 1255 1100 1255	1215 1245 1370 1400 1245 1400	242	65 80 65 80	M20	140 170 140 170	125 140 125 140	10 25 10 25	18 22 18 22	69 85 69 58	60 70 60 70	M20	140	125	10	18 20 18 20	64 74.5 64 74.5
	1PC1304	3AA4 3AB4 3AA5 3AB5	2 4 2 4				1070 1100 1225 1255	1215 1245 1370 1400		65 80 65 80		140 170 140 170	125 140 125 140	10 25 10 25	18 22 18 22	69 85 69 85	60 70 60 70					18 20 18 20	64 74.5 64 74.5

In the low-noise version, a second shaft extension and/or mounted encoder is not possible.

Orientation

Marine motors

Overview



SIMOTICS DP application-specific motors

Low-voltage motors in the marine version can be used below deck on ships and in the offshore industry. The thermal utilization of the motors is adapted to the generally higher ambient temperatures onboard ships. If the application demands compliance with additional regulations, such as explosion protection (Directive 94/9/EC (ATEX 95)), the appropriate motor series must be chosen.

The motors on board ships are generally subdivided into three classes of importance by the marine classification societies in cooperation with customers, depending on the field of application:

- Essential Service for Propulsion or also referred to as Primary Essential Service
- Essential Service or also referred to as Secondary Essential Service or Important Service
- Non-Essential Service or also referred to as Non-Important Service

The class of importance must be specified by the customer (ordering party). Retrospective certification by means of individual acceptance test or construction supervision cannot be issued.

The categories include the following requirements of the classification societies:

	Class of importance		
	Essential Service for Propulsion	Essential Service	Non-Essential Service
Typical applications	Propeller drive, thruster	Thrusters, lateral thrust units, anchor winches, bilge and ballast pumps, fire-fighting pumps	Pumps for service water
Version	In accordance with the regulations set	up by the classification society	In accordance with ambient conditions set up by the classification society
Acceptance test certificate	Acceptance test certificate 3.2 in accordance with EN 10204	Acceptance test certificate 3.1 in accordance with EN 10204	None
Individual acceptance by classification society	Necessary if no type test certificate existimit defined by the classification societ		Not required
Type test	Not a requirement of the classification s	societies	
	For standard motors up to frame size 3 options E11 to E54 in accordance with	15 L, a type test certificate is supplied. T the classification society.	hese motors can only be ordered with
Ordering several identical motors	Differentiation between the first motor a when ordering using an order code	nd additional ones must be realized	No distinction
Rating plate data	Information about ambient conditions o	f the classification society	
Stamp of the classification society	Stamp on shaft and housing		No stamp

Classification societies

Society	Abbreviation	Location
American Bureau of Shipping	ABS	USA
Bureau Veritas	BV	France
DNV GL Maritime	DNV GL	Germany
Korean Register	KR	Korea
Lloyds Register	LR	UK
Registro Italiano Navale	RINA	Italy
Russian Maritime Register of Shipping	RS	Russia

Marine motors

Orientation

Overview (continued)

Type test (type approval)

All 1LE1, 1MB1, 1PC1, 1PC3 motors are manufactured and type tested in accordance with the regulations set up by the following international classification societies:

• ABS (American Bureau of Shipping)



• BV (Bureau Veritas, France)



• DNV GL Maritime



• KR (Korean Register of Shipping)



• LR (Lloyds Register of Shipping)



• Registro Italiano Navale (RINA)



• Russian Maritime Register of Shipping (RS)



Special versions that differ from the range defined in the catalog are possible on request.

Benefits

The marine motors offer the user a number of advantages and benefits:

- Cast-iron versions can be supplied for corrosive atmospheres especially for high humidity levels and salty air
- Increased corrosion protection using specially designed paint finishes is available
- Certified marine motors can be supplied for use in areas to be protected against explosion (hazardous zones)
- Due to the existing type test, individual acceptance test in power ranges below the power limits defined by the classification societies is not required which means short delivery times
- In depth know-how regarding customer requirements
- Worldwide service network with 24 hour service hotline for motors and converters

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Marine motors

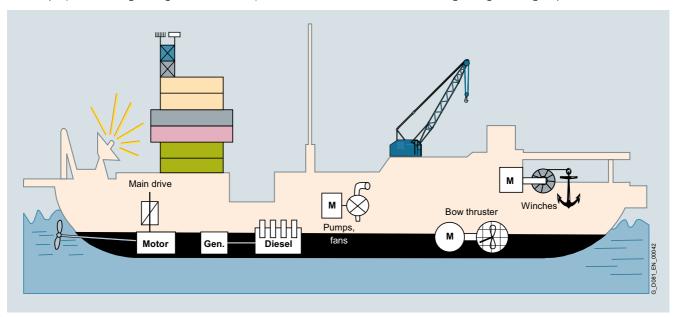
Orientation

Application

Our type tested marine motors are specially designed for use on board ship below deck and for the offshore industry:

- Applications on ships as main and auxiliary drives below deck, e.g.:
 - Fans (air conditioning systems, refrigeration systems)
 - Pumps (for fire-extinguishing water, fuels, oils)

- Winches (anchor winches, warping winches, lifting gear)
- Compressors
- Bow thruster drives
- Ex motors for hazardous zones
- · Application in the offshore industry
 - Coastal areas, e.g. oil rigs, drilling ships



Typical below-deck applications

Technical specifications

Housing design

Motors can be supplied depending on the motor series in a corrosion-resistant aluminum housing and in a rugged low-vibration cast-iron version.

Motor connection

Cable glands are not included in the standard scope of supply with the exception of explosion-proof motors (see "Special versions").

All marine motors generally have an external grounding terminal.

Mountings (rotary pulse encoder, separately driven fan, brake)

Brakes, encoders and separately driven fans from our basic series (1LE, 1MB) are accepted as mountings without a separate certificate from the marine classification societies by the following: GL, LR, RINA, RS, DNV, ABS and KR.

However, BV always demands separate certification for encoders. For this reason, 1LE1, 1MB1, 1PC1 and 1PC3 motors for BV can only be supplied in the "prepared for encoder mounting" condition. In this instance, the customer must bear responsibility for purchasing and installing a suitable encoder. With respect to brakes and separately driven fans, BV will also accept Siemens standard components.

Fan / fan cover

Fans and fan covers are made from the same materials as components from the basic series. BV stipulates that these components must be made of metal, and they are automatically supplied in this material when order code **E31** is specified.

Marine motors

Orientation

Technical specifications (continued)

Specifications of the individual classification societies with order codes (options) for motors in frame sizes 71 M - 315 L

Classification society	Coolant temperature CT	Admissible temperature rise limi according to the classification society		Rated power limit for individual acceptance test for essential service drive	Rated power limit for construction supervision for essential service drive	Order codes for surface-cooled motors up to frame size 315 L with type test certificate
		Temperature class				
		130 (B)	155 (F)			
	°C	K	K	kW	kW	
LR	45	70	95	≥ 100	≥ 100	E21
BV	45	75	100	≥ 100	-	E31
DNV GL	45	75	100	≥ 300	-	E51
ABS	50	70	95	≥ 100 ¹⁾	-	E52
RINA	45	75	100	≥ 100	-	E41
RS	45	75	95	≥ 20	-	E46
KR	45	75	95	≥ 7.5	-	E54

Type test certificates



¹⁾ Required for all ratings for ATEX compliance.

Marine motors

Orientation

Technical specifications (continued)

Temperature class and coolant temperature

SIMOTICS GP/SD standard motors and SIMOTICS XP explosion-proof motors up to frame size 315 L

In general, marine motors are designed for a coolant temperature CT 45 °C in temperature class 155 (F) – used according to 155 (F) – with thermal reserve. When motors are used according to temperature class 130 (B) (order code **N05**), derating is required. For standard motors up to frame size 315 L, the derating is approx. 4 % (for order codes **E52** and **E21** approx. 8 %).

1MB1 motors in Zones 2, 21 and 22 are designed for temperature class 155 (F) – used according to temperature class 130 (B) – with derating of approx. 4 % (with order code **E52** approx. 8 %). Motors with increased power in temperature class 155 (F) – used according to temperature class 155 (F) – are also derated by approx. 4 % (with order code **E52** and **E21** approx. 8 %). If temperature class 155 (F) is to be used according to 130 (B), further derating of approximately 10 % is required.

Coolant temperatures that exceed CT 45 °C require derating in accordance with the following table:

	Coolan	t tempera	ature CT	
	45 °C	50 °C	55 °C	60 °C
Temperature class 155 (F) used acco	rding to	155 (F)		
Derating factor for line operation	1.00	0.96	0.92	0.87

Non-standard motors SIMOTICS N-compact

For the non-standard motors 1LA8, 1PQ8 the following derating factors apply for increased coolant temperatures and with line operation:

	Coolant	t tempera	ture CT	
	45 °C	50 °C	55 °C	60 °C
Temperature class 155 (F) used accor	ding to	155 (F)		
Derating factor for line operation	1.00	0.96	0.92	0.87
Temperature class 155 (F) used accor	ding to	130 (B)		
Derating factor for line operation	0.90	0.86	0.83	0.78

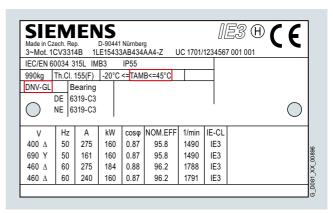
For the non-standard motors 1LA8, 1PQ8 the following derating factors apply for increased coolant temperatures and for converter operation:

	Coolan	t tempera	ture CT	
	45 °C	50 °C	55 °C	60 °C
Temperature class 155 (F) used accor	ding to	155 (F)		
Derating factor for converter operation	0.96	0.92	0.87	0.82
Temperature class 155 (F) used accord	ding to	130 (B)		
Derating factor for converter operation	0.82	0.78	0.74	0.70

More detailed information is available on request.

Rating plate and acceptance test certificate

The rating plate indicates the relevant classification society and the associated coolant temperature



Rating plate for a marine motor according to DNV

Degree of protection

The protection classes applicable here are specified in the catalog sections for basic series 1LE1/1MB1/1PC1. With IP56, icing must be avoided.

Winding and motor protection

For monitoring the winding and bearings, the motors can be equipped with PTC thermistors, temperature sensors and resistance thermometers. Anti-condensation heaters can also be fitted to the marine motors to prevent condensation building up on the winding.

Paint finish

The standard paint finish is suitable for indoor installations or outdoor installations which are roof-protected against weathering.

When installing the standard motors in sea air or in rooms with permanent moisture, the special paint type climate group "worldwide" according to IEC 60721-2-1 is appropriate, because this ensures a higher degree of corrosion protection. Most marine motors are finished in this special paint type as standard (see "Special versions").

With particularly corrosive atmospheres, the sea-air-resistant special paint finish C4 (order code **S03**) or the offshore special paint system C5 (order code **S04**) is recommended.

Special paint colors and increased layer thicknesses are available on request.

Converter operation

The standard insulation of the motors is designed such that converter operation is permissible at line voltages up to $U_{rated} \leq 500$ V. The following limit values (voltage values are peak values) must be maintained: $\hat{U}_{phase-to-phase} \leq 1500$ V, $\hat{U}_{phase-to-ground} \leq 1100$ V, voltage rise times of $t_{\rm g} > 0.1$ μs . Operation of motors at higher voltage peaks (e.g. on converters with controlled input, e.g. AFE, ALM) requires motors with higher insulation resistance.

Please inquire in this case.

During installation, the EMC guidelines must be complied with. This does not apply to motors in type of protection Ex eb according to IEC/EN 60079-2 that are certified only for line operation.

It is important to note the extent to which the converter used must also be acceptance tested by the marine classification authority.

Marine motors

Orientation

Technical specifications (continued)

Recommended special versions

- Motor protection with 1 or 3 PTC thermistors for tripping (2 terminals) – 15th position of the Article No. B
- Installation of Pt100 resistance thermometers for winding temperature monitoring – 16th position of the Article No. "H"
- Specially for motor series 1LA8, 1PQ8 and 1LL8: Installation of 2 Pt100 screw-in resistance thermometers in basic circuit for roller bearings – order code A72
- Anti-condensation heating for 230 V order code Q02
- Anti-condensation heating for 115 V order code Q03
- IP56 degree of protection for protection against harmful dust deposits, protection against water jets from any direction – order code H22

- IP65 degree of protection for complete protection against dust deposits, protection against water jets from any direction – order code H20
 - Not possible for 1LA8, 1PQ8 and 1LL8 non-standard motors
- Special bearing for drive-end (DE) and non-drive-end (NDE), bearing size 63 – order code L25, for non-standard motors on request
- Metal external fan for self-ventilated motors order code F76 (standard with order code E31)

Additional notes

Order information

The fees levied by the classification societies for individual acceptance testing are included in order code **B10** for motor types 1LE1, 1MB1, 1PC1 and 1PC3.

When ordering, add the supplement **-Z** to the Article No. and state details in plain text if required.

For information about other special versions, refer to the appropriate sections under "SIMOTICS GP/SD 1LE1/1PC1 standard motors" and "SIMOTICS XP 1MB1 explosion-proof motors".

In addition to this, for marine motors, the following special versions are the "Standard version" and therefore included in the order codes for the basic marine version.

Standard version:

Designation	Order code
Acceptance test certificate 3.1 in accordance with EN 10204	B02
Note: The delivery time for the factory test certificate may differ from the delivery time for the motor.	
External grounding terminal	H04

Ordering example

Selection criteria	Requirement	Structure of the Article No.
Motor type	SIMOTICS SD Basic Line, efficiency class IE3 Premium Efficiency, IP55 degree of protection, IM B3 type of construction without winding protection, terminal box at top	1LE1503
No. of poles, speed, rated power	4-pole, 1500 rpm, 55 kW	1LE1503-2CB2
Voltage, frequency	400 V∆/690 VY, 50 Hz	1LE1503-2CB23-4
Type of construction	IM B3	1LE1503-2CB23-4A
Motor protection	1 or 3 PTC thermistors – for tripping (2 terminals)	1LE1503-2CB23-4AB
Terminal box position	Terminal box right	1LE1503-2CB23-4AB5
Paint finish	Paint finish in "Brilliant blue" RAL 5007	1LE1503-2CB23-4AB5-Z Y53 Plain text: RAL5007
Marine version	Drive for "Essential Services" with type test certificate according to DNV GL Maritime with coolant temperature CT 45 °C	1LE1503-2CB23-4AB5-Z Y53+E51 Plain text: RAL5007
	Individual acceptance (by marine classification society)	1LE1503-2CB23-4AB5-Z Y53+E51+B10 Plain text: RAL5007
Motor order		
	Type test with temperature-rise run for horizontal motors, with acceptance	1LE1503-2CB23-4AB5-Z Y53+E51+B10+B83 Plain text: RAL5007

The ordering example is valid for an order quantity of 1 item. For larger order quantities, a type test with heat run (order code **B83**) has only to be ordered for one motor.

It is not necessary to specify order code **B83** for any further identical motors (included in the same order).

The order must be divided into two order items; see "Example for 5 identical motors".

Example for 5 identical motors

Order item	Quantity in units	Article No.
1	1	1LE1503-2CB23-4AB5-Z Z=Y53+E51+B10+B83 Plain text: RAL 5007
2	4	1LE1503-2CB23-4AB5-Z Z=Y53+E51+B10 Plain text: RAL 5007

Selection and ordering data

Selection and ordering data													
Special versions	Additional	Fram	e size								Motor ve	ersion	
	identification code -Z with	71	80	90	100	112	132	160	180	200			
	order code				1LE1	004					IEC	IE4	
	and plain text		1LE1	003								IE3	
	if required	1LE1	001									IE2	
		1LE1	002									IE1	
			1LE1	023							Eagle	NPE (NEMA)	
				1LE1	1021						Line	NEE (NEMA)	
					1LE1	011					Pole-cha	anging	
1LE10 2	Order code				1LE1	012							
Marine version – Basic version													
With type test certificate according to	E21	_	1	1	1	1	/	/	1	/			
Lloyds Register (LR), CT 45 °C,					1	·	•	·	Ť	·			
temperature class 155 (F), utilized according to 155 (F)													
With type test certificate according to	E31		/	/	1					/			
Bureau Veritas (BV), CT 45 °C,	LUI	_	•	•	•	•	•	•	•	•			
temperature class 155 (F),													
utilized according to 155 (F) With type test certificate according to	E41		/	/	1		/	/	/	/			
Registro Italiano Navale (RINA),	E41	_	•	•	•	•	•	•	•	•			
CT 45 °C, temperature class 155 (F),													
utilized according to 155 (F)													
With type test certificate according to Russian Maritime Register (RS),	E46	_	1	1	1	1	1	1	✓	✓			
CT 45 °C, temperature class 155 (F),													
utilized according to 155 (F)													
With type test certificate according to DNV GL Maritime, CT 45 °C,	E51	-	1	1	✓	1	✓	✓	/	✓			
temperature class 155 (F),													
utilized according to 155 (F)													
With type test certificate according to	E52	-	✓	✓	1	✓	1	✓	1	1			
American Bureau of Shipping (ABS), CT 50 °C, temperature class 155 (F).													
utilized according to 155 (F)													
With type test certificate according to	E54	-	✓	✓	1	✓	1	✓	✓	1			
Korean Register of Shipping (KR), CT 45 °C, temperature class 155 (F),													
utilized according to 155 (F)													
Marine version – Acceptance/certifica	ation												
Individual acceptance by marine	B10	-	1	1	1	/	/	/	✓	/			
classification society													
Type test with warm run for horizontal	B83	-	1	1	✓	1	✓	✓	/	✓			
motors, with acceptance													

With additional charge Not possible

Marine motors

Special versions · Options · Cast-iron series 1LE15/1LE16 Basic/Performance Line

Selection and ordering data																	
Special versions	Additional identification	Frame size 71 80 90 100 112 132 160 180 200 225 250 280 315												Motor ve	ersion		
	code -Z with	71	80	90						200	22	5 25	280	315			
	order code						4 Ba								IEC	IE4	
	and plain text if required						4 Per	form	ance	Lin	е						
		1LE	1LE1503 Basic Line										IE3				
		1LE1603 Performance Line															
		1LE1501 Basic Line 1LE1601 Performance Line														IE2	
							1 Per	form	ance	Lin	9						
		1LE	152	3 Bas											Eagle	NPE (NEMA)	
					1LE	162	3 Pei	form	ance	Lin	е				Line		
1LE1 Z	Order code				1LE	152	1 Ba	sic L	ine							NEE (NEMA)	
Marine version – Basic version																	
With type test certificate according to Lloyds Register (LR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E21	-	1	✓	1	1	1	1	1	1	1	1	✓	✓			
With type test certificate according to Bureau Veritas (BV), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E31	-	1	1	1	1	1	1	1	1	1	1	1	1			
With type test certificate according to Registro Italiano Navale (RINA), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E41	-	1	1	1	1	1	1	1	1	1	1	1	1			
With type test certificate according to Russian Maritime Register (RS), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E46	-	1	1	1	1	1	1	1	1	1	1	1	1			
With type test certificate according to DNV GL Maritime, CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E51	-	1	1	1	1	1	1	1	1	1	1	1	1			
With type test certificate according to American Bureau of Shipping (ABS), CT 50 °C, temperature class 155 (F), utilized according to 155 (F)	E52	-	1	✓	1	✓	1	1	1	1	1	✓	✓	✓			
With type test certificate according to Korean Register of Shipping (KR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E54	-	1	✓	1	1	1	1	1	1	1	1	1	✓			
Marine version – Acceptance/certifica	ition																
Individual acceptance by marine classification society	B10	-	1	✓	1	1	1	1	✓	✓	1	1	1	✓			
Type test with warm run for horizontal motors, with acceptance	B83	-	1	1	1	1	1	1	/	1	1	1	1	✓			

- ✓ With additional charge
- Not possible

Marine motors

Special versions · Options · Cast-iron series 1LE55/1LE56 Basic/Performance Line

Selection and ordering data

Special versions	Additional identification code -Z with order code and plain text if required	Frame size 315 1LE55.4 Basic Line 1LE56.4 Performance Line 1LE55.3 Basic Line	355	Motor version IEC IE4 IE3
1LE5 Z	Order code	1LE56.3 Performance Line		
Marine version – Basic version				
With type test certificate according to Lloyds Register (LR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E21	/	/	
With type test certificate according to Registro Italiano Navale (RINA), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E41	√	/	
With type test certificate according to Russian Maritime Register (RS), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E46	✓	/	
With type test certificate according to DNV GL Maritime, CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E51	✓	✓	
With type test certificate according to American Bureau of Shipping (ABS), CT 50 °C, temperature class 155 (F), utilized according to 155 (F)	E52	,	/	
Marine version – Acceptance/certifica	tion			
Individual acceptance by marine classification society	B10	1	✓	
Type test with heat run for vertical motors, with acceptance	B81	1	1	
Type test with heat run for horizontal motors, with acceptance	B83	✓	✓	

✓ With additional charge

Marine motors

Special versions · Options · Aluminum series 1MB10, cast-iron series 1MB15/1MB16

Selection and ordering data																	
Special versions	Additional																
	identification code -Z with		80	90	100	112	2 132	160	180	200	225	5 250	280	315			
Aluminum series	order code		1M	B10.	3										IEC	Ex t (Zone 21/22)	2) IE3
	and plain text if required		1M	B10.												Ex ec (Zone 2)	IE2
	ii roquiiou					B10.	2										IE1
Cast-iron series		1MB15.3 Basic Line 1MB16.3 Performance Line															IE3
		1 1 1	215	1 Bas			3 Pei	torm	ance	LIN	9						IE2
1MB1 Z	Order code	1101	D 1 J.	ПБа			1 Per			ILZ							
Marine version – Basic version		_		_													
With type test certificate according to	E21	1	1	,	1	,		,	1	/	,	,	,	/			
Lloyds Register (LR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	LZI	•		•	v	•	•	•		v	•	V	•	v			
With type test certificate according to Bureau Veritas (BV), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E31	V	1	✓	1	1	1	1	1	1	1	V	1	✓			
With type test certificate according to Registro Italiano Navale (RINA), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E41	1	1	1	1	1	1	1	1	1	1	1	1	1			
With type test certificate according to Russian Maritime Register (RS), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E46	1	1	1	1	1	1	1	1	1	1	1	1	1			
With type test certificate according to DNV GL Maritime, CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E51	1	1	1	1	1	1	1	1	1	1	1	1	1			
With type test certificate according to American Bureau of Shipping (ABS), CT 50 °C, temperature class 155 (F), utilized according to 155 (F)	E52	J	1	1	1	1	1	1	1	1	1	1	1	✓			
With type test certificate according to Korean Register of Shipping (KR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	E54	V	√	✓	V	1	1	1	1	✓	1	V	1	✓			
Marine version – Acceptance/certifica	tion																
Individual acceptance by marine classification society	B10	1	1	1	1	1	✓	✓	1	1	1	✓	1	1			
Type test with warm run for horizontal motors, with acceptance	B83	1	1	1	1	1	1	1	1	1	/	1	1	1			

✓ With additional charge

Marine motors

Notes



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Conditions of sale and delivery
• 1. Additional Terms and Conditions

• 3. Additional Terms and Conditions

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• 2. Prices

• 4. Export regulations

Motors according to NEMA standard



NEMA motors (National Electrical Manufacturers Association) for the North American market distinguish themselves as a result of their new design – and especially as a result of their efficiency. Siemens offers a complete line of General Purpose motors (aluminum and cast-iron design), Severe Duty motors, IEEE 841 and XP motors with NEMA Premium or higher efficiencies. Energy-saving motors with NEMA Premium efficiency class comply with the US EISA legislation (Energy Independence and Security Act) for minimum efficiencies. Our NEMA Premium + efficiency class exceeds the efficiencies specified in the EISA standards

The motors are mechanically and electrically compliant with NEMA MG1. In addition to the minimum efficiencies specified in the US, these motors also fulfill the minimum efficiency requirements for Canada (CSA) and Mexico (NOM).

General technical specifications

Voltage and power range	208 230/460 V, 575 V, 60 Hz 1 400 hp (0.75 300 kW)
Frame sizes and types	NEMA frame sizes 140 440
Pole number and frequencies	2, 4, 6 and 8-pole, 60 Hz
Environmental conditions	Surface-cooled with degree of protection IP54/IP55

Customer benefits

Copper die-cast rotors optimize the efficiency Copper die-cast rotors reduce the power loss and slightly reduce the motor length. This version reduces the motor life cycle costs as a result of the lower energy consumption.

Can be easily modified for high versatility Unmounted feet (aluminum housing) or 8-hole foot mounting (cast-iron housing) make it easier to modify the motors, ensure a high degree of versatility and reduce inventory costs - for the OEM as well as for servicing and maintenance.

A design that fulfills each and every requirement We offer motors suitable for any application in a lightweight aluminum design or with a rugged cast-iron housing. Both variants are available with NEMA Premium or NEMA Premium + efficiency. The perfect fit for any operating period.

Typical applications

NEMA motors are suitable throughout the industrial and commercial field, in the automotive, textile, printing and chemical industries as well as in cross-industry applications – for example in conveyor technology. The HVAC sector (Heating, Ventilating & Air Conditioning), for instance, which requires extremely light motors, provides typical applications for our so-called General Purpose motors – either with cast-iron or aluminum housings. Severe Duty motors in a fully cast-iron design are suitable for use under harsh environmental conditions – for instance in the pulp and paper industry. The Severe Duty SD100 IEEE 841 motor version even exceeds the stringent IEEE 841 standards applicable in the crude oil and chemical industries.

More information

The full range of products with all ordering data and technical information can be found in Catalog D 81.2, US/Canada www.sea.siemens.com/motors.

General	Pur	pos	E
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	GP100A	
Power range	1 20 hp (0.75 15 kW)	FS 140 250
Frame size (FS)	140 250	
Degree of protection NEMA MG1	TEFC (totally enclosed far	n cooled)
Housing material	Die-cast aluminum	8-hole foot mounting
Efficiency	NEMA Premium +	FS 140 250 FS 140 250
Power supply	3-phase, 60 Hz	
Voltage	208 230/460 V 575 V	FS 140 250 FS 140 250
Service factor	1.15	Sinusoidal
Electrical design	NEMA design B	
Hazard classification	Not specified	
Insulation	Class F	NEMA MG1 Part 31
Utilization	Class B at 1.0 SF, Class F at 1.15 SF	Sinusoidal
Terminal box (oversized)	Die-cast aluminum	FS 140 250
Fan cover	Plastic	FS 140 250
Fan	Bi-directional - Polypropylene	
Seal	O ring	FS 140 250
Rotor material	Die-cast aluminum Die-cast copper	FS 140 250 FS 140 250
Stator winding	Copper – random wound	
Shaft material	High-strength carbon	C1045

	0.00.	
Shaft seal/slinger	V-ring slinger meets IP54	(DE only)
Bearing housing	Cast aluminum	FS 140 250
Bearing type	Double-shielded	FS 140 250

RAI 7030

Boaring inition dap		
Lubrication	Polyurea	Base grease
Oil filling nozzle	Not specified	
Oil drain valve	Not specified	
Vibrations	0.15 IPS	
Rating plate	Aluminum	Engraved
Condensation	Condensation drainage h	oles – lowest point (2)

Regring inner can

Paint finish

ling nozzie	Not specified	
rain valve	Not specified	
tions	0.15 IPS	
g plate	Aluminum	Engraved

No

drainage hole Mountings Rust-resistant Lifting eye Cast

T CHITCHI	11011	TEITED IIIodilloa	117127000
Warrant	у	18 months	
Convert	er operation	VT 20:1 CT 4:1 CT 10:1	FS 140 250 FS 140 250 FS 140 250 (Cu)

ALKYED modified

Catalog D 81.2, US/Canada

Appendix NEMA motors

Motors according to NEMA standard

		Severe Duty			
GP100		SD100		SD100 IEEE 841	
1 200 hp	FS 140 440	1 400 hp	FS 140 S440	1 400 hp	FS 140 S440
 (0.75 132 kW) 140 440		(0.75 300 kW) 140 \$449		(0.75 300 kW) 140 \$449	
TEFC		TEFC		TEFC	
(totally enclosed fan cool		(totally enclosed fan coo		(totally enclosed fan coo	
Cast iron	8-hole foot	Cast iron	8-hole foot	Cast iron	8-hole foot
NEMA Premium NEMA Premium +	FS 140 440 FS 140 250	NEMA Premium +	FS 140 S440 FS 140 250	NEMA Premium NEMA Premium +	FS 140 S440 FS 140 250
3-phase, 60 Hz		3-phase, 60 Hz		3-phase, 60 Hz	
208 230/460 V 230/460 V 460 V 575 V	FS 140 250 FS 280 360 100 200 hp 1 200 hp	208 230/460 V 460 V 575 V	1 20 hp 25 400 hp 1 400 hp	460 V 575 V	FS 140 S440 FS 140 S440
1.15	Sinusoidal	1.15	Sinusoidal	1.15	Sinusoidal
NEMA design B		NEMA design B		NEMA design B	
Not specified		CL I Gr, C&D Div. 2	Optional	CL I Gr, C&D Div. 2	Optional
Class F	NEMA MG1 Part 31	Class F	NEMA MG1 Part 31	Class F	NEMA MG1 Part 31
Class B at 1.0 SF, Class F at 1.15 SF	Sinusoidal	Class B at 1.0 SF, Class F at 1.15 SF	Sinusoidal	Class B at 1.0 SF, Class F at 1.15 SF	Sinusoidal
Die-cast aluminum Steel Cast iron	FS 140 250 FS 280 400 FS 440	Cast iron		Cast iron	
Plastic Cast iron	FS 140 250 FS 280 440	Cast iron	FS 140 S440	Cast iron	FS 140 S440
Bi-directional - Polypropylene		Bi-directional - Polypropylene - Bronze Counter-clockwise	FS 140 440 FS S440 300 400 hp 2P/4P	Bi-directional - Polypropylene - Bronze Counter-clockwise	FS 140 440 FS S440 300 400 hp 2P/4F
O-ring Neoprene	FS 140 250 FS 280 440	Neoprene		Neoprene	
Die-cast aluminum Die-cast copper	FS 140 440 FS 140 250	Die-cast aluminum Die-cast copper	FS 140 S440 FS 140 250	Die-cast aluminum Die-cast copper	FS 140 S440 FS 140 250
Copper – random wound		Copper – random wound	i	Copper – random wound	I
High-strength carbon steel	C1045	High-strength carbon steel	C1045	High-strength carbon steel	C1045
V-ring slinger meets IP54	(DE only)	V-ring slinger meets IP54	(DE, NDE)	Inpro/seal bearing insulation meets IP55	(DE, NDE)
Cast iron	FS 140 440	Cast iron	FS 140 S440	Cast iron	FS 140 S440
Double-shielded Regreasable inlet and outlet	(FS 440 only)	Double-shielded Single-shielded Regreasable inlet and outlet	FS 140 250 FS 280 S440	Double-shielded Single-shielded Regreasable inlet and outlet	FS 140 250 FS 280 S440
No		Cast iron		Cast iron	
Polyurea	Base grease	Polyurea	Base grease	Polyurea	Base grease
Alemite	FS 440 only	Alemite		Alemite	`
Plug	FS 440 only	Plug		Pressure relief (automatic	0)
0.15 IPS	Engraved	0.08 IPS	Engraved	0.06 IPS Stainless steel	Embossed
Aluminum Condensation drainage h	Engraved oles – lowest point (2)	Stainless steel T discharges – lowest po		T discharges – lowest po	Embossed pint (2)
Rust-resistant		Rust-resistant		Rust-resistant	
Included	> 75 lb (> 34.0 kg)	Included	> 75 lb (> 34.0 kg)	Included	
ALKYED modified	RAL7030	ALKYED modified	RAL7030	ALKYED modified	RAL7030
18 months		36 months		60 months	
VT 20:1 CT 4:1	FS 140 440 FS 140 440	CT 20:1 CT 4:1	FS 143 365 FS 140 440	CT 20:1 CT 4:1	FS 143 365 FS 140 440

NEMA motors

Motors according to NEMA standard

	Explosion Proof				Definite Purpose	
						€
	XP100		XP100 ID1		SD10 MS	
Power range	1 300 hp (0.75 200 kW)	FS 140 440	1 300 hp (0.75 200 kW)	FS 140 440	1 200 hp (0.75 160 kW)	4/8-pole – 1W VT
Frame size (FS)	140 440		140 440		140 440	
Degree of protection NEMA MG1	TEFC (totally enclosed	d fan cooled)	TEFC (totally enclosed	d fan cooled)	TEFC (totally enclose	d fan cooled)
Housing material	Cast iron	8-hole foot	Cast iron	8-hole foot	Cast iron	8-hole foot
Efficiency	NEMA Premium	FS 140 440	NEMA Premium	FS 140 440	Standard	FS 140 440
Power supply	3-phase, 60 Hz		3-phase, 60 Hz		3-phase, 60 Hz	
Voltage	208 230/460 V 230/460 V 460 V 575 V	1 20 hp 25 100 hp 125 300 hp 1 300 hp	208 230/460 V 230/460 V 460 V 575 V	1 20 hp FS 280 100 hp 125 300 hp 1 300 hp	460 V 575 V	FS 140 440 FS 140 440
Service factor	1.0	Sinusoidal	1.0	Sinusoidal	1.0	Sinusoidal
Electrical design	NEMA design B		NEMA design B		Not specified	
Hazard classification	CL I Gr. C&D, CL II F&G Div 1	Max. code T3C	CL I Gr. D, Div 1	Max. code T2A	Not specified	
Insulation	Class F	NEMA MG1 Part 31	Class F	NEMA MG1 Part 31	Class F	NEMA MG1 Part 31
Utilization	Class B at 1.0 SF, Class F at 1.15 SF	Sinusoidal	Class B at 1.0 SF, Class F at 1.15 SF	Sinusoidal not with 300, 250 hp, 4-pole	Class B at 1.0 SF, Class F at 1.15 SF	Sinusoidal not with 300, 250 hp, 4-pole
Terminal box (oversized)	Cast iron		Cast iron	FS 140 440	Cast iron	FS 140 440
Fan cover	Cast iron	FS 140 440	Cast iron	FS 140 440	Cast iron	FS 140 440
Fan	Bi-directional - Polypropylene	FS 140 440	Bi-directional - Polypropylene	FS 140 440	Bi-directional - Polypropylene	FS 140 440
Seal	Neoprene		Not specified	(lead seal)	Neoprene	
Rotor material	Die-cast aluminum		Die-cast aluminum		Die-cast aluminum	FS 140 440
Stator winding	Copper – random wound NC protective device	FS 140 – 440 Included	Copper – random wound NC protective device	FS 140 – 440 Not specified	Copper – random wound	FS 140 440
Shaft material	High-strength carbon steel	C1045	High-strength carbon steel	C1045	High-strength carbon steel	C1045
Shaft seal/ slinger	V-ring slinger meets IP54	(DE, NDE)	V-ring slinger meets IP54	(DE, NDE)	V-ring slinger meets IP54	(DE, NDE)
Bearing housing	Cast iron	FS 140 440	Cast iron		Cast iron	FS 140 440
Bearing type	Double-shielded Regreasable inlet and outlet	FS 140 440	Double-shielded Regreasable inlet and outlet	FS 140 440	Double-shielded Single-shielded Regreasable inlet and outlet	FS 140 250 FS 280 S440
Bearing inner cap	Cast iron	FS 140 440	Cast iron	FS 140 440	Cast iron	FS 140 440
Lubrication	Polyurea	Base grease	Polyurea	Base grease	Polyurea	Base grease
Oil filling nozzle	Alemite		Alemite		Alemite	
Oil drain valve	Plug		Plug		Plug	
Vibrations	0.08 IPS		0.08 IPS		0.08 IPS	
Rating plate	Stainless steel	Engraved	Stainless steel	Engraved	Stainless steel	Engraved
Condensation drainage hole	UL certification	FS 280 440	UL certification	FS 280 440	T discharges – lowes	t point (2)
Mountings	Rust-resistant		Rust-resistant		Rust-resistant	
Lifting eye	Included	> 75 lb (> 34.0 kg)	Included	> 75 lb (> 34.0 kg)	Included	> 75 lb (> 34.0 kg)
Paint finish	ALKYED modified	RAL7030	ALKYED modified	RAL7030	ALKYED modified	RAL7030
Warranty	36 months		36 months		36 months	
Converter operation	VT 20:1 CT 4:1	FS 140 440 FS 140 320	VT 20:1 CT 4:1	FS 140 440 FS 140 440	Not specified	
Catalog	D 81.2, US/Canada		D 81.2, US/Canada		D 81.2, US/Canada	

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Overview



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https://support.industry.siemens.com/cs/ww/en/sc/2226



Industry Online Support site for comprehensive information, application examples, FAQs and support requests.

Technical and Engineering Support for advice and answers for all inquiries about functionality, handling, and fault clearance. The Service Card as prepaid support for value added services such as Priority Call Back or Extended Support offers the clear advantage of quick and easy purchasing.

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https://support.industry.siemens.com/cs/ww/en/sc/2235



Spare Parts Services are available worldwide for smooth and fast supply of spare parts – and thus optimal plant availability. Genuine spare parts are available for up to ten years. Logistic experts take care of procurement, transport, custom clearance, storage and order management. Reliable logistics processes ensure that components reach their destination as needed.

Since not all spare parts can be kept in stock at all times, Siemens offers a preventive measure for spare parts provisioning on the customer's premises with optimized **Spare Parts Packages** for individual products, custom-assembled drive components and entire integrated drive trains – including risk consulting.

Asset Optimization Services help you design a strategy for parts supply where your investment and carrying costs are reduced and the risk of obsolescence is avoided.

https://support.industry.siemens.com/cs/ww/en/sc/2110

Overview (continued)



Repair Services are offered on-site and in regional repair centers for fast restoration of faulty devices' functionality.

Also available are extended repair services, which include additional diagnostic and repair measures, as well as emergency services.

https://support.industry.siemens.com/cs/ww/en/sc/2154



Provide a cost-effective solution for the expansion of entire plants, optimization of systems or upgrading existing products to the latest technology and software, e.g. migration services for automation systems.

Service experts support projects from planning through commissioning and, if desired over the entire extended lifespan, e.g. Retrofit for Integrated Drive Systems for an extended lifetime of your machines and plants.

https://support.industry.siemens.com/cs/ww/de/sc/2286



Siemens specialists are available globally to provide expert field and maintenance services, including commissioning, functional testing, preventive maintenance and fault clearance. All services can be included in customized service agreements with defined reaction times or fixed maintenance intervals.

https://support.industry.siemens.com/cs/ww/en/sc/2265



A technical Service Program or Agreement enables you to easily bundle a wide range of services into a single annual or multi-year agreement.

You pick the services you need to match your unique requirements or fill gaps in your organization's maintenance capabilities.

Programs and agreements can be customized as KPI-based and/or performance-based contracts.

https://support.industry.siemens.com/cs/ww/de/sc/2275

Overview

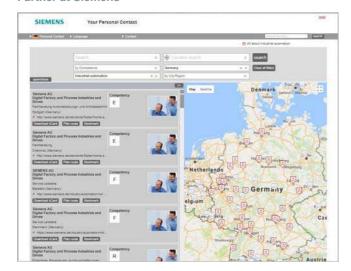


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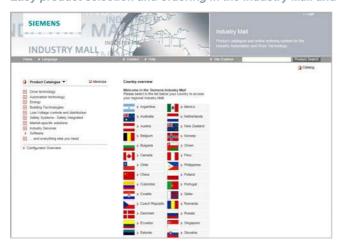
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You start by selecting

- the required competence,
- products and branches,
- a country and a city

· location search or free text search.

Easy product selection and ordering in the Industry Mall and with the Interactive Catalog CA 01



Industry Mall

The Industry Mall is a Siemens Internet ordering platform. Here you have a clear and informative online access to a huge range of products.

Powerful search functions make it easy to select the required products. Configurators enable you to configure complex product and system components quickly and easily. CAx data types are also provided here.

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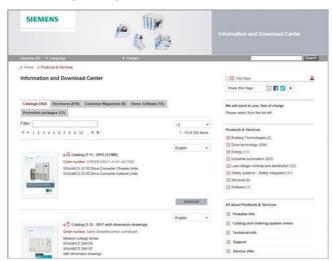
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SIZER WEB ENGINEERING engineering tool

Overview



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An inquiry function integrated in SIZER WEB ENGINEERING allows you to design special solutions for your drive task.

SIZER WEB ENGINEERING fully supports you from the inquiry stage, through the process of engineering products and drive systems, until your own individual quotation is ready. It supplies pricing information and then transfers the engineered products to your shopping cart in the Industry Mall. Seamless support during the engineering process enables you to save time and increase your productivity because you only need to enter the data once. You can use the entered data and the result as a basis for inquiries and orders.

SIZER WEB ENGINEERING is the platform for flexible engineering of your drive tasks and user-friendly management of your projects in conjunction with the engineering tools Drive Technology Configurator and SIZER for Siemens Drives.

Function



You can quickly find a solution for your drive task with the web-based tool: Menu-prompted workflows navigate you through the technical selection and dimensioning of products and drive systems, including the accessories. Based on an integrated inquiry functionality, SIZER WEB ENGINEERING also offers you special customized solutions for applications which cannot be addressed using "Standard Products", i.e. the focus is on flexibility and customized solutions.

Furthermore, you can engineer high-voltage motors, medium-voltage systems and rectifiers for your projects in addition to products from the low-voltage range. Integral tool functions also include comprehensive documentation such as data sheets, start-up calculations for low and high-voltage motors, 2D dimensional drawings and 3D CAD models, offer documentation to name just a few.

Access to the engineering tool

SIZER WEB ENGINEERING is available at the following website after registration and release:

www.siemens.com/sizer-we

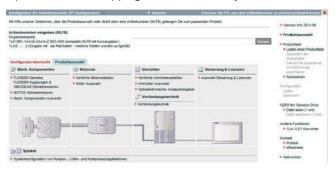
More information

- More information on the SIZER WEB ENGINEERING engineering tool is available on the Internet at www.siemens.com/sizer-we
- Home page Selection and Engineering Tools: http://www.siemens.com/engineering-tools

Overview

The Drive Technology (DT) Configurator supports you when configuring the optimum drive technology products for your application – from gear units, motors, inverters as well as the associated options and components through to controllers, software licenses and connection systems. With or without detailed knowledge of products: Preselected product groups, targeted navigation through selection menus and direct product selection through entry of the article number support quick, efficient and convenient configuration.

In addition to all this, comprehensive documentation comprising technical data sheets, 2D/3D dimensional drawings, operating instructions, certificates, etc. can be selected in the DT Configurator. Immediate ordering is possible by simply transferring a parts list to the shopping cart of the Industry Mall.



Drive Technology Configurator for efficient drive configuration with the following functions

- Fast, efficient configuration of drive products and associated components – gear units, motors, inverters, controllers, connection systems
- Configuration of drive systems for pump, fan and compressor applications from 1 kW to 2.6 MW
- Displayable documentation for configured products and components, such as
- Data sheets in up to 7 languages in PDF or RTF format
- 2D/3D dimensional drawings in various formats
- Terminal box drawing and terminal connection diagram
- Operating instructions
- Certificates
- Start-up calculation for SIMOTICS motors
- EPLAN macros
- Support with retrofitting in conjunction with Spares On Web (www.siemens.com/sow)
- Ability to order products directly in the Siemens Industry Mall

Access to the Drive Technology Configurator

The Drive Technology Configurator can be called up without registration and without a login:

www.siemens.com/dt-configurator

Selection and ordering data

Description Article No.

Interactive Catalog CA 01
on DVD-ROM
including Drive Technology Configurator,
English

Article No.

E86060-D4001-A510-D8-7600

More information

Online access to Drive Technology Configurator

More information about the Drive Technology Configurator is available on the Internet at:

www.siemens.com/dtconfigurator

Offline access to the Drive Technology Configurator in the Interactive Catalog CA 01

In addition, the Drive Technology Configurator is also included in the Interactive Catalog CA 01 on DVD-ROM - the offline version of the Siemens Industry Mall.

The Interactive Catalog CA 01 can be ordered from the relevant Siemens sales office or via the Internet:

www.siemens.com/automation/CA01

Tools and engineering

SinaSave energy efficiency tool

Overview

The SinaSave energy efficiency tool determines energy saving potential and amortization times based on your individual conditions of use and therefore offers practical assistance in making decisions about investments in energy-efficient technologies.

In SinaSave Version 6.0 and higher, the drive systems to be compared and the relevant drive component parameters are displayed graphically. An additional expansion includes numerous comparison possibilities for different control types and comprehensive product combinations for drive solutions for pump and fan applications. In addition to SIMOTICS motors and SINAMICS converters/inverters, the product portfolio comprises SIRIUS controls, offering a comprehensive range of comparison possibilities – according to your individual requirements.



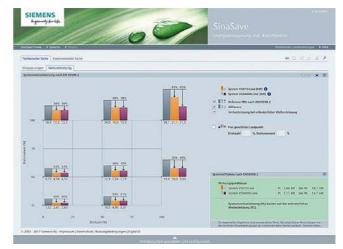
SinaSave offers numerous comparison scenarios:

- Comparison of drive systems for pump and fan-applications in the power range from 0.55 kW (low voltage) to 5.5 MW (medium voltage) for
 - Reactor control (fixed speed; motor and switchgear)
 - Bypass control (fixed speed; motor and switchgear)
 - Speed control (variable speed; motor and inverter)
- Comparison and evaluation of standard motors (incl. ignition protection motors) in different energy efficiency classes



SinaSave supports the evaluation of different product and system comparisons by

- Displaying the potential savings for energy and energy costs as well as CO₂ emissions
- Estimation of the amortization time
- Estimation of the individual total lifecycle costs
- Representation of the system power losses according to EN 50598-2 for full load and partial load
- Direct comparison of Siemens drives with the reference Power Drive System (PDS) described in EN 50598-2



Access to the SinaSave energy efficiency tool

SinaSave can be accessed without the need for registration or logging in:

www.automation.siemens.com/sinasave

More information

For more information about the amortization calculator for energy-efficient drive systems, visit

www.siemens.com/sinasave

More information about services for energy saving is available on the Internet at

www.siemens.com/energy-saving

SIMOTICS EE-COMPARATOR

Overview



The SIMOTICS EE-COMPARATOR app enables you to calculate potential savings and amortization times by making direct comparisons between Siemens SIMOTICS low-voltage motors in line or converter

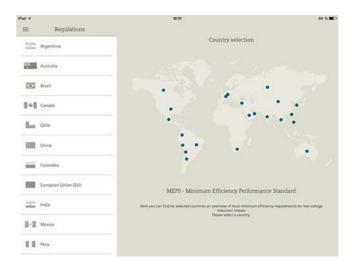
operation. In line operation, motors with different IE classifications (IE1, IE2, IE3 and IE4) can be compared taking individual operating periods and motor loads into account. In the new module for converter operation, a sample pump application enables you to identify the most cost-effective drive system based on load profiles.

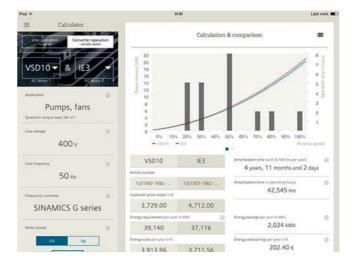
The Regulations module provides you with information about local minimum efficiency requirements (so-called MEPS - Minimum Efficiency Performance Standards) of low-voltage induction motors for selected countries.

You can send the results calculated by the SIMOTICS EE-COMPARATOR directly from the app by e-mail.

New with version V1.3.1:

- New module for calculating the most efficient drive system in converter operation
- Partial-load efficiency calculations have been added to the line operation module
- New countries:
 - Australia
 - Chile
 - Peru
 - Philippines
 - Saudi Arabia
 - Switzerland
 - South AfricaTaiwan





More information

Access to the SIMOTICS EE-COMPARATOR App: www.siemens.com/simotics-ee-comparator



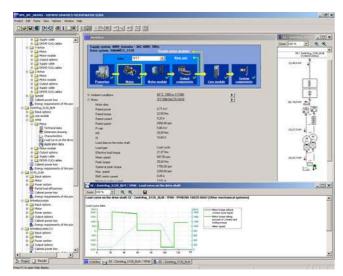






SIZER for Siemens Drives engineering tool

Overview



The following drives and controls can be engineered in a userfriendly way using the SIZER for Siemens Drives configuration

- SIMOTICS low-voltage motors including servo geared motors
- SINAMICS low-voltage drive systems
- Motor starters
- SINUMERIK CNCs
- SIMOTION Motion Control System
- SIMATIC Technology

It provides support when selecting the technologies involved in the hardware and firmware components required for a drive task. SIZER for Siemens Drives covers the full range of operations required to configure a complete drive system, from basic single drives to complex multi-axis applications.

SIZER for Siemens Drives supports all of the engineering steps in a workflow:

- Configuring the power supply
- Designing the motor and gearbox, including calculation of mechanical transmission elements
- Configuring the drive components
- Compiling the required accessories
- · Selecting the line-side and motor-side power options, e.g. cables, filters, and reactors

When SIZER for Siemens Drives was being designed, particular importance was placed on a high degree of usability and a universal, function-based approach to the drive application. The extensive user guidance makes using the tool easy. Status information keeps you continually informed about the progress of the configuration process.

The SIZER for Siemens Drives user interface is available in English, French, German and Italian.

The drive configuration is saved in a project. In the project, the components and functions used are displayed in a hierarchical

The project view permits the engineering of drive systems and the copying/inserting/modifying of drives already configured.

The configuration process produces the following results:

- A parts list of the required components (export to Excel, use of the Excel data sheet for import to SAP)
- Technical specifications of the system
- · Characteristic curves
- Comments on system reactions
- Mounting arrangement of drive and control components and dimensional drawings of motors
- Energy requirements of the configured application

These results are displayed in a results tree and can be reused for documentation purposes.

Support is provided by the technological online help menu:

- · Detailed technical specifications
- Information about the drive systems and their components
- · Decision-making criteria for the selection of components
- Online help in English, French, German, Italian, Chinese and Japanese

System requirements

- PG or PC with Pentium III min. 800 MHz (recommended > 1 GHz)
- 512 MB RAM (1 GB RAM recommended)
- At least 4.1 GB of free hard disk space
- An additional 100 MB of free hard disk space on the Windows system drive
- Screen resolution 1024 x 768 pixels (1280 × 1024 pixels recommended)
- Operating system:
 - Windows 7 Professional (32/64 bit)Windows 7 Enterprise (32/64 bit)

 - Windows 7 Ultimate (32/64 bit)
 - Windows 7 Home (32/64 bit)
 - Windows 8.1 Professional (32/64 bit)
 - Windows 8.1 Enterprise (32/64 bit)
- Microsoft Internet Explorer V5.5 SP2

Selection and ordering data

Description Article No. **SIZER for Siemens Drives** 6SL3070-0AA00-0AG0 engineering tool on DVD-ROM English, French, German, Italian

More information

The SIZER for Siemens Drives engineering tool is available free on the Internet at:

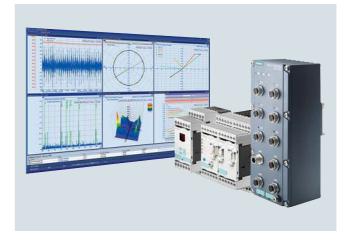
www.siemens.com/sizer

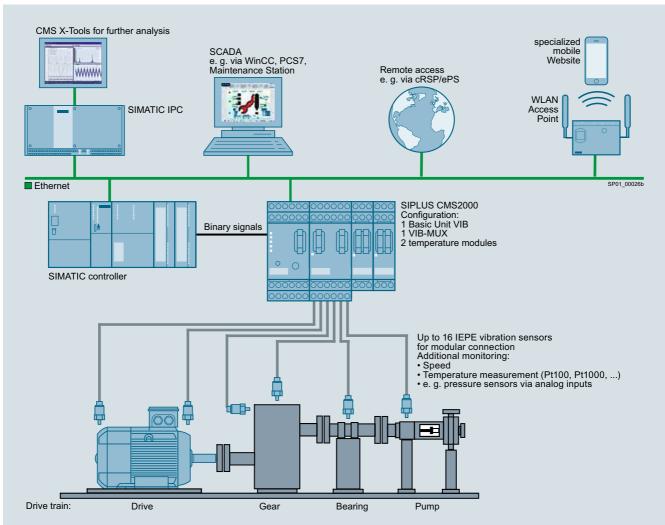
SIPLUS CMS condition monitoring systems for the continuous condition monitoring of motors

Overview

The SIPLUS CMS condition monitoring systems continuously monitor the condition of wear-prone drive components, such as motors. Depending on the system, individual motors can be monitored as well as complete drive trains, or even the entire plant. IEPE sensors are used for acquisition of the motor vibrations for analysis, visualization and archiving by SIPLUS CMS. Information is supplied regularly and event-driven – even in remote operation. SIPLUS CMS can also be retrofitted.

More information on SIPLUS CMS is available on the Internet at: www.siemens.com/siplus-cms





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Index of order codes

Order codes for 1LE, 1MB1, 1PC motors

All options are listed alphanumerically according to order codes in the following table.

A list of all the options available arranged according to category can be found in Catalog Section 1 "Introduction", "Guide to selecting and ordering the motors".

duide to s	selecting and ordering the motors.		
Order code	Special versions	Category	For further information, see page
B01	Printed German/English Operating Instructions (compact) enclosed in each wire-lattice pallet Packaging, safety notes, documentation and test or		2/107, 4/44, 4/100
B02	Acceptance test certificate 3.1 in accordance with EN 10204	_	2/107, 2/115, 3/26, 4/44, 4/48 4/100, 4/104, 5/41, 5/45, 6/22 6/24
B04	Printed German/English Operating Instructions enclosed	_	2/107, 2/115, 3/26, 4/44, 4/48 4/100, 4/104, 5/41, 5/45, 6/22 6/24
B07	Additional rating plate for voltage tolerance	Rating plate and additional rating plates	2/106, 2/115, 3/26, 6/22, 6/24
B10	Individual acceptance by marine classification society	Marine version – Acceptance/certification	6/46 6/49
B13 New!	Without "Made in manufacturing country" marking	Packaging, safety notes, documentation and test certificates	3/26
B30	Version (IP55) for Zones 2 or 22, for non-conductive dust	Explosion-proof version	5/38, 5/42
B31	Design for Zone 2 in Ex nA IIB T3 Gc		5/38, 5/42
B40	Version for converter operation in basic version with operating data SINAMICS G120 with PM240-2.	Version for converter operation	5/38, 5/42
B41	Version for converter operation in basic version with operating data SINAMICS S150.	_	5/38, 5/42
B51 New!	Equivalent circuit diagram	Packaging, safety notes,	3/26
B52 New!	Starting diagram (torque vs. speed and current vs. speed)	documentation and test certificates	3/26
B60	Document - Electrical datasheet	_	2/107, 2/115, 3/26, 4/44, 4/48 4/100, 4/104
B61	Document - Order dimensional drawing	_	2/107, 2/115, 3/26, 4/44, 4/48 4/100, 4/104
B65	Standard test (routine test) with acceptance	_	2/115, 3/26, 4/48, 4/104, 6/22 6/24
B67 New!	Temperature test without acceptance		3/26
B68 New!	Temperature test with acceptance	_	3/26
B80 New!	Type test with heat run for vertical motors, without acceptance	_	3/27
B81 New!		_	3/27
Boi //ew;	Type test with heat full for vertical motors, with acceptance	Marine version – Acceptance/certification	6/48
B82	Type test with heat run for horizontal motors, without acceptance	Packaging, safety notes,	2/115, 3/27
		documentation and test certificates	
B83	Type test with heat run for horizontal motors, with acceptance		2/107, 2/115, 3/27, 4/44, 4/48 4/100, 4/104, 5/41, 5/45, 6/22 6/24
		Marine version – Acceptance/certification	6/46 6/49
B90 New!	"Basic" documentation package	Packaging, safety notes, documentation and test certificates	2/107, 2/115, 3/27, 4/44, 4/48 4/100, 4/104, 5/41, 5/45, 6/22 6/24
B91 New!	"Advanced" documentation package	_	2/107, 2/115, 3/27, 4/44, 4/48 4/100, 4/104, 5/41, 5/45, 6/22 6/24
B92 New!	"Projects" documentation package	_	2/107, 2/115, 3/27, 4/44, 4/48 4/100, 4/104, 5/41, 5/45, 6/22 6/24
B99	Wire-lattice pallet packaging		2/107, 4/44, 4/100, 5/41, 5/45
C02	VIK version	Version in accordance with standards and specifications	2/105, 2/113
		Explosion-proof version	5/38, 5/42
D01	CCC China Compulsory Certification	Version in accordance with standards and specifications	2/105, 2/113, 6/21
D02	Coolant temperature -50 to +40 °C	Coolant temperature and installation	2/113, 3/25, 4/47, 4/103
	Coolant temperature -40 to +40 °C	altitude	2/105, 2/113, 3/25, 4/42, 4/47 4/98, 4/103, 5/39, 5/44
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Order code	Special versions	Category	For further information, see page
D22	Motor without CE marking for export outside EEA (see EU Directive 640/2009)	Version in accordance with standards and specifications	2/105, 2/113, 3/25
D23	Motor exclusively for use in transportation equipment for passengers and freight transport corresponding to EVPG §1 dated February 27, 2008	-	3/25
D30	Electrical according to NEMA MG1-12	-	2/105, 2/113, 3/25
D31	Design according to UL with "Recognition Mark"	_	2/105, 2/113, 3/25
D32 New!	Ex certification for China	=	5/44
D33	KEMCO Korea Energy Efficiency Label	-	2/105, 2/113
D34	China Energy Efficiency Label	-	2/105, 2/113, 5/44
D35	5, ,	-	
	Ex certificate EAC for the Eurasian customs union	-	5/39, 5/44
D37	IEC Ex certification	-	5/39, 5/44
D39	Version according to UL and CSA (Canadian regulation)	_	4/43, 4/47, 4/99, 4/103
D40	Canadian regulations (CSA)	_	2/105, 2/113, 3/25
D47	TR CU product safety certificate EAC for Eurasian customs union		2/105, 2/113, 3/25, 4/99, 4/103
E21	With type test certificate according to Lloyds Register (LR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	Marine version – Basic version	6/46 6/49
E31	With type test certificate according to Bureau Veritas (BV), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	_	6/46, 6/47, 6/49
E41	With type test certificate according to Registro Italiano Navale (RINA), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	_	6/46 6/49
E46	With type test certificate according to Russian Maritime Register (RS), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	_	6/46 6/49
E51	With type test certificate according to DNV GL Maritime, CT 45 °C, temperature class 155 (F), utilized according to 155 (F)	_	6/46 6/49
E52	With type test certificate according to American Bureau of Shipping (ABS), CT 50 °C, temperature class 155 (F), utilized according to 155 (F)	_	6/46 6/49
E54	With type test certificate according to Korean Register of Shipping (KR), CT 45 °C, temperature class 155 (F), utilized according to 155 (F)		6/46, 6/47, 6/49
F01	Mounting of holding brake (standard assignment)	Modular technology – Basic versions	2/104, 2/112, 3/23, 4/42, 4/46, 4/98, 4/102
F02	Mounting of brake for higher switching frequency (operating brake)	_	2/104, 4/42, 4/98
F04	Mounting of PRECIMA brake		2/112
F10	Brake supply voltage 24 V DC	Modular technology – Additional versions	2/104, 2/112, 3/23, 4/42, 4/46, 4/98, 4/102
F11	Brake supply voltage 230 V AC, 50/60 Hz	_	2/104, 2/112, 3/23, 4/42, 4/46, 4/98, 4/102
F12	Brake supply voltage 400 V AC, 50/60 Hz		2/104, 2/112, 3/23, 4/42, 4/46, 4/98, 4/102
F40	Backstop, counterclockwise motion blocked, clockwise direction of rotation	_	2/112, 3/23, 4/46
F41	Backstop, clockwise motion blocked, counterclockwise direction of rotation	_	2/112, 3/23, 4/46
F50	Mechanical manual brake release with lever (no locking)		2/104, 2/112, 4/42, 4/46, 4/98, 4/102
F70	Mounted separately driven fan	Modular technology – Basic versions	2/104, 2/112, 3/23, 4/42, 4/46, 4/98, 4/102, 5/39, 5/43
F74	Sheet metal fan cover	Heating and ventilation	2/106, 2/115, 3/26, 4/43, 4/48, 4/99, 4/104
F75	Fan cover for textile industry	_	2/106, 4/43, 4/99
F76	Metal external fan		2/106, 2/115, 4/43, 4/48, 4/99, 4/104, 5/40, 5/45
F77	Low-noise version for 2-pole motors with clockwise direction of rotation	Mechanical design and degrees of	2/104, 2/113, 3/24, 5/39, 5/44
F78	Low-noise version for 2-pole motors with counterclockwise direction of rotation	protection	2/104, 2/113, 3/24, 5/39, 5/44
F90	Without external fan and without fan cover	Heating and ventilation	2/106, 2/115, 3/26, 4/43, 4/99, 6/22, 6/24
G01	Mounting of 1XP8012-10 (HTL) rotary pulse encoder	Modular technology - Basic versions	2/104, 2/112, 3/23, 4/42, 4/46, 4/98, 4/102
G02	Mounting of 1XP8012-20 (TTL) rotary pulse encoder	-	2/104, 2/112, 3/23, 4/42, 4/46, 4/98, 4/102
G04	Mounting of LL 861 900 220 rotary pulse encoder	Special technology	2/104, 2/112, 3/24, 4/42, 4/46, 4/98, 4/102
G05	Mounting of HOG 9 DN 1024 I rotary pulse encoder	-	2/104, 2/112, 3/24, 4/42, 4/46, 4/98, 4/102
G06	Mounting of HOG 10 D 1024 I rotary pulse encoder	-	2/104, 2/112, 3/24, 4/42, 4/46, 4/98, 4/102
G07	Mounting of POG 10D rotary pulse encoder (only in combination with separately driven fan or brake)	-	2/112, 3/24, 4/46, 4/102
G08	Mounting of POG9 rotary pulse encoder (only in combination with separately driven fan or brake)	-	2/112, 3/24, 4/46, 4/102

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Order code	Special versions	Category	For further information, see page
G11 G12	Mounting of Kübler Sendix 5020 HTL, 1024 I rotary pulse encoder	Modular technology - Basic versions	2/104, 2/112, 3/23
G15	Mounting of Kübler Sendix 5020 TTL, 1024 I rotary pulse encoder Mounting of HOG 10 DN 1024 I rotary pulse encoder,	Special technology	2/104, 2/112, 3/23 2/112, 3/24
G16	terminal box moisture protection Mounting of HOG 10 DN 1024 I rotary pulse encoder, terminal box dust protection	_	2/112, 3/24
G30	Mounting of explosion-proof rotary pulse encoder for use in Zones 2, 21, and 22	_	5/39, 5/43
G40	Prepared for mounted components, centering hole only	Mechanical design and degrees of protection	2/104, 2/113, 4/42, 4/47, 4/98, 4/103
G41	Prepared for mountings with D12 shaft	_'	2/104, 2/113, 3/24, 4/42, 4/47, 4/98, 4/103
G42	Prepared for mountings with D16 shaft	_	2/104, 2/113, 3/24, 4/42, 4/47, 4/98, 4/103
G43	Mechanical protection for encoder	_	2/104, 2/113, 3/24, 4/42, 4/47, 4/98, 4/103, 5/39, 5/44
H00	Protective cover	_	2/105, 2/113, 3/24, 4/42, 4/47, 4/98, 4/103, 5/39, 5/44, 6/21
H01	Screwed-on (instead of cast) feet	_	2/105, 2/113, 4/42, 4/47, 4/98, 4/103, 6/21, 6/23
H02	Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994		2/105, 2/113, 3/24, 4/42, 4/47, 4/98, 4/103, 5/39, 5/44
H03	Condensation drainage holes		2/105, 2/113, 3/24, 4/42, 4/98, 5/39, 5/44
H04	External grounding	Motor connection and terminal boxes	2/102, 2/109, 4/41, 4/45, 4/97, 4/101, 6/21,
H07	Rust-resistant screws (externally)	Mechanical design and degrees of protection	2/105, 2/113, 3/24, 4/42, 4/47, 4/98, 4/103, 5/39, 5/44, 6/21, 6/23
H08	Terminal box on NDE	Motor connection and terminal boxes	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101, 6/21, 6/23
H10	Housing with screw mounting	Mechanical design and degrees of	2/105, 4/42, 4/47
H20	IP65 degree of protection	protection	2/105, 2/113, 3/24, 4/42, 4/47, 4/98, 4/103, 5/39, 5/44, 6/21, 6/23
H21	Degree of protection IP54	_	2/113, 3/24, 4/47, 4/103
H22	IP56 degree of protection		2/105, 2/113, 3/24, 4/42, 4/47, 4/98, 4/103, 5/39, 5/44, 6/21, 6/23
H23	Drive-end seal for flange-mounting motors, oil-tight to 0.1 bar	_	2/105, 2/113, 3/24, 4/42, 4/47, 4/98, 4/103, 5/39, 5/44
H25 New!	Viton sealing ring		3/24
H70	Second external grounding	Motor connection and terminal boxes	2/109, 3/21, 4/45, 4/101
L00	Vibration severity grade B	Balance and vibration severity	2/106, 2/114, 3/25, 5/40, 5/44, 6/21, 6/23
L01	Balancing without feather key	_	2/106, 2/114, 3/25, 4/43, 4/47, 5/40, 5/44, 6/21, 6/23
L02	Full-key balancing		2/106, 2/114, 3/25, 4/43, 4/47, 4/99, 4/103, 5/40, 5/44, 6/21, 6/23
L04	Shaft extension with standard dimensions, without feather keyway	Shaft and rotor	2/106, 2/114, 3/25, 4/43, 4/47, 4/99, 4/103, 5/40, 5/45, 6/22, 6/23
L05	Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	_	2/106, 2/114, 3/25, 4/43, 4/47, 4/99, 4/103, 5/40, 5/45, 6/22, 6/23
L06	Standard shaft made of stainless steel (e.g. 1.4021)	_	2/106, 2/114, 3/25, 4/43, 4/47, 4/99, 4/103, 5/40, 5/45
L07	Concentricity of shaft extension in accordance with DIN 42955 Tolerance R	_	2/106, 2/114, 3/25, 4/43, 4/47, 4/99, 4/103, 5/40, 5/45, 6/22, 6/24
L08	Concentricity of shaft extension, coaxiality, and linear movement in accordance with DIN 42955 Tolerance R for flange-mounting motors		2/106, 2/114, 3/25, 4/43, 4/47, 4/99, 4/103, 5/40, 5/45, 6/22, 6/24

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Order code	Special versions	Category	For further information, see page	
L19	Regreasing device with M10 × 1 grease nipple according to DIN 71412-	A Bearings and lubrication	2/105, 2/114, 3/25, 5/44, 6/23	
L20	Located bearing DE	_	2/105, 2/114, 3/25, 4/43, 4/47, 4/99, 4/103, 5/40, 5/44	
L21	Located bearing NDE	_	2/105, 2/114, 4/43, 4/47, 4/99, 4/103, 5/40, 5/44	
L22	Bearing design for increased cantilever forces	_	2/105, 2/114, 3/25, 4/43, 4/47, 4/99, 4/103, 5/40, 5/44, 6/21, 6/23	
L23	Regreasing device	_	2/105, 2/114, 4/43, 4/47, 4/99, 4/103, 5/40, 5/44, 6/21, 6/23	
L24 New;	Hot bearing grease		3/25	
L25	Bearings reinforced at both ends for DE and NDE, bearing size 63	_	2/105, 2/114, 4/43, 4/47, 4/99, 4/103, 5/40, 5/44	
L28	Reinforced bearings at both DE and NDE, DE bearing for increased cantilever forces	_	2/114, 4/47, 4/103	
L30 New	1 191 1 111 9 1111	_	3/25	
L37 New;	Special version with higher speeds	_	3/25	
L50	Bearing insulation DE	_	2/114, 3/25, 4/103, 6/21, 6/23	
L51	Bearing insulation NDE		2/114, 3/25, 4/103, 5/44, 6/21, 6/23	
L52	Grounding brush for converter operation	Mechanical design and degrees of protection	2/113, 3/24, 4/103	
L90	Version suitable for railways IC 411, EN IEC 60349, without EN 45545, with external fan and fan cover in plastic	Version in accordance with standards and specifications	2/105	
L91	Version suitable for railways IC 411, EN IEC 60349, with EN 45545, with external fan and fan cover in metal	_	2/105	
L92	Version suitable for railways IC 418, EN IEC 60349, without EN 45545, without external fan and fan cover		2/105	
M01	Connected in star for dispatch	Packaging, safety notes, documentation and test certificates	2/107, 2/115, 3/27, 4/44, 4/48, 4/100, 4/104, 5/41, 5/45	
M02	Connected in delta for dispatch		2/107, 2/115, 3/27, 4/44, 4/48, 4/100, 4/104, 5/41, 5/45	
M10	Second rating plate, loose	Rating plate and additional rating plates	2/106, 2/115, 3/26, 4/43, 4/48, 4/99, 4/104, 5/40, 5/45, 6/22, 6/24	
M11	Rating plate, stainless steel	_	2/106, 2/115, 3/26, 4/43, 4/48, 4/99, 4/104, 5/40, 5/45	
N01	Temperature class 155 (F), utilized according to 155 (F), with service factor	Windings and insulation	2/103, 2/110, 3/22	
N02	Temperature class 155 (F), utilized acc. to 155 (F), with increased power	_	2/103, 2/110, 3/22	
N03	Temperature class 155 (F), utilized acc. to 155 (F), with increased coolant temperature	_	2/103, 2/110, 3/22	
N05	Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 %	_	2/103, 2/110, 3/22, 5/38, 5/43	
N06	Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 %	_	2/103, 2/110, 3/22, 5/38, 5/43	
N07	Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 %	_	2/103, 2/110, 3/22, 5/38, 5/43	
N08	Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	_	2/103, 2/111, 3/22, 5/38, 5/43	
N10	Temperature class 180 (H)	_	2/103, 2/111, 3/22	
N11	Temperature class 180 (H) at rated power and max. CT 60 °C	_	2/103, 2/111, 3/22, 4/42, 4/46	
N30	Increased air humidity/temperature with 30 to 60 g water per m ³ of air		2/103, 2/111, 3/22, 4/42, 4/46, 4/97, 4/102, 5/38, 5/43, 6/21, 6/23	
N31	Increased air humidity/temperature with 60 to 100 g water per m ³ of air	_	2/103, 2/111, 3/22, 4/42, 4/46, 4/102, 5/39, 5/43	
Q01	Measuring nipple for SPM shock pulse measurement for bearing inspection	Bearings and lubrication	2/105, 2/114, 3/25, 4/43, 4/47, 4/99, 4/103, 5/40, 5/44, 6/21, 6/23	
Q02	Anti-condensation heating for 230 V (2 terminals)	Heating and ventilation	2/106, 2/115, 3/26, 4/43, 4/48, 4/99, 4/104, 5/40, 5/45	
Q03	Anti-condensation heating for 115 V (2 terminals)	_	2/106, 2/115, 3/26, 4/43, 4/48, 4/99, 4/104, 5/40, 5/45	
Q06 New:	Anti-condensation heating for 400 V (2 terminals)		3/26	

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Order code	Special versions	Category	For further information, see page
Q11	1 or 3 PTC thermistors – for tripping (2 terminals)	Motor protection	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101
Q12	2 or 6 PTC thermistors – for alarm and tripping (4 terminals)	_	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101
Q23	1 KTY84-130 temperature sensor (2 terminals)	_	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101
Q25	2 KTY84-130 temperature sensors (4 terminals)	_	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101
Q31	3 bimetal sensors (NC contacts) for tripping (2 terminals)	_	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101
Q32	6 bimetal sensors (NC contacts) for alarm and tripping (4 terminals)	_	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101
Q33	3 bimetal sensors (NC contacts) for tripping (6 terminals)	-	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101
Q34	6 bimetal sensors (NC contacts) for alarm and tripping (12 terminals)	-	2/102, 2/109, 3/21, 4/41, 4/45, 4/101
Q35	1 Pt1000 resistance thermometer (2 terminals)	-	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101, 5/38, 5/42
Q36	2 Pt1000 resistance thermometers (4 terminals)	-	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101, 5/38, 5/42
Q60	3 Pt100 resistance thermometers – 2-wire input (6 terminals)	-	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101
Q61	6 Pt100 resistance thermometers – 2-wire input (12 terminals)	_	2/102, 2/109, 3/21, 4/41, 4/97
Q62	1 Pt100 resistance thermometers – 2-wire input (2 terminals)	_	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101
Q63	3 Pt100 resistance thermometers – 3-wire input (9 terminals)	_	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101
Q64	6 Pt100 resistance thermometers – 3-wire input (18 terminals)	_	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101
Q72	2 Pt100 screw-in thermometers in basic configuration for bearings (2 terminals)	_	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101, 5/42
Q78	2 Pt100 screw-in thermometers in 3-wire input for bearing (6 terminals)	_	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101, 5/42
Q79	2 Pt100 double screw-in thermometers in 3-wire input for bearing (12 terminals)	_	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101, 5/42
Q80	Extension of the liability for defects period by 12 months to a total of 24 months (2 years) from delivery	Extension of the liability for defects	2/115, 3/26, 4/48, 4/104
Q81 New!	Extension of the liability for defects period by 18 months to a total of 30 months (2.5 years) from delivery	_	3/26
Q82	Extension of the liability for defects period by 24 months to a total of 36 months (3 years) from delivery	_	2/115, 3/26, 4/48, 4/104
Q83 New!	Extension of the liability for defects period by 30 months to a total of 42 months (3.5 years) from delivery	_	3/26
Q84 New!	Extension of the liability for defects period by 36 months to a total of 48 months (4 years) from delivery	_	3/26
Q85 New!	Extension of the liability for defects period by 42 months to a total of 60 months (5 years) from delivery		3/26
R10	Rotation of the terminal box through 90°, entry from DE	Motor connection and terminal boxes	2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101, 5/38, 5/42
R11	Rotation of the terminal box through 90°, entry from NDE		2/102, 2/109, 3/21, 4/41, 4/45, 4/97, 4/101, 5/38, 5/42
R12	Rotation of the terminal box through 180°		2/102, 2/110, 3/22, 4/41, 4/45, 4/97, 4/101, 5/38, 5/42, 6/21, 6/23
R13	Terminal box in position 0°; connection from right	_	2/102, 4/41, 4/97, 6/21, 6/23
R14	One EMC cable gland	_	2/110, 3/22, 4/45, 4/101
R15	One metal cable gland	_	2/102, 2/110, 3/22, 4/41, 4/45, 4/97, 4/101
R16	EMC cable gland, maximum configuration	_	2/110, 3/22, 4/45, 4/101
R17	Stud terminal for cable connection, accessories pack (3 items)	_	2/110, 3/22, 4/101, 5/42
R18	Metal cable gland, maximum configuration	_	2/102, 2/110, 3/22, 4/41, 5/38, 5/42
R19	Saddle terminal for connection without cable lug, accessories pack	_	2/110, 3/22, 4/101, 5/42
R20	3 cables protruding, 0.5 m long		2/102, 2/110, 4/41, 4/97
R21	3 cables protruding, 1.5 m long	_	2/102, 2/110, 3/22, 4/41
R22	6 cables protruding, 0.5 m long	_	2/102, 2/110, 4/41, 4/97
R23	6 cables protruding, 1.5 m long	_	2/102, 2/110, 3/22, 4/41
R24	6 cables protruding, 3 m long	_	2/103, 2/110, 3/22, 4/41
R30	Reduction piece for M cable gland in accordance with British Standard, mounted on both cable entries		2/103, 2/110
R50	Larger terminal box	_	2/103, 2/110, 3/22, 4/41, 4/45, 4/97, 4/101, 5/38, 5/42
R51	Terminal box without cable entry opening	_	2/110, 3/22, 4/45, 4/101
R52	Drilled removable entry plate	_	2/110, 3/22, 4/45, 4/101
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Order code	Special versions	Category	For further information, see page
R53	Undrilled removable entry plate	Motor connection and terminal boxes	2/110, 3/22, 4/45, 4/101
R60	Auxiliary terminal box, aluminum		2/103
R62	Cast-iron auxiliary terminal box (small)		2/110, 3/22, 4/45, 4/102, 5/42
R63 New!	Larger cast-iron terminal box		3/22
R70	Motor connector Han-Drive 10e for 230 V∆/400 VY		2/103, 4/41, 4/97
R71	Motor connector Han-Drive 10e EMC for 230 VΔ/400 VY		2/103, 4/41, 4/97
R72	Small motor connector CQ12 with EMC		2/103
R73	Small motor connector CQ12 without EMC		2/103
R74	Silicone-free version		2/110, 3/22, 4/102
S00	Unpainted (only cast-iron parts primed)	Colors and paint finish	2/104, 2/111, 3/23, 4/42, 4/46, 4/98, 4/102, 5/39, 5/43, 6/21, 6/23
S01	Unpainted, only primed		2/104, 2/111, 3/23, 4/42, 4/46, 4/98, 4/102, 5/39, 5/43, 6/21, 6/23
S02	Special paint finish C3	_	2/104, 2/111, 3/23, 4/42, 4/46, 4/98, 4/102, 5/39, 5/43, 6/23
S03	Special paint finish sea air resistant C4		2/104, 2/111, 3/23, 4/42, 4/46, 4/98, 4/102, 5/39, 5/43, 6/21, 6/23
S04	Special paint for use offshore C5		2/111, 3/23, 4/46, 4/102, 5/43
S05	Internal coating		2/104, 2/111, 3/23, 4/42, 4/46,
000	Town and a should have	<u> </u>	4/98, 4/102, 6/23
S06	Top coat polyurethane		2/104, 2/111, 3/23, 5/39, 5/43, 6/21, 6/23
Y50 and spec. power, CT°C or IA m above sea level	Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	Windings and insulation	2/103, 2/111, 3/22, 5/39, 5/43
and spec. power, CT °C or IA m above sea level	Temperature class 155 (F), utilized according to 155 (F), other requirements		2/103, 2/111, 3/22
Y53 and paint finish RAL	Paint finish in other standard RAL colors: RAL 1002, 1013, 1015, 1019, 2003, 2004, 3000, 3007, 5007, 5009, 5010, 5012, 5015, 5017, 5018, 5019, 6011, 6019, 6021, 7000, 7001, 7004, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005	Colors and paint finish	2/104, 2/111, 3/23, 4/46, 4/98, 4/102, 5/39, 5/43, 6/21, 6/23
Y56 and paint finish RAL	Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors"		2/104, 2/111, 3/23, 4/42, 4/46, 4/98, 4/102, 5/39, 5/43, 6/21, 6/23
Y58 and customer specifications	Non-standard cylindrical shaft extension, DE	Shaft and rotor	2/106, 2/114, 3/26, 4/43, 4/47, 4/99, 4/104, 5/40, 5/45, 6/22, 6/24
Y59 and customer specifications	Non-standard cylindrical shaft extension, NDE	_	2/106, 2/114, 3/26, 4/43, 4/47, 4/99, 4/104, 5/40, 5/45, 6/22, 6/24
Y60 and customer specifications	Special shaft steel	_	2/114, 3/26, 4/47, 4/104, 6/22, 6/24
Y61 and customer specifications	Non-standard threaded through hole (NPT or G thread)	Motor connection and terminal boxes	2/110, 3/22, 4/45, 4/102
Y68 and converter type	Operating data such as the B40 order code with alternative SINAMICS converter on the rating plate G120 with PM230 G120 C G120P with PM230 G120P with PM240-2 G120P with PM240-2 G120P with PM240-2 G120P with PM330 G130, G150, G180 S120 (BLM/SLM) V20 Operating data such as the B41 order code with alternative SINAMICS converter on the rating plate S120 (ALM)	Version for converter operation	5/38, 5/42

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			Index of order codes	
Order code	Special versions	Category	For further information, see page	
Y70 • and customer specifications	Mounting of a special type of rotary pulse encoder	Special technology	4/46, 4/102	
Y74 • and spec. speed rpm	Mounting of rotary pulse encoder HOG 10 DN 1024 I + FSL, (integrated centrifugal switch, speed rpm), terminal box moisture protection	_	2/112, 3/24	
y75 • and spec. power, CT °C or IA m above sea level	Temperature class 180 (H), utilized according to 155 (F)	Windings and insulation	2/103, 2/111, 3/22	
Y76 • and spec. speed rpm	Mounting of rotary pulse encoder HOG 10 DN 1024 I + FSL, (integrated centrifugal switch, speed rpm), terminal box dust protection	Special technology	2/112, 3/24	
Y79 • and spec. speed (max. 3) rpm	Mounting of rotary pulse encoder HOG 10 DN 1024 I + ESL 93, (integrated electronic speed switch, speed rpm), terminal box dust protection	_	2/112, 3/24	
Y80 • and customer specifications	Additional rating plate with deviating rating plate data	Rating plate and additional rating plates	2/106, 2/115, 3/26, 5/40, 5/45, 6/22, 6/24	
Y81 • and customer specifications	Separately driven fan with non-standard voltage and/or frequency	Heating and ventilation	2/115, 3/26, 4/104	
Y82 • and customer specifications	Additional rating plate with customer specifications	Rating plate and additional rating plates	2/106, 2/115, 3/26, 4/43, 4/48, 4/99, 4/104, 5/40, 5/45, 6/22, 6/24	
Y84 • and customer specifications	Additional information on rating plate and on package label (max. 20 characters)	_	2/106, 2/115, 3/26, 4/43, 4/48, 4/99, 4/104, 5/40, 5/45, 6/22, 6/24	
Y85 • and customer specifications	Adhesive label, supplied loose (printed with: Article No., Serial No.; 2 lines of text)	_	2/106, 2/115, 3/26, 4/43, 4/48, 4/99, 4/104	
Y98 • and customer specifications	Printed Operating Instructions (Compact) for explosion-proof motors enclosed in other official EU languages	Packaging, safety notes, documentation and test certificates	5/41, 5/45	

Rotary inertia (to convert from A to B, multiply by entry in table)

A	B lb-in ²	lb-ft ²	lb-in-s ²	lb-ft-s ² slug-ft ²	kg-cm ²	kg-cm-s ²	gm-cm ²	gm-cm-s ²	oz-in ²	oz-in-s ²
lb-in ²	1	6.94×10^{-3}	2.59×10^{-3}	2.15×10^{-4}	2.926	2.98×10^{-3}	2.92×10^{3}	2.984	16	4.14×10^{-2}
lb-ft ²	144	1	0.3729	3.10×10^{-2}	421.40	0.4297	4.21×10^{5}	429.71	2304	5.967
lb-in-s ²	386.08	2.681	1	8.33×10^{-2}	1.129×10^{3}	1.152	1.129×10^{6}	1.152×10^{3}	6.177×10^3	16
lb-ft-s ² slug-ft ²	4.63 × 10 ³	32.17	12	1	1.35 × 10 ⁴	13.825	1.355×10^7	1.38 × 10 ⁴	7.41×10^4	192
kg-cm ²	0.3417	2.37×10^{-3}	8.85×10^{-4}	7.37×10^{-5}	1	1.019×10^{-3}	1000	1.019	5.46	1.41×10^{-2}
kg-cm-s ²	335.1	2.327	0.8679	7.23×10^{-2}	980.66	1	9.8×10^{5}	1000	5.36×10^{3}	13.887
gm-cm ²	0.447.40-4	1	7			0		•	0	-
	3.417 × 10	1 2.37 × 10 ⁻⁶	8.85×10^{-7}	7.37×10^{-8}	1×10^{-3}	1.01×10^{-6}	1	1.01×10^{-3}	5.46×10^{-3}	1.41×10^{-5}
gm-cm-s ²	0.335	2.37×10^{-3} 2.32×10^{-3}	8.85×10^{-7} 8.67×10^{-4}	7.37×10^{-6} 7.23×10^{-5}	1 × 10 ⁻³ 0.9806	1.01×10^{-6} 1×10^{-3}	980.6	1.01 × 10 ⁻³	5.36	1.38 × 10 ⁻²
gm-cm-s ² oz-in ²					0.9806 0.182		980.6 182.9	1.01 × 10 ⁻³ 1 0.186	5.36	

Torque (to convert from A to B, multiply by entry in table)

A	B lb-in	lb-ft	oz-in	N-m	kg-cm	kg-m	gm-cm	dyne-cm
lb-in	1	8.333×10^{-2}	16	0.113	1.152	1.152×10^{-2}	1.152×10^{3}	1.129×10^{6}
lb-ft	12	1	192	1.355	13.825	0.138	1.382×10 ⁴	1.355×10^7
oz-in	6.25×10^{-2}	5.208×10^{-3}	1	7.061×10^{-3}	7.200×10^{-2}	7.200×10^{-4}	72.007	7.061×10^4
N-m	8.850	0.737	141.612	1	10.197	0.102	1.019×10^4	1 × 10 ⁷
kg-cm	0.8679	7.233×10^{-2}	13.877	9.806×10^{-2}	1	10 ⁻²	1000	9.806 × 10 ⁵
kg-m	86.796	7.233	1.388×10^{3}	9.806	100	1	1×10^{5}	9.806 × 10 ⁷
gm-cm	8.679×10^{-4}	7.233×10^{-5}	1.388×10^{-2}	9.806×10^{-5}	1×10^{-3}	1×10^{-5}	1	980.665
dyne-cm	8.850×10^{-7}	7.375×10^{-8}	1.416×10^{-5}	10^{-7}	1.0197×10^{-6}	1.019 × 10 ⁻⁸	1.019×10^{-3}	1

Length (to convert from A to B, multiply by entry in table)

A	B inches	feet	cm	yd	mm	m
inches	1	0.0833	2.54	0.028	25.4	0.0254
feet	12	1	30.48	0.333	304.8	0.3048
cm	0.3937	0.03281	1	1.09×10^{-2}	10	0.01
yd	36	3	91.44	1	914.4	0.914
mm	0.03937	0.00328	0.1	1.09×10^{-3}	1	0.001
m	39.37	3.281	100	1.09	1000	1

Power (to convert from A to B, multiply by entry in table)

A	hp	Watts
hp (English)	1	745.7
(lb-in) (deg./s)	2.645 × 10 ⁻⁶	1.972×10 ⁻³
(lb-in) (rpm)	1.587 × 10 ⁻⁵	1.183 × 10 ⁻²
(lb-ft) (deg./s)	3.173×10 ⁻⁵	2.366×10^{-2}
(lb-ft) (rpm)	1.904 × 10 ⁻⁴	0.1420
Watts	1.341 × 10 ⁻³	1

Force (to convert from A to B, multiply by entry in table)

A B	lb	OZ	gm	dyne	N
lb	1	16	453.6	4.448×10^{5}	4.4482
OZ	0.0625	1	28.35	2.780×10^4	0.27801
gm	2.205×10^{-3}	0.03527	1	1.02×10^{-3}	N.A.
dyne	2.248×10^{-6}	3.59×10^{-5}	980.7	1	0.00001
N	0.22481	3.5967	N.A.	100000	1

Mass (to convert from A to B, multiply by entry in table)

AB	lb	OZ	gm	kg	slug
lb	1	16	453.6	0.4536	0.0311
OZ	6.25×10^{-2}	1	28.35	0.02835	1.93×10^{-3}
gm	2.205×10^{-3}	3.527×10^{-2}	1	10 ⁻³	6.852×10^{-5}
kg	2.205	35.27	10 ³	1	6.852×10^{-2}
slug	32.17	514.8	1.459×10^4	14.59	1

Rotation (to convert from A to B, multiply by entry in table)

AB	rpm	rad/s	degrees/s
rpm	1	0.105	6.0
rad/s	9.55	1	57.30
degrees/s	0.167	1.745 × 10 ⁻²	1

Conversion tables

Appendix

212 100 100 21	
32 0 0 3 50 10 10 5 70 21.1 20 6 90 32.2 30 8 98.4 37 37 9 212 100 100 21	
50 10 10 5 70 21.1 20 6 90 32.2 30 8 98.4 37 37 9 212 100 100 21	
70 21.1 20 6 90 32.2 30 8 98.4 37 37 9 212 100 100 21)
90 32.2 30 8 98.4 37 37 9 212 100 100 21)
98.4 37 37 9 212 100 100 21	,
212 100 100 21	j
	3.4
)
subtract 32 and multiply by $^5/_9$ multiply by $^9/_5$ and a	d 32

Mechanism Efficiencies	
Acme-screw with brass nut	~0.35–0.65
Acme-screw with plastic nut	~0.50–0.85
Ball-screw	~0.85–0.95
Chain and sprocket	~0.95–0.98
Preloaded ball-screw	~0.75–0.85
Spur or bevel-gears	~0.90
Timing belts	~0.96–0.98
Worm gears	~0.45–0.85
Helical gear (1 reduction)	~0.92

Friction Coefficients Materials μ Steel on steel (greased) ~0.15 Plastic on steel ~0.15–0.25 Copper on steel ~0.30 Brass on steel ~0.35 Aluminum on steel ~0.45 Steel on steel ~0.58 Mechanism μ Ball bushings < 0.001 Linear bearings < 0.001 Dove-tail slides ~0.2++ Gibb ways ~0.5++

Material Densities		
Material	lb-in ³	gm-cm ³
Aluminum	0.096	2.66
Brass	0.299	8.30
Bronze	0.295	8.17
Copper	0.322	8.91
Hard wood	0.029	0.80
Soft wood	0.018	0.48
Plastic	0.040	1.11
Glass	0.079-0.090	2.2–2.5
Titanium	0.163	4.51
Paper	0.025-0.043	0.7–1.2
Polyvinyl chloride	0.047-0.050	1.3–1.4
Rubber	0.033-0.036	0.92-0.99
Silicone rubber, without filler	0.043	1.2
Cast iron, gray	0.274	7.6
Steel	0.280	7.75

Wire Gauges ¹⁾		
Cross-section mm ²	Standard Wire Gauge (SWG)	American Wire Gauge (AWG)
0.2	25	24
0.3	23	22
0.5	21	20
0.75	20	19
1.0	19	18
1.5	17	16
2.5	15	13
4	13	11
6	12	9
10	9	7
16	7	6
25	5	3
35	3	2
50	0	1/0
70	000	2/0
95	00000	3/0
120	0000000	4/0
150	_	6/0
185	_	7/0

¹⁾ The table shows approximate SWG/AWG sizes nearest to standard metric sizes; the cross-sections do not match exactly.

Metal surcharges

Explanation of the raw material/metal surcharges 1)

Surcharge calculation

To compensate for variations in the price of the raw materials silver, copper, aluminum, lead, gold, dysprosium²⁾ and/or neodym²⁾, surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials. A surcharge for the respective raw material is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The surcharges are calculated in accordance with the following criteria:

- Basic official price of the raw material Basic official price from the day prior to receipt of the order or prior to release order (daily price) for³⁾
 - Silver (sales price, processed)
 - Gold (sales price, processed)

and for⁴⁾

- Copper (lower DEL notation + 1 %)
- Aluminum (aluminum in cables)
- Lead (lead in cables)
- Metal factor of the products

Certain products are displayed with a metal factor. The metal factor determines the official price (for those raw materials concerned) as of which the metal surcharges are applied and the calculation method used (weight or percentage method). An exact explanation is given below.

Structure of the metal factor

The metal factor consists of several digits; the first digit indicates whether the percentage method of calculation refers to the list price or a possible discounted price (customer net price) (L = list price / N = customer net price).

The remaining digits indicate the method of calculation used for the respective raw material. If no surcharge is added for a raw material, a "-" is used.

1st digit	List or customer net price using the percentage method
2nd digit	for silver (AG)
3rd digit	for copper (CU)
4th digit	for aluminum (AL)
5th digit	for lead (PB)
6th digit	for gold (AU)
7th digit	for dysprosium (Dy) ²⁾
8th digit	for neodym (Nd) ²⁾

Weight method

The weight method uses the basic official price, the daily price and the raw material weight. In order to calculate the surcharge, the basic official price must be subtracted from the daily price. The difference is then multiplied by the raw material weight.

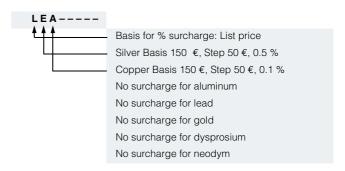
The basic official price can be found in the table below using the number (1 to 9) of the respective digit of the metal factor. The raw material weight can be found in the respective product descriptions.

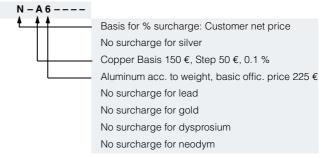
Percentage method

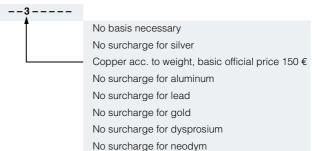
Use of the percentage method is indicated by the letters A-Z at the respective digit of the metal factor.

The surcharge is increased - dependent on the deviation of the daily price compared with the basic official price - using the percentage method in "steps" and consequently offers surcharges that remain constant within the framework of this "step range". A higher percentage rate is charged for each new step. The respective percentage level can be found in the table below.

Metal factor examples







- 1) Refer to the separate explanation on the next page regarding the raw materials dysprosium and neodym (= rare earths).
- 2) For a different method of calculation, refer to the separate explanation for these raw materials on the next page.
- 3) Source: Umicore, Hanau (www.metalsmanagement.umicore.com).
- 4) Source: Schutzvereinigung DEL-Notiz e.V. (www.del-notiz.org).

Explanation of the raw material/metal surcharges for dysprosium and neodym (rare earths)

Surcharge calculation

To compensate for variations in the price of the raw materials silver¹⁾, copper¹⁾, aluminum¹⁾, lead¹⁾, gold¹⁾, dysprosium and/or neodym, surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials. The surcharge for dysprosium and neodym is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The surcharge is calculated in accordance with the following criteria:

- Basic official price of the raw material²⁾
 Three-month basic average price (see below) in the period before the quarter in which the order was received or the release order took place (= average official price) for
 - dysprosium (Dy metal, 99 % min. FOB China; USD/kg)
 - neodym (Nd metal, 99 % min. FOB China; USD/kg)

planation of the metal factor is given below.

Metal factor of the products
 Certain products are displayed with a metal factor. The metal
 factor indicates (for those raw materials concerned) the basic
 official price as of which the surcharges for dysprosium and
 neodym are calculated using the weight method. An exact ex-

Three-month average price

The prices of rare earths vary according to the foreign currency, and there is no freely accessible stock exchange listing. This makes it more difficult for all parties involved to monitor changes in price. In order to avoid continuous adjustment of the surcharges, but to still ensure fair, transparent pricing, an average price is calculated over a three-month period using the average monthly foreign exchange rate from USD to EUR (source: European Central Bank). Since not all facts are immediately available at the start of each month, a one-month buffer is allowed before the new average price applies.

Examples of calculation of the average official price:

Period for calculation of the average price:	Period during which the order/release order is effected and the average price applies:	
Sep 2012 - Nov 2012	Q1 in 2013 (Jan - Mar)	
Dec 2012 - Feb 2013	Q2 in 2013 (Apr - Jun)	
Mar 2013 - May 2013	Q3 in 2013 (Jul - Sep)	
Jun 2013 - Aug 2013	Q4 in 2013 (Oct - Dec)	

Structure of the metal factor

The metal factor consists of several digits; the first digit is not relevant to the calculation of dysprosium and neodym.

The remaining digits indicate the method of calculation used for the respective raw material. If no surcharge is added for a raw material, a "-" is used.

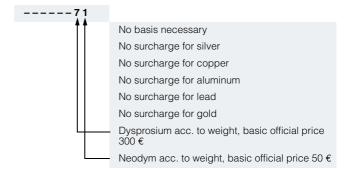
1st digit	List or customer net price using the percentage method
2nd digit	for silver (AG) ¹⁾
3rd digit	for copper (CU) ¹⁾
4th digit	for aluminum (AL) ¹⁾
5th digit	for lead (PB) ¹⁾
6th digit	for gold (AU) ¹⁾
7th digit	for dysprosium (Dy)
8th digit	for neodym (Nd)

Weight method

The weight method uses the basic official price, the average price and the raw material weight. In order to calculate the surcharge, the basic official price must be subtracted from the average price. The difference is then multiplied by the raw material weight.

The basic official price can be found in the table below using the number (1 to 9) of the respective digit of the metal factor. Your Sales contact can inform you of the raw material weight.

Metal factor examples



¹⁾ For a different method of calculation, refer to the separate explanation for these raw materials on the previous page.

²⁾ Source: Asian Metal Ltd (www.asianmetal.com)

Metal surcharges

Values of the metal factor

Percentage method	Basic official price	Step range in €	% surcharge 1st step	% surcharge 2nd step	% surcharge 3rd step	% surcharge 4th step	% sur- charge
	in €		Price in €	Price in €	Price in €	Price in €	per addi- tional ster
			150.01 - 200.00	200.01 - 250.00	250.01 - 300.00	300.01 - 350.00	
A	150	50	0.1	0.2	0.3	0.4	0.1
В	150	50	0.2	0.4	0.6	0.8	0.2
С	150	50	0.3	0.6	0.9	1.2	0.3
D	150	50	0.4	0.8	1.2	1.6	0.4
E	150	50	0.5	1.0	1.5	2.0	0.5
F	150	50	0.6	1.2	1.8	2.4	0.6
G	150	50	1.0	2.0	3.0	4.0	1.0
Н	150	50	1.2	2.4	3.6	4.8	1.2
I	150	50	1.6	3.2	4.8	6.4	1.6
J	150	50	1.8	3.6	5.4	7.2	1.8
			175.01 - 225.00	225.01 - 275.00	275.01 - 325.00	325.01 - 375.00	
0	175	50	0.1	0.2	0.3	0.4	0.1
P	175	50	0.2	0.4	0.6	0.8	0.2
R	175	50	0.5	1.0	1.5	2.0	0.5
			225.01 - 275.00	275.01 - 325.00	325.01 - 375.00	375.01 - 425.00	
S	225	50	0.2	0.4	0.6	0.8	0.2
U	225	50	1.0	2.0	3.0	4.0	1.0
V	225	50	1.0	1.5	2.0	3.0	1.0
W	225	50	1.2	2.5	3.5	4.5	1.0
			150.01 - 175.00	175.01 - 200.00	200.01 - 225.00	225.01 - 250.00	
Υ	150	25	0.3	0.6	0.9	1.2	0.3
			400.01 - 425.00	425.01 - 450.00	450.01 - 475.00	475.01 - 500.00	
Z	400	25	0.1	0.2	0.3	0.4	0.1
	Price basis (1	lst digit)					
L			Ca	alculation based on the	e list price		
N			Calculation based	on the customer net pr	rice (discounted list pri	ce)	
Weight method	Basic official	price in €					
1	50						
2	100						
3	150						
4	175						
5	200	Calculation based on raw material weight					
6	225						
7	300						
8	400						
9	555						
Miscella- neous							
-				No metal surchar	ge		

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 ⁽¹⁾
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The metal factor of a product indicates the basic official price (for those raw materials concerned) as of which the surcharges on the price of the product are applied, and with what method of calculation.

You will find a detailed explanation of the metal factor on the page headed "Metal surcharges".

To calculate the surcharge (except in the cases of dysprosium and neodym), the official price from the day prior to that on which the order was received or the release order was effected is used.

To calculate the surcharge applicable to dysprosium and neodym ("rare earths"), the corresponding three-month basic average price in the quarter prior to that in which the order was received or the release order was effected is used with a one-month buffer (details on the calculation can be found in the explanation of the metal factor).

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Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit https://www.siemens.com/industrialsecurity

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under https://www.siemens.com/industrialsecurity



