





ELECTRICMOTOR

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Electromotor <u>Kalasanati.com</u>

SIEMENS Ingenuity for life

A passion for motors

The specialists for power and efficiency

SIMOTICS low-voltage motors



kalasanati.com Training, Selecting, Purchasing Edition

Passion that's contagious!

Premium low-voltage motors

It goes without saying that our SIMOTICS motors are backed by many powerful, efficient, and smart technologies. What may not be evident at first is the passion with which we stand behind our low-voltage motors. Or maybe it is – once you've actually experienced the superior characteristics of our low-voltage motors for all applications.

Our passion – your benefit

The point is that we don't look at the purchase of a SIMOTICS motor as simply a coolly calculated investment that has to pay for itself in six months. There's much more involved, including the passion of our employees. They do everything they can to ensure that you receive our motors in optimal, high-quality condition by the agreed delivery date, so you can get started right away. And our engineers, whose continuous work on new advances guarantees that each of your SIMOTICS motors will have exactly the right set of characteristics and optimal power to meet your needs. Or our service staff, who are always ready to actively support you around the clock and around the world whenever you need them. So that our motors do what they do best: keep your plant running. There's also the support from our experts, who'll respond to your digitalization questions with skilled analyses and concepts that meet your needs and help you achieve your goals. It's all about passion – for motors and for your success.

A motor is a motor ...

... and SIMOTICS is SIMOTICS! Our passion is ultimately what makes SIMOTICS motors what they are: a part of your success. Passion is what you'll hear when you talk to our salespeople about your challenges and our solutions to them. You'll experience it as soon as you enter one of our SIMOTICS factories. And you'll see it in the eyes of the technicians when your new SIMOTICS is commissioned. It's knowing that the power, efficiency, reliability, and precision are no accident, but rather are part of a plan that will help you achieve your goals. And that's what SIMOTICS is all about.



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Identify and benefit from potential energy savings

Greater cost-effectiveness – less CO₂

About 97 percent of an electric motor's operating costs are for energy. And according to ZVEI, the German Electrical and Electronic Manufacturers' Association, motors account for about 70 percent of all power consumption in industry. That's why the energy efficiency of your electric motors is so important – not just for the cost-effectiveness and competitiveness of your plants, but also for your environmental performance. Because the reduced power consumption of highly efficient SIMOTICS low-voltage motors also means less climate-damaging CO₂.

Built-in future

Everywhere in the world, electric motors are the numberone consumers of energy, which is why they're required to meet ever-stricter energy efficiency targets. The European Union is once again tightening its requirements for electric motors as of mid-2021, but highly efficient SIMOTICS low-voltage motors already exceed these requirements right now – while offering you dramatic savings on energy and costs and a high degree of future viability. Here are just three examples:

- According to a new EU directive, almost all applications up to 1,000 kW will have to comply with at least efficiency class IE3 as of July 2021. Today the entire range of SIMOTICS SD is already available in IE4, the highest efficiency class defined.
- For explosion-proof motors with explosion protection type Ex eb, the new EU directive will require the IE2 efficiency class as of July 1, 2023. Our explosion-proof motors, including those with explosion protection type Ex eb, already offer efficiency class IE3 as standard.
- Systems with SIMOTICS reluctance motors exceed the requirements of IES2, the highest system efficiency class defined, including for applications with a high proportion of part-load operation.



SinaSave energy efficiency tool

Enter your specific operational conditions and SinaSave determines the potential energy savings and payback time, and also allows you to compare different control modes and product combinations for pump and fan drive systems. With its helpful diagrams – for example, of system power losses according to IEC 61800-9-2 – SinaSave assists you in making sound investment decisions.



Optimization through digitalization

Digitalize faster and more flexibly right from the start

With SIMOTICS low-voltage motors, you'll reap the benefits of digitalization today - quickly, easily, and with minimum complexity. With the sensor module SIMOTICS CONNECT 400 and the SIDRIVE IQ Fleet app for cloud-based analytics, you bring transparency to your motor fleet and pave the way to the digital age of Industrie 4.0. Your path to the digital enterprise is clear, thanks to a cloud connection.

SIDRIVE IQ Fleet

Whether you're monitoring new motors or flexibly upgrading your installed base - in many use cases, the SIDRIVE IQ Fleet MindSphere app improves the reliability, availability, efficiency, performance, and productivity of your low-voltage motors. You take advantage of preventive maintenance for your motors using reliable status data and information on maintenance intervals.

SIMOTICS CONNECT 400

Your low-voltage motors are equipped with SIMOTICS CONNECT 400, a connectivity module for measuring and preprocessing the motor-specific status data that's analyzed in SIDRIVE IQ Fleet. SIMOTICS CONNECT 400 comes with the sensors required for capturing the most important operating parameters (like vibration, temperature, or speed), a WLAN communication module for data transfer, and a battery for the power supply. As a result, your motors become part of your digital enterprise and you'll optimize your processes on the basis of solid operational data - for greater cost-efficiency, reliability, and flexibility.



siemens.com/digital-drives

SIDRIVE IQ Fleet and SIMOTICS CONNECT 400: Get started in three steps!

Install SIMOTICS CONNECT 400



Get your motor ready to go

Mount SIMOTICS CONNECT 400 on your low-voltage motors quickly and easily by gluing the sensor module to the motor housing. Once it's physically attached, activate SIMOTICS CONNECT 400 by connecting the battery pack in order to begin installation.



siemens.com/digital-motor

3. Perform data analysis and fleet management



Conveniently monitor your motor remotely Just open SIDRIVE IQ Fleet on your PC or mobile terminal to check the operating state of your motors and obtain an overview of your entire fleet.

Your benefits in ongoing operation





With SIMOTICS CONNECT 400 and SIDRIVE IQ Fleet to the "digital motor" in just a few steps

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SIMOTICSCONNECT

SIEMENS

Install, perform onboard, done!

The combination of SIMOTICS CONNECT 400 and SIDRIVE IQ Fleet makes your introduction to the digital enterprise quite easy. All it takes is a few simple actions to enable cloud-based monitoring of all your new and old SIMOTICS motors and motors from other manufacturers in your plant. As a plug-and-play solution, the SIMOTICS CONNECT 400 connectivity module is easily mounted right on the motor housing and starts supplying data for the cloud-based monitoring of low-voltage motors with SIDRIVE IQ Fleet – with no wires.

Highlights

- Tailored to low-voltage motors with shaft heights from 132 to 450
- Captures status data, including vibration, temperature, speed, and output, and analyzes it based on current and historical data
- Continuous condition monitoring and fleet management of your low-voltage motors, worldwide and 24/7
- Simple and user-friendly mounting, installation, commissioning, and maintenance
- Higher data quality and precision for Siemens motors, thanks to the use of equivalent electrical circuit diagrams, product-specific data from production, and additional elements from the digital twin of the motor



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Services with cloud- and expert-based data analysis

With SIDRIVE IQ Fleet, your drive systems' operating and status data becomes concrete information that supports productivity, availability, and efficiency – day in and day out. A browser-based dashboard keeps you informed on the current status of your drive system components at all times.

Thanks to automatic notifications, you can identify deviations from target values early on and respond accordingly.

Motor monitoring for maintenance/ service optimization or for implementing new business models Visualization of and access to motor based application Data analytics based on actual operational data and the digital twin of the motor in SIDRIVE IQ Fleet **MindSphere** Secure and direct data transmission from a customer's WLAN to MindSphere via the Internet Simple mounting by affixing the SIMOTICS CONNECT 400 to the motor housing and intuitive commissioning of the sensor module via smartphone and Bluetooth

Everything from user-friendly to future-proof – the tools for your success

We help you select the right drive solution by providing qualified consulting and software solutions that let you directly compare your alternatives.

You'll also benefit from continuous access to and transparency of the electrical and mechanical data from your motor.



MyMotor: Your gateway to the world of SIMOTICS

This Website offers you direct access to all the digital tools and services relating to SIMOTICS. With just a few clicks, you can select your motors, calculate their energy efficiency, and identify the best path to digitalization. You also have the option to order selected products and then track your orders. You'll find the right spare parts for your motors as well as their certificates, data sheets, and drawings for download. Finally, you're provided with a contact for technical and sales support.



siemens.com/mymotor



Easy Selection SIMOTICS LV Motors

Simply enter a power and speed to access a preselection of motors that includes size, efficiency class, and list price and a direct connection to the Drive Technology Configurator and the Industry Mall.

siemens.com/lv-easy

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SIZER: Drive dimensioning in the TIA Selection Tool

In the TIA Selection Tool, you can model, dimension, and configure Siemens drive systems and quickly and transparently identify the right integrated drive solution for your task from the core portfolio elements: motor, gearbox, and frequency converter.



Drive Technology Configurator

From gearboxes and motors to converters and controls, this tool guides you to the optimal drive products and components for your applications, including documentation like data sheets, startup characteristics, and CAD drawings and enables direct ordering through the Industry Mall.

siemens.com/dt-configurator



SinaSave energy efficiency tool

With the Web-based SinaSave tool, you'll determine the potential energy savings and payback time for your motors. You can also compare different control modes and product combinations for pump and fan drive systems.

siemens.com/sinasave





Easily access important information about your SIMOTICS motor using the motor's data matrix code or serial number.

siemens.com/digitaldataapp



siemens.com/tst

SIMOTICS: The right motor solution for every application

Whether you have a standard or a special application, the extensive range of SIMOTICS low-voltage motors includes exactly the right motor for every drive task.

With power extending from 90 watts to the megawatt range, rated speeds from 200 to 3,600 min⁻¹, degrees of protection from IP55 to IP66, and torques of up to 42,000 Nm, SIMOTICS low-voltage motors meet all the requirements of standard to harsh environments in the process industries. Their consistent technological foundation simplifies project processing and the handling and digitalization of the various processes linked to your drive systems – worldwide, thanks to uniform components, international certificates, and standardized interfaces.

Low-voltage motors for line and converter operation



General Purpose: SIMOTICS GP

Asynchronous/synchronous-reluctance motors with aluminum enclosure: lightweight, reliable, compact.

Versions optimized for converter operation: VSD10 asynchronous motors, VSD4000 reluctance motors; Eagle Line and APAC motors for use in the NAFTA area and ASEAN markets



Severe Duty: SIMOTICS SD

Asynchronous/synchronous-reluctance motors with cast-iron enclosure: robust, reliable, compact.

Versions optimized for converter operation: VSD10 asynchronous motors, VSD4000 reluctance motors; Eagle Line and APAC motors for use in the NAFTA area and ASEAN markets; pole-changing motors



Explosion Proof: SIMOTICS XP Explosion-proof asynchronous motors for reliable operation in Ex Zones 1, 2, 21, and 22



Definite Purpose: SIMOTICS DP

Marine motors, roller-table and steel-plant motors, crane motors, and customized motors in asynchronous technology

siemens.com/lowvoltagemotors



High Torque: SIMOTICS HT

Multi-pole torque motor for gearless use in applications requiring high torque



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Transnorm: SIMOTICS TN/HV

Transnorm motors are low-voltage asynchronous motors for applications with a higher power rating up to 5.3 MW

Additional product groups for drive technology can be found on the Internet at:

siemens.com/motion-control-motors siemens.com/sinamics

SIMOTICS GP: The lightweight all-around solution

Power	0.09 to 45 kW
Voltage	230 – 690 V
Shaft height	63 to 200 mm
No. of poles	2/4/6/8
Degree of protection	IP55, IP56, IP65
Efficiency classes	IE1 to IE4

Recommended converters

SINAMICS G-series and S-series devices



SIMOTICS GP (General Purpose) motors: Lightweight for standard applications

General Purpose motors with an aluminum enclosure are suitable for a wide range of standard drive tasks in the industrial environment. The motors' design and architecture ensure maximum flexibility and minimal installation costs. Users benefit from integral lifting eyes, screw-on feet, reinforced bearing end-shields with optimal mechanical properties, and easily accessible terminal boxes. Encoders, brakes, and separately driven fans are also simple to add. Thanks to their especially low weight, they're ideal for applications in pumps, fans, and compressors, but they can also be reliably deployed in conveyor systems and lifting gear.

In addition to converter-capable line motors, two converter-optimized motor lines are available for variablespeed converter operation. You can quickly commission your SIMOTICS GP motors using a motor code for predefined converter parameters.

Highlights

- Easy to use and extremely compact
- Special motor versions for special applications
- Cost-effective, lightweight aluminum design
- Simple and flexible to install, thanks to sophisticated construction

Applications

• Pumps, fans, and compressors with special demands for low weight

siemens.com/simotics-gp



Converter-capable asynchronous motor optimized for line operation

The proven SIMOTICS GP motors optimized for line operation are available in efficiency classes up to IE4. Because they have the same power-shaft height assignment across all efficiency classes, migration to more efficient motors is extremely simple.



Asynchronous motors and reluctance motors optimized for converter operation

SIMOTICS GP converter motors in the VSD10 line and motors with reluctance technology in the VSD4000 line (also see pages 20–21) were designed exclusively for converter operation and optimized specifically for SINAMICS converters. SIMOTICS converter motors and SINAMICS converters can be deployed worldwide, because they comply with local legislation and MEPS standards.



SIMOTICS SD with shaft heights up to 315: The reliable workhorse

Power	0.09 to 200 kW	
Voltage	230 – 690 V	
Shaft height	71 to 315 mm	
No. of poles	2/4/6/8	
Degree of protection	IP55, IP56, IP65	
Efficiency classes	IE1 to IE4	

Recommended converters

SINAMICS G-series and S-series devices

SIMOTICS SD (Severe Duty) motors: Uncompromising power

Severe Duty motors with a cast-iron enclosure live up to their name. They do an outstanding job under harsh environmental conditions, including locations where there are extreme amounts of dust and high vibration levels, as well as in aggressive atmospheres like those found in the petrochemical industry or generally throughout the process industries. Their design supports optimal motor cooling and, thanks to the modular platform concept, their handling is identical to that of the General Purpose series.

Highlights

- The optimal Severe Duty motor for meeting every demand: Basic Line (machine building), Performance Line (process industry), APAC Line for the Asian-Pacific region, and Eagle Line for export to NAFTA countries
- Compact design saves space and simplifies installation
- Highly efficient operation: Starting at 2.2 kW, all are available in energy efficiency class IE4

Applications

 Pumps, fans, compressors, material handling, mixers, mills, extruders, rollers, winders, shredders, shears, and cranes/lifting equipment with special requirements for sturdiness like those used in the chemical and petrochemical industries



Highest efficiency at a fixed speed: Convertercapable asynchronous motors optimized for line operation

The well-proven SIMOTICS SD motors up to motor efficiency class IE4 are available for line operation. By using motors in efficiency class IE4, you'll reduce your energy usage by up to three percent compared with motors in an IE3 efficiency class. If you opt for this platform, you can also switch over to IE4 motors at a later point in time, because all efficiency classes from IE1 up to IE4 have the same power-shaft height assignment. The SD motors with increased power offer the same power rating in the next-lower shaft height.

Optimized solutions for variable-speed operation

SD motors in the VSD10 and VSD4000 lines for variable-speed operation have been optimized for operation with SINAMICS converters and comply with global MEPS requirements. The investmentoptimized system comprising a SIMOTICS VSD10 motor and a SINAMICS converter can be easily selected from the catalog or engineering tool and commissioned using a motor code with predefined converter parameters.

The system comprising a SIMOTICS synchronousreluctance motor (see separate section on reluctance motors, page 20) and a SINAMICS converter is the best choice for highly energy-efficient operation.



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SIMOTICS SD next generation up to 1,000 kW: The cosmopolitan heavyweight

	SD	SD Add	SD Pro
Power	55 kW to 500 kW	55 kW to 1,000 kW	160 kW to 980 kW
Voltage	380 – 690 V		1112
Shaft height	315 to 355 mm	315 to 450 mm	315 to 450 mm
No. of poles	2141618		
Degree of protection	IP55, IP56, IP65		
Efficiency classes	IE3, IE4		IE3

Recommended SINAMICS G-series and S-series devices converters



SIMOTICS SD (Severe Duty) motors: Performance redefined

Thanks to optimized performance and numerous digital features, the rugged standard SIMOTICS Severe Duty IEC motors starting with a shaft height of 315 (next generation) can be seamlessly integrated into your digital enterprise. They're just as capable of handling dust and vibration as they are dealing with the aggressive environmental conditions present in the process industries. Their new design combines smaller dimensions with a high power density, resulting in the highest efficiency classes for all three versions.

Highlights

- Best-in-class design:
- Compact dimensions, future-proof, higher power density, also ideal for retrofits
- New terminal box design for greater flexibility in assembly
- Better operational quality for high starting/breakaway torque and low starting currents
- Future-oriented energy-efficiency concepts
 IE3 and IE4 up to 1,000 kW are available for all motors in this line, meaning that they already exceed future legal requirements – reduced total cost of ownership and CO₂ emissions
- Quick and easy processes:
- Extremely short delivery time facilitates your planning
- A wider range of standardized options accelerates bid and response time – with more configuration options

Applications

 Pumps, compressors, fans, cranes/lifting equipment, conveyers, chippers, coilers, grinders, shears, rolling stands with special requirements for sturdiness

siemens.com/simotics-sd-nextgeneration



Version 2

Version 1

system)

torque (M_A/M_N)

SIMOTICS SD

Motors beyond standards

Converter-capable up to 480 V

(IVIC-C advanced insulation

High starting and breakaway

- Global certificates
- UL Safety and CSA Safety material as standard
- Converter-capable up to 480 V (IVIC-C advanced insulation system)
- Low starting currents (I_A/I_N): lower thermal loading, lower network load, reduced torque shock

Version 3

- Multi-voltage capability at AH 315 – 355
- Stable efficiency levels at 50 Hz/60 Hz
- Global certificates
- UL Safety and CSA Safety material as standard
- Converter-capable up to 690 V (IVIC-C premium insulation system)
- High starting and breakaway torque (M_A/M_N) at AH 315 – 355, low starting current (I_A/I_N) at AH 400 – 450

SIMOTICS SD Add Motors beyond borders



SIMOTICS SD Pro Motors beyond horizons

SIMOTICS reluctance motor: The efficient shooting star

	Based on SIMOTICS GP	Based on SIMOTICS SD
Power	0.55 – 30 kW	0.55 – 45 kW
Voltage	400 – 460 V	
Shaft height	80 – 200 mm	80 – 225 mm
No. of poles	4	
Degree of protection	IP55, IP56, IP65	
Efficiency classes	ficiency classes IE4; system efficiency in conjunction with SINAMICS converter better than IES2	

Recommended converters SINAMICS G-series and S-series devices

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SIMOTICS reluctance motors: For optimized system efficiency

A drive system with a SIMOTICS reluctance motor achieves maximum energy efficiency at the rated operating point (at the IE4 level) and significantly higher efficiency in the part-load range than comparable converter-based asynchronous motors.

The combination of a SIMOTICS reluctance motor and SINAMICS converter is more than just a drive. As an integrated drive system, both are specifically synchronized to work together and deliver extremely cost-effective operation. The seamless integration of these systems into automation and, among other things, efficient engineering and service concepts across the entire lifecycle result in significant efficiency benefits.

Highlights

- Extremely efficient even in the part-load range
- Low operating costs and high cost-efficiency
- Dynamic and robust sensorless control
- High overload capability (robust and reliable)
- High power density

Applications

• Pumps, fans, and compressors





Unbeatable efficiency in the system

The system efficiency of a coordinated synchronousreluctance drive system comprising a SIMOTICS reluctance motor and a SINAMICS converter is significantly higher than the minimum requirements of IES2, the highest system efficiency class defined. The optimization of complete drive systems as required by the European energy-related product standard EN 50598 increases energy efficiency. The synchronous-reluctance drive system already comes close to achieving its highest efficiency value in IES2 under loads starting at about 25 percent of nominal torque.

Drive technology that quickly pays off

Benefits of the synchronous-reluctance drive system include investment security, reduced operating costs, and rapid amortization. Compared with standard asynchronous motors in IE2, the higher initial investment is paid off in less than 12 months. Compared with a drive system with an IE3 motor, it pays for itself after just five months with a pump load cycle in accordance with the standardized profile "Blue Angel" in two-shift operation and energy costs of eight ct/kWh.

Synchronous reluctance technology ensures substantially lower energy consumption, especially in the part-load range.



SIMOTICS XP: The safety-conscious EXpert

Explosion Ex db Ex eb Ex ec Ex tb Power 0.25 - 400 kW 0.12 - 150 kW 0.09 - 1000 kW 0.09 - 1000 kW Voltage 50/60 Hz: 230 to 690 V 1,000 kW 1,000 kW 1,000 kW Shaft height 71 - 355 mm 63 - 315 mm 63 - 450 mm 1 No. of poles 2 - 8 2 - 6 2 - 8 1	Ex tc 0.09 – 1,000 kW
460 kW 165 kW 1,000 kW 1,000 kW Voltage 50/60 Hz: 230 to 690 V 50/60 Hz 50/60 Hz 50/60 Hz Shaft height 71 – 355 mm 63 – 315 mm 63 – 450 mm 63 – 450 mm	
Shaft height 71 – 355 mm 63 – 315 mm 63 – 450 mm	
No. of poles $2 - 8$ $2 - 6$ $2 - 8$	
Degree of protectionIP55; IP56; IP65IP65*	IP55*
Efficiency IE3 IE2, IE3, IE4 (1MB5 only) classes IE3 IE2, IE3, IE4 (1MB5 only)	

Recommend- SINAMICS G-series and S-series devices ed converters



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* Note: Other degrees of protection aren't allowed in this case.

SIMOTICS XP (Explosion Protected): Proven trustworthy

You're certainly on the safe side with SIMOTICS XP explosion-protected motors, because they operate for a very long time without interruption, even under the most extreme conditions and at the highest risk of explosion. This applies to both line and converter operation.

Highlights

- Complete range from a single source
- One platform for all hazardous zones, seamlessly covering all standard explosion-protection types
- Standardized tools and processes from planning to operation and maintenance
- Reduced expenditures in all phases
- Customized industry solutions (CHEMSTAR version)
- Short project execution time
- Energy-efficient: efficiency class IE3 as standard
- · Also certified for use on ships

Applications

SIMOTICS XP was specifically developed for general industrial applications (with emphasis on the process industries) with special requirements and is classified for use in areas where explosive gases (Zone 1 or 2) or explosive dust (Zone 21 and 22) occur. The main areas of application are pumps, fans, compressors, extruders, separators, and agitators in industries like chemical/ petrochemical, oil and gas, plastics, food and beverage, and woodworking.



SIMOTICS XP CHEMSTAR

SIMOTICS XP is also available in the sector-specific SIMOTICS XP CHEMSTAR version, which combines the traditional CHEMSTAR technology that's been proven for decades in the process industries with the SIMOTICS low-voltage motor platform. SIMOTICS XP CHEMSTAR sets pioneering standards with customized solutions for the chemical, petrochemical, and oil and gas industries. In this series, extremely rugged motors with a cast-iron enclosure that always have a steel fan cover are equipped with preconfigured option packages for each industry, including sector-specific paint finishes with C4 corrosion protection, non-rusting steel screws and bolts, and a sector-specific extended warranty period. These features are supplemented by freely selectable options like reduced starting currents, motor monitoring, reinforced bearings, a tropical climate version for extreme humidity, special paint finishes, and an offshore C5M-M classification. Documentation that can be flexibly adapted to simple or extremely complex projects is also typically available.



siemens.com/simotics-xp

SIMOTICS DP: The adaptable specialist





SIMOTICS DP (Definite Purpose): Individual-sector motors

Every sector has its own requirements when it comes to drive technology. Beyond the standard portfolio, SIMOTICS DP sector motors offer precisely tailored solutions that fulfill specific requirements for power and cost-efficiency. As a full-line supplier and based on our many years of experience, we have precise knowledge of diverse requirements. When all's said and done, motors from Siemens power almost every industrial sector around the globe – with maximum efficiency and reliability.

Highlights

- Beyond the standard portfolio, sector motors offer a precise and optimal solution that meets specific requirements.
- Additional expansion according to specific standards and provisions
- Application-specific electrical designs
- Design modifications for required degrees of protection, mounted components, materials, dimensions, stress levels, and more

Applications

• Marine and offshore applications, transport and working roller tables, steel and metal, port cranes, and customized motors adapted to a specific application.



siemens.com/simotics-dp



SIMOTICS DP crane motors: Maximum power, even when things get stormy

SIMOTICS DP crane motors are especially suitable for use in ports where they're frequently subject to extreme weather conditions. They must be able to stand up to high humidity levels, salt-laden air, and high wind speeds while continuing to guarantee a high overload capability and a wide speed control range. Reliable operation has top priority.

Highlights

Higher efficiency

The use of special active parts for high efficiency also helps save energy when operated in the part-load range. For ambient temperatures up to 50° Celsius – and optionally, even higher – the crane motors are protected from a salt-laden atmosphere and up to 100 percent humidity.

More power

As accelerating drives, our crane motors can always cope with any situation, thanks to torque reserves for high surge loads and an overload capability up to 230 percent. The high power density allows for compact dimensions.

Greater flexibility

With a generously dimensioned terminal box, corrosion protection inside the motor, and optionally available rugged mounting feet and flanges made of torsionally stiff spheroidal cast iron, our crane motors are ready to take on any task. Rugged, high-quality mounted components like brakes and pulse generators complete our crane motors.

Applications

These rugged cast-iron motors have been specifically developed for operation in harsh environments under adverse conditions typical of crane applications in salt-laden air with high humidity and wind. Typically used in various crane applications in ports, including gantry drives, trolley drives, boom drives, and hoist drives.

Power	4.4 to 310 kW
Voltage	230 – 690 V
Shaft height	132 to 315 mm
No. of poles	4/6/8
Speed	727 – 1,726 min ⁻¹
Torque	11 – 3,980 Nm
Degree of protection	IP55, IP56, IP65
Recommended converters	SINAMICS G-series and S-series devices





SIMOTICS DP roller-table motors: Powerful drive, extremely rugged

Today transport and working roller tables with reversing operation in rolling mills are almost exclusively equipped with directly driven rolls. The mechanical and electrical demands placed on the drive version differ in scale. To comply with these diverse requirements, our new SIMOTICS DP roller-table motors and SIMOTICS DP steel plant motors have been developed for converter operation.

Power
Voltage
Shaft height
No. of poles
Speed
Torque
Degree of protection
Efficiency classes
Recommended converters

Non-ventilated roller-table motors are ideal for very rugged operating conditions in rolling mills, which are characterized by high ambient temperatures, scale dust, and constant vibration and impacts.

Highlights

- Torsionally rigid ring-rib enclosure in spheroidal cast iron; extremely rugged to withstand mechanical stress; no scale-dust deposits
- Torque reserves allow high surge torques of up to 400 percent.

Steel plant motors for less pollution and stress

Steel plant motors with longitudinal-ribbed enclosures are available for areas of material conveyor systems and transport roller tables where there's less pollution and mechanical loads are low, as well as for pure line operation. These motors have been designed for the medium vibration/impact and polluted areas of transport roller tables. Like the roller-table motors, the steel plant motors are also available in a fully-enclosed version and a self-ventilated version. The torque reserves allow high surge torques of up to 400 percent.



SIMOTICS DP marine motors: Full speed ahead

Salt-laden air and high humidity place enormous stress on electrical equipment installed on ships and in coastal areas. That's why renowned marine classification societies formulate strict regulations for the supplementary qualifications of electric motors. SIMOTICS DP marine motors satisfy all the specifications of leading marine classification societies (BV, DNV, GL, LR, RS, KR, ABS, RINA).

Highlights

- Available with either an aluminum or cast-iron enclosure
- Available both in a standard version and versions for hazardous zones
- For on-deck applications, these motors can also be designed so that they function reliably even when briefly moistened with water.

Applications

Our type-tested marine motors are specifically designed for deployment on ships – either on- or below-deck, depending on the version – and for the offshore industry, for example, on drilling rigs.

Examples of auxiliary drives on ships:

- Pumps, fans, compressors (applications like HVAC systems, water for firefighting and cooling, fuels, oils)
- Winches (anchor and mooring winches, lifting gear)
- Bow-thruster drives

Roller-table motor	Steel plant motors			
3.5 – 120 kW 2.2 – 90 kW				
230 – 690 V				
112 – 400 mm	112 – 280 mm			
4/6/8 4/6				
730 – 1,800 min ⁻¹ 1,000 – 2,610 min ⁻¹				
23 – 1,650 Nm	22 – 579 Nm			
Up to IP66	IP55, IP56, IP65			
Highly efficient in converter and line operation				
SINAMICS G-series and S-series devices				

Power	0.09 bis 1,000 kW
Voltage	230 – 690 V
Shaft height	63 to 450 mm
No. of poles	2/4/6
Degree of protection	IP55, IP56, IP65
Efficiency classes	IE2, IE3, IE4
Recommended converters	SINAMICS G-series and S-series devices

SIMOTICS HT-direct: The supreme torque-master

Torque	6,000 – 42,000 kNm
Power	150 – 2,100 kW
Shaft height	400 mm, 450 mm, 500 mm
Degree of protection	IP55
Rated speed	200 – 800 min ⁻¹
Rated voltage	400, 460, 690 V
Cooling method	IC71W (water jacket-cooled) IC416 (rib-cooled with forced ventilation)

Recommended converters

SINAMICS G-series and S-series devices

national 💽 🥔

SIMOTICS HT-direct (High-Torque): Maximum effect in the smallest space

SIMOTICS HT-direct motors are most effective wherever efficiency, low space requirements, and low lifecycle costs are required.

Highlights

- Approximately two to three percent higher efficiency (without gearbox) saves about €15,000/year with 1,000 kW motor and eight hours of operation per day
- Compact, thanks to high pole design and permanent magnet technology
- No gearbox = lower costs for engineering, investment, installation, maintenance, and operation
- Optimally matched to SINAMICS converter for operation with or without encoders
- Nominal bearing life > 60,000 hours
- Environmentally-friendly and energy-saving drive system
- Special customizations

Applications

- Paper industry (roller and press drives)
- Marine industry (propeller main and auxiliary drives)
- Mining industry
- Mill drives
- Steel industry (for example, for shears)
- Plastics industry (extruder worms, foil-drawing machines)
- Crane industry (various areas of application)
- Sugar industry (sugar centrifuge)
- Chemical, oil and gas (pumps, compressors)
- Water/wastewater (pumps, blowers)

siemens.com/simotics-ht



SIMOTICS HT Series HT-direct: Lower operating costs, higher availability

The SIMOTICS HT Series HT-direct high-torque motors are permanent-magnet synchronous motors that provide high torques at low speeds directly at the driven machine. High efficiency and excellent power factors can also be achieved at low speeds, thanks to the permanent magnet rotors.

The SIMOTICS HT Series HT-direct high-torque motors are offered as a harmonized system along with SINAMICS frequency converters. The HTdirect motor/SINAMICS converter system is a drive solution with a long service life and low lifecycle costs and high efficiency for applications with low operating speeds. The high pole design in conjunction with permanent-magnet technology ensures that the motors' space requirements and mass are lower than that of comparable asynchronous machines.

The slow-running motors in the HT-direct series eliminate the need for a gearbox in many cases (reduction in engineering, assembly, and maintenance outlay, lower investment, and lower operating costs).



Low-voltage motors for line and converter operation







Rated voltage IEC (shaft height) NEMA (frame size) Rated torque M_N Feed force F_N Maximum torque M_{max} Maximum torque F_{Max}

Rated speed n_N Speed at rated force

Rated power

Maximum speed n_{Max} Maximum speed

Type of protection (rating)

Efficiency class

System efficiency class

General Purpose – Severe Duty -**Explosion Proof** – Definite Purpose -High Torque – Transnorm – SIMOTICS GP SIMOTICS SD SIMOTICS XP SIMOTICS DP SIMOTICS HT SIMOTICS TN/HV IEC: 0.09 to 45 kW IEC: 0.09 to 1,000 kW 0.09 to 1,000 kW 0.09 to 1,000 kW 150 to 2,100 kW 150 to 5,300 kW Reluctance: 0.55 to 30 kW Reluctance: 0.55 to 45 kW NEMA: 0.5 to 50 HP NEMA: 0.12 to 250 HP IEC: 230 to 690 V IEC: 230 to 690 V 230 to 690 V 230 to 690 V 400 to 690 V 380 to 690 V Reluctance: 400/460 V Reluctance: 400/460 V at converter input at converter input NEMA: 220 to 575 V NEMA: 220 to 575 V IEC: 63 to 200 IEC: 71 to 450 63 to 450 63 to 450 400 to 500 315 to 710 Reluctance: 80 to 225 Reluctance: 80 to 200 IEC: 0.61 to 293.8 Nm IEC: 1.3 to 8,100 Nm 0.61 to 8,090 Nm 2.5 to 3,142 Nm 6,000 to 42,000 Nm 800 to 77,166 Nm Reluctance: 3.5 to 191 Nm Reluctance: 3.5 to 191 Nm 42,000 Nm 750 to 3,000 min⁻¹ (at 50 Hz) 750 to 3,000 min⁻¹ (at 50 Hz) 200 to 800 min⁻¹ (at 50 Hz) 750 to 3,600 min⁻¹ (at 50 Hz) IEC: 750 to 3,000 min⁻¹ (at 50 Hz) 750 to 3,000 min⁻¹ (at 50 Hz) Reluctance: Reluctance: 1,500/1,800/2,610 min⁻¹ 1,500/1,800/2,610/3,000/ 3,600 min⁻¹ Asynchronous: up to 6,000 min⁻¹ Asynchronous: up to 6,000 min⁻¹ Up to 6,000 min⁻¹ Up to 6,000 min⁻¹ Up to 1,000 min⁻¹ Up to 5,000 min⁻¹

IP55, IP56, IP65

IE2 to IE4

IES1/IES2

IP55

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IEC:

Reluctance: up to 4,500 min⁻¹

IP55, IP56, IP65

IE1 to IE4

IES1/IES2

Reluctance: up to 4,500 min⁻¹

IP55, IP56, IP65

IES1/IES2

IE2 to IE4 (IE4 only 1MB5)

IP55, IP56, IP65

IE1 to IE4

IES1/IES2

IP23, IP55, IP56, IP65, IP66

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Overview



MOTORS

SIMOTICS Low Voltage Motors

Structure of the 16-digit ordering number (MLFB) siemens.com/simotics siemens.com/mymotor

Kalasanati.com

SIEMENS

Structure of the 16-digit ardar number for standard motors

be	r t(or sta	ndard	d n	notc	ors										C IM V5 / I	/ 1011			A None			
			- a a r	C i i i												D IM V6 / IM					thermistors – g (2 terminals) –		
IR ·	nn	d 1PC	-				6. Versions –	1LE1/5, 1FP1		8. 9. Fran	ne size						/ 3001, IM V1, IM \ IM B5 flange	V3,		for 1MB/5	and 1PC1 always 3		
	ann	UIFC	-				0 Standard IE			0 B 63		1	0. Number of po	les		G IM V1 / IN					thermistors – for a	alarm	
								ing (1LE1) or Synchı motors VSD4000 Lir		0 C 71		-	A 2-pole			H IM V3 / II	/ 3031 flange				ng (4 terminals) – 5 and 1PC1 always	6 pcs	
								motors – Eagle Line		0 D 80		_	B 4-pole			J IM B35 /	IM 2001 flange			_Е 1 КТҮ84-	30 temperature se		
							3 1LE5 SD Ad	~	-	0 E 90			C 6-pole				IM 3601, IM V19 / I			(2 termin			
							4 APAC Line			1 A 100			D 8-pole				stamped IM B14 st		flange	G (4 termin	30 temperature se als)	ensors	
							7 ABNT Line	C0	_	1 B 112			4-pole 1FP1				IM 3631 standard f	~		3 Pt100 re	sistance thermome	eters –	
								's with Premium insu	ulation	1 C 132			F for speed				IM 3611 standard f	~			ut (6 terminals) sistance thermome	-	
								D Pro motors		1 D 160			3000-3600 rpi				IM 2101 standard f	flange			ut (12 terminals)	eters –	
							9			1 E 180			load torque			T IM B6 / IM					resistance thermon	neter	
							converter c	регаціон		2 A 200			8/4-pole const		Construction ength	U IM B7 / IM				(2 termin	als) resistance thermon	motors	
1. 2.	3. Moto	or type					6. Type of Ex protection – 1MB1/5			2 B 225		Load torque				V IM B8 / IM	L (4 termin		mometers				
_		dard low voltage n	motors				1 Ex tb IIIC (E	Ex Zone 21) Ex Zone 22) 3 (Ex Zone 2)		2 C 250		F	P square-law load torque		0-8) core ength encoded	coded, X IM V25 / IM 2021 flange					1 Pt100 resistance thermometer –		
1 E	_D Syncl	hronous reluctanc		4. N	Motor series		2 Ex tc IIIB (E			2 D 280					isually more	Y IM V357	Y IM V35 / IM 2031 flange Some corresponding options: H00 protective cover				ut (2 terminals) sistance thermome	otors	
· ·	_	1000 Line			EC motor seri		3 Ex ec IIC T3			3 A 315		6/4-pole Q square-law			han one core ength exists fo						ut (9 terminals)	eters –	
		ors for hazardous a		[EC motor seri	motor series 4 Ex eb IIC T		T3 (Ex Zone 1)		3 B 355		load torque		c	one frame size,	1100 pro	l, shaft down, requ	uired for I	Ex)		sistance thermome	eters –	
1 P	C Indus	stry specific motor	rs) (2nd generati	ion)	5 Ex db, Ex d	Ex db, Ex db eb IIC T4 (Ex Zone 1)					8/4-pole		lease see the able for		P01 next large flange				ut (18 terminals)	unt ha	
					6 Ex db, Ex d	b eb IIB T4 (Ex Zone	eb IIB T4 (Ex Zone 1)				R square-law load torque		xamples	PO2 nex	P02 next smaller flange				C, bimetal etc.), mi by option code Qxx				
16 di	gits (with some	e example	e such	h as bel	low)																	
1		2.	3.		4.	5.	6.	7.	-	8.	(9.	10.	11.	12	2. –	13.		14.	15.	16.	Optio	
1	1		Ξ		1	5	0	3	_	1		C	А	1	2) _	2		А	В	4	-Z	
		_	-		•										-						•		
	Efficiency class –						Digits 8-11, assigned to power ratings of 12. 13. Voltage						/oltage.code			16. Terminal box position							
						5. 1LE1/5, 1F	P1, 1MB1/5			3 efficiency class				230 VΔ (Ex eb, Ex db and Ex db eb motors)				box base left with to	erminal box				
	1 M	B1533-0EA4	12 24 44			0 Aluminium housing		Motors with IE2 High Efficiency (or 1LE1 pole-changing			2-pole		6-pole	8-pole							(only 1LE5/1MB5)		
		DI333-OLA-	42-2004			Cast iron housing:				0.18 kW			0CC2				400 VY, 60 Hz 460 VY				Terminal box base right with terminal box		
	→ 1N	MB1 IEC motor for	r hazardous areas		5 Basic Line 6 Performance Line		2	motor with a	vith one winding) with IE1	0.25 kW		OCB2	0CC3				Iz 400 VΔ, 60 Hz 460 VΔ				at the top (only 1LE5/1MB5)		
	→ Ca	ast iron housing, B	Basic Line (5)				nce Line	Motors with IE1		0.37 kW 0.55 kW	0CA2 0CA3				065	50 Hz 690 VY					2 Terminal box base left with oblique terminal box 45° (only 1LE5/1MB5)		
	→ Ex	ec IIC T3 protection	ion type (3)			7 ABNT Line	e IR3 (for 1LE5)	2 Standard Eff		0.55 kW	0CA3 0DA2	ODB2 ODB3	0DC3 0EC0		176	50 Hz 220 V∆/380 VY					box base right with		
	→ IE:	3 Premium Efficier	ncy (3)				insulation system	motor with t	two windings)	1.1 kW	0DA3	OEBO	0EC4		186	50 Hz 230 V∆/400 VY					ox 45° (only 1LE5/		
11 kW)	→ Sh	naft height 90 (<mark>0E</mark>)	.)			W)		3 Motors with IE3 Premium Efficiency Motors with IE4 Super Premium Efficiency		1.5 kW	0EA0	0EB4	.B4 1BC2			50 Hz 220 VΔ/380 VY, 60				4 Terminal	box top		
	→ 2-	pole (A)								2.2 kW	0EA4	1AB4		1CD0		standard induction mot 50 Hz 380 V, 60 Hz 440 V				5 Terminal	oox right-hand side		
	→ Co	onstruction length	n code 4 (correspo	onds to 2.2	2 kW)					3 kW	1AA4	1AB5	100	1CD2		VSD10 Line and VSD400				6 Terminal	oox left-hand side		
	→ 23	30 V∆ / 400 VY at 5	50 Hz (2-2)					(including V	SD4000) uced starting	4 kW 5.5 kW	1BA2 1CA0	1BB2 1CB0	1CC2 1CC3	1DD2 1DD3	2 2 5	50 Hz 230 V∆/400 VY, 60	Hz 460 VY				oox at bottom		
	→ IM	1 B3 (A)							= 600% (1MB)	7.5 kW	1CA0	1CB0	1DC2	1003 1004	2 3 5	50 Hz 240 V∆/415 VY, 60	Hz 480 VY				oox non drive end		
	→ Wi	ithout motor prote	ection (A)						uced starting	11 kW	1DA2	1DB2	1DC4	1ED4		50 Hz 480 V, 60 Hz 550 V	/, 87 Hz 480 V				1423 roller table)		
	→ Te	rminal box on top	o (4)					current la/In	= 700% (1MB)	15 kW	1DA3	1DB4	1EC4	2AD5	(VSD10 Line)					. bottom on side),		
										18.5 kW	1DA4	1EB2	2AC4	2BD0		50 Hz 500 VY, 60 Hz 575 some types not for 575				9 must be s	pecified by option o	code Rxx	
						5. 6. 7. In	dustry specific moto			22 kW	1EA2	1EB4	2AC5	2BD2		50 Hz 380 VΔ/660 VY (so		560 VY)		(only 1LE	5/1MB5)		
						0 0 1 Se		thout external fan –		30 kW	2AA4	2AB5	2BC2	2CD2		50 Hz 400 VΔ/690 VY (so							
						0 0 2 Se		thout external fan –		37 kW 45 kW	2AA5 2BA2	2BB0 2BB2	2CC2 2DC0	2DD0 2DD2		50 Hz 380 VΔ/660 VY, 60		(1V 000)					
						3 4 1 Cr	ane duty – IC411/IC			43 KW	ZDMZ	2082	2000	2002									
										55 kW	2CA2	2CB2	2002	3AD0		standard induction mot	ors, some type <u>s</u>						
						3 6 1 Cr	ane duty – IC410 - V oller table – IC410 - V	/SD operation		55 kW 75 kW	2CA2 2DA0	2CB2 2DB0	2DC2 3AC0	3AD0 3AD2	33 ₁	standard induction mot not for 660 VY or 440 V2 50 Hz 660 V, 87 Hz 660 V	.)						

order number	ors										C IM V5 / IM	1011		A None							
		aaro		.015										D IM V6 / IM				3 PTC thermistors – ipping (2 terminals) –			
1LE, 1FP, 1MB a	and $1DC$				6. Versions –	1LE1/5, 1FP1		8. 9. Fra	me size					F IM B5 / IM 3 stamped IN	3001, IM V1, IM V 4 B5 flange	3,	for 1	MB/5 and 1PC1 alway			
\square \square \square \square \square \square \square \square \square		0 Standard IEC motors Pole-changing (1LE1) or Synchronous				0 B 63 10. Number of poles						G IM V1 / IM 3011 flange C and tripping (4 terminals) –									
						ing (1LE1) or Sy motors VSD400		0 C 71		A	2-pole			H IM V3 / IM	3031 flange			MB1/5 and 1PC1 alwa			
						motors – Eagle		0 D 80		В	4-pole			J IM B35 / IM	1 2001 flange			Y84-130 temperature	sensor		
					3 1LE5 SD Ac	d motors		0 E 90		С	6-pole				4 3601, IM V19 / IN		\$ /	rminals) Y84-130 temperature	sensors		
					4 APAC Line			1 A 100)	D	8-pole				tamped IM B14 sta / 3631 standard fla		(4 te	rminals)			
					7 ABNT Line	IR3		1 B 112	2		4-pole 1FP1				/ 3611 standard fl	9		00 resistance thermo e input (6 terminals)	meters –		
						rs with Premium	n insulation	1 C 132	2		for speed 3000-3600 rp	om			1 2101 standard fl	~		00 resistance thermo	meters –		
						D Pro motors motors for		1 D 160			4/2-pole const			T IM B6 / IM				e input (12 terminals			
					9 converter o			1 E 180			load torque 8/4-pole const	·	onstruction	U IM B7 / IM				000 resistance therm rminals)	ometer		
							1104/5	2 A 200		L	load torque		ngth	V IM B8 / IM	1071		1 2 Pt1	000 resistance therm	ometers		
	3. Motor type				6. Type of Ex protection – 1MB1/5			B 225		4/2-pole		-8) core	W IM V15 / IM	/ 2011 flange			(4 terminals) 1 Pt100 resistance thermometer –				
1 L E	E Standard low voltage moto				1 Ex tb IIIC (Ex Zone 21) 2 Ex tc IIIB (Ex Zone 22) 3 Ex ec IIC T3 (Ex Zone 2)			2 C 250		Р	square-law load torque		ngth encoded, ually more	Y IM V35 / IM	/ 2031 flange			e input (2 terminals)	meter –		
1 F F	P Synchronous reluctance m VSD4000 Line	otors –	4. Motor seri					2 D 280			6/4-pole		an one core	Some corre	esponding options	:		00 resistance thermo	meters –		
1 M E	B Motors for hazardous areas	s	1 IEC motor					3 A 315 3 B 355		Q	square-law load torque		ngth exists for le frame size,		ective cover			e input (9 terminals) 00 resistance thermo	meters –		
1 P (C Industry specific motors		5 (2nd gener				4 A 400			8/4-pole	pl	ease see the	(vertical, shaft down, required for Ex) P01 next large flange				e input (18 terminals				
					6 Ex db, Ex db eb IIB T4 (Ex Zone 1)			4 A 400		R	R square-law table for load torgue examples			P02 next smaller flange				Z Other (NTC, bimetal etc.), must be specified by option code Qxx			
MLFB structured into the 16 dig	gits (with some e	example	such as b	elow)				4 0 430			ioad torque		ampies			speci	specifica by option code				
Digit 1.	. 2.	3.	4.	5.	6.	7.	-	8.	9).	10.	11.	12.	_	13.	14.	15.	16.	Optio		
Order number 1	1	F	1	5	0	3	_	1		C	А	1	2	_	2	А	В	4	-Z		
	_		_																		
				Housing m	g material –			Digits 8-11	Digits 8-11, assigned to power ra			r ratings of 12. 13.			. Voltage code						
Examples					P1, 1MB1/5	7. 1LE1/5,	, 1FP1, 1MB1/5				efficiency class			lz 230 VΔ (Ex eb, Ex db	h and Ex dh eh mo	otors)		inal box position inal box base left with	n terminal box		
1LE1003-1DB23 4GB5-Z H00	1MB1533-0EA42-	2004		0 Aluminium	housing		with IE2		2-pole	4-pole	6-pole	8-pole		lz 400 VY, 60 Hz 460 V				e top (only 1LE5/1MB			
		2007		Cast iron he	ousing:			0.18 kW			0CC2							inal box base right wi			
→ 1LE1 IEC motor	→ 1MB1 IEC motor for haz			5 Basic Line		motor v	with one winding)	0.25 kW	0CA2	0CB2 0CB3	0CC3 0DC2			łz 400 VΔ, 60 Hz 460 V				e top (only 1LE5/1MB inal box base left with			
Aluminum housing, IE3 = 003	→ Cast iron housing, Basic			6 Performar	nce Line		with IE1 rd Efficiency	0.55 kW	0CA2 0CA3	OCB3 ODB2	0DC2 0DC3			6 50 Hz 690 VY			inal box 45° (only 1LE				
Shaft height 160 (1D)	→ Ex ec IIC T3 protection ty				IR3 (for 1LE5) 2 (or 1LE1 pole-changing			0.75 kW	0DA2	ODB3	0EC0			60 Hz 220 VΔ/380 VY			, Terminal box base right with oblique				
→ 4-pole (B)	→ IE3 Premium Efficiency	(3)		8 Premium i (for 1MB)		sulation system motor with two windings) Motors with IE3			0DA3	OEBO	0EC4			Iz 230 VΔ/400 VY				inal box 45° (only 1LE	5/1MB5)		
Construction length code 2 (corresponds to 11 kW)	→ Shaft height 90 (OE)					3 Premium Efficiency		1.5 kW	0EA0 0EA4	0EB4 1AB4	1AC4 1BC2	1000		Iz 220 VΔ/380 VY, 60 F ndard induction motors				inal box top			
◆ 400 V∆ / 690 VY at 50 Hz (3-4)	→ 2-pole (A)			Motors with IE4				2.2 kW 3 kW	1AA4	1AB4 1AB5	1BC2 1CC0	1CD0 1CD2	2 1 50 F	lz 380 V, 60 Hz 440 V,	87 Hz 380 V		5 Term	5 Terminal box right-hand side			
Mater protection: 2 DTC thermisters (P)	→ Construction length cod		nus to 2.2 kW)			4 Super P (includi	Premium Efficiency ina VSD4000)	4 kW	18A4	18B2	1CC2	1DD2		D10 Line and VSD4000			6 Term	inal box left-hand side	e		
Motor protection: 3 PTC thermistors (B) Terminal box on RHS (5)	→ 230 V∆ / 400 VY at 50 H → IM B3 (A)	12 (2-2)				6 IE2 with	h reduced starting	5.5 kW	1CA0	1CB0	1CC3	1DD3		Iz 230 VΔ/400 VY, 60 F			7 Term	inal box at bottom			
Option Z: protective cover (H00)	→ IM B3 (A) → Without motor protection	on (A)					: la/ln = 600% (1ME	3) 7.5 kW	1CA1	1CB2	1DC2	1DD4		50 Hz 240 VΔ/415 VY, 60 Hz 480 VY				inal box non drive en			
• Option 2. protective cover (HOU)	→ Without motor protection → Terminal box on top (4)	.,					h reduced starting : Ia/In = 700% (1ME	3) 11 kW	1DA2	1DB2	1DC4	1ED4		lz 480 V, 60 Hz 550 V, 010 Line)	87 Hz 480 V			1PC1423 roller table			
								15 kW 18.5 kW	1DA3 1DA4	1DB4 1EB2	1EC4 2AC4	2AD5 2BD0	50 F	lz 500 VY, 60 Hz 575 V				r (eg. bottom on side) be specified by optio			
				5. 6. 7. Ind	dustry specific mot	or types – 1PC1		22 kW	1EA2	1EB2	2AC4 2AC5	28D0	(son	ne types not for 575 V			(only	1LE5/1MB5)			
				0 0 1 Sel	lf-cooled motors w	thout external f	fan – IE2 efficiency		2AA4	2AB5	2BC2	2CD2		lz 380 VΔ/660 VY (som							
				0 0 2 Sel	lf-cooled motors w	thout external f	fan – IE1 efficiency		2AA5	2BBO	2CC2	2DD0		lz 400 VΔ/690 VY (som		90 VY)					
				3 4 1 Cra	ane duty – IC411/IC	416 – VSD opei	ration	45 kW	2BA2	2BB2	2DC0	2DD2		Iz 380 VΔ/660 VY, 60 F ndard induction motor							
				3 6 1 Cra	ane duty – IC410 - '	VSD operation		55 kW 75 kW	2CA2 2DA0	2CB2 2DB0	2DC2 3AC0	3AD0 3AD2		for 660 VY or 440 VΔ)							
				4 2 3 Rol	ller table – IC410 -	VSD operation			20/0	2000	2402	24.04	50 F	lz 660 V, 87 Hz 660 V ((VSD10 Line)						

		ואוצ ז	10ar(a mot	ors									C IM V5 / IM	1011		A None		
														D IM V6 / IM				TC thermistors – bing (2 terminals) –	
1LE, 1FP, 1M	1R and	1 DC				6. Versions –	- 1LE1/5, 1FP1	8. 9. Fran	ne size						3001, IM V1, IM V3 M B5 flange	3,	for 1MB	/5 and 1PC1 always 3	
LL, <i> </i> , V	/id allu						EC motors	0 B 63		10.	Number of po	oles		G IM V1 / IM				TC thermistors – for a ping (4 terminals) –	alarm
							ging (1LE1) or Synchronous e motors VSD4000 Line (1FP1)	0 C 71		A	2-pole			H IM V3 / IM	3031 flange			1/5 and 1PC1 always	6 pcs
							1 motors – Eagle Line	0 D 80		В	4-pole			J IM B35 / IN	M 2001 flange			4-130 temperature se	ensor
						3 1LE5 SD Ad	dd motors	0 E 90		С	6-pole				M 3601, IM V19 / IN		(2 term	inais) 4-130 temperature se	ensors
						4 APAC Line		1 A 100		D	8-pole				stamped IM B14 sta M 3631 standard fla		G (4 term		
						7 ABNT Line	IR3	1 B 112			4-pole 1FP1				M 3611 standard fla	~		resistance thermom nput (6 terminals)	eters –
							ors with Premium insulation	1 C 132			for speed 3000-3600 rpr	m			M 2101 standard fla			resistance thermom	eters –
							SD Pro motors	1 D 160			4/2-pole const.			T IM B6 / IM		inge		nput (12 terminals)	
						9 converter of	e motors for operation	1 E 180			load torque	Co	onstruction	U IM B7 / IM			K 1 Pt100 (2 term	0 resistance thermor	meter
								2 A 200			8/4-pole const. load torque		ngth	V IM B8 / IM				0 resistance thermor	meters
	1. 2. 3. Motor t						x protection – 1MB1/5	2 B 225			4/2-pole		-8) core	W IM V15 / IN			L (4 term	·	
	1 L E Standard	~					Ex Zone 21)	2 C 250			square-law load torque		ngth encoded, ually more		M 2031 flange			resistance thermom nput (2 terminals)	eter –
	1 F P Synchro VSD400	onous reluctance 10 Line	motors –	4. Motor serie			Ex Zone 22)	2 D 280			6/4-pole		an one core		esponding options:	:	O 3 Pt100	resistance thermom	eters –
	1 M B Motors f		eas	1 IEC motor se			3 (Ex Zone 2)	3 A 315			square-law load torque		ngth exists for	H00 prote	ective cover			nput (9 terminals) resistance thermom	otors
	1 P C Industry	specific motors	;	5 IEC motor se (2nd genera			3 (Ex Zone 1)	3 B 355			8/4-pole		e frame size, ease see the		shaft down, requir	ed for Ex)		nput (18 terminals)	leters –
					5 Ex db, Ex db eb IIC T4 (Ex Zone 1) 6 Ex db, Ex db eb IIB T4 (Ex Zone 1)			4 A 400			R square-law table for			P01 next large flange P02 next smaller flange				NTC, bimetal etc.), m	
MLFB structured into the	16 diaits (w	ith some	example	such as be	ow)			4 B 450			load torque examples			roz next smaller hange			specified by option code Qxx		K
Digit	1.	2.	3.	4.	5.	6.	7. –	8.	9		10.	11.	12.	_	13.	14.	15.	16.	Option
Order number	1	1	F	1	5	0	3 –	1			Λ	1	2	_	2	A	B	4	-Z
Jider Humber		L	_		J						A						D D		
												-							
															_		16 Tauria		
Examples					5. Housing ma 1LE1/5, 1FP		7. Efficiency class – 1LE1/5, 1FP1, 1MB1/5		assigned to po (see below) mo		of efficiency class		12. 13. Voltag	-				al box position	
Examples 1LE1003-1DB23 4GB5-Z H00	1MB1	1533-0EA4	2-2A <mark>A4</mark>		 ^{5.} 1LE1/5, 1FP1 0 Aluminium h 	1, 1MB1/5 nousing	7. 1LE1/5, 1FP1, 1MB1/5 Motors with IE2 High Efficiency	"standard"				8-pole	12. 13. Voltag 0 1 50 Hz	ge code 230 VΔ (Ex eb, Ex di 400 VY, 60 Hz 460 \	b and Ex db eb mo		0 Termina at the to	al box base left with t op (only 1LE5/1MB5)	terminal box
1LE1003-1DB23 4GB5-Z H00		1533-0EA4 1 IEC motor for h			 ILE1/5, IFP Aluminium h Cast iron hou 	1, 1MB1/5 nousing	7. 1LE1/5, 1FP1, 1MB1/5 Motors with IE2		(see below) m	otors in IE3 e 4-pole 0CB2	efficiency class 6-pole 0CC2 0CC3		12. 13. Voltag 0 1 50 Hz 0 2 50 Hz	230 V∆ (Ex eb, Ex d	b and Ex db eb mor		0 Termina at the to 1 Termina	l box base left with t	terminal box
1LE1003-1DB23 4GB5-Z H00 → 1LE1 IEC motor	→ 1MB1		nazardous areas		 ILE1/5, 1FP Aluminium h Cast iron hou Basic Line 	1, 1MB1/5 nousing using:	1LE1/5, TFP1, 1MB1/5 Motors with IE2 High Efficiency (or 1LE1 pole-changing motor with one winding) Motors with IE1	"standard" 0.18 kW 0.25 kW 0.37 kW	(see below) m 2-pole 0CA2	otors in IE3 e 4-pole OCB2 OCB3	efficiency class 6-pole 0CC2 0CC3 0DC2		12. 13. Voltag 0 1 50 Hz 0 2 50 Hz	230 V∆ (Ex eb, Ex d 400 VY, 60 Hz 460 \ 400 V∆, 60 Hz 460 \	b and Ex db eb mor		OTermina at the to1Termina at the to2Termina at the to	I box base left with t op (only 1LE5/1MB5) I box base right with op (only 1LE5/1MB5) I box base left with c	terminal box terminal box oblique
1LE1003-1DB23 4GB5-Z H00 → 1LE1 IEC motor → Aluminum housing, IE3 = 003	→ 1MB ¹ → Cast i	1 IEC motor for h iron housing, Bas	nazardous areas sic Line (5)		5. 1LE1/5, 1FP 0 Aluminium h Cast iron hou 5 Basic Line 6 Performance	1, 1MB1/5 nousing using:	1LE1/5, FP1, 1MB1/5 Motors with IE2 High Efficiency (or 1LE1 pole-changing motor with one winding) Motors with IE1 Standard Efficiency	"standard" 0.18 kW 0.25 kW 0.37 kW 0.55 kW	(see below) m 2-pole 0CA2 0CA3	otors in IE3 e 4-pole 0CB2 0CB3 0DB2	efficiency class 6-pole 0CC2 0CC3 0DC2 0DC3		12. 13. Voltag 0 1 50 Hz 0 2 50 Hz 0 4 50 Hz	230 VΔ (Ex eb, Ex d 400 VY, 60 Hz 460 \ 400 VΔ, 60 Hz 460 \ 690 VY	b and Ex db eb mor		0Termina at the to1Termina at the to2Termina termina	I box base left with t pp (only 1LE5/1MB5) Il box base right with pp (only 1LE5/1MB5) Il box base left with c I box 45° (only 1LE5/	terminal box terminal box bblique (1MB5)
1LE1003-1DB23 4GB5-Z H00 → 1LE1 IEC motor → Aluminum housing, IE3 = 003 → Shaft height 160 (1D)	→ 1MB ¹ → Cast i → Ex ec	1 IEC motor for h	nazardous areas sic Line (5) n type (3)		 ILE1/5, IFP² Aluminium h Cast iron hou Basic Line Performanc ABNT Line I 	1, 1MB1/5 nousing using: te Line	1LE1/5, TFP1, 1MB1/5 Motors with IE2 High Efficiency (or 1LE1 pole-changing motor with one winding) Motors with IE1	"standard" 0.18 kW 0.25 kW 0.37 kW 0.55 kW 0.75 kW	(see below) m 2-pole 0CA2 0CA3 0DA2	otors in IE3 e 4-pole OCB2 OCB3 ODB2 ODB3	efficiency class 6-pole 0CC2 0CC3 0DC2 0DC3 0DC3 0EC0		12. 13. Voltag 0 1 50 Hz 0 2 50 Hz 0 4 50 Hz 0 6 50 Hz	230 VΔ (Ex eb, Ex di 400 VY, 60 Hz 460 V 400 VΔ, 60 Hz 460 V 690 VY 220 VΔ/380 VY	b and Ex db eb mor		0 Termina at the to 1 Termina at the to 2 Termina termina	I box base left with t op (only 1LE5/1MB5) I box base right with op (only 1LE5/1MB5) I box base left with c	terminal box I terminal box Digue (1MB5) I oblique
1LE1003-1DB23 4GB5-Z H00 → 1LE1 IEC motor → Aluminum housing, IE3 = 003 → Shaft height 160 (1D) → 4-pole (B)	→ 1MB ¹ → Cast i → Ex ec → IE3 Pi	1 IEC motor for h iron housing, Bas IIC T3 protection	nazardous areas sic Line (5) n type (3)		 ILE1/5, IFP² Aluminium h Cast iron hou Basic Line Performanc ABNT Line I 	1, 1MB1/5 nousing using: :e Line R3 (for 1LE5)	 1LE1/5, FFP1, 1MB1/5 Motors with IE2 High Efficiency 1 (or 1LE1 pole-changing motor with one winding) Motors with IE1 2 Standard Efficiency (or 1LE1 pole-changing 	"standard" 0.18 kW 0.25 kW 0.37 kW 0.55 kW	(see below) m 2-pole 0CA2 0CA3	otors in IE3 e 4-pole 0CB2 0CB3 0DB2	efficiency class 6-pole 0CC2 0CC3 0DC2 0DC3		12. 13. Voltag 0 1 50 Hz 0 2 50 Hz 0 4 50 Hz 0 6 50 Hz 1 7 60 Hz 1 8 60 Hz 50 Hz 50 Hz 50 Hz	230 VΔ (Ex eb, Ex dl 400 VΔ, 60 Hz 460 V 400 VΔ, 60 Hz 460 V 690 VΥ 220 VΔ/380 VY 230 VΔ/400 VY 220 VΔ/380 VY, 60 H	b and Ex db eb mo γγ VΔ Hz 440 VY		0Termina at the to1Termina at the to2Termina termina3Termina termina	I box base left with t pp (only 1LE5/1MB5) Il box base right with pp (only 1LE5/1MB5) Il box base left with o I box 45° (only 1LE5/ Il box base right with	terminal box I terminal box Difugue (1MB5) I oblique
•	→ 1MB ¹ → Cast i → Ex ec → IE3 Pi	1 IEC motor for h iron housing, Bas IIC T3 protection remium Efficience t height 90 (0E)	nazardous areas sic Line (5) n type (3)		 3. 1LE1/5, 1FP² O Aluminium h Cast iron hot 5 Basic Line 6 Performance 7 ABNT Line I 8 Premium in 	1, 1MB1/5 nousing using: :e Line R3 (for 1LE5)	7. 1LE1/5, FFP1, 1MB1/5 Motors with IE2 High Efficiency (or 1LE1 pole-changing motor with one winding) Motors with IE1 Standard Efficiency (or 1LE1 pole-changing motor with two windings) motors with IE3 Premium Efficiency	*standard* 0.18 kW 0.25 kW 0.37 kW 0.55 kW 0.75 kW 1.1 kW 1.5 kW 2.2 kW	(see below) mo 2-pole OCA2 OCA3 ODA2 ODA3 OEA0 OEA4	otors in IE3 e 4-pole 0CB2 0CB3 0DB2 0DB3 0EB0 0EB4 1AB4	efficiency class 6-pole 0CC2 0CC3 0DC2 0DC3 0EC0 0EC4 1AC4 1BC2	8-pole	12. 13. Voltag 0 1 50 Hz 0 2 50 Hz 0 4 50 Hz 0 6 50 Hz 1 7 60 Hz 1 8 60 Hz 2 1 50 Hz	230 VΔ (Ex eb, Ex di 400 VY, 60 Hz 460 V 400 VΔ, 60 Hz 460 V 690 VY 220 VΔ/380 VY 230 VΔ/400 VY 220 VΔ/380 VY, 60 I ard induction motor	b and Ex db eb mor vY VΔ Hz 440 VY rs)		0Termina at the to1Termina at the to2Termina termina3Termina termina4Termina	I box base left with t op (only 1LE5/1MB5) Il box base right with op (only 1LE5/1MB5) Il box base left with c I box 45° (only 1LE5/ Il box 45° (only 1LE5/	terminal box 1 terminal box 2 bblique 11MB5) 1 oblique 11MB5)
1LE1003-1DB23 4GB5-Z H00 → 1LE1 IEC motor → Aluminum housing, IE3 = 003 → Shaft height 160 (1D) → 4-pole (B) → Construction length code 2 (corresponds to	→ 1MB ² → Cast i → Ex ec → IE3 Pi io 11 kW) → Shaft → 2-pol	1 IEC motor for h iron housing, Bas IIC T3 protection remium Efficience t height 90 (0E) le (A)	nazardous areas sic Line (5) n type (3)	ds to 2.2 kW)	 3. 1LE1/5, 1FP² O Aluminium h Cast iron hot 5 Basic Line 6 Performance 7 ABNT Line I 8 Premium in 	1, 1MB1/5 nousing using: :e Line R3 (for 1LE5)	 1LE1/5, FP1, 1MB1/5 Motors with IE2 High Efficiency (or 1LE1 pole-changing motor with one winding) Motors with IE1 Standard Efficiency (or 1LE1 pole-changing motor with two windings) 	*standard* 0.18 kW 0.25 kW 0.37 kW 0.55 kW 0.75 kW 1.1 kW 1.5 kW 2.2 kW 3 kW	(see below) m 2-pole 0CA2 0CA3 0DA2 0DA3 0EA0 0EA4 1AA4	otors in IE3 e 4-pole 0CB2 0CB3 0DB2 0DB3 0EB0 0EB4 1AB4	efficiency class 6-pole 0CC2 0CC3 0DC2 0DC3 0EC0 0EC4 1AC4 1BC2 1CC0	8-pole	12. 13. Voltag 0 1 50 Hz 0 2 50 Hz 0 4 50 Hz 0 6 50 Hz 1 7 60 Hz 1 8 60 Hz 2 1 30 Hz	230 VΔ (Ex eb, Ex d 400 VΔ, 60 Hz 460 V 400 VΔ, 60 Hz 460 V 690 VΥ 220 VΔ/380 VY 230 VΔ/400 VY 220 VΔ/380 VY, 60 H	b and Ex db eb mor γΥ VΔ Hz 440 VY rs) 87 Hz 380 V		oTermina at the to at the to1Termina at the to termina2Termina termina3Termina termina4Termina termina5Termina	I box base left with t bp (only 1LE5/1MB5) I box base right with pp (only 1LE5/1MB5) I box base left with c I box 45° (only 1LE5/ I box 45° (only 1LE5/ I box 45° (only 1LE5/ I box top I box right-hand side	terminal box 1 terminal box 2 bblique 11MB5) 1 oblique 11MB5)
1LE1003-1DB23 4GB5-Z H00 → 1LE1 IEC motor → Aluminum housing, IE3 = 003 → Shaft height 160 (1D) → 4-pole (B) → Construction length code 2 (corresponds to → 400 VΔ / 690 VY at 50 Hz (3-4) → IM V1 (G)	→ 1MB ² → Cast i → Ex ec → IE3 Pi io 11 kW) → Shaft → 2-pol → Consti	1 IEC motor for h iron housing, Bas IIC T3 protection remium Efficience t height 90 (0E) le (A)	nazardous areas sic Line (5) n type (3) cy (3) code 4 (correspon	ds to 2.2 kW)	 3. 1LE1/5, 1FP² O Aluminium h Cast iron hot 5 Basic Line 6 Performance 7 ABNT Line I 8 Premium in 	1, 1MB1/5 nousing using: :e Line R3 (for 1LE5)	7. 1LE1/5, FFP1, 1MB1/5 Motors with IE2 High Efficiency (or 1LE1 pole-changing motor with one winding) Motors with IE1 Standard Efficiency (or 1LE1 pole-changing motor with two windings) motors with IE3 Premium Efficiency	*standard* 0.18 kW 0.25 kW 0.37 kW 0.55 kW 0.75 kW 1.1 kW 1.5 kW 2.2 kW 3 kW 4 kW	(see below) m 2-pole 0CA2 0CA3 0DA2 0DA3 0EA0 0EA4 1AA4 1BA2	otors in IE3 e 4-pole 0CB2 0CB3 0DB2 0DB3 0EB0 0EB4 1AB4 1AB5 1BB2	efficiency class 6-pole 0CC2 0CC3 0DC2 0DC3 0EC0 0EC4 1AC4 1BC2 1CC0 1CC2	8-pole	12. 13. Voltag 0 1 50 Hz 0 2 50 Hz 0 4 50 Hz 0 6 50 Hz 1 7 60 Hz 1 8 60 Hz 1 8 50 Hz 2 1 50 Hz 2 1 50 Hz	230 VΔ (Ex eb, Ex di 400 VY, 60 Hz 460 V 400 VΔ, 60 Hz 460 V 690 VY 220 VΔ/380 VY 230 VΔ/400 VY 220 VΔ/380 VY, 60 H ard induction motor 380 V, 60 Hz 440 V,	b and Ex db eb mot γY VΔ Hz 440 VY rs) 87 Hz 380 V D Line)		0Termina at the to at the to1Termina at the to2Termina termina3Termina termina4Termina termina5Termina termina6Termina	It box base left with t bp (only 1LE5/1MB5) It box base right with bp (only 1LE5/1MB5) It box base left with the It box 45° (only 1LE5/ It box base right with It box 45° (only 1LE5/ It box top It box right-hand side It box left-hand side	terminal box 1 terminal box 2 blique 11MB5) 1 oblique 11MB5)
1LE1003-1DB23 4GB5-Z H00 → 1LE1 IEC motor → Aluminum housing, IE3 = 003 → Shaft height 160 (1D) → 4-pole (B) → Construction length code 2 (corresponds to → 400 VΔ / 690 VY at 50 Hz (3-4) → IM V1 (G) → Motor protection: 3 PTC thermistors (B)	→ 1MB ² → Cast i → Ex ec → IE3 Pi io 11 kW) → Shaft → 2-pol → Consti	1 IEC motor for h iron housing, Bas IIC T3 protection remium Efficience t height 90 (0E) le (A) truction length c VΔ / 400 VY at 50	nazardous areas sic Line (5) n type (3) cy (3) code 4 (correspon	ds to 2.2 kW)	 3. 1LE1/5, 1FP² O Aluminium h Cast iron hot 5 Basic Line 6 Performance 7 ABNT Line I 8 Premium in 	1, 1MB1/5 nousing using: :e Line R3 (for 1LE5)	7. 1LE1/5, FFP1, 1MB1/5 Motors with IE2 High Efficiency (or 1LE1 pole-changing motor with one winding) Motors with IE1 Standard Efficiency (or 1LE1 pole-changing motor with two windings) motors with IE3 Premium Efficiency	*standard* 0.18 kW 0.25 kW 0.25 kW 0.55 kW 0.75 kW 1.1 kW 1.5 kW 2.2 kW 3 kW 4 kW 5.5 kW	(see below) m 2-pole 0CA2 0CA3 0DA2 0DA3 0EA0 0EA4 1AA4 1BA2 1CA0	otors in IE3 e 4-pole 0CB2 0CB3 0DB2 0DB3 0EB0 0EB4 1AB4 1AB5 1BB2 1CB0	Acceleration 6-pole 0CC2 0CC3 0DC2 0DC3 0EC0 0EC4 1AC4 1BC2 1CC0 1CC2 1CC2	8-pole	12. 13. Voltag 0 1 50 Hz 0 2 50 Hz 0 4 50 Hz 0 6 50 Hz 1 7 60 Hz 1 8 60 Hz 2 1 \$	230 VΔ (Ex eb, Ex dl 400 VY, 60 Hz 460 V 400 VΔ, 60 Hz 460 V 690 VY 220 VΔ/380 VY 230 VΔ/400 VY 220 VΔ/380 VY, 60 H ard induction motor 380 V, 60 Hz 440 V, 0 Line and VSD4000	b and Ex db eb mor VY VΔ Hz 440 VY rs) 87 Hz 380 V Line) Hz 460 VY		0Termina at the to1Termina termina2Termina termina3Termina termina4Termina termina5Termina termina6Termina termina7Termina	It box base left with t op (only 1LE5/1MB5) It box base right with op (only 1LE5/1MB5) It box base left with o It box base right with It box base right with It box base right with It box top It box top It box right-hand side It box left-hand side It box at bottom	terminal box 1 terminal box 2 blique 11MB5) 1 oblique 11MB5)
LE1003-1DB23 4GB5-Z H00 → 1LE1 IEC motor → Aluminum housing, IE3 = 003 → Shaft height 160 (1D) → 4-pole (B) → Construction length code 2 (corresponds to → 400 VΔ / 690 VY at 50 Hz (3-4) → IM V1 (G) → Motor protection: 3 PTC thermistors (B) → Terminal box on RHS (5)	→ 1MB ² → Cast i → Ex ec → IE3 Pi io 11 kW) → Shaft → 2-pol → Const → 230 \ → IM B3	1 IEC motor for h iron housing, Bas IIC T3 protection remium Efficience t height 90 (0E) le (A) truction length c VΔ / 400 VY at 50	nazardous areas sic Line (5) n type (3) cy (3) code 4 (correspon 0 Hz (2-2)	ds to 2.2 kW)	 3. 1LE1/5, 1FP² O Aluminium h Cast iron hot 5 Basic Line 6 Performance 7 ABNT Line I 8 Premium in 	1, 1MB1/5 nousing using: :e Line R3 (for 1LE5)	1LE1/5, FP1, 1MB1/5 Motors with IE2 High Efficiency (or 1LE1 pole-changing motor with one winding) Motors with IE1 Standard Efficiency (or 1LE1 pole-changing motor with two windings) Motors with IE3 Premium Efficiency Motors with IE4 Super Premium Efficiency (including VSD4000) IE2 with reduced starting current Ia/In = 600% (1MB T IE3 with reduced starting Current Ia/In = 600% (1MB T IE3 with reduced starting Current Ia/In = 600% (1MB T IE3 with reduced starting Current Ia/In = 600% (1MB T IE3 with reduced starting Current Ia/In = 600% (1MB T IE3 with reduced starting Current Ia/In = 600% (1MB T IE3 with reduced starting Current Ia/In = 600% (1MB T IE3 with reduced starting T IE3 with reduced starting Current Ia/In = 600% (1MB T IE3 with reduced starting T IE3 with reduced starting Current Ia/In = 600% (1MB T IE3 with reduced starting Current Ia/In = 600% (1MB T IE3 with reduced starting Current Ia/In = 600% (1MB T IE3 with reduced starting Current Ia/In = 600% (1MB T IE3 with reduced starting T IE	*standard* 0.18 kW 0.25 kW 0.37 kW 0.55 kW 0.75 kW 1.1 kW 1.5 kW 2.2 kW 3 kW 4 kW	(see below) m 2-pole 0CA2 0CA3 0DA2 0DA3 0EA0 0EA4 1AA4 1BA2	otors in IE3 e 4-pole 0CB2 0CB3 0DB2 0DB3 0EB0 0EB4 1AB4 1AB5 1BB2	efficiency class 6-pole 0CC2 0CC3 0DC2 0DC3 0EC0 0EC4 1AC4 1BC2 1CC0 1CC2	8-pole	12. 13. Voltag 0 1 50 Hz 0 2 50 Hz 0 4 50 Hz 0 6 50 Hz 1 7 60 Hz 1 8 60 Hz 2 1 50 Hz 2 2 50 Hz 2 2 50 Hz 2 3 50 Hz 2 6 50 Hz	230 VΔ (Ex eb, Ex dl 400 VΔ, 60 Hz 460 V 400 VΔ, 60 Hz 460 V 690 VY 220 VΔ/380 VY 230 VΔ/400 VY 220 VΔ/380 VY, 60 H ard induction motor 380 V, 60 Hz 440 V, 0 Line and VSD4000 230 VΔ/400 VY, 60 H 240 VΔ/415 VY, 60 H	b and Ex db eb mor γY VΔ Hz 440 VY rs) 87 Hz 380 V D Line) Hz 460 VY Hz 480 VY		OTermina at the to at the to1Termina at the to2Termina termina3Termina termina4Termina termina5Termina termina6Termina termina7Termina termina9Termina	It box base left with t bp (only 1LE5/1MB5) It box base right with bp (only 1LE5/1MB5) It box base left with the It box 45° (only 1LE5/ It box base right with It box 45° (only 1LE5/ It box top It box right-hand side It box left-hand side	terminal box 1 terminal box 2 blique 11MB5) 1 oblique 11MB5)
1LE1003-1DB23 4GB5-Z H00 → 1LE1 IEC motor → Aluminum housing, IE3 = 003 → Shaft height 160 (1D) → 4-pole (B) → Construction length code 2 (corresponds to + 400 V∆ / 690 VY at 50 Hz (3-4)	→ 1MB ² → Cast i → Ex ec → IE3 Pi io 11 kW) → Shaft → 2-pol → Const → 230 \ → IM B2 → Witho	1 IEC motor for h iron housing, Bas IIC T3 protection remium Efficience t height 90 (0E) le (A) truction length c VΔ / 400 VY at 50 3 (A)	nazardous areas sic Line (5) n type (3) cy (3) code 4 (correspon 0 Hz (2-2) ction (A)	ds to 2.2 kW)	 3. 1LE1/5, 1FP² O Aluminium h Cast iron hot 5 Basic Line 6 Performance 7 ABNT Line I 8 Premium in 	1, 1MB1/5 nousing using: :e Line R3 (for 1LE5)	7. 1LE1/5, FP1, 1MB1/5 Motors with IE2 1 High Efficiency motor with one winding) Motors with IE1 Standard Efficiency (or 1LE1 pole-changing motor with true windings) Motors with IE3 Premium Efficiency Motors with IE3 Premium Efficiency (including VSD4000) IE2 with reduced starting current Ia/In = 600% (1ME	(*************************************	(see below) m 2-pole 0CA2 0CA3 0DA3 0DA3 0EA0 0EA4 1AA4 1BA2 1CA0 1CA0 1CA1 1DA2 1DA3	otors in IE3 e 4-pole 0CB2 0CB3 0DB2 0DB3 0EB0 0EB4 1AB4 1AB4 1AB5 1BB2 1CB0 1CB0 1CB2 1DB2 1DB4	efficiency class 6-pole 0CC2 0CC3 0DC2 0DC3 0EC0 0EC4 1AC4 1BC2 1CC2 1CC2 1CC2 1CC3 1DC2 1DC4 1EC4	8-pole	12. 13. Voltag 0 1 50 Hz 0 2 50 Hz 0 4 50 Hz 0 6 50 Hz 1 7 60 Hz 1 7 60 Hz 1 8 60 Hz 2 1 Stand St	230 VΔ (Ex eb, Ex dl 400 VΔ, 60 Hz 460 V 400 VΔ, 60 Hz 460 V 690 VY 220 VΔ/380 VY 220 VΔ/380 VY 220 VΔ/380 VY 220 VΔ/380 VY, 60 Hz ard induction motor 380 V, 60 Hz 440 V, 0 Line and VSD4000 230 VΔ/400 VY, 60 Hz 240 VΔ/415 VY, 60 Hz 480 V, 60 Hz 550 V, 0 Line)	b and Ex db eb mor vY VΔ Hz 440 VY rs) 87 Hz 380 V D Line) Hz 460 VY Hz 480 VY 87 Hz 480 V		0Termina at the to at the to1Termina at the to2Termina termina3Termina termina4Termina termina5Termina termina6Termina termina7Termina termina8Termina termina	It box base left with t bp (only 1LE5/1MB5) It box base right with pp (only 1LE5/1MB5) It box base left with of I box 45° (only 1LE5/ It box 45° (only 1LE5/ It box base right with I box 45° (only 1LE5/ It box top It box right-hand side It box left-hand side It box at bottom It box non drive end	terminal box 1 terminal box 2 bblique 11MB5) 10blique 11MB5)
1LE1003-1DB23 4GB5-Z H00 → 1LE1 IEC motor → Aluminum housing, IE3 = 003 → Shaft height 160 (1D) → 4-pole (B) → Construction length code 2 (corresponds to → 400 VΔ / 690 VY at 50 Hz (3-4) → IM V1 (G) → Motor protection: 3 PTC thermistors (B) → Terminal box on RHS (5)	→ 1MB ² → Cast i → Ex ec → IE3 Pi io 11 kW) → Shaft → 2-pol → Const → 230 \ → IM B2 → Witho	1 IEC motor for h iron housing, Bas IIC T3 protection remium Efficience t height 90 (0E) le (A) truction length c VΔ / 400 VY at 50 3 (A) pout motor protect	nazardous areas sic Line (5) n type (3) cy (3) code 4 (correspon 0 Hz (2-2) ction (A)	ds to 2.2 kW)	 1LE1/5, 1FP Aluminium h Cast iron hot Basic Line Performanc ABNT Line I Premium in (for 1MB) 	1, 1MB1/5 nousing using: re Line R3 (for 1LE5) Isulation system	7. 1LE1/5, rFP1, 1MB1/5 Motors with IE2 High Efficiency (or 1LE1 pole-changing motor with one winding) Motors with IE1 2 Standard Efficiency (or 1LE1 pole-changing motor with two windings) Premium Efficiency (or 1LE1 pole-changing motor with tE3 Premium Efficiency Motors with IE3 Premium Efficiency (including VSD4000) 6 IE2 with reduced starting current Ia/In = 60% (1MI 7 IE3 with reduced starting current Ia/In = 700% (1MI	(*************************************	(see below) m 2-pole 0CA2 0CA3 0DA3 0DA3 0EA0 0EA4 1AA4 1BA2 1CA0 1CA1 1DA2 1DA3 1DA4	otors in IE3 e 4-pole 0CB2 0CB3 0DB2 0DB3 0EB0 0EB4 1AB4 1AB5 1BB2 1CB0 1CB2 1CB2 1DB4 1EB2	efficiency class 6-pole 0CC2 0CC3 0DC2 0DC3 0EC0 0EC4 1AC4 1BC2 1CC2 1CC2 1CC2 1CC3 1DC2 1DC4 1EC4 2AC4	8-pole	12. 13. Voltag 0 1 50 Hz 0 2 50 Hz 0 4 50 Hz 0 6 50 Hz 1 7 60 Hz 1 7 60 Hz 1 8 60 Hz 2 1 S0 Hz 2 2 50 Hz 2 2 50 Hz 2 3 50 Hz 2 3 50 Hz 2 3 50 Hz 2 6 50 Hz 2 7 50 Hz	230 VΔ (Ex eb, Ex dl 400 VΔ, 60 Hz 460 V 400 VΔ, 60 Hz 460 V 690 VY 220 VΔ/380 VY 230 VΔ/400 VY 220 VΔ/380 VY, 60 H ard induction motor 380 V, 60 Hz 440 V, 0 Line and VSD4000 230 VΔ/400 VY, 60 H 240 VΔ/415 VY, 60 H	b and Ex db eb mor γγ VΔ Hz 440 VY rs) 87 Hz 380 V D Line) Hz 460 VY Hz 480 VY 87 Hz 480 V γγ		0Termina at the to at the to1Termina at the to2Termina termina3Termina termina4Termina termina5Termina termina6Termina termina7Termina termina8Termina termina9Other (G must be	It box base left with t bp (only 1LE5/1MB5) It box base right with op (only 1LE5/1MB5) It box base right with It box 45° (only 1LE5/ It box base right with It box 45° (only 1LE5/ It box top It box right-hand side It box right-hand side It box non drive end PC1423 roller table) ag. bottom on side), specified by option -	terminal box a terminal box oblique (1MB5) (1MB5)
1LE1003-1DB23 4GB5-Z H00 → 1LE1 IEC motor → Aluminum housing, IE3 = 003 → Shaft height 160 (1D) → 4-pole (B) → Construction length code 2 (corresponds to → 400 VΔ / 690 VY at 50 Hz (3-4) → IM V1 (G) → Motor protection: 3 PTC thermistors (B) → Terminal box on RHS (5)	→ 1MB ² → Cast i → Ex ec → IE3 Pi io 11 kW) → Shaft → 2-pol → Const → 230 \ → IM B2 → Witho	1 IEC motor for h iron housing, Bas IIC T3 protection remium Efficience t height 90 (0E) le (A) truction length c VΔ / 400 VY at 50 3 (A) pout motor protect	nazardous areas sic Line (5) n type (3) cy (3) code 4 (correspon 0 Hz (2-2) ction (A)	ds to 2.2 kW)	 1LE1/5, 1FP Aluminium h Cast iron hot Basic Line Performanc ABNT Line I Premium in (for 1MB) 	1, 1MB1/5 nousing using: R3 (for 1LE5) Isulation system	7. 1LE1/5, rFP1, 1MB1/5 Motors with IE2 High Efficiency (or 1LE1 pole-changing motor with one winding) Motors with IE1 2 Standard Efficiency (or 1LE1 pole-changing motor with two windings) 3 Premium Efficiency (including VSD4000) 6 IE2 with reduced starting current Ia/In = 600% (11ME 7 LE3 with reduced starting current Ia/In = 700% (11ME	(*************************************	(see below) m 2-pole 0CA2 0CA3 0DA2 0DA3 0EA0 0EA4 1AA4 1BA2 1CA0 1CA1 1DA2 1DA3 1DA4 1EA2	otors in IE3 e 4-pole 0CB2 0CB3 0DB2 0DB3 0EB0 0EB4 1AB4 1AB4 1AB5 1BB2 1CB0 1CB2 1DB2 1DB4 1EB2 1EB4	efficiency class 6-pole 0CC2 0CC3 0DC2 0DC3 0EC0 0EC4 1AC4 1BC2 1CC3 1CC2 1CC3 1DC2 1DC4 1BC4 1DC4 1EC4 2AC4 2AC5	8-pole	12. 13. Voltag 0 1 50 Hz 0 2 50 Hz 0 4 50 Hz 0 6 50 Hz 1 7 60 Hz 1 7 60 Hz 1 8 60 Hz 2 1 S0 Hz 2 2 50 Hz 2 2 50 Hz 2 3 50 Hz 2 6 S0 Hz 2 6 50 Hz 2 7 S0 Hz	230 VΔ (Ex eb, Ex dl 400 VY, 60 Hz 460 V 400 VΔ, 60 Hz 460 V 690 VY 220 VΔ/380 VY 230 VΔ/400 VY 220 VΔ/380 VY, 60 H ard induction motor 380 V, 60 Hz 440 V, 0 Line and VSD4000 230 VΔ/400 VY, 60 H 240 VΔ/415 VY, 60 H 480 V, 60 Hz 550 V, 0 Line)	b and Ex db eb mor vY VΔ Hz 440 VY rs) 87 Hz 380 V D Line) Hz 460 VY Hz 480 VY 87 Hz 480 V vY Y)	tors)	0Termina at the to at the to1Termina at the to2Termina termina3Termina termina4Termina termina5Termina termina6Termina termina7Termina termina8Termina termina9Other (G must be	I box base left with t box base left with t box base right with p (only 1LE5/1MB5) I box base right with of I box 45° (only 1LE5/ I box 45° (only 1LE5/ I box 45° (only 1LE5/ I box top I box right-hand side I box left-hand side I box non drive end PC1423 roller table) ag. bottom on side),	terminal box a terminal box oblique (1MB5) oblique (1MB5)
1LE1003-1DB23 4GB5-Z H00 → 1LE1 IEC motor → Aluminum housing, IE3 = 003 → Shaft height 160 (1D) → 4-pole (B) → Construction length code 2 (corresponds to → 400 VΔ / 690 VY at 50 Hz (3-4) → IM V1 (G) → Motor protection: 3 PTC thermistors (B) → Terminal box on RHS (5)	→ 1MB ² → Cast i → Ex ec → IE3 Pi io 11 kW) → Shaft → 2-pol → Const → 230 \ → IM B2 → Witho	1 IEC motor for h iron housing, Bas IIC T3 protection remium Efficience t height 90 (0E) le (A) truction length c VΔ / 400 VY at 50 3 (A) pout motor protect	nazardous areas sic Line (5) n type (3) cy (3) code 4 (correspon 0 Hz (2-2) ction (A)	ds to 2.2 kW)	 1LE1/5, 1FP Aluminium h Cast iron hot Basic Line Performanc ABNT Line I Premium in (for 1MB) 	1, 1MB1/5 nousing using: R3 (for 1LE5) Isulation system ustry specific mot	7. 1LE1/5, rFP1, 1MB1/5 Motors with IE2 High Efficiency (or 1LE1 pole-changing motor with one winding) Motors with IE1 2 Standard Efficiency (or 1LE1 pole-changing motor with two windings) 3 Motors with IE3 9 Motors with IE4 4 Super Premium Efficiency (including VSD4000) 6 IE2 with reduced starting current Ia/In = 60% (1MI 7 7 IE3 with reduced starting current Ia/In = 700% (1MI 7 tor types – 1PC1 vithout external fan – IE2 efficiency	(*************************************	(see below) mo 2-pole 0CA2 0CA3 0DA2 0DA3 0EA0 0EA4 1AA4 1BA2 1CA0 1CA1 1DA2 1DA3 1DA4 1EA2 2AA4	ators in IE3 e 4-pole 0CB2 0CB3 0DB2 0DB3 0E80 0E84 1AB4 1AB5 1BB2 1CB0 1CB2 1DB2 1DB4 1EB4 2AB5	efficiency class 6-pole 0CC2 0CC3 0DC2 0DC3 0EC0 0EC4 1AC4 1BC2 1CC0 1CC2 1CC2 1CC2 1CC4 1BC2 1DC4 1EC4 2AC4 2AC4 2BC2	8-pole	12. 13. Voltag 0 1 50 Hz 0 2 50 Hz 0 4 50 Hz 0 6 50 Hz 1 7 60 Hz 1 7 60 Hz 1 8 60 Hz 2 1 Stand Stand (Stand (VSD1) 2 2 50 Hz 2 3 50 Hz 2 6 Stand (VSD1) 2 7 Stand (Some 3 0 60 Hz	230 VΔ (Ex eb, Ex dl 400 VY, 60 Hz 460 V 400 VΔ, 60 Hz 460 V 690 VY 220 VΔ/380 VY 230 VΔ/400 VY 220 VΔ/380 VY 230 VΔ/400 VY 60 Hz 420 V, 0 Line and VSD4000 230 VΔ/415 VY, 60 H 240 VΔ/415 VY, 60 H 480 V, 60 Hz 550 V, 0 Line) 500 VY, 60 Hz 575 V types not for 575 V	b and Ex db eb mor VY VΔ Hz 440 VY rs) 87 Hz 380 V D Line) Hz 460 VY Hz 480 VY 87 Hz 480 V VY Y) ne types not for 66	tors)	0Termina at the to at the to1Termina at the to2Termina termina3Termina termina4Termina termina5Termina termina6Termina termina7Termina termina8Termina termina9Other (G must be	It box base left with t bp (only 1LE5/1MB5) It box base right with op (only 1LE5/1MB5) It box base right with It box 45° (only 1LE5/ It box base right with It box 45° (only 1LE5/ It box top It box right-hand side It box right-hand side It box non drive end PC1423 roller table) ag. bottom on side), specified by option -	terminal box a terminal box oblique (1MB5) (1MB5)
1LE1003-1DB23 4GB5-Z H00 → 1LE1 IEC motor → Aluminum housing, IE3 = 003 → Shaft height 160 (1D) → 4-pole (B) → Construction length code 2 (corresponds to → 400 VΔ / 690 VY at 50 Hz (3-4) → IM V1 (G) → Motor protection: 3 PTC thermistors (B) → Terminal box on RHS (5)	→ 1MB ² → Cast i → Ex ec → IE3 Pi io 11 kW) → Shaft → 2-pol → Const → 230 \ → IM B2 → Witho	1 IEC motor for h iron housing, Bas IIC T3 protection remium Efficience t height 90 (0E) le (A) truction length c VΔ / 400 VY at 50 3 (A) pout motor protect	nazardous areas sic Line (5) n type (3) cy (3) code 4 (correspon 0 Hz (2-2) ction (A)	ds to 2.2 kW)	5. 1LE1/5, TFP 0 Aluminium h Cast iron hot 5 5 Basic Line 6 Performance 7 ABNT Line I 8 Premium in (for 1MB) 5 6. 7. 0 0 1 0 0 2 0 0 2	1, 1MB1/5 nousing using: re Line R3 (for 1LE5) Isulation system ustry specific mot -cooled motors w -cooled motors w	1LE1/5, rFP1, 1MB1/5 Motors with IE2 High Efficiency for 1LE1 pole-changing motor with one winding) Motors with IE1 Standard Efficiency (or 1LE1 pole-changing motor with two windings) Motors with IE3 Premium Efficiency Motors with IE4 Super Premium Efficiency (including VS04000) E12 with reduced starting current Ia/In = 600% (1ME T IE3 with reduced starting current Ia/In = 700% (1ME tor types – 1PC1 vithout external fan – IE2 efficiency	(*************************************	(see below) m 2-pole 0CA2 0CA3 0DA2 0DA3 0EA0 0EA4 1AA4 1BA2 1CA0 1CA1 1DA2 1DA3 1DA4 1EA2	otors in IE3 e 4-pole 0CB2 0CB3 0DB2 0DB3 0EB0 0EB4 1AB4 1AB4 1AB5 1BB2 1CB0 1CB2 1DB2 1DB4 1EB2 1EB4	efficiency class 6-pole 0CC2 0CC3 0DC2 0DC3 0EC0 0EC4 1AC4 1BC2 1CC3 1CC2 1CC3 1DC2 1DC4 1BC4 1DC4 1EC4 2AC4 2AC5	8-pole	12. 13. Voltag 0 1 50 Hz 0 2 50 Hz 0 4 50 Hz 0 6 50 Hz 1 7 60 Hz 1 8 60 Hz 1 8 60 Hz 2 2 50 Hz 2 2 50 Hz 2 3 50 Hz 2 6 50 Hz 2 6 50 Hz 2 7 50 Hz 3 0 60 Hz 3 1 60 Hz 3 1 60 Hz	230 VΔ (Ex eb, Ex dl 400 VY, 60 Hz 460 V 400 VΔ, 60 Hz 460 V 690 VY 220 VΔ/380 VY 230 VΔ/400 VY 220 VΔ/380 VY, 60 H ard induction motor 380 V, 60 Hz 440 V, 0 Line and VSD4000 230 VΔ/400 VY, 60 H 240 VΔ/415 VY, 60 H 480 V, 60 Hz 550 V, 0 Line) 500 VY, 60 Hz 555 V 380 VΔ/660 VY (son 400 VΔ/690 VY (son 380 VΔ/660 VY, 60 H	b and Ex db eb mor γY VΔ Hz 440 VY rs) 87 Hz 380 V Uine) Hz 460 VY Hz 480 VY 87 Hz 480 V γY Y) ne types not for 66 ne types not for 69 Hz 440 VΔ	tors)	0Termina at the to at the to1Termina at the to2Termina termina3Termina termina4Termina termina5Termina termina6Termina termina7Termina termina8Termina termina9Other (G must be	It box base left with t bp (only 1LE5/1MB5) It box base right with op (only 1LE5/1MB5) It box base right with It box 45° (only 1LE5/ It box base right with It box 45° (only 1LE5/ It box top It box right-hand side It box right-hand side It box non drive end PC1423 roller table) ag. bottom on side), specified by option -	terminal box a terminal box oblique (1MB5) (1MB5)
1LE1003-1DB23 4GB5-Z H00 → 1LE1 IEC motor → Aluminum housing, IE3 = 003 → Shaft height 160 (1D) → 4-pole (B) → Construction length code 2 (corresponds to → 400 VΔ / 690 VY at 50 Hz (3-4) → IM V1 (G) → Motor protection: 3 PTC thermistors (B) → Terminal box on RHS (5)	→ 1MB ² → Cast i → Ex ec → IE3 Pi io 11 kW) → Shaft → 2-pol → Const → 230 \ → IM B2 → Witho	1 IEC motor for h iron housing, Bas IIC T3 protection remium Efficience t height 90 (0E) le (A) truction length c VΔ / 400 VY at 50 3 (A) pout motor protect	nazardous areas sic Line (5) n type (3) cy (3) code 4 (correspon 0 Hz (2-2) ction (A)	ds to 2.2 kW)	5. 1LE1/5, TFP 0 Aluminium h Cast iron hot 5 5 Basic Line 6 Performance 7 ABNT Line I 8 Premium in (for 1MB) 5 6. 7. 0 0 1 0 0 2 3 4 1	1, 1MB1/5 nousing using: re Line R3 (for 1LE5) Isulation system ustry specific mot -cooled motors w -cooled motors w	7. 1LE1/5, rFP1, 1MB1/5 Motors with IE2 High Efficiency 1 Gotors with one winding) Motors with IE1 2 Standard Efficiency (or 1LE1 pole-changing motor with one windings) 3 Motors with IE3 9 Premium Efficiency (including V504000) 6 IE2 with reduced starting current Ia/In = 600% (1MB 7 IE3 with reduced starting current Ia/In = 700% (1MB tor types – 1PC1 vithout external fan – IE2 efficiency vithout external fan – IE2 efficiency vithout external fan – IE1 efficiency vithout external fan – IE1 efficiency	(*************************************	(see below) m 2-pole 0CA2 0CA3 0DA2 0DA3 0EA0 0EA4 1AA4 1BA2 1CA0 1CA1 1DA2 1DA3 1DA4 1EA2 2AA4 2AA5	ators in IE3 e 4-pole 0CB2 0CB3 0DB2 0DB3 0E80 0E84 1AB4 1AB5 1BB2 1CB0 1CB2 1DB4 1BB2 1DB4 1EB4 2AB5 2BB0	efficiency class 6-pole 0CC2 0CC3 0DC2 0DC3 0EC0 0EC4 1AC4 1BC2 1CC0 1CC2 1CC3 1DC2 1DC2 1DC4 1EC4 2AC4 2AC5 2BC2 2CC2	8-pole 	12. 13. Voltag 0 1 50 Hz 0 2 50 Hz 0 4 50 Hz 0 6 50 Hz 1 7 60 Hz 1 7 60 Hz 1 7 60 Hz 2 1 Stand SO Hz 2 2 50 Hz 2 3 50 Hz 2 3 50 Hz 2 7 Stand O Hz 3 0 60 Hz 3 1 60 Hz 3 0 50 Hz 3 0 50 Hz	230 VΔ (Ex eb, Ex dl 400 VY, 60 Hz 460 V 400 VΔ, 60 Hz 460 V 690 VY 220 VΔ/380 VY 230 VΔ/400 VY 220 VΔ/380 VY 220 VΔ/380 VY 230 VΔ/400 VY, 60 Hz 240 VΔ/415 VY, 60 H 240 VΔ/415 VY, 60 H 480 V, 60 Hz 550 V, 0 Line) 500 VY, 60 Hz 575 V 380 VΔ/660 VY (son 400 VΔ/690 VY (son	b and Ex db eb mor γΥ VΔ Hz 440 VY rs) 87 Hz 380 V D Line) Hz 460 VY Hz 480 VY 87 Hz 480 V γΥ γ) ne types not for 69 Hz 440 VΔ rs, some types	tors)	0Termina at the to at the to1Termina at the to2Termina termina3Termina termina4Termina termina5Termina termina6Termina termina7Termina termina8Termina termina9Other (c) must be	It box base left with t bp (only 1LE5/1MB5) It box base right with op (only 1LE5/1MB5) It box base right with It box 45° (only 1LE5/ It box base right with It box 45° (only 1LE5/ It box top It box right-hand side It box right-hand side It box non drive end PC1423 roller table) ag. bottom on side), specified by option -	terminal box a terminal box oblique (1MB5) o oblique (1MB5)

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Special Series DI MC LVM EU PPM 3

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623 1MB1633 1MB5513 1MB5523 1MB5533 1M

50 Hz 400 V∆/690 VY, 60 Hz 460 V∆ (some types not for 690 VY) 5 50 Hz 415 VΔ, 60 Hz 480 VΔ 50 Hz 500 VΔ, 60 Hz 575 VΔ some types not for 575 V∆) 4 50 Hz 600 VΔ, 60 Hz 690 VΔ 50 Hz 660 VA 50 Hz 690 VA 60 Hz 230 VYY/460 VY, 50 Hz power, 9 main terminals and electrical version according to NEMA 60 Hz 230 VYY/460 VY, 60 Hz power, 9 main terminals and electrical version according to NEMA 60 Hz 230 VΔΔ/460 VΔ, 50 Hz power, 12 main terminals and electrical version according to NEMA 60 Hz 230 VΔΔ/460 VΔ, 60 Hz power, 12 main terminals and electrical versio according to NEMA 60 Hz 220 VΔΔ/380 VYY, 440 VΔ, 50 Hz power (ABNT Line)

4. Type of construction

IM B3, IM B6, IM B7, IM B8, IM V5, IM V6,

- Other (typically 60 Hz, 87 Hz or non-standard), must be specified by option code Mxx
- Note for Ex eb, Ex db and Ex db eb motors: standard voltage codes are usually only valid for 50 Hz, not 60 Hz