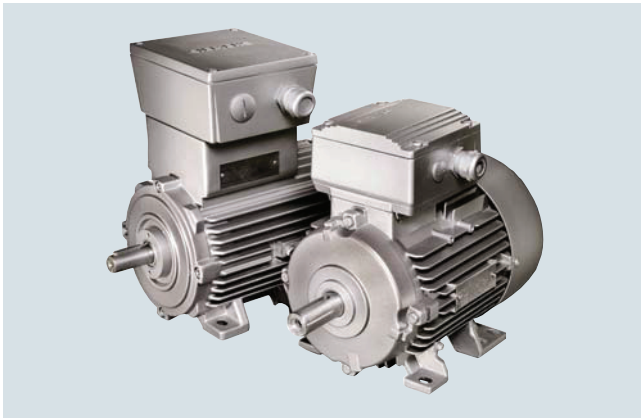




## Orientation

### 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.

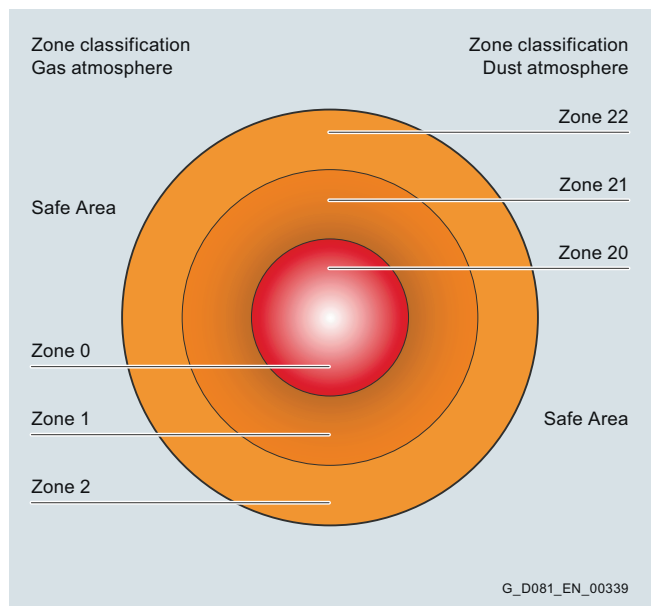
The local conditions must be subdivided into specified zones by the user with the assistance of the responsible authorities in accordance with the frequency of occurrence of an explosion hazard. Device (equipment) categories are assigned to these zones. The zones are then subdivided into possible types 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	Assigned types of protection	Category according to 2014/34/EU	Equipment protection level acc. to IEC/EN 60079-0
Gas 1) 2)	IEC/EN 60079-10-1 for gas atmospheres IEC/EN 60079-10-2 for dust atmospheres			
0	An area in which there is an explosive gas atmosphere <b>constantly, over a long period</b> or <b>frequently</b> .	Low voltage motors not permitted	1	Ga
1	An area in which it is expected that an explosive gas atmosphere will occur <b>occasionally</b> 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 <b>rarely</b> and then only <b>briefly</b> during normal operation.	Ex ec	3	Gc
- 20	An area in which there is an explosive gas atmosphere comprising a dust-air mixture <b>constantly, over a long period</b> or <b>frequently</b> .	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 <b>occasionally</b> during normal operation.	Ex tb	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 <b>rarely</b> and then only <b>briefly</b> during normal operation.	Ex tc <sup>3)</sup>	3	Dc

1) Motors of  
- Zone 1 can also be used in Zone 2  
- Zone 21 can also be used in Zone 22

2) 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:

#### Example "Non-sparking":

	CE	0158	Ⓔ	II	3	G	Ex	ec	IIC	T3	Gc
CE marking											
Number of the certifying "notified" body (0158 = EXAM)											
Explosion protection marking											
Device group:	I = Underground II = All other areas										
Category:	2 (Zone 1/21) 3 (Zone 2/22)										
Ex atmosphere	G = Gas D = Dust										
Explosion protected equipment											
Type of protection nA, d, de, e, tb or tc (de = Ex d motor housing with Ex eb terminal box)											
Explosion group and explosion subgroup	II = Gas (IIA, IIB or IIC) III = Dust (IIIA, IIIB or IIIC)										
Temperature class with max. surface temperature	T1 = 450 °C    T4 = 135 °C T2 = 300 °C    T5 = 100 °C T3 = 200 °C    T6 = 85 °C										
Equipment protection level (G = Gas; D = Dust):	Ga = Very high protection,    Da = Very high protection, Gb = High protection,        Db = High protection, Gc = Increased protection,    Dc = Increased protection										

Additional information on the subject of explosion protection, types of protection and zones is provided in the Siemens brochure "Explosion Protection".

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

## Orientation

### 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	Category	Zone	Frequency of occurrence of the Ex atmosphere	Type of protection	Temperature class	Equipment protection level	Degree of protection	Motor type and if applicable order code	Operation	Order code	Utilization according to temperature class	Standard
Gases and vapors (G)	1G	0	constantly or long-term	Not admissible with low-voltage motors								
	2G	1	occasionally	Ex de IIC <sup>1)</sup> (explosion-proof enclosure)	T1 – T4	Gb	IP55	1MD5, 1PS5	Line Converter	– <b>A15</b> <b>A16</b>	130 (B) 155 (F)	IEC/EN 60079-0 IEC/EN 60079-1 IEC/EN 60079-7
				Ex eb IIC <sup>1)</sup> (increased safety)	T1 – T3	Gb	IP55	1MA6, 1MA7	Line	–	130 (B)/ 155 (F) <sup>3)</sup>	IEC/EN 60079-0 IEC/EN 60079-7
	3G	2	rarely or briefly	Ex ec IIC <sup>1)</sup> (non-sparking)	T1 – T3	Gc	IP55	1LA6, 1LA7, 1LA8, 1PQ8 <sup>2)</sup> , 1LA9, 1LG4/6	Line Converter	<b>M72</b> <b>M73</b>	130 (B)	IEC/EN 60079-0 IEC/EN 60079-15
1MB103, 1MB153, 1MB163								Line Converter	<b>B40</b> <b>B41</b>			
Dust (D)	1D	20	constantly or long-term	Not admissible with low-voltage motors								
	2D	21	occasionally	Ex tb IIIC <sup>1)</sup> : conductive and non-conductive dust	Max. housing temperature T 125 °C <sup>6)</sup>	Db	IP65	1LA5, 1LA6, 1LA7, 1LA8 <sup>4)</sup> , 1PQ8 <sup>2)</sup> , 1LA9, 1LG4/6	Line Converter	<b>M34</b> <b>M38</b>	130 (B)	IEC/EN 60079-0 IEC/EN 60079-31
								1MB101/2, 1MB151/2, 1MB161/2	Line Converter	<b>M35</b> <b>M39</b>		
3D	22	rarely or briefly	Ex tc IIIB <sup>1)</sup> : non-conductive dust		Dc	IP55			Line Converter	<b>B40</b> <b>B41</b>		
Gases and vapors (G) and dusts (D) <sup>5)</sup>	2G	1 or 21	occasionally	Ex de IIC <sup>1)</sup> (explosion-proof enclosure)/ Ex tb IIIC <sup>1)</sup> : conductive and non-conductive dust	T1 – T4/ Max. housing temperature T 135 °C	Gb Db	IP65	1MD5, 1PS5	Line Converter	<b>W21</b> <b>W23</b>	130 (B) 155 (F)	IEC/EN 60079-0 IEC/EN 60079-1 IEC/EN 60079-31
	3G 3D	2 or 22	rarely or briefly						Ex nA IIC <sup>1)</sup> (Non-Sparking)/ Ex tc IIIB: non-conductive dust	T1 – T3/ Max. enclosure temperature T 125 °C <sup>6)</sup>	Gc Dc	IP55
				1MB103 +B30, 1MB153 +B30, 1MB163 +B30	Line Converter	<b>B40</b> <b>B41</b>						

<sup>1)</sup> 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.

<sup>2)</sup> 1PQ8 not possible for Zone 21. Zones 2 and 22 for 1PQ8 available on request. Utilization according to temperature class 155 (F).

<sup>3)</sup> See EU type-examination certificate.

<sup>4)</sup> 1LA8 only available for Zone 22 (order codes **M35**, **M39**). Converter: Utilization as standard according to temperature class 155 (F)

<sup>5)</sup> 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.

<sup>6)</sup> 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

## Orientation

### 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  $\pm 10\%$ .

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  $< 200\ \mu\text{m}$  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  $> 200\ \mu\text{m}$  to  $< 2\ \text{mm}$  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 design.

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  $+40\ \text{°C}$
- Optional:  $-40$  to  $+40\ \text{°C}$  (order code **D03**)
- Optional:  $-20$  to  $+60\ \text{°C}$  (order codes **N05, N06, N07, N08**)

From  $40\ \text{°C}$ , the power is reduced.

Other temperatures are available on request.

The rating plate or the additional rating plate contains the text:

 II 3G Ex ec IIC T3 Gc  
and number of the "type test certificate"

<sup>1)</sup> Zone 21 only up to frame size 315 L.

<sup>2)</sup> Zone 21 includes conductive and non-conductive dust.

<sup>3)</sup> IE1:  $T140\ \text{°C}$   
IE2:  $T120\ \text{°C}$  (except  $T130\ \text{°C}$  for 1MB1.11-1AD5, 1MB1.11-3AD6, 1MB1.21-1AD5 and 1MB1.21-3AD6)  
IE3:  $T120\ \text{°C}$

##### 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 <sup>1)</sup> for Zone 21  
- Version for Zone 21 <sup>2)</sup>, as well as Zone 22 for conductive dust (IP65) and line operation (1MB101, 1MB151, 1MB161)
- Ex tc IIIB acc. to IEC/EN 60079-31 <sup>1)</sup> 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  $\leq 120\ \text{°C}$  for rated operation <sup>3)</sup>.



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:  II 2D Ex tb IIIC T120 °C Db <sup>3)</sup>
- Zone 22:  II 3D Ex tc IIIB T120 °C Dc <sup>3)</sup>

##### Ambient temperature

- Standard:  $-20$  to  $+40\ \text{°C}$
- Optional:  $-40$  to  $+40\ \text{°C}$  (order code **D03**)
- Optional:  $-20$  to  $+60\ \text{°C}$  (order codes **N05, N06, N07, N08**)

From  $40\ \text{°C}$ , the power is reduced.



Other temperatures are available on request.

##### Type of protection Ex ec/Ex tc for use in Zone 2/22 <sup>4)</sup>

The motors must be ordered with:

- Version for Zones 2 or 22 for non-conductive dust for line operation – order code **B30** <sup>4)</sup>

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:  II 3G Ex ec IIC T3 Gc  
 II 3D Ex tc IIIB T120 °C Dc <sup>3)</sup>

<sup>4)</sup> 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:

- $\hat{U}_{\text{phase-to-phase}} \leq 1500 \text{ V}$  (3000 V peak-peak values ( $V_{\text{pk/pk}}$ ))
- $\hat{U}_{\text{phase-to-ground}} \leq 1100 \text{ V}$  (2200 V peak-peak values ( $V_{\text{pk/pk}}$ ))

The following generally applies to Siemens converters (SINAMICS):

- $U_{\text{line}} = 500 \text{ V} \pm 10 \%$  (BLM = Basic Line Module; DFE = Direct Front End)
- $U_{\text{line}} \leq 460 \text{ V} \pm 10 \%$  (ALM = Active Line Module; AFE = Active Front End);  $U_{\text{dc}} < 720 \text{ V}$
- $U_{\text{line}} = 690 \text{ V} \pm 10 \%$  (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):*

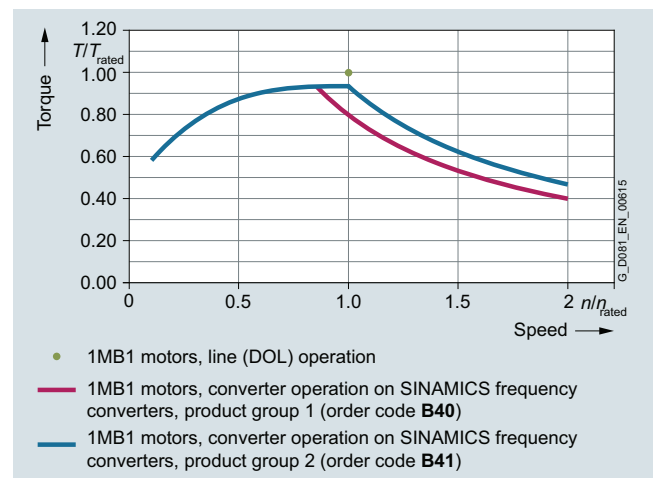
Order code **B41** – version for converter operation in basic version with operating data SINAMICS S150.

*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	$f_{\text{max}}$	50 Hz voltage: e.g. <b>'90'</b> and <b>M4A</b>
60 Hz field weakening range	6	30	60	$f_{\text{max}}$	60 Hz voltage: e.g. <b>'90'</b> and <b>M1E</b>
87 Hz characteristic	5	25	87	$f_{\text{max}}$	87 Hz at 400 VΔ: <b>'90'</b> and <b>M3A</b>

$f_{\text{max}}$  see page 5/9.

## Orientation

### 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

SIEMENS		IE3 H CE					
D-90441 Nürnberg		Made in Czech Rep.					
3-Mot. 1CV3130B 1MB15331CB002AB4-Z		UD 1701/1234567 001 001 0158					
IEC/EN 60034 132S IMB3 IP55		II 3 G					
67kg	Th.Cl. 155(F)	-20°C ≤ TAMB ≤ 40°C					
Bearing		Ex ec IIC T3 Gc					
DE 6208-2ZC3	FTZU 13 ATEX 0055						
NE 6208-2ZC3							
V	Hz	A	kW	cos φ	NOM.EFF	1/min	IE-CL
400 Y	50	10.8	5.5	0.82	89.6	1470	IE3

SIEMENS		IE3 H CE				
D-90441 Nürnberg		Made in Czech Rep.				
3-Mot. 1CV3130B 1MB15331CB002AB4-Z		UD 1701/1234567 001 001 0158				
IEC/EN 60034						
For converter supply						
Converter parameter settings according to DOL plate!						
Duty S9 SINAMICS G180						
CONVERTER INPUT: 400V VPWM Fp ≥ 4 kHz						
V	Hz	A	kW	cos φ	Nm	1/min
49 Y	5	10.6	0.29	0.84	20.5	134
205 Y	25	9.2	2.35	0.81	30.5	730
380 Y	50	8.9	4.40	0.81	28.0	1475
380 Y	100	8.4	4.10	0.85	13.1	2955

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).

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 position of the Article No.	Order code	Line frequency	Line voltage
27	–	50 Hz	500 VY, 50 Hz power
40	–	50 Hz	500 VΔ, 50 Hz power
90	M4A	50 Hz	400 VY, 50 Hz power
90	M4B	50 Hz	400 VΔ, 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 VΔ, 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 VΔ, 50 Hz power
90	M1L	60 Hz	480 VΔ, 60 Hz power
90	M1Y (non-standard winding)	50 or 60 Hz	Plain text (max. 460 VY, 50 or 60 Hz)
90	M3A <sup>3)</sup>	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)<sup>1)</sup>

The drive system comprising motors protected against dust explosions operating on SINAMICS G, SINAMICS 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)<sup>2)</sup>

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 non-conductive dust. Factory certificate 2.1 analogous to that for Zones 2, 21 and 22. Please inquire about non-Siemens converters.

<sup>1)</sup> Zone 21 includes conductive and non-conductive dust.

<sup>2)</sup> 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.

<sup>3)</sup> The motor contains winding version 50 Hz 230 VA.



### 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 <sup>1)</sup>		4-pole		6-pole		8-pole		
		$n_{max}$ rpm	$f_{max}$ Hz	$n_{max}$ rpm	$f_{max}$ Hz	$n_{max}$ rpm	$f_{max}$ Hz	$n_{max}$ rpm	$f_{max}$ Hz	
<b>1MB15, 1MB16</b>										
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	– <sup>2)</sup>	– <sup>2)</sup>	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.

The following explosion-proof motor versions are available with explosion-proof rotary pulse encoders:

Type of protection	Motor type + order code	Frame size	Order code for explosion-proof rotary pulse encoder
Ex tb (Zone 21)	1MB101... 1MB151... 1MB161...	100 L ... 160 L 100 L ... 315 L 100 L ... 315 L	<b>G30:</b> Mounting of explosion-proof rotary pulse encoder for use in Zones 2, 21, and 22.
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	

#### Note:

The maximum speed of the rotary pulse encoder is limited to  $n_{max} = 4200$  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	<b>F70:</b> "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	<b>F70:</b> "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	<b>F70:</b> "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.

<sup>1)</sup> For continuous operation in the range  $f_{max}$  ( $n_{max}$ ), an inquiry is required.

<sup>2)</sup> For frame size 315, converter operation is not permissible with 2 poles.

## Orientation

### 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  $\Delta l$ .

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)

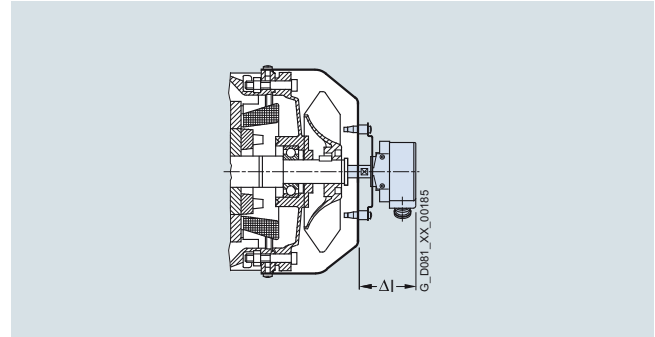
<b>Supply voltage <math>U_B</math></b>	<b>+9 ... +30 V</b>
Current input without load	max. 80 mA
Admissible load current per output	40 mA
Pulses per revolution	1024
Outputs	6 short-circuit proof square-wave pulses A, A', B, B', 0, 0', high current HTL Floating switching output for ADS signal
Pulse offset between the two outputs	$90^\circ \pm 5^\circ \text{ el.}$
Output amplitude	$U_{\text{High}} > U_B - 4 \text{ V}$ $U_{\text{Low}} < 2.5 \text{ V}$
Mark space ratio	$1:1 \pm 10 \%$
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	$-40 \dots +70 \text{ }^\circ\text{C}$
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](http://www.leinelinde.com)  
Email: [info@leinelinde.se](mailto: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	$\Delta l$	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

**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  $\Delta l$ . For an explanation of the additional dimensions and weights, see "Dimensions and weights of explosion-proof separately driven fans".

## Orientation

### 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 specifications of separately driven fans (according to tolerances of EN 60034-1)				
Frame size	Rated voltage range V	Frequency Hz	Power consumption kW	Rated current A
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

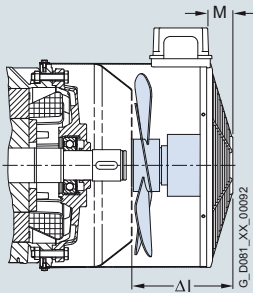
Technical specifications of separately driven fans for 1MB1 explosion-proof motors (frame sizes 225 to 315) in the Ex tb (Zone 21), Ex tc (Zone 22) and Ex ec (Zone 2) versions

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	A
225 M ... 280 M	1LA7073-2AA62-Z	3 AC 230 Δ	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 Δ	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 Δ	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

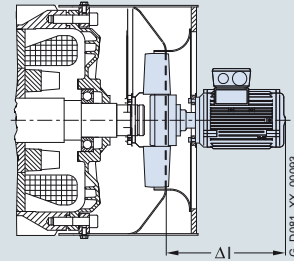
**Technical specifications** (continued)

Dimensions and weights of the explosion-proof separately driven fans (order code **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	Δl	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, 1MB161  
 Ex tc (Zone 22)/1MB152, 1MB162  
 Ex ec (Zone 2)/1MB153, 1MB163

Frame size	Δl	Weight approx.
	mm	kg
225	267	24.5
250	272	27.5
280	270	30.5
315	280	38.5

## Orientation

### 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

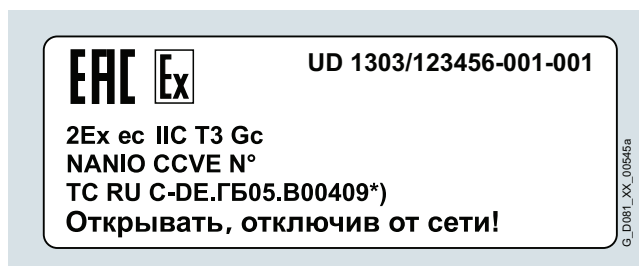
For the import and commissioning of explosion-proof motors in the Eurasian customs union, approval is required from a named Russian testing authority.

"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.



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 °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".

### 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  
R10**

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.

Structure of the Article No.:	Position:	1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	
<b>1st to 4th position:</b> Explosion-proof – Self-ventilated by fan mounted on and driven by rotor Digit, letter, letter, digit		1	M	B	1															
<b>5th position:</b> Digit	Aluminum housing Cast-iron housing Basic Line Cast-iron housing Performance Line					0 5 6														
<b>6th to 7th position:</b> 2 digits	Ex tb IIIC (Ex-Zone 21) Motors with IE2 High Efficiency Motors with IE1 Standard Efficiency Motors with IE3 Premium Efficiency Ex tc IIIB (Ex Zone 22) Motors with IE2 High Efficiency Motors with IE1 Standard Efficiency Motors with IE3 Premium Efficiency Ex ec IIC T3 (Ex Zone 2) Motors with IE2 High Efficiency Motors with IE1 Standard Efficiency Motors with IE3 Premium Efficiency					1 1 1 2 2 2 3 3 3	1 2 3 1 2 3 1 2 3													
<b>8th, 9th and 11th position:</b> Digit, letter, digit	<b>Motor frame size</b> (frame size as a combination of shaft height and overall length, encoded)									0 ... 3	A ... E		0 ... 6							
<b>10th position:</b> Letter	<b>No. of poles</b> A: 2-pole, B: 4-pole, C: 6-pole, D: 8-pole										A ... D									
<b>12th and 13th position:</b> 2 digits	<b>Voltage, circuit and frequency</b> (encoded with two digits, 9-0 requires order code M.. (e.g. M1Y))												0 ... 9	0 ... 8						
<b>14th position:</b> Letter	<b>Type of construction</b> (encoded with A ... V)																A ... V			
<b>15th position:</b> Letter	<b>Motor protection</b> (encoded with A ... J)																	A ... J		
<b>16th position:</b> Digit	<b>Terminal box position</b> 4: Terminal box top, 5: Terminal box right, 6: Terminal box left, 7: Terminal box bottom																		4 ... 7	
	Special order versions: encoded – additional order code required not encoded – additional plain text required																			- Z

### 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



# 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 · Aluminum series 1MB10

#### Selection and ordering data

P <sub>rated</sub> , 50 Hz	P <sub>rated</sub> , 60 Hz	Frame size	Operating values at rated power											Aluminum series 1MB1		m <sub>M</sub> B3	J	
			n <sub>rated</sub> , 50 Hz	T <sub>rated</sub> , 50 Hz	Different IE class	η <sub>rated</sub> , 50 Hz	η <sub>rated</sub> , 50 Hz	η <sub>rated</sub> , 50 Hz	cos φ <sub>rated</sub> , 50 Hz	I <sub>rated</sub> , 50 Hz	T <sub>LR</sub> / I <sub>LR</sub>	I <sub>LR</sub> / I <sub>rated</sub>	T <sub>P</sub> / I <sub>rated</sub>	L <sub>pfA</sub> , 50 Hz	L <sub>WA</sub> , 50 Hz			Article No.
kW	kW	FS	rpm	Nm	%	%	%	%	A									
<ul style="list-style-type: none"> <li>• Cooling: self-ventilated (IC 411)</li> <li>• Efficiency according to IEC 60034-30: IE3 Premium Efficiency</li> <li>• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)</li> </ul>																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz <sup>1)</sup>																		
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	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	12	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	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	19	0.0031
3	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	26	0.0054
4	4.55	112 M	2950	13		88.1	88.7	88.2	0.89	7.4	2.5	8.7	4	69	81	1MB10 3-1BA2	34	0.012
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	1MB10 3-1CA0	43	0.024
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	57	0.031
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	84	0.061
18.5	21.3	160 L	2955	60		92.4	92.8	92.3	0.9	32	2.8	8.3	3.9	70	82	1MB10 3-1DA4	94	0.068
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz <sup>1)</sup>																		
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	1MB10 3-0DB2	11	0.0021
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	1MB10 3-0DB3	14	0.0029
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	19	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	30	0.014
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	1MB10 3-1AB5	30	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	1MB10 3-1BB2	34	0.017
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	1MB10 3-1CB0	64	0.046
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	64	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
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz <sup>1)</sup>																		
0.37	0.43	80 M	940	3.8		73.5	73.1	69.4	0.66	1.1	2.3	4.2	2.7	42	53	1MB10 3-0DC2	12	0.0025
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	1MB10 3-0DC3	14	0.0031
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	16	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	IE2	82.5	83.1	81.5	0.73	3.6	1.9	5.2	2.8	59	71	1MB10 3-1AC4	30	0.014
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	1MB10 3-1BC2	39	0.014
3	3.45	132 S	980	29		85.6	86.3	85.7	0.76	6.7	2	6.3	3	63	75	1MB10 3-1CB0	43	0.029
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 3-1CC2	52	0.037
5.5	6.3	132 M	975	54		88	88.9	88.5	0.76	11.9	2	6.3	2.9	63	75	1MB10 3-1CC3	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
<b>Zones</b>																		
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																		
<b>Voltages</b>																		
50 Hz 230 VΔ/400 VY 60 Hz <sup>1)</sup> 460 VY																		
50 Hz 400 VΔ/690 VY 60 Hz <sup>1)</sup> 460 VΔ																		
50 Hz 500 VY																		
50 Hz 500 VΔ																		
For other voltages <sup>1)</sup> and more information, see from page 5/28																		
<b>Types of construction</b>																		
Without flange IM B3 <sup>2)</sup>																		
With flange IM B5 <sup>2)</sup>																		
With flange IM B14 <sup>2)</sup>																		
For other types of construction and more information, see from page 5/30																		
<b>Motor protection</b>																		
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 5/34																		
<b>Terminal box position</b>																		
Terminal box at top																		
For other terminal box positions and more information, see from page 5/36																		
<b>Special versions</b>																		
For options, see from page 5/38																		
1MB10 3-... -Z ...+...+...+...																		

5

For footnotes, see page 5/27





# 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

Operating values at rated power														Cast-iron series		$m_{IM\ B3}$	$J$				
$P_{rated, 50\ Hz}$	$P_{rated, 60\ Hz}$	Frame size	$n_{rated, 50\ Hz}$	$T_{rated, 50\ Hz}$	Different IE class	$\eta_{rated, 50\ Hz, 4/4}$	$\eta_{rated, 50\ Hz, 3/4}$	$\eta_{rated, 50\ Hz, 2/4}$	$\cos\ \phi_{rated, 50\ Hz, 4/4}$	$I_{rated, 50\ Hz, 400\ V}$	$T_{LR}/T_{ra-}$	$I_{LR}/I_{ra-}$	$T_B/T_{ra-}$	$L_{ptA, 50\ Hz}$	$L_{WA, 50\ Hz}$	Article No.	$m_{IM\ B3}$	$J$			
kW	kW	FS	rpm	Nm		%	%	%		A							kg	kgm <sup>2</sup>			
<ul style="list-style-type: none"> <li>• Cooling: self-ventilated (IC 411)</li> <li>• Efficiency according to IEC 60034-30: IE3 Premium Efficiency</li> <li>• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)</li> </ul>																					
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz <sup>1)</sup>																					
0.37	0.43	71 M	2850	1.2		73.8	73.3	69.7	0.76	0.95	3.5	5.8	3.5	52	63	1MB15-3-0CA2	13	0.0045			
0.55	0.63	71 M	2860	1.8		77.8	77.5	74.5	0.76	1.34	3.7	6.1	3.7	57	68	1MB15-3-0CA3	14.5	0.0056			
0.75	0.88	80 M	2850	2.5		80.7	82.2	81.9	0.86	1.56	2.6	6.2	3	60	71	1MB15-3-0DA2	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	1MB15-3-0DA3	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	1MB15-3-0EA0	25.5	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	1MB15-3-0EA4	32	0.0031			
3	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	1MB1-3-1AA4	36	0.0054			
4	4.55	112 M	2950	13		88.1	88.7	88.2	0.89	7.4	2.5	8.7	4	69	81	1MB1-3-1BA2	45	0.012			
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			
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	1MB1-3-1CA1	73	0.031			
11	12.6	160 M	2955	36		91.2	91.3	90.2	0.87	20	2.5	7.6	3.8	70	82	1MB1-3-1DA2	100	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	1MB1-3-1DA3	110	0.061			
18.5	21.3	160 L	2955	60		92.4	92.8	92.3	0.9	32	2.8	8.3	3.9	70	82	1MB1-3-1DA4	127	0.068			
22	24.5	180 M	2950	71		92.7	93	92.4	0.89	38.5	2.3	7.5	3.5	67	80	1MB1-3-1EA2	160	0.08			
30	33.5	200 L	2955	97		93.3	93.6	93.3	0.87	53	2.5	7	3.3	67	80	1MB1-3-2AA4	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	51	225 M	2960	145		94	94.5	94.4	0.89	78	2.4	6.9	3.3	73	87	1MB1-3-2BA2	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	1MB1-3-2CA2	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	1MB1-3-2DA0	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	1MB1-3-2DA2	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	1MB1-3-3AA0	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	1MB1-3-3AA2	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	1MB1-3-3AA4	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	1MB1-3-3AA5	1150	2.3			
<b>Basic Line</b>																	5				
<b>Performance Line</b>																	6				
<b>Zones</b>																					
Zone 21 (occasionally conductive and non-conductive dust) Ex tb IIIC																	1				
Zone 22 (rarely conductive or temporarily non-conductive dust) Ex tc IIIB																	2				
Zone 2 (rarely explosive or temporarily explosive gases) Ex ec IIC																	3				
<b>Voltages</b> <sup>3)</sup>																					
Version																			Order code		
50 Hz 230 VΔ/400 VY																			Standard	2 2	-
60 Hz <sup>1)</sup> 460 VY																			Standard	3 4	-
50 Hz 400 VΔ/690 VY																			Without additional charge	2 7	-
60 Hz <sup>1)</sup> 460 VΔ																			Without additional charge	4 0	-
50 Hz 500 VY																				9 0	...
50 Hz 500 VΔ																					
For other voltages <sup>1)</sup> and more information, see from page 5/29																					
<b>Types of construction</b>																					
Version																			Order code		
Without flange IM B3 <sup>2)</sup>																			Standard	A	-
With flange IM B5 <sup>2)</sup>																			With additional charge	F	-
With flange IM B14 <sup>2)</sup>																			With additional charge	K	-
For other types of construction and more information, see from page 5/32																					...
<b>Motor protection</b>																					
Line																			Version		
Without																			Only possible for <b>Basic Line</b>	Standard	A
PTC thermistor with 3 temperature sensors																			<b>Basic Line</b>	With additional charge	B
																			<b>Performance Line</b>	Standard	B
For other motor protection and more information, see from page 5/35																					
<b>Terminal box position</b>																					
Version																			Standard	4	
Terminal box at top																					
For other terminal box positions and more information, see from page 5/37																					
<b>Special versions</b>																					
Order code(s)																					
For options, see from page 5/42																					
1MB1-3-...-Z-...+...+...+...																					

For footnotes, see page 5/27





# 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 IE2 High Efficiency · Aluminum series 1MB10

#### Selection and ordering data

Operating values at rated power															Aluminum series 1MB1		$m_{IM B3}$	$J$		
$P_{rated, 50 Hz}$	$P_{rated, 60 Hz}$	Frame size	$n_{rated, 50 Hz}$	$T_{ra, ted, 50 Hz}$	Different IE class	$\eta_{rated, 50 Hz, 4/4}$	$\eta_{rated, 50 Hz, 3/4}$	$\eta_{rated, 50 Hz, 2/4}$	COS $\eta_{rated, 50 Hz, 4/4}$	$I_{rated, 50 Hz}$	$T_{LR}/T_{ra- ted}$	$I_{LR}/I_{ra- ted}$	$T_B/T_{ra- ted}$	$L_{pfA, 50 Hz}$	$L_{WA, 50 Hz}$	Article No.			kg	kgm <sup>2</sup>
kW	kW	FS	rpm	Nm		%	%	%		A										
<ul style="list-style-type: none"> <li>• Cooling: self-ventilated (IC 411)</li> <li>• Efficiency according to IEC 60034-30: IE2 High Efficiency</li> <li>• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)</li> </ul>																				
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz <sup>1)</sup>																				
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	1MB1011-0DA2	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	1MB1011-0DA3	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	1MB1011-0EA0	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	1MB1011-0EA4	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	1MB1011-1AA4	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	1MB1011-1BA2	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	1MB1011-1CA0	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	1MB1011-1CA1	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	1MB1011-1DA2	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	1MB1011-1DA3	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	1MB1011-1DA4	84	0.061		
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz <sup>1)</sup>																				
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	1MB1011-0DB2	10	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	1MB1011-0DB3	11	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	1MB1011-0EB0	13	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	1MB1011-0EB4	16	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	1MB1011-1AB4	21	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	1MB1011-1AB5	25	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	1MB1011-1BB2	29	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	1MB1011-1CB0	42	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	1MB1011-1CB2	49	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	1MB1011-1DB2	71	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	1MB1011-1DB4	83	0.083		
<b>Zones</b>																				
Zone 21 (occasionally conductive and non-conductive dust) Ex tb IIIC																	1			
Zone 22 (rarely conductive or temporarily non-conductive dust) Ex tc IIIB																	2			
Zone 2 (rarely explosive or temporarily explosive gases) Ex ec IIC																	3			
<b>Voltages</b>																				
50 Hz 230 VΔ/400 VY																	Standard		2 2	Order code
50 Hz 400 VΔ/690 VY																	Standard		3 4	-
50 Hz 500 VY																	Without additional charge		2 7	-
50 Hz 500 VΔ																	Without additional charge		4 0	-
For other voltages <sup>1)</sup> and more information, see from page 5/28																	9 0		...	
<b>Types of construction</b>																				
Without flange IM B3 <sup>2)</sup>																	Standard		A	Order code
With flange IM B5 <sup>2)</sup>																	With additional charge		F	-
With flange IM B14 <sup>2)</sup>																	With additional charge		K	-
For other types of construction and more information, see from page 5/30																			...	
<b>Motor protection</b>																				
Without																	Standard		A	
PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200)																	With additional charge		B	
For other motor protection and more information, see from page 5/34																				
<b>Terminal box position</b>																				
Terminal box at top																	Standard		4	
For other terminal box positions and more information, see from page 5/36																				
<b>Special versions</b>																				
For options, see from page 5/38																	1MB1011-...-Z		...	Order code(s)

5

For footnotes, see page 5/27



## 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 IE2 High Efficiency · Aluminum series 1MB10

### Selection and ordering data (continued)

Operating values at rated power															Aluminum series 1MB1		$m_{IM\ B3}$	$J$	
$P_{rated, 50\ Hz}$	$P_{rated, 60\ Hz}$	Frame size	$n_{rated, 50\ Hz}$	$T_{rated, 50\ Hz}$	Different IE class	$\eta_{rated, 50\ Hz, 4/4}$	$\eta_{rated, 50\ Hz, 3/4}$	$\eta_{rated, 50\ Hz, 2/4}$	$\cos\ \phi_{rated, 50\ Hz, 4/4}$	$I_{rated, 50\ Hz}$	$T_{LR}/T_{ra-}$	$I_{LR}/I_{ra-}$	$T_B/T_{ra-}$	$L_{pfA, 50\ Hz}$	$L_{WA, 50\ Hz}$	Article No.			kg
kW	kW	FS	rpm	Nm		%	%	%		A									
<ul style="list-style-type: none"> <li>• Cooling: self-ventilated (IC 411)</li> <li>• Efficiency according to IEC 60034-30: IE2 High Efficiency</li> <li>• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)</li> </ul>																			
6-pole: 1000 rpm at 50 Hz, 1200 rpm at 60 Hz <sup>1)</sup>																			
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	1MB1011-0DC2	9	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	1MB1011-0DC3	12	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	1MB1011-0EC0	13	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	1MB1011-0EC4	16	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	1MB1011-1AC4	25	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	1MB1011-1BC2	29	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	1MB1011-1CC0	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	1MB1011-1CC2	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	1MB1011-1CC3	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	1MB1011-1DC2	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	1MB1011-1DC4	93	0.098	
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz <sup>1)</sup>																			
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	1MB1011-1AD4	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	1MB1011-1AD5	25	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	1MB1011-1BD2	34	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	1MB1011-1CD0	46	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	1MB1011-1CD2	52	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	1MB1011-1DD2	69	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	1MB1011-1DD3	82	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	1MB1011-1DD4	94	0.098	
<b>Zones</b>															1				
Zone 21 (occasionally conductive and non-conductive dust) Ex tb III C															2				
Zone 22 (rarely conductive or temporarily non-conductive dust) Ex tc IIIB															3				
Zone 2 (rarely explosive or temporarily explosive gases) Ex ec IIC																			
<b>Voltages</b>																			
50 Hz 230 VΔ/400 VY 60 Hz <sup>1)</sup> 460 VY															2	2			Order code
50 Hz 400 VΔ/690 VY 60 Hz <sup>1)</sup> 460 VΔ															3	4			-
50 Hz 500 VY															2	7			-
50 Hz 500 VΔ															4	0			-
For other voltages <sup>1)</sup> and more information, see from page 5/28															9	0			...
<b>Types of construction</b>																			
Without flange IM B3 <sup>2)</sup>																	A		Order code
With flange IM B5 <sup>2)</sup>																	F		-
With flange IM B14 <sup>2)</sup>																	K		-
For other types of construction and more information, see from page 5/30																			...
<b>Motor protection</b>																			
Without																	A		Order code
PTC thermistor with 1 or 3 temperature sensors (frame sizes 80, 90 or 100 to 200)																	B		-
For other motor protection and more information, see from page 5/34																			...
<b>Terminal box position</b>																			
Terminal box at top																	4		Order code(s)
For other terminal box positions and more information, see from page 5/36																			...
<b>Special versions</b>																			
For options, see from page 5/38																			1MB1011-...-Z ...+...+...+...



For footnotes, see page 5/27

# 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 IE2 High Efficiency · Cast-iron series 1MB15, 1MB16

## Selection and ordering data

Operating values at rated power														Cast-iron series		$m_{IM\ B3}$	$J$	
$P_{rated, 50\ Hz}$	$P_{rated, 60\ Hz}$	Frame size	$n_{rated, 50\ Hz}$	$T_{rated, 50\ Hz}$	Different IE class	$\eta_{rated, 50\ Hz, 4/4}$	$\eta_{rated, 50\ Hz, 3/4}$	$\eta_{rated, 50\ Hz, 2/4}$	$\cos\ \varphi_{rated, 50\ Hz, 4/4}$	$I_{rated, 50\ Hz, 400\ V}$	$T_{LR}/I_{ra-}$	$I_{LR}/I_{ra-}$	$T_B/I_{ra-}$	$L_{ptA, 50\ Hz}$	$L_{WA, 50\ Hz}$	Article No.	$m_{IM\ B3}$	$J$
kW	kW	FS	rpm	Nm		%	%	%		A							kg	kgm <sup>2</sup>
<ul style="list-style-type: none"> <li>• Cooling: self-ventilated (IC 411)</li> <li>• Efficiency according to IEC 60034-30: IE2 High Efficiency</li> <li>• Insulation: Thermal class 155 (temperature class F), IP55 degree of protection, utilization in accordance with thermal class 130 (temperature class B)</li> </ul>																		
2-pole: 3000 rpm at 50 Hz, 3600 rpm at 60 Hz <sup>1)</sup>																		
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	63	1MB1511-0CA2	11.5	0.00035
0.55	0.63	71 M	2780	1.9		74.1	75.2	72.9	0.8	1.34	2.6	4.6	2.6	58	63	1MB1511-0CA3	13	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	1MB1511-0DA2	16	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	1MB1511-0DA3	18	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	1MB1511-0EA0	23	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	1MB1511-0EA4	25.5	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	1MB1111-1AA4	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	1MB1111-1BA2	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	1MB1111-1CA0	57	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	1MB1111-1CA1	61	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	1MB1111-1DA2	96	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	1MB1111-1DA3	104	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	1MB1111-1DA4	113	0.061
22	24.5	180 M	2940	71		91.3	91.6	90.9	0.87	40	2.7	7.4	3.6	77	84	1MB1111-1EA2	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	1MB1111-2AA4	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	1MB1111-2AA5	225	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	1MB1111-2BA2	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	1MB1111-2CA2	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	1MB1111-2DA0	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	1MB1111-2DA2	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	1MB1111-3AA0	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	1MB1111-3AA2	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	1MB1111-3AA4	930	1.8
200	224	315 L	2982	640		95	95.2	94.8	0.92	330	2.5	7.3	3	80	95	1MB1111-3AA5	1130	2.2

Basic Line		5			
Performance Line		6			
<b>Zones</b>					
Zone 21 (occasionally conductive and non-conductive dust) Ex tb IIIC		1			
Zone 22 (rarely conductive or temporarily non-conductive dust) Ex tc IIIB		2			
Zone 2 (rarely explosive or temporarily explosive gases) Ex ec IIC		3			
<b>Voltages</b> <sup>3)</sup>		Version		Order code	
50 Hz 230 VΔ/400 VY	60 Hz <sup>1)</sup> 460 VY	<b>Standard</b>		2	2
50 Hz 400 VΔ/690 VY	60 Hz <sup>1)</sup> 460 VΔ	<b>Standard</b>		3	4
50 Hz 500 VY		Without additional charge		2	7
50 Hz 500 VΔ		Without additional charge		4	0
For other voltages <sup>1)</sup> and more information, see from page 5/29				9	0
<b>Types of construction</b>		Version		Order code	
Without flange	IM B3 <sup>2)</sup>	<b>Standard</b>		A	-
With flange	IM B5 <sup>2)</sup>	With additional charge		F	-
With flange	IM B14 <sup>2)</sup>	With additional charge		K	-
For other types of construction and more information, see from page 5/32					...
<b>Motor protection</b>		Line		Version	
Without	Only possible for <b>Basic Line</b>	<b>Standard</b>		A	-
PTC thermistor with 3 temperature sensors	<b>Basic Line</b>	With additional charge		B	-
	<b>Performance Line</b>	<b>Standard</b>		B	-
For other motor protection and more information, see from page 5/35					...
<b>Terminal box position</b>		Version		Order code(s)	
Terminal box at top		<b>Standard</b>		4	-
For other terminal box positions and more information, see from page 5/37					...
<b>Special versions</b>				Order code(s)	
For options, see from page 5/42				1MB1111-...-Z ...+...+...+...	

5

For footnotes, see page 5/27









# 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 IE1 Standard Efficiency · Aluminum series 1MB10

### Selection and ordering data

P <sub>rated</sub> , 50 Hz	P <sub>rated</sub> , 60 Hz	Frame size	Operating values at rated power												Aluminum series 1MB1 Article No.	m <sub>IM B3</sub>	J
			η <sub>rated</sub> , 50 Hz	T <sub>ra</sub> - ted, 50 Hz	η <sub>rated</sub> , 50 Hz, 4/4	η <sub>rated</sub> , 50 Hz, 3/4	η <sub>rated</sub> , 50 Hz, 2/4	COS φ <sub>rated</sub> , 50 Hz, 4/4	I <sub>rated</sub> , 50 Hz, 400 V	T <sub>LF</sub> / T <sub>ra</sub> - ted	I <sub>LF</sub> / I <sub>ra</sub> - ted	T <sub>β</sub> / T <sub>ra</sub> - ted	L <sub>pfA</sub> , 50 Hz	L <sub>WA</sub> , 50 Hz			
kW	kW	FS	rpm	Nm	%	%	%		A							kg	kgm <sup>2</sup>
• Cooling: self-ventilated (IC 411) • Efficiency according to IEC 60034-30: IE1 Standard 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 <sup>1)</sup>																	
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	25	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	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	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	68	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	0.044
4-pole: 1500 rpm at 50 Hz, 1800 rpm at 60 Hz <sup>1)</sup>																	
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	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	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	27	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	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	44	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	62	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	0.056
<b>Zones</b>																	
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 IIIC																	
<b>Voltages</b>																	
50 Hz 230 VΔ/400 VY												60 Hz <sup>1)</sup> 460 VY		Version		Order code	
50 Hz 400 VΔ/690 VY												60 Hz <sup>1)</sup> 460 VΔ		Standard		2 2	
50 Hz 500 VY														Without additional charge		2 7	
50 Hz 500 VΔ														Without additional charge		4 0	
For other voltages <sup>1)</sup> and more information, see from page 5/28																9 0	
<b>Types of construction</b>																	
Without flange												IM B3 <sup>2)</sup>		Version		Order code	
With flange												IM B5 <sup>2)</sup>		Standard		A	
With flange												IM B14 <sup>2)</sup>		With additional charge		F	
														With additional charge		K	
For other types of construction and more information, see from page 5/30																...	
<b>Motor protection</b>																	
Without														Version		Order code	
PTC thermistor with 3 temperature sensors														Standard		A	
														With additional charge		B	
For other motor protection and more information, see from page 5/34																...	
<b>Terminal box position</b>																	
Terminal box at top														Version		Order code	
														Standard		4	
For other terminal box positions and more information, see from page 5/36																...	
<b>Special versions</b>																	
For options, see from page 5/38																Order code(s)	
																1MB10-2-...-Z	

5

For footnotes, see page 5/27



## 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 IE1 Standard Efficiency · Aluminum series 1MB10

### Selection and ordering data (continued)

P <sub>rated</sub> , 50 Hz kW	P <sub>rated</sub> , 60 Hz kW	Frame size FS	Operating values at rated power											Aluminum series 1MB1 Article No.	m <sub>IM B3</sub> kg	J kgm <sup>2</sup>	
			n <sub>rated</sub> , 50 Hz rpm	T <sub>rated</sub> , 50 Hz Nm	η <sub>rated</sub> , 50 Hz, 4/4 %	η <sub>rated</sub> , 50 Hz, 3/4 %	η <sub>rated</sub> , 50 Hz, 2/4 %	cos φ <sub>rated</sub> , 50 Hz, 4/4	I <sub>rated</sub> , 50 Hz, 400 V A	T <sub>LR</sub> / T <sub>ra</sub> , ted	I <sub>LR</sub> / I <sub>ra</sub> , ted	T <sub>B</sub> / T <sub>ra</sub> , ted	L <sub>ptA</sub> , 50 Hz dB(A)				L <sub>WA</sub> , 50 Hz dB(A)
• Cooling: self-ventilated (IC 411) • Efficiency according to IEC 60034-30: IE1 Standard 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 <sup>1)</sup>																	
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	48	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	72	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
8-pole: 750 rpm at 50 Hz, 900 rpm at 60 Hz <sup>1)</sup>																	
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	17	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	22	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	1MB10-2-1BD2	29	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	1MB10-2-1CD0	37	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	1MB10-2-1CD2	44	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	1MB10-2-1DD2	60	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	1MB10-2-1DD3	72	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	91	0.077
<b>Zones</b>																	
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																	
<b>Voltages</b>																	
Version																	
Order code																	
50 Hz 230 VΔ/400 VY 60 Hz <sup>1)</sup> 460 VY																	
Standard																	
50 Hz 400 VΔ/690 VY 60 Hz <sup>1)</sup> 460 VΔ																	
Standard																	
50 Hz 500 VY																	
Without additional charge																	
50 Hz 500 VΔ																	
Without additional charge																	
For other voltages <sup>1)</sup> and more information, see from page 5/28																	
<b>Types of construction</b>																	
Version																	
Order code																	
Without flange IM B3 <sup>2)</sup>																	
Standard																	
With flange IM B5 <sup>2)</sup>																	
With additional charge																	
With flange IM B14 <sup>2)</sup>																	
With additional charge																	
For other types of construction and more information, see from page 5/30																	
<b>Motor protection</b>																	
Version																	
Order code																	
Without																	
Standard																	
PTC thermistor with 3 temperature sensors																	
With additional charge																	
For other motor protection and more information, see from page 5/34																	
<b>Terminal box position</b>																	
Version																	
Order code																	
Terminal box at top																	
Standard																	
For other terminal box positions and more information, see from page 5/36																	
<b>Special versions</b>																	
Version																	
Order code(s)																	
For options, see from page 5/38																	
1MB10-2-...-Z...+...+...+...																	



<sup>1)</sup> Operating values at rated power for 60 Hz are stored in the Drive Technology Configurator (DT Configurator; see Appendix, "Tools and engineering").  
<sup>2)</sup> 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.

<sup>3)</sup> 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.  
<sup>4)</sup> 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.

## Article No. supplements and special versions

### SIMOTICS XP 1MB1 explosion-proof motors

#### Voltages · Aluminum series 1MB10

#### Selection and ordering data

Voltages	Article No.	supplement	Frame size						Motor version	
			80	90	100	112	132	160		
			<b>1MB10.3</b>						IEC	
			<b>1MB10.1</b>							
			<b>1MB10.2</b>							
									Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 IE2 IE1
	<b>1MB10- . . . .</b>	<b>■ - ■ . . . .</b>								
										Order code
<b>Voltage at 50 Hz or 60 Hz (50 Hz power)</b>										
50 Hz 230 VΔ/400 VY, 60 Hz 460 VY	<b>2 2</b>	–	□	□	□	□	□	□	□	
50 Hz 400 VΔ/690 VY, 60 Hz 460 VΔ	<b>3 4</b>	–	□	□	□	□	□	□	□	
50 Hz 500 VY	<b>2 7</b>	–	○	○	○	○	○	○	○	
50 Hz 500 VΔ	<b>4 0</b>	–	–	–	○	○	○	○	○	
50 Hz 220 VΔ/380 VY, 60 Hz 440 VY	<b>2 1</b>	–	✓	✓	✓	✓	✓	✓	✓	
50 Hz 380 VΔ/660 VY, 60 Hz 440 VΔ	<b>3 3</b>	–	✓	✓	✓	✓	✓	✓	✓	
50 Hz 240 VΔ/415 VY, 60 Hz 480 VY	<b>2 3</b>	–	✓	✓	✓	✓	✓	✓	✓	
50 Hz 415 VΔ, 60 Hz 480 VΔ	<b>3 5</b>	–	✓	✓	✓	✓	✓	✓	✓	
50 Hz 400 VY, 60 Hz 460 VY <sup>1)</sup>	<b>0 2</b>	–	○	○	○	○	○	○	○	
50 Hz 400 VΔ, 60 Hz 460 VΔ <sup>2)</sup>	<b>0 4</b>	–	○	○	○	○	○	○	○	
60 Hz 220 VΔ/380 VY	<b>1 7</b>	–	✓	✓	✓	✓	✓	✓	✓	Not for: 1MB10.2
60 Hz 230 VΔ/400 VY	<b>1 8</b>	–	✓	✓	✓	✓	✓	✓	✓	Not for: 1MB10.2
60 Hz 380 VΔ/660 VY	<b>3 0</b>	–	✓	✓	✓	✓	✓	✓	✓	Not for: 1MB10.2
60 Hz 400 VΔ/690 VY	<b>3 1</b>	–	✓	✓	✓	✓	✓	✓	✓	Not for: 1MB10.2
50 Hz 400 VY	<b>9 0</b>	<b>M4A</b>	○	○	○	○	○	○	○	
50 Hz 400 VΔ	<b>9 0</b>	<b>M4B</b>	○	○	○	○	○	○	○	
<b>Voltage at 60 Hz (50 Hz power)</b>										
220 VΔ/380 VY; 50 Hz power <sup>3)</sup>	<b>9 0</b>	<b>M2A</b>	✓	✓	✓	✓	✓	✓	✓	
220 VΔ/380 VY; 60 Hz power	<b>9 0</b>	<b>M1A</b>	✓	✓	✓	✓	✓	✓	✓	
380 VΔ/660 VY; 50 Hz power <sup>3)</sup>	<b>9 0</b>	<b>M2B</b>	✓	✓	✓	✓	✓	✓	✓	
380 VΔ/660 VY; 60 Hz power	<b>9 0</b>	<b>M1B</b>	✓	✓	✓	✓	✓	✓	✓	
440 VY; 50 Hz power <sup>3)</sup>	<b>9 0</b>	<b>M2C</b>	✓	✓	✓	✓	✓	✓	✓	
440 VY; 60 Hz power	<b>9 0</b>	<b>M1C</b>	✓	✓	✓	✓	✓	✓	✓	
440 VΔ; 50 Hz power <sup>3)</sup>	<b>9 0</b>	<b>M2D</b>	✓	✓	✓	✓	✓	✓	✓	
440 VΔ; 60 Hz power	<b>9 0</b>	<b>M1D</b>	✓	✓	✓	✓	✓	✓	✓	
460 VY; 50 Hz power <sup>3)</sup>	<b>9 0</b>	<b>M2E</b>	✓	✓	✓	✓	✓	✓	✓	
460 VY; 60 Hz power	<b>9 0</b>	<b>M1E</b>	○	○	○	○	○	○	○	
460 VΔ; 50 Hz power <sup>3)</sup>	<b>9 0</b>	<b>M2F</b>	✓	✓	✓	✓	✓	✓	✓	
460 VΔ; 60 Hz power	<b>9 0</b>	<b>M1F</b>	○	○	○	○	○	○	○	
575 VY; 50 Hz power <sup>3)</sup>	<b>9 0</b>	<b>M2G</b>	✓	✓	✓	✓	✓	✓	✓	
575 VY; 60 Hz power	<b>9 0</b>	<b>M1G</b>	✓	✓	✓	✓	✓	✓	✓	
575 VΔ; 50 Hz power <sup>3)</sup>	<b>9 0</b>	<b>M2H</b>	✓	✓	✓	✓	✓	✓	✓	
575 VΔ; 60 Hz power	<b>9 0</b>	<b>M1H</b>	✓	✓	✓	✓	✓	✓	✓	
400 VΔ/690 VY; 50 Hz power	<b>9 0</b>	<b>M2J</b>	✓	✓	✓	✓	✓	✓	✓	
400 VΔ/690 VY; 60 Hz power	<b>9 0</b>	<b>M1J</b>	✓	✓	✓	✓	✓	✓	✓	
480 VY; 50 Hz power	<b>9 0</b>	<b>M2K</b>	✓	✓	✓	✓	✓	✓	✓	
480 VY; 60 Hz power	<b>9 0</b>	<b>M1K</b>	✓	✓	✓	✓	✓	✓	✓	
480 VΔ; 50 Hz power	<b>9 0</b>	<b>M2L</b>	✓	✓	✓	✓	✓	✓	✓	
480 VΔ; 60 Hz power	<b>9 0</b>	<b>M1L</b>	✓	✓	✓	✓	✓	✓	✓	
230 VΔ/400 VY; 50 Hz power	<b>9 0</b>	<b>M2M</b>	✓	✓	✓	✓	✓	✓	✓	
230 VΔ/400 VY; 60 Hz power	<b>9 0</b>	<b>M1M</b>	✓	✓	✓	✓	✓	✓	✓	
<b>Voltage at 87 Hz (87 Hz power)</b>										
400 VΔ <sup>5)</sup>	<b>9 0</b>	<b>M3A</b>	✓	✓	✓	✓	✓	✓	✓	
<b>Non-standard voltage and/or frequencies</b>										
Non-standard winding <sup>4)</sup>	<b>9 0</b>	<b>M1Y •</b> and customer specifications	✓	✓	✓	✓	✓	✓	✓	

- 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.

<sup>1)</sup> Delta connection is not possible.  
<sup>2)</sup> Star connection is not possible.  
<sup>3)</sup> 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.

<sup>4)</sup> 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.  
<sup>5)</sup> 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 VΔ.

## Article No. supplements and special versions SIMOTICS XP 1MB1 explosion-proof motors

### Voltages · Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

#### Selection and ordering data

Voltages	Article No. supplement		Frame size													Motor version		
	Voltage code 12th and 13th position of the Article No.	Additional identification code with order code and plain text if required	71	80	90	100	112	132	160	180	200	225	250	280	315	IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 IE2
			<b>1MB15.3 Basic Line</b>															
			<b>1MB16.3 Performance Line</b>															
			<b>1MB15.1 Basic Line</b>															
			<b>1MB16.1 Performance Line</b>															
	<b>1MB15</b> . . . . .	■ ■ ■																
	<b>1MB16</b> . . . . .	■ ■ ■																
		Order code																
<b>Voltage at 50 Hz or 60 Hz</b>																		
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 <sup>1)</sup>	0	2	–	○	○	○	○	○	○	○	○	○	○	○	○	○	○	O. R.
50 Hz 400 VΔ, 60 Hz 460 VΔ <sup>2)</sup>	0	4	–	○	○	○	○	○	○	○	○	○	○	○	○	○	○	O. R.
50 Hz 500 VY	2	7	–	○	○	○	○	○	○	○	○	○	○	○	○	○	○	O. R.
50 Hz 500 VΔ	4	0	–	–	–	–	○	○	○	○	○	○	○	○	○	○	○	O. R.
50 Hz 220 VΔ/380 VY, 60 Hz 440 VY	2	1	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
50 Hz 380 VΔ/660 VY, 60 Hz 440 VΔ	3	3	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
50 Hz 240 VΔ/415 VY, 60 Hz 480 VY	2	3	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
50 Hz 415 VΔ, 60 Hz 480 VΔ	3	5	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
60 Hz 220 VΔ/380 VY	1	7	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O. R.
60 Hz 230 VΔ/400 VY	1	8	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O. R.
60 Hz 380 VΔ/660 VY	3	0	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
60 Hz 400 VΔ/690 VY	3	1	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
50 Hz 400 VY	9	0	<b>M4A</b>	○	○	○	○	○	○	○	○	○	○	○	○	○	○	O. R.
50 Hz 400 VΔ	9	0	<b>M4B</b>	○	○	○	○	○	○	○	○	○	○	○	○	○	○	O. R.
<b>Voltage at 60 Hz and required power</b>																		
220 VΔ/380 VY; 50 Hz power <sup>3)</sup>	9	0	<b>M2A</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
220 VΔ/380 VY; 60 Hz power	9	0	<b>M1A</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
380 VΔ/660 VY; 50 Hz power <sup>3)</sup>	9	0	<b>M2B</b>	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
380 VΔ/660 VY; 60 Hz power	9	0	<b>M1B</b>	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
440 VY; 50 Hz power <sup>3)</sup>	9	0	<b>M2C</b>	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
440 VY; 60 Hz power	9	0	<b>M1C</b>	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
440 VΔ; 50 Hz power <sup>3)</sup>	9	0	<b>M2D</b>	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
440 VΔ; 60 Hz power	9	0	<b>M1D</b>	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
460 VY; 50 Hz power <sup>3)</sup>	9	0	<b>M2E</b>	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
460 VY; 60 Hz power	9	0	<b>M1E</b>	–	–	–	○	○	○	○	○	○	○	○	○	○	○	O. R.
460 VΔ; 50 Hz power <sup>3)</sup>	9	0	<b>M2F</b>	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
460 VΔ; 60 Hz power	9	0	<b>M1F</b>	–	–	–	○	○	○	○	○	○	○	○	○	○	○	O. R.
575 VY; 50 Hz power <sup>3)</sup>	9	0	<b>M2G</b>	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
575 VY; 60 Hz power	9	0	<b>M1G</b>	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
575 VΔ; 50 Hz power <sup>3)</sup>	9	0	<b>M2H</b>	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
575 VΔ; 60 Hz power	9	0	<b>M1H</b>	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
400 VΔ/690 VY; 50 Hz power	9	0	<b>M2J</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
400 VΔ/690 VY; 60 Hz power	9	0	<b>M1J</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
480 VY; 50 Hz power	9	0	<b>M2K</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
480 VY; 60 Hz power	9	0	<b>M1K</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
480 VΔ; 50 Hz power	9	0	<b>M2L</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
480 VΔ; 60 Hz power	9	0	<b>M1L</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
230 VΔ/400 VY; 50 Hz power	9	0	<b>M2M</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O. R.
230 VΔ/400 VY; 60 Hz power	9	0	<b>M1M</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	O. R.
<b>Voltage at 87 Hz (87 Hz power)</b>																		
400 VΔ <sup>5)</sup>	9	0	<b>M3A</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Non-standard voltage and/or frequencies</b>																		
Non-standard winding <sup>4)</sup>	9	0	<b>M1Y</b> • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

- 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.
- 1) Delta connection is not possible.
  - 2) Star connection is not possible.
  - 3) 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.
  - 5) 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 VΔ.












## 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	Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code <b>-Z</b>	Frame size					Motor version		
				80	90	100	112	132		160	
				<b>1MB10.3</b>						IEC Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3
				<b>1MB10.1</b>							IE2
					<b>1MB10.2</b>						IE1
<b>1MB10 . . . . .</b>	<b>..(-Z)</b>		Order code								
<b>Without flange</b>											
IM B3		<b>A</b>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
IM B6 <sup>1)</sup>		<b>T</b>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
IM B7 <sup>1)</sup>		<b>U</b>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
IM B8 <sup>1)</sup>		<b>V</b>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
IM V6 <sup>1)</sup>		<b>D</b>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
IM V5 with protective cover <sup>1) 2)</sup>		<b>C</b>	<b>H00</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<b>With flange</b>											
		Acc. to EN 50347 Acc. to DIN 42 948		FF165 A 200	FF165 A 200	FF215 A 250	FF215 A 250	FF265 A 300	FF300 A 350		
IM B5		<b>F</b>	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
IM V1 with protective cover <sup>1) 2)</sup>		<b>G</b>	<b>H00</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
IM V3 <sup>1)</sup>		<b>H</b>	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
IM B35		<b>J</b>	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

5

For legends and footnotes, see page 5/31.

## Article No. supplements and special versions SIMOTICS XP 1MB1 explosion-proof motors

### Types of construction · Aluminum series 1MB10

Types of construction	Article No. supplement Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code <b>-Z</b> Order code	Frame size						Motor version			
			80	90	100	112	132	160	IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 IE2 IE1	
			<b>1MB10.3</b>									
			<b>1MB10.1</b>									
					<b>1MB10.2</b>							
<b>1MB10 . . . . . - . . . (-Z)</b>												
<b>With flange</b>			Acc. to EN 50347 Acc. to DIN 42 948	FT100 C 120	FT115 C 140	FT130 C 160	FT130 C 160	FT165 C 200	FT215 C 250			
IM B14 <sup>1)</sup>		K	–	✓	✓	✓	✓	✓	✓			
IM V19 <sup>1)</sup>		L	–	✓	✓	✓	✓	✓	✓			
IM V18 with protective cover <sup>1) 2)</sup>		M	<b>H00</b>	✓	✓	✓	✓	✓	✓			
IM B34		N	–	✓	✓	✓	✓	✓	✓			
<b>With special flange next largest</b>			Acc. to EN 50347 Acc. to DIN 42 948	FT130 C 160	FT130 C 160	FT165 C 200	FT165 C 200	FT215 C 250	FT265 C 300			
IM B14 <sup>1)</sup>		K	<b>P01</b>	✓	✓	✓	✓	✓	–			
IM V19 <sup>1)</sup>		L	<b>P01</b>	–	–	✓	✓	✓	–			
IM V18 with protective cover <sup>1) 2)</sup>		M	<b>P01+H00</b>	–	–	✓	✓	✓	–			
IM B34		N	<b>P01</b>	–	–	✓	✓	✓	–			

- Standard version
- ✓ With additional charge
- Not possible

<sup>1)</sup> 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.




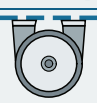

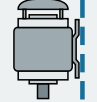

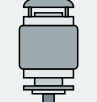


<sup>2)</sup> The "Standard cylindrical shaft extension (second shaft extension)" option (order code **L05**) is not possible.

## Article No. supplements and special versions

### SIMOTICS XP 1MB1 explosion-proof motors

#### Types of construction · Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

#### Selection and ordering data

Types of construction	Article No. supplement		Frame size														Motor version		
	Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code -Z	71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L	IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 IE2
<b>1MB15</b> .....	<b>A</b> .. (-Z)		<b>1MB15.3 Basic Line</b>														IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 IE2
<b>1MB16</b> .....	<b>T</b> .. (-Z)		<b>1MB16.3 Performance Line</b>																
	<b>U</b> .. (-Z)		<b>1MB15.1 Basic Line</b>																
	<b>V</b> .. (-Z)		<b>1MB16.1 Performance Line</b>																
<b>Without flange</b>																			
IM B3		<b>A</b>	-	□	□	□	□	□	□	□	□	□	□	□	□	□			
IM B6 <sup>1)</sup>		<b>T</b>	-	□	□	□	□	□	□	□	□	□	□	□	□	□			
IM B7 <sup>1)</sup>		<b>U</b>	-	□	□	□	□	□	□	□	□	□	□	□	□	□			
IM B8 <sup>1)</sup>		<b>V</b>	-	□	□	□	□	□	□	□	□	□	□	□	□	□			
IM V6 <sup>1)</sup>		<b>D</b>	-	□	□	□	□	□	□	□	□	□	□	□	□	□			
IM V5 with protective cover <sup>1) 2)</sup>		<b>C</b>	<b>H00</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
<b>With flange</b>			Acc. to EN 50347 Acc. to DIN 42 948	FF130 A 160	FF165 A 200	FF165 A 200	FF215 A 250	FF215 A 250	FF265 A 300	FF300 A 350	FF300 A 350	FF350 A 400	FF400 A 450	FF500 A 550	FF500 A 550	FF600 A 660	FF600 A 660		
IM B5		<b>F</b>	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-		
IM V1 with protective cover <sup>1) 2)</sup>		<b>G</b>	<b>H00</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
IM V3 <sup>1)</sup>		<b>H</b>	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-		
IM B35 <sup>1)</sup>		<b>J</b>	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			









5

For legends and footnotes, see page 5/33.



## Article No. supplements and special versions SIMOTICS XP 1MB1 explosion-proof motors

### Types of construction · Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

Types of construction	Article No. supplement		Frame size														Motor version		
	Type of construction code letter 14th position of the Article No.	For types of construction with order code(s) Article No. with additional identification code -Z	71	80	90	100	112	132	160	180	200	225	250	280	315 S/M	315 L	IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 IE2
<b>1MB15</b> . . . . .	<b>■</b> . . (-Z)	Order code	<b>1MB15.3 Basic Line</b>														IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 IE2
<b>1MB16</b> . . . . .	<b>■</b> . . (-Z)		<b>1MB16.3 Performance Line</b>																
			<b>1MB15.1 Basic Line</b>																
			<b>1MB16.1 Performance Line</b>																
<b>With flange</b>	<b>Acc. to EN 50347 Acc. to DIN 42 948</b>		FT85 C 105	FT100 C 120	FT115 C 140	FT130 C 160	FT130 C 160	FT165 C 200	FT215 C 250	-	-	-	-	-	-	-			
IM B14 1)		<b>K</b>	-	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-			
IM V19 1)		<b>L</b>	-	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-			
IM V18 with protective cover 1) 2)		<b>M</b>	<b>H00</b>	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-			
IM B34		<b>N</b>	-	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-			
<b>With special flange next largest</b>	<b>Acc. to EN 50347 Acc. to DIN 42 948</b>		FT115 C 140	FT130 C 160	FT130 C 160	FT165 C 200	FT165 C 200	FT215 C 250	-	-	-	-	-	-	-	-			
IM B14 1)		<b>K</b>	<b>P01</b>	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-			
IM V19 1)		<b>L</b>	<b>P01</b>	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-			
IM V18 with protective cover 1) 2)		<b>M</b>	<b>P01+ H00</b>	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-			
IM B34		<b>N</b>	<b>P01</b>	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-			

- Standard version
- ✓ With additional charge
- Not possible

1) 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.

## Article No. supplements and special versions

### SIMOTICS XP 1MB1 explosion-proof motors

#### Motor protection · Aluminum series 1MB10

#### Selection and ordering data

Motor protection	Article No.	supplement	Frame size					Motor version	
			80	90	100	112	132		160
	Motor protection code letter	Additional identification code with order code and plain text, if required	<b>1MB10.3</b>					IEC	Ex tb (Zone 21), IE3 Ex tc (Zone 22), IE2 Ex ec (Zone 2) IE1
	15th position of the Article No.		<b>1MB10.1</b>						
	Order code		<b>1MB10.2</b>						
<b>1MB10</b> . . . . .									
Motor protection									
None (standard)	<b>A</b>	–	□	□	□	□	□	□	
1 or 3 PTC thermistors – for tripping (2 terminals) <sup>1)</sup>	<b>B</b>	–	✓	✓	✓	✓	✓	✓	
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) <sup>1)</sup>	<b>C</b>	–	✓	✓	✓	✓	✓	✓	
1 KTY84-130 temperature sensor (2 terminals) <sup>1)</sup>	<b>F</b>	–	✓	✓	✓	✓	✓	✓	
2 KTY84-130 temperature sensors (4 terminals) <sup>1)</sup>	<b>G</b>	–	✓	✓	✓	✓	✓	✓	
3 Pt100 resistance thermometers – 2-wire input (6 terminals) <sup>1) 2)</sup>	<b>H</b>	–	–	–	✓	✓	✓	✓	
1 Pt1000 resistance thermometers (2 terminals) <sup>1)</sup>	<b>K</b>	–	✓	✓	✓	✓	✓	✓	
2 Pt1000 resistance thermometers (4 terminals) <sup>1)</sup>	<b>L</b>	–	✓	✓	✓	✓	✓	✓	

- Standard version
- ✓ With additional charge
- Not possible

<sup>1)</sup> Evaluation with associated tripping unit (see Catalog IC 10) is recommended. In converter operation, PTC thermistor motor protection is always required.

<sup>2)</sup> 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).

## Article No. supplements and special versions 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	Frame size													Motor version		
			71	80	90	100	112	132	160	180	200	225	250	280	315	IEC	Ex tb (Zone 21), IE3 Ex tc (Zone 22), Ex ec (Zone 2)	
			<b>1MB15.3 Basic Line</b>													IEC	Ex tb (Zone 21), IE3 Ex tc (Zone 22), Ex ec (Zone 2)	
			<b>1MB16.3 Performance Line</b>															
			<b>1MB15.1 Basic Line</b>															
			<b>1MB16.1 Performance Line</b>															
	<b>1MB15</b> . . . . . ■ .																	
	<b>1MB16</b> . . . . . ■ .	Order code																
<b>Motor protection</b>																		
None (standard)	<b>A</b>	–	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	Only for: 1MB15.. Basic Line
1 or 3 PTC thermistors – for tripping (2 terminals) <sup>1)</sup>	<b>B</b>	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2 or 6 PTC thermistors – for alarm and tripping (4 terminals) <sup>2)</sup>	<b>C</b>	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB15.. Basic Line
			–	–	–	□	□	□	□	□	□	□	□	□	□	□	□	Only for: MB16.. Performance Line
1 KTY84-130 temperature sensor (2 terminals) <sup>2)</sup>	<b>F</b>	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2 KTY84-130 temperature sensor (4 terminals) <sup>2)</sup>	<b>G</b>	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3 Pt100 resistance thermometers – 2-wire input (6 terminals) <sup>2) 3)</sup>	<b>H</b>	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
6 Pt100 resistance thermometers – 2-wire input (12 terminals) <sup>2)</sup>	<b>J</b>	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
1 Pt1000 resistance thermometer (2 terminals) <sup>2)</sup>	<b>K</b>	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2 Pt1000 resistance thermometers (4 terminals) <sup>2)</sup>	<b>L</b>	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

- Standard version
- ✓ With additional charge
- Not possible

<sup>1)</sup> 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.

<sup>2)</sup> Evaluation with associated tripping unit (see Catalog IC 10) is recommended. In converter operation, PTC thermistor motor protection is always required.

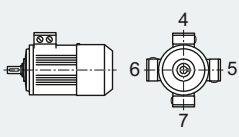
<sup>3)</sup> In combination with the 15th position of the Article No. "H", the order codes **Q02** and **Q03** are not possible for frame sizes 100 to 160. It can only be supplied with a star or delta winding for direct switch-on (3 terminals).

## Article No. supplements and special versions

### 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			
		80	90	100	112	132	160			
	Terminal box position code 16th position of the Article No.							IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 IE2 IE1
	Additional identification code with order code and plain text, if required	1MB10.3								
	Order code	1MB10.1		1MB10.2						

Terminal box position										
Terminal box top <sup>1)</sup>	4	–	□	□	□	□	□	□	□	□
Terminal box right-hand side <sup>2)</sup>	5	–	✓	✓	✓	✓	✓	✓	✓	✓
Terminal box left-hand side <sup>2)</sup>	6	–	✓	✓	✓	✓	✓	✓	✓	✓
Terminal box at bottom <sup>2) 3)</sup>	7	–	–	–	✓	✓	✓	✓	✓	✓

- Standard version
- ✓ With additional charge

<sup>1)</sup> For types of construction with feet, cast feet are standard.

<sup>2)</sup> For foot-mounted designs, screwed-on feet are standard.

<sup>3)</sup> Not generally possible for motors with feet.

## Article No. supplements and special versions 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	Frame size											Motor version			
			71	80	90	100	112	132	160	180	200	225	250	280	315		
		Terminal box position code 16th position of the Article No.	1MB15.3 Basic Line											IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 IE2	
		Additional identification code with order code and plain text, if required	1MB16.3 Performance Line														
			1MB15.1 Basic Line														
			1MB16.1 Performance Line														
	1MB15 .....	Order code															
	1MB16 .....																
Terminal box position																	
Terminal box top <sup>1)</sup>	4	–	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Terminal box right-hand side <sup>2)</sup>	5	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Terminal box left-hand side <sup>2)</sup>	6	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Terminal box bottom <sup>3)</sup>	7	–	–	–	–	✓	✓	✓	✓	–	–	–	–	–	–	–	–

- ☐ 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 identification code -Z with order code and plain text if required	Frame size						Motor version		
		80	90	100	112	132	160	IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 IE2 IE1
		<b>1MB10.3</b>								
		<b>1MB10.1</b>								
				<b>1MB10.2</b>						
<b>1MB10 . . . . . -Z</b>	Order code									
<b>Explosion-proof version</b>										
Version (IP55) for Zones 2 or 22, for non-conductive dust <sup>1) 14)</sup>	<b>B30</b>	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB103. – Ex ec (Zone 2)
Design for Zone 2 in Ex ec IIB T3 Gc	<b>B31</b>	○	○	○	○	○	○	○	○	Only for: 1MB103. – Ex ec (Zone 2)
VIK version	<b>C02</b>	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB1033 – Ex ec IE3 (Zone 2), 1MB1031 – Ex ec IE2 (Zone 2)
<b>Version for converter operation</b>										
Version for converter operation in basic version with operating data SINAMICS G120 with PM240-2. <sup>15)</sup>	<b>B40</b>	✓	✓	✓	✓	✓	✓	✓	✓	
Version for converter operation in basic version with operating data SINAMICS S150. <sup>15)</sup>	<b>B41</b>	✓	✓	✓	✓	✓	✓	✓	✓	
Operating data such as order code <b>B40</b> with alternative SINAMICS converters on the rating plate • G120 with PM230 • G120 with PM240 • G120C • G120P with PM230 • G120P with PM240-2 • G120P with PM240P-2 • G120P with PM330 • G130, G150, G180 • S120 (BLM/SLM) • V20 Operating data such as order code <b>B41</b> with alternative SINAMICS converters on the rating plate • S120 (ALM)	<b>Y68 •</b> and converter type	○	○	○	○	○	○	○	○	
<b>Motor protection</b>										
1 Pt1000 resistance thermometer (2 terminals)	<b>Q35</b>	✓	✓	✓	✓	✓	✓	✓	✓	
2 Pt1000 resistance thermometers (4 terminals)	<b>Q36</b>	✓	✓	✓	✓	✓	✓	✓	✓	
<b>Motor connection and terminal box</b>										
External grounding		□	□	□	□	□	□	□	□	
Rotation of the terminal box through 90°, entry from DE	<b>R10</b>	○	○	○	○	○	○	○	○	
Rotation of the terminal box through 90°, entry from NDE	<b>R11</b>	○	○	○	○	○	○	○	○	
Rotation of the terminal box through 180°	<b>R12</b>	○	○	○	○	○	○	○	○	
Metal cable gland, maximum configuration, certified according to ATEX	<b>R18</b>	✓	✓	✓	✓	✓	✓	✓	✓	
Larger terminal box	<b>R50</b>	□	□	–	–	–	–	–	–	
<b>Windings and insulation</b>										
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 % <sup>2)</sup>	<b>N05</b>	✓	✓	✓	✓	✓	✓	✓	✓	
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 % <sup>2)</sup>	<b>N06</b>	✓	✓	✓	✓	✓	✓	✓	✓	
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 % <sup>2)</sup>	<b>N07</b>	✓	✓	✓	✓	✓	✓	✓	✓	
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	<b>N08</b>	✓	✓	✓	✓	✓	✓	✓	✓	
Increased air humidity/temperature with 30 to 60 g water per m <sup>3</sup> of air	<b>N30</b>	✓	✓	✓	✓	✓	✓	✓	✓	

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 identification code -Z with order code and plain text if required	Frame size						Motor version		
		80	90	100	112	132	160	IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 IE2 IE1
		<b>1MB10.3</b>								
		<b>1MB10.1</b>								
				<b>1MB10.2</b>						
<b>1MB10 . . . . . -Z</b>	Order code									
<b>Packaging, safety notes, documentation and test certificates</b>										
Printed Operating Instructions (Compact) for explosion-proof motors enclosed in English and German <sup>11)</sup>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Acceptance test certificate 3.1 according to EN 10204 <sup>10)</sup>	<b>B02</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Printed German/English Operating Instructions enclosed	<b>B04</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Type test with heat run for horizontal motors, with acceptance	<b>B83</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
"Basic" documentation package	<b>B90</b>	<i>New!</i> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
"Advanced" documentation package	<b>B91</b>	<i>New!</i> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
"Projects" documentation package	<b>B92</b>	<i>New!</i> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Wire-lattice pallet packaging	<b>B99</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Connected in star for shipping	<b>M01</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Connected in delta for dispatch	<b>M02</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Printed Operating Instructions (Compact) for explosion-proof motors enclosed in other official EU languages <sup>11)</sup>	<b>Y98 •</b> and customer specifications	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

- 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

- 1) Please inquire regarding combination with order codes **D03** and **C02**. Not possible in combination with order codes **H20** and **H22**.
- 2) There is no derating in combination with order codes **M2A, M2B, M2C, M2D, M2E, M2F, M2G, M2H**.
- 3) Not possible for type of construction IM V3.
- 4) For Zone 21, IP65 degree of protection is standard. Not possible for Zone 22, because only IP55 degree of protection is required.
- 5) Not admissible for Zone 21 (IP65 degree of protection) and Zone 22 (IP55 degree of protection).
- 6) 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.
- 7) 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".
- 8) The metal external fan is not possible in combination with the low-noise version – order code **F77** or **F78**.
- 9) 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 (3 terminals).

- 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/WWW/view/en/10803948/133300>
- 12) Order code **S06** cannot be combined with order code **S00** and **S01**. It can be combined with **Y53** and **Y56** on request.
- 13) A minimum cantilever force  $F_{min}$  of  $0.5 \cdot F_{max}$  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.
- 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.
- 17) 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.
- 18) Cannot be combined with converter operation.
- 19) Vibration severity grade B not admissible in combination with converter operation (order code **B40/B41**).

## Article No. supplements and special versions

### SIMOTICS XP 1MB1 explosion-proof motors

#### Options · Cast-iron series 1MB15 Basic Line, 1MB16 Performance Line

#### Selection and ordering data

Special versions	Additional identification code -Z with order code and plain text if required	Frame size													Motor version			
		71	80	90	100	112	132	160	180	200	225	250	280	315	IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 IE2	
		<b>1MB15.3 Basic Line</b>													IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 IE2	
		<b>1MB16.3 Performance Line</b>																
<b>1MB15 . . . . . -Z</b>		<b>1MB15.1 Basic Line</b>																
<b>1MB16 . . . . . -Z</b>	Order code	<b>1MB16.1 Performance Line</b>																
<b>Explosion-proof version</b>																		
Version (IP55) for Zones 2 or 22, for non-conductive dust <sup>1) 16)</sup>	<b>B30</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB1.3. – Ex ec (Zone 2)
Version for Zone 2 in Ex ec IIB T3 Gc	<b>B31</b>	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Only for: 1MB1.3. – Ex ec (Zone 2)
VIK version	<b>C02</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB1.3. – Ex ec (Zone 2)
<b>Version for converter operation</b>																		
Version for converter operation in basic version with operating data SINAMICS G120 with PM240-2. <sup>17) 20) 21) 22)</sup>	<b>B40</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB1.3. – Ex ec (Zone 2)
Version for converter operation in basic version with operating data SINAMICS S150. <sup>17) 20) 21) 22)</sup>	<b>B41</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB1.3. – Ex ec (Zone 2)
Operating data such as order code <b>B40</b> with alternative SINAMICS converters on the rating plate <sup>20)</sup>	<b>Y68 •</b> and converter type	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
Operating data such as order code <b>B41</b> with alternative SINAMICS converters on the rating plate <sup>20)</sup>		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
<b>Motor protection</b>																		
1 Pt1000 resistance thermometer (2 terminals)	<b>Q35</b>	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2 Pt1000 resistance thermometers (4 terminals)	<b>Q36</b>	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2 Pt100 screw-in thermometers in basic configuration for bearings (2 terminals) <sup>2) 3)</sup>	<b>Q72</b>	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
2 Pt100 screw-in thermometers in 3-wire input for bearing (6 terminals) <sup>2) 3)</sup>	<b>Q78</b>	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
2 Pt100 double screw-in thermometers in 3-wire input for bearing (12 terminals) <sup>2) 3)</sup>	<b>Q79</b>	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
<b>Motor connection and terminal box</b>																		
External grounding		□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	
Rotation of the terminal box through 90°, entry from DE	<b>R10</b>	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
Rotation of the terminal box through 90°, entry from NDE	<b>R11</b>	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
Rotation of the terminal box through 180°	<b>R12</b>	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
Stud terminal for cable connection, accessories pack (3 items)	<b>R17</b>	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Only for: 1MB1.1. – Ex tb (Zone 21), 1MB1.2. – Ex tc (Zone 22)
Metal cable gland, maximum configuration, certified according to ATEX	<b>R18</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Saddle terminal for connection without cable lug, accessories pack	<b>R19</b>	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Only for: 1MB1.1. – Ex tb (Zone 21), 1MB1.2. – Ex tc (Zone 22)
Larger terminal box <sup>15)</sup>	<b>R50</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB1.3. – Ex ec (Zone 2)
Cast-iron auxiliary terminal box (small)	<b>R62</b>	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	

For legends and footnotes, see page 5/46.

## 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 with order code and plain text if required	Order code	Frame size													Motor version		
			71	80	90	100	112	132	160	180	200	225	250	280	315	IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 <hr/> IE2
			<b>1MB15.3 Basic Line</b>													IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 <hr/> IE2
			<b>1MB15.1 Basic Line</b>															
			<b>1MB16.3 Performance Line</b>															
			<b>1MB16.1 Performance Line</b>															
<b>Windings and insulation</b>																		
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 45 °C, derating approx. 4 % <sup>4)</sup>	<b>N05</b>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 50 °C, derating approx. 8 % <sup>4)</sup>	<b>N06</b>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 55 °C, derating approx. 13 % <sup>4)</sup>	<b>N07</b>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Temperature class 155 (F), utilized acc. to 130 (B), coolant temperature 60 °C, derating approx. 18 %	<b>N08</b>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Increased air humidity/temperature with 30 to 60 g water per m <sup>3</sup> of air	<b>N30</b>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Increased air humidity/temperature with 60 to 100 g water per m <sup>3</sup> of air	<b>N31</b>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Temperature class 155 (F), utilized acc. to 130 (B), with higher coolant temperature and/or installation altitude	<b>Y50 •</b> and spec. power, CT .. °C or IA .... m above sea level		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
<b>Colors and paint finish</b>																		
Standard paint finish C2 in RAL 7030 stone gray			□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	Only for: 1MB15..
Unpainted (only cast-iron parts primed)	<b>S00</b>		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
Unpainted, only primed	<b>S01</b>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Special paint finish C3	<b>S02</b>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB15..
			-	-	-	□	□	□	□	□	□	□	□	□	□	□	□	Only for: 1MB16..
Special paint finish sea air resistant C4	<b>S03</b>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Special paint finish for use offshore C5	<b>S04</b>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Top coat polyurethane <sup>12)</sup>	<b>S06</b>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB1.3. – 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, 7011, 7016, 7022, 7031, 7032, 7033, 7035, 9001, 9002, 9005 (see Catalog Section 1 "Introduction")	<b>Y53 •</b> and paint finish RAL ....		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB15..
Paint finish in special RAL colors: For RAL colors, see "Special paint finish in special RAL colors" (see Catalog Section 1 "Introduction")	<b>Y56 •</b> and paint finish RAL ....		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
<b>Modular technology – Basic versions</b>																		
Mounting of explosion-proof separately driven fan <sup>19)</sup>	<b>F70</b>	<i>New!</i>	-	-	-	-	-	-	-	-	-	-	✓	✓	✓	✓	Only for: 1MB1.1. – Ex tb (Zone 21)	
			-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB1.2. – Ex tc (Zone 22)	
			-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB1.3. – Ex ec (Zone 2)
<b>Special technology</b>																		
Mounting of explosion-proof rotary pulse encoder for use in Zones 2, 21 and 22 <sup>18)</sup>	<b>G30</b>	<i>New!</i>	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

For legends and footnotes, see page 5/46.

## 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 <b>-Z</b> with order code and plain text if required	Frame size													Motor version			
		71	80	90	100	112	132	160	180	200	225	250	280	315	IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 <hr/> IE2	
		<b>1MB15.3 Basic Line</b>																
		<b>1MB16.3 Performance Line</b>																
		<b>1MB15.1 Basic Line</b>																
		<b>1MB16.1 Performance Line</b>																
<b>Mechanical version and degrees of protection</b>																		
Low-noise version for 2-pole motors with clockwise direction of rotation	<b>F77</b>	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓				
Low-noise version for 2-pole motors with counterclockwise direction of rotation	<b>F78</b>	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓				
Mechanical protection for encoder	<b>G43</b>	-	-	-	□	□	□	□	□	□	□	□	□	□				
Protective cover	<b>H00</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Vibration-proof version; vibration resistance to Class 3M4 according to IEC 60721-3-3:1994	<b>H02</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Condensation drainage holes <sup>7)</sup>	<b>H03</b>	✓	✓	✓	□	□	□	□	□	□	□	□	□	□				
Rust-resistant screws (externally)	<b>H07</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Degree of protection IP65 <sup>5)</sup>	<b>H20</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		Only for: 1MB1.3. – Ex ec (Zone 2)		
Degree of protection IP56 <sup>6)</sup>	<b>H22</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		Only for: 1MB1.3. – Ex ec (Zone 2)		
Drive-end seal for flange-mounting motors, oil-tight to 0.1 bar Not possible for type of construction IM V3	<b>H23</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
<b>Coolant temperature and installation altitude</b>																		
Coolant temperature -40 °C to +40 °C	<b>D03</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
<b>Versions in accordance with standards and specifications</b>																		
Ex certification for China	<b>D32</b>	<i>New!</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB15..
			-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Only for: 1MB16..
China Energy Efficiency Label	<b>D34</b>	<i>New!</i>	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Only for: 1MB15..
			-	-	-	○	○	○	○	○	○	○	○	○	○	○	○	Only for: 1MB16..
EAC Ex certificate for the Eurasian customs union <sup>13)</sup>	<b>D35</b>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
IEC Ex certification	<b>D37</b>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
<b>Bearings and lubrication</b>																		
Regreasing device with M10 x1 grease nipple according to DIN 71412-A	<b>L19</b>	-	-	-	-	-	-	-	✓	✓	✓	✓	○	○				
Located bearing DE	<b>L20</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Located bearing NDE	<b>L21</b>	✓	✓	✓	✓	✓	✓	□	□	□	□	□	□	□				
Bearing design for increased cantilever forces <sup>14)</sup>	<b>L22</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Regreasing device	<b>L23</b>	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	□	□		Only for: 1MB15..	
		-	-	-	✓	✓	✓	□	□	□	□	□	□	□		Only for: 1MB16..		
Bearings reinforced at both ends for DE and NDE, bearing size 63	<b>L25</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	□	□		Only for: 1MB15..	
		-	-	-	□	□	□	□	□	□	□	□	□	□		Only for: 1MB16..		
Bearing insulation NDE <sup>20)</sup>	<b>L51</b>	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ <sup>20)</sup>	✓ <sup>20)</sup>			
Measuring nipple for SPM shock pulse measurement for bearing inspection	<b>Q01</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
<b>Balance and vibration severity</b>																		
Vibration severity grade A <sup>21)</sup>		□	□	□	□	□	□	□	□	□	□	□	□	□				
Vibration severity grade B <sup>21)22)23)</sup>	<b>L00</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Half-key balancing		□	□	□	□	□	□	□	□	□	□	□	□	□				
Balancing without feather key	<b>L01</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Full-key balancing	<b>L02</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				

For legends and footnotes, see page 5/46.

## 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 with order code and plain text if required	Frame size													Motor version			
		71	80	90	100	112	132	160	180	200	225	250	280	315	IEC	Ex tb (Zone 21), Ex tc (Zone 22), Ex ec (Zone 2)	IE3 <hr/> IE2	
		1MB15.3 Basic Line																
1MB15 . . . . . -Z	Order code	1MB15.1 Basic Line													1MB16.1 Performance Line			
<b>Shaft and rotor</b>																		
Shaft extension with standard dimensions, without feather keyway	L04	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Standard, cylindrical shaft extension (second shaft extension) NDE acc. to EN 50347	L05	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
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	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Non-standard cylindrical shaft extension DE <sup>8)</sup>	Y58 • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Non-standard cylindrical shaft extension NDE <sup>8)</sup>	Y59 • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
<b>Heating and ventilation</b>																		
Metal external fan <sup>9)</sup>	F76	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		Only for: 1MB1.3. – Ex ec (Zone 2)		
Anti-condensation heating for 230 V (2 terminals) <sup>3)</sup>	Q02	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Anti-condensation heating for 115 V (2 terminals) <sup>3)</sup>	Q03	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
<b>Rating plate and additional rating plates</b>																		
Second rating plate, loose	M10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Rating plate, stainless steel	M11	✓	✓	✓	✓	✓	✓	✓	✓	✓	□	□	□	□		Only for: 1MB15..		
		-	-	-	□	□	□	□	□	□	□	□	□	□		Only for: 1MB16..		
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	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
<b>Packaging, safety notes, documentation and test certificates</b>																		
Printed Operating Instructions (Compact) for explosion-proof motors enclosed in English and German <sup>11)</sup>		□	□	□	□	□	□	□	□	□	□	□	□	□				
Acceptance test certificate 3.1 according to EN 10204 <sup>10)</sup>	B02	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Printed German/English Operating Instructions enclosed	B04	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Type test with heat run for horizontal motors, with acceptance	B83	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
"Basic" documentation package	B90 <i>New!</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
"Advanced" documentation package	B91 <i>New!</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
"Projects" documentation package	B92 <i>New!</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Wire-lattice pallet packaging	B99	○	○	○	○	○	○	○	-	-	-	-	-	-				
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 <sup>11)</sup>	Y98 • and customer specifications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				

For legends and footnotes, see page 5/46.

## Article No. supplements and special versions

### SIMOTICS XP 1MB1 explosion-proof motors

#### Options · Cast-iron series 1MB15 Basic Line, 1MB16 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
- Not possible

5

- 1) Please inquire regarding combination with order codes D03 and C02. Not possible in combination with order codes **H20** and **H22**.
- 2) 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**.
- 5) 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 ≤ 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  $F_{\min}$  of  $0.5 \cdot F_{\max}$  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.
- 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).
- 18) 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).

#### 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](http://www.siemens.com)

Email: [flendercouplings@siemens.com](mailto: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](http://www.ottoroth.de)

Email: [info@ottoroth.de](mailto: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](http://www.luetgert-antriebe.de)

Email: [info@luetgert-antriebe.de](mailto: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](http://www.luetgert-antriebe.de)

Email: [info@luetgert-antriebe.de](mailto: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:

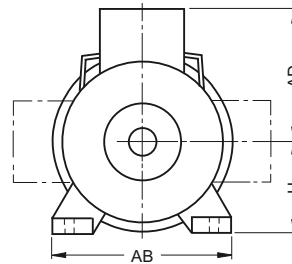
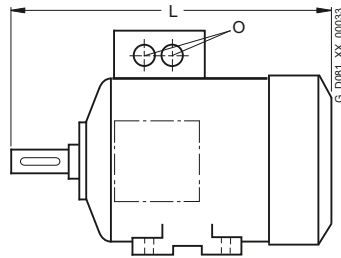
[www.siemens.com/automation/service&support](http://www.siemens.com/automation/service&support)

## Dimensions

### SIMOTICS XP 1MB1 explosion-proof motors

#### Overall dimensions

#### Overview



Frame size	Type	Dimen- sion L	AD	H	AB	O	
71 M	Cast-iron series, self-ventilated	1MB15..-					
	OCA2, OCB2, OCC2, OCD2	240	149	71	132	1 × M16 × 1.5	
	OCA3, OCB3, OCC3, OCD3	280				1 × M25 × 1.5	
80 M	Aluminum series, self-ventilated,	1MB101, 1MB102, 1MB103	292	149	80	150	1 × M16 × 1.5 1 × M25 × 1.5
	Cast-iron series, self-ventilated	1MB15..-					
	ODA2, ODB2, ODC2, ODD2	292	159	80	150	1 × M16 × 1.5	
	ODA3, ODB3, ODC3, ODD3	327				1 × M25 × 1.5	
90 S/L	Aluminum series, self-ventilated,	1MB101, 1MB102, 1MB103	347	154	90	165	1 × M16 × 1.5 1 × M25 × 1.5
	Cast-iron series, self-ventilated	1MB15..-					
	OEA0, OEB0, OEC0, OED0	347	164	90	165	1 × M16 × 1.5	
	OEA4, OEB4, OEC4, OED4	387				1 × M25 × 1.5	
100 L	Aluminum series, self-ventilated	1MB1011, 1MB1012, 1MB1021, 1MB1022, 1MB1031, 1MB1032, 1MB1013, 1MB1023, 1MB1033	395.5 <sup>1)</sup>	166	100	196	2 × M32 × 1.5
	Cast-iron series, self-ventilated	1MB15.., 1MB16..	430.5 <sup>1)</sup>				
			389	193	100	196	2 × M32 × 1.5
112 M	Aluminum series, self-ventilated	1MB1011, 1MB1012, 1MB1021, 1MB1022, 1MB1031, 1MB1032, 1MB1013, 1MB1023, 1MB1033	389 <sup>1)</sup>	177	112	226	2 × M32 × 1.5
	Cast-iron series, self-ventilated	1MB15.., 1MB16..	414 <sup>1)</sup>				
			382	195	112	226	2 × M32 × 1.5
132 S/ 132 M	Aluminum series, self-ventilated	1MB1011, 1MB1012, 1MB1021, 1MB1022, 1MB1031, 1MB1032, 1MB1013-, 1MB1023-, 1MB1033-	465 <sup>1)</sup>	202	132	256	2 × M32 × 1.5
	1CA0, 1CC0, 1CC2	465 <sup>1)</sup>					
	1CA1, 1CB0, 1CB2, 1CC3	515 <sup>1)</sup>					
	Cast-iron series, self-ventilated	1MB15.., 1MB16..	457	215	132	256	2 × M32 × 1.5
160 M/ 160 L	Aluminum series, self-ventilated	1MB1011, 1MB1012, 1MB1021, 1MB1022, 1MB1031, 1MB1032, 1MB1013, 1MB1023, 1MB1033	604 <sup>1)</sup>	236	160	300	2 × M40 × 1.5
	Cast-iron series, self-ventilated	1MB15.., 1MB16..	594	265	160	300	2 × M40 × 1.5
180 M	Cast-iron series, self-ventilated	1MB15.1-, 1MB16.1-					
	1EA2, 1EB2	668	180	339	2 × M40 × 1.5		
	1EA6	698					
	Cast-iron series, self-ventilated	1MB15.3-, 1MB16.3-					
	1EB2	668	180	339	2 × M40 × 1.5		
	1EA2	698					
180 L	Cast-iron series, self-ventilated	1MB15.1-, 1MB16.1-					
	1EB4, 1EC4, 1EC6	668	180	339	2 × M40 × 1.5		
	1EB6	698					
	Cast-iron series, self-ventilated	1MB15.3-, 1MB16.3-					
	1EC4	668	180	339	2 × M40 × 1.5		
	1EB4	698					

Frame size	Type	Dimen- sion L	AD	H	AB	O
200 L	Cast-iron series, self-ventilated	1MB15.1-, 1MB16.1-				
	2AA4, 2AA5, 2AB5, 2AC4, 2AC5	721	315	200	378	2 × M50 × 1.5
	2AA6	746				
	Cast-iron series, self-ventilated	1MB15.3-, 1MB16.3-				
	2AA4, 2AC4	721	315	200	378	2 × M50 × 1.5
	2AA5, 2AB5, 2AC5	746				
225 S	Cast-iron series, self-ventilated	1MB15.1-, 1MB16.1-				
	2BB0, 2BD0	788	338	225	436	2 × M50 × 1.5
	Cast-iron series, self-ventilated	1MB15.3-, 1MB16.3-				
	2BB0	788	338	225	436	2 × M50 × 1.5
225 M	Cast-iron series, self-ventilated	1MB15.1-, 1MB16.1-				
	2BA2, 2BA6	818	338	225	436	2 × M50 × 1.5
	2BB2, 2BB6, 2BC2, 2BC6, 2BD6	848				
	Cast-iron series, self-ventilated	1MB15.3-, 1MB16.3-				
	2BA2	818	338	225	436	2 × M50 × 1.5
	2BB2, 2BC2	848				
250 M	Cast-iron series, self-ventilated	1MB15.1-, 1MB16.1-				
	2CA2, 2CA6, 2CB2, 2CC2, 2CC6, 2CD2, 2CD6	887	410	250	490	2 × M63 × 1.5
	2CB6	957				
	Cast-iron series, self-ventilated	1MB15.3-, 1MB16.3-				
	2CA2, 2CB2, 2CC2	887	410	250	490	2 × M63 × 1.5
280 S	Cast-iron series, self-ventilated	1MB15.1-, 1MB16.1-				
	2DA0, 2DB0, 2DC0, 2DD0	960	433	280	540	2 × M63 × 1.5
	Cast-iron series, self-ventilated	1MB15.3-, 1MB16.3-				
	2DA0, 2DB0, 2DC0	960	433	280	540	2 × M63 × 1.5
280 M	Cast-iron series, self-ventilated	1MB15.1-, 1MB16.1-				
	2DA2, 2DB2, 2DC2, 2DC6, 2DD2, 2DD6	960	433	280	540	2 × M63 × 1.5
	2DA6, 2DB6	1070				
	Cast-iron series, self-ventilated	1MB15.3-, 1MB16.3-				
	2DC2	960	433	280	540	2 × M63 × 1.5
	2DA2, 2DB2	1070				
315 S	Cast-iron series, self-ventilated	1MB15.1-, 1MB16.1-				
	3AA0	1052	515	315	610	2 × M63 × 1.5
	3AB0, 3AC0, 3AD0	1082				
	Cast-iron series, self-ventilated	1MB15.3-, 1MB16.3-				
	3AA0	1052	515	315	610	2 × M63 × 1.5
	3AB0, 3AC0	1082				
315 M	Cast-iron series, self-ventilated	1MB15.1-, 1MB16.1-				
	3AC2, 3AD2	1082	515	315	610	2 × M63 × 1.5
	3AA2	1217				
	3AB2	1247				
	Cast-iron series, self-ventilated	1MB15.3-, 1MB16.3-				
	3AA2	1217	515	315	610	2 × M63 × 1.5
	3AB2, 3AC2	1247				
315 L	Cast-iron series, self-ventilated	1MB15.1-, 1MB16.1-				
	3AA4	1217	515	315	610	2 × M63 × 1.5
	3AB4, 3AC4, 3AC5, 3AD4, 3AD5, 3AD6	1247				
	3AA5, 3AA6	1372				
	3AB5, 3AB6, 3AC6	1402				
	Cast-iron series, self-ventilated	1MB15.3-, 1MB16.3-				
	3AA4	1217	515	315	610	2 × M63 × 1.5
	3AB4, 3AC4	1247				
	3AA5	1372				
	3AB5, 3AC5, 3AC6	1402				



## 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
H	to 250 over 250	- 0.5 - 1.0
E, EA		- 0.5

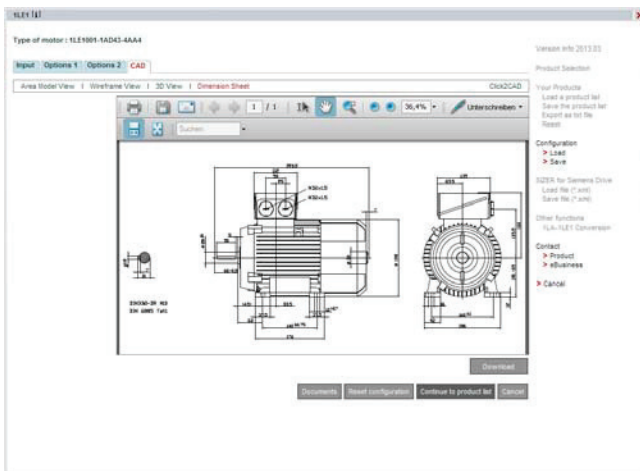
Keyways and feather keyways (dimensions GA, GC, F and FA) are made in compliance with DIN 6885 Part 1.

- 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](http://www.siemens.de/dt-konfigurator)  
English: [www.siemens.com/dt-konfigurator](http://www.siemens.com/dt-konfigurator)

#### 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](http://www.siemens.com/automation/CA01)

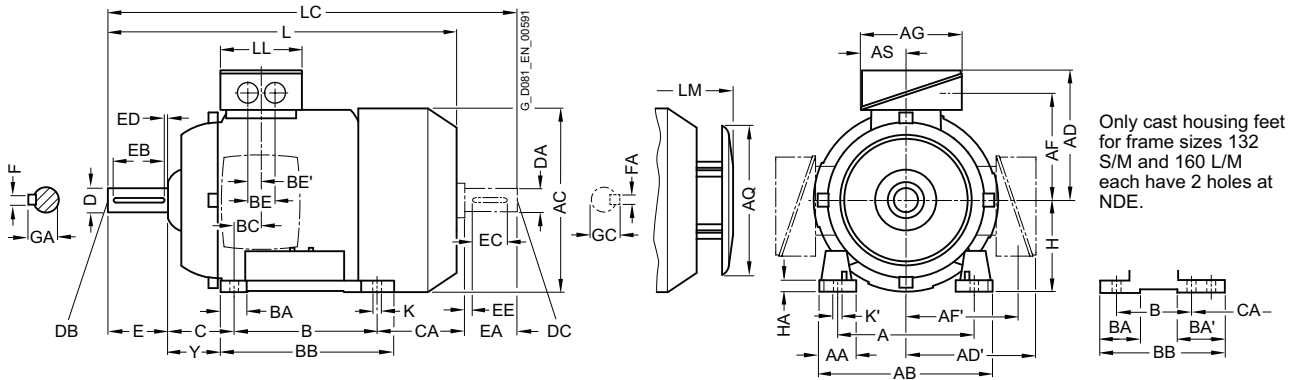
## Dimensions

### SIMOTICS XP 1MB1 explosion-proof motors

Aluminum series, self-ventilated – IE3 · Frame sizes 80 M to 160 L

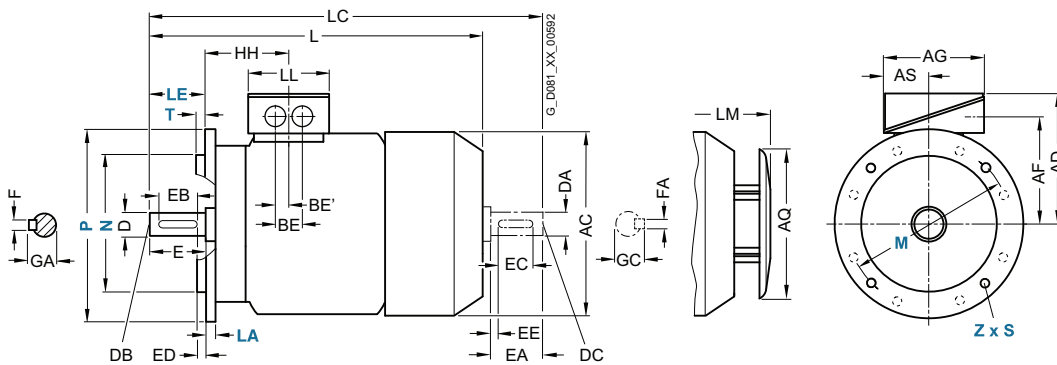
#### Dimensional drawings

##### Type of construction IM B3



##### Types of construction IM B5 and IM V1

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



For motor			Dimension designation acc. to IEC																						
Frame size	Motor type	No. of poles	A	AA	AB	AC	AD	AD'	AF	AF'	AG	AQ	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	H	HA	Y
80 M	0DA2, 0DB2, 0DC3 0DA3, 0DB3, 0DC3	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	41
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.

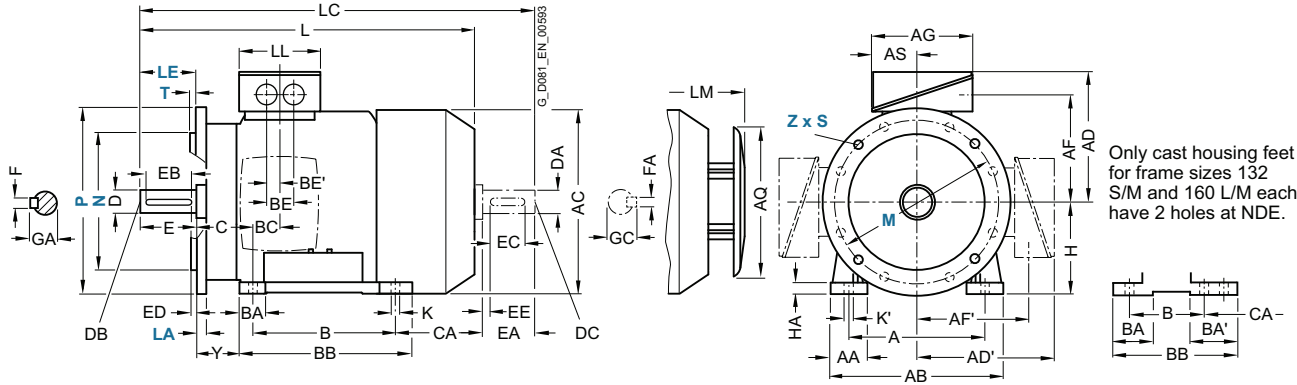
3) With screwed-on feet, dimension BA' is 51 mm.

4) With screwed-on feet, dimension BB is 256 mm.

**Dimensional drawings** (continued)

**Type of construction IM B35**

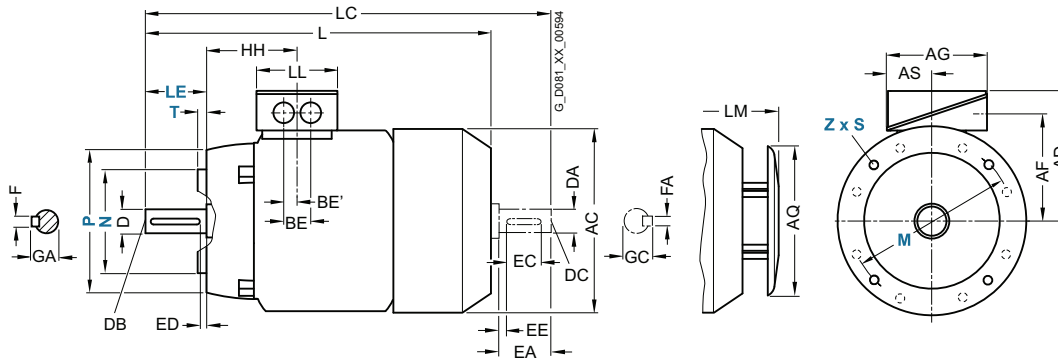
For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)



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 flange dimensions, see page 1/53 (**Z** = the number of retaining holes)



Frame size	Motor type	No. of poles	Dimension designation acc. to IEC							DE shaft extension					NDE shaft extension								
			HH	K	K'	L	LC	LL	LM	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
80 M	ODA2, ODB2, ODC3 ODA3, ODB3, ODC3	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
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

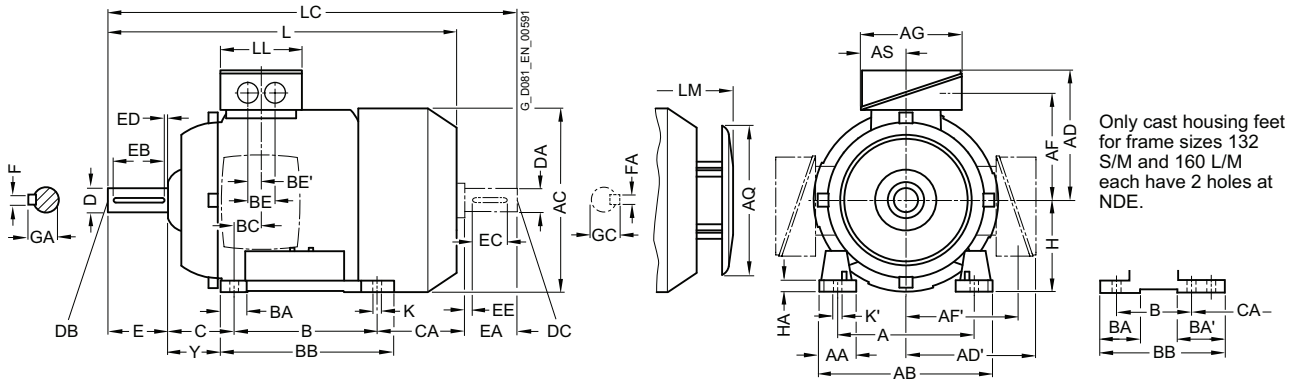
## Dimensions

### SIMOTICS XP 1MB1 explosion-proof motors

Aluminum series, self-ventilated – IE2 and IE1 · Frame sizes 80 M to 160 L

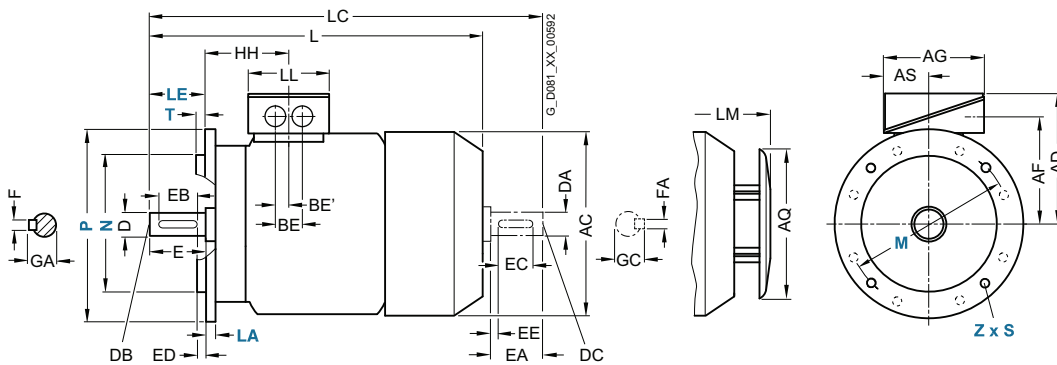
#### Dimensional drawings

##### Type of construction IM B3



##### Types of construction IM B5 and IM V1

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



For motor		Dimension designation acc. to IEC																							
Frame size	Motor type	No. of poles	A	AA	AB	AC	AD	AD'	AF	AF'	AG	AQ	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	H	HA	Y
80 M	1MB10.1, 1MB10.2	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	37.5	176	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 <sup>1)</sup>	218 <sup>2)</sup>	26.5	48	24	89	128.5 <sup>3)</sup>	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 <sup>3)</sup>	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 <sup>4)</sup>	300 <sup>5)</sup>	47	57	28.5	108	148 <sup>6)</sup>	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 <sup>6)</sup>	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.



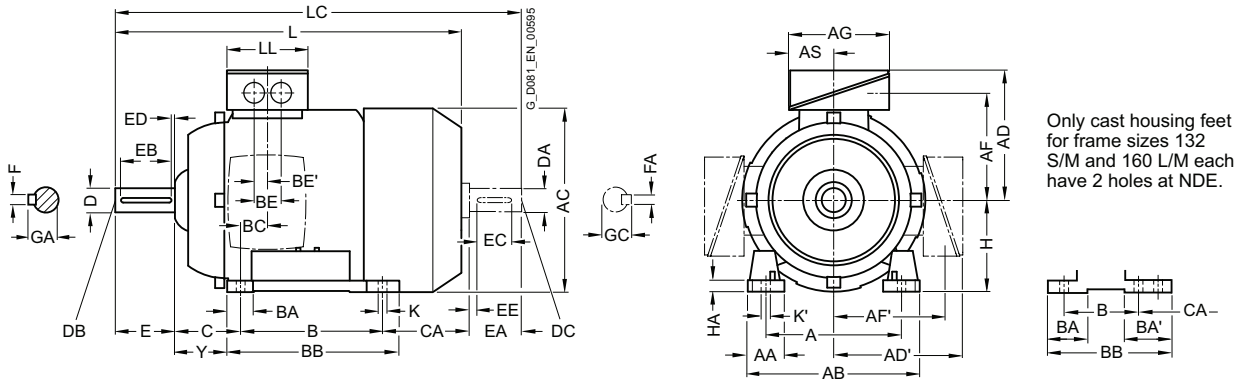
## Dimensions

### SIMOTICS XP 1MB1 explosion-proof motors

Cast-iron series, self-ventilated – IE3 · Frame sizes 71 M to 160 L

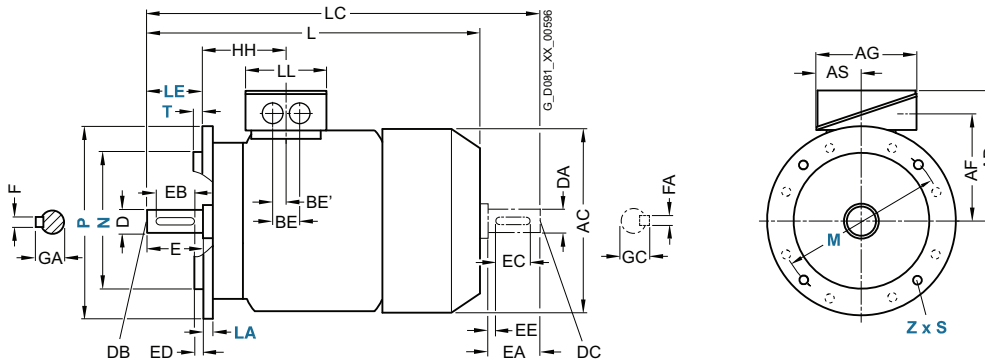
#### Dimensional drawings (continued)

##### Type of construction IM B3



##### Types of construction IM B5 and IM V1

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



For motor Frame size	Motor type	No. of poles	Dimension designation acc. to IEC																					
			A	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE' C	CA	H	HA	Y	
71 M	0CA2, 0CB2, 0CC2 0CA3, 0CB3, 0CC3	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	0DA2, 0DB2, 0DC2 0DA3, 0DB3, 0DC3	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	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 1CA1, 1CB0	2, 6 2, 4	216	53	256	262	214.5	214.5	169	169	163	80.5	140	44	81 <sup>1)</sup>	218 <sup>2)</sup>	26.5	48	24	89	128.5	132	15	69
132 M	1CC2 1CB2, 1CC3	6 4, 6	216	53	256	262	214.5	214.5	169	169	163	80.5	178	44	81 <sup>1)</sup>	218	26.5	48	24	89	128.5	132	15	69
160 M	All	2, 4, 6	254	60	300	314	261	261	213	213	190	92	210	73	117 <sup>3)</sup>	300 <sup>4)</sup>	37	60	30	108	148	160	18	85
160 L	All	2, 4, 6	254	60	300	314	261	261	213	213	190	92	254	73	117 <sup>3)</sup>	300	37	60	30	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.

## Dimensions

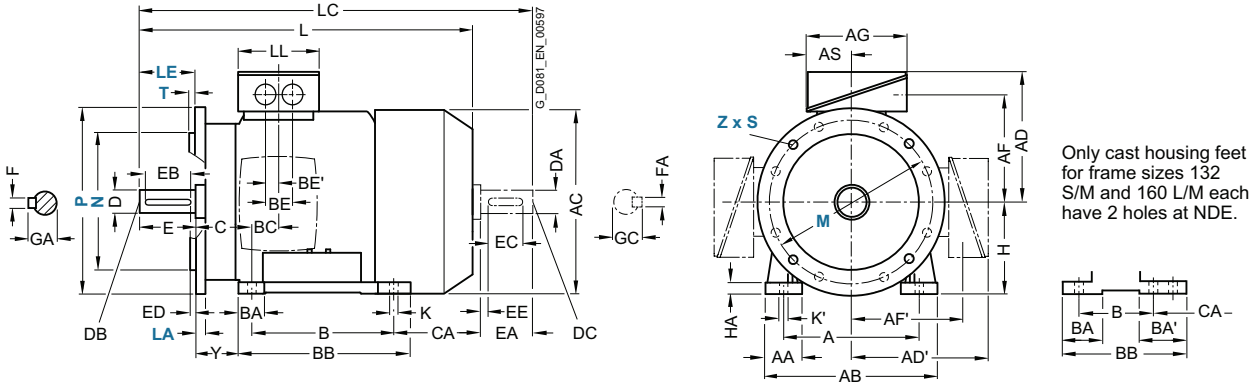
### SIMOTICS XP 1MB1 explosion-proof motors

Cast-iron series, self-ventilated – IE3 · Frame sizes 71 M to 160 L

#### Dimensional drawings (continued)

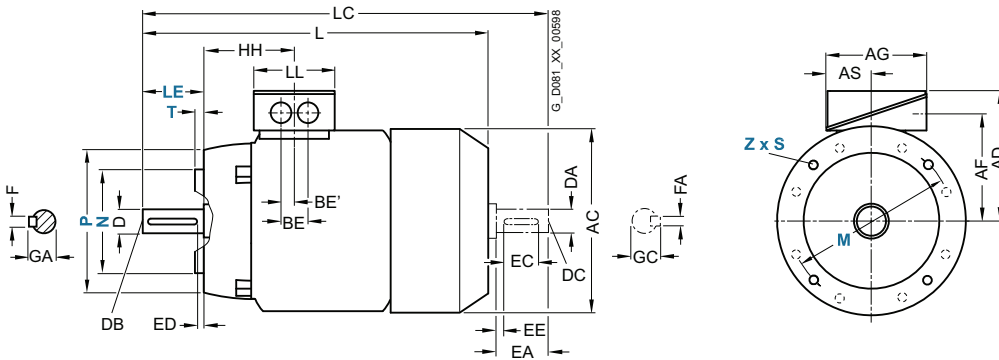
##### Type of construction IM B35

For flange dimensions, see page 1/53 ( $Z$  = the number of retaining holes)



##### Type of construction IM B14

For flange dimensions, see page 1/53 ( $Z$  = the number of retaining holes)



For motor Frame size	Motor type	No. of poles	Dimension designation acc. to IEC						DE shaft extension					NDE shaft extension								
			HH	K	K'	L	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
71 M	0CA2, 0CB2, OCC2	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, OCC3		70			280	318															
80 M	0DA2, 0DB2, ODC2	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, ODC3					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

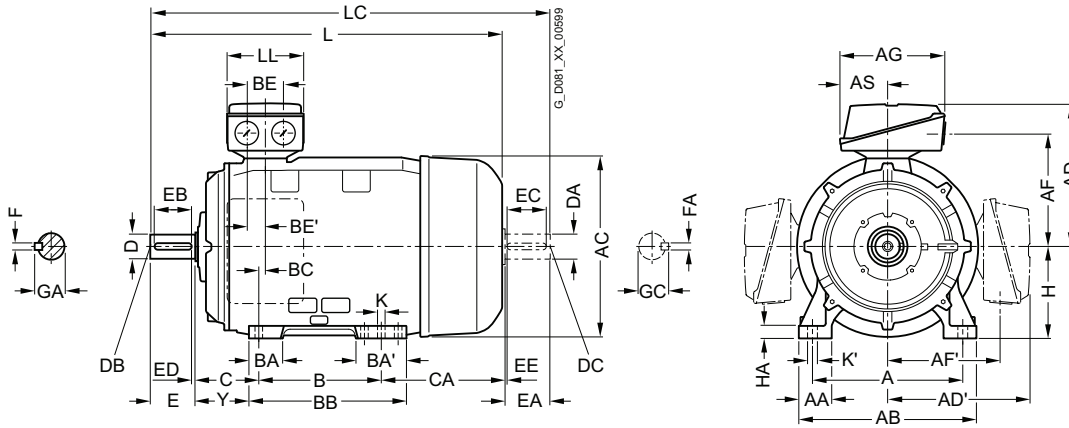
## Dimensions

### SIMOTICS XP 1MB1 explosion-proof motors

Cast-iron series, self-ventilated – IE3 · Frame sizes 180 M to 315 L

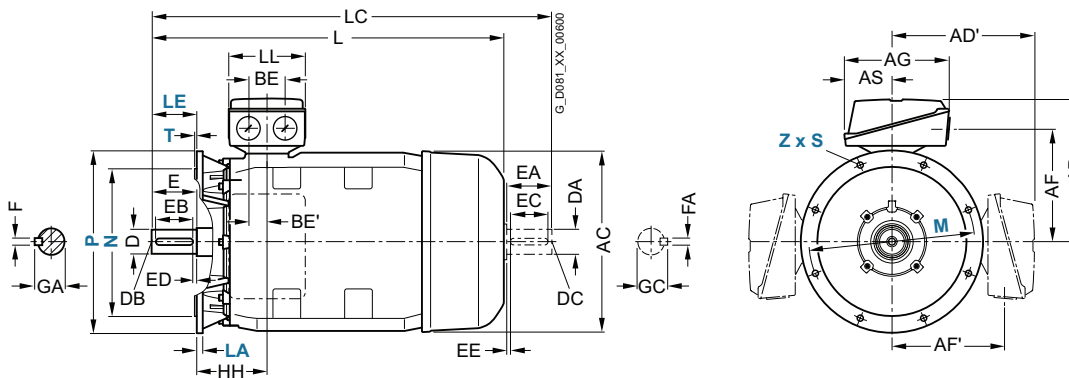
#### Dimensional drawings (continued)

##### Type of construction IM B3



##### Types of construction IM B5 and IM V1

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



5

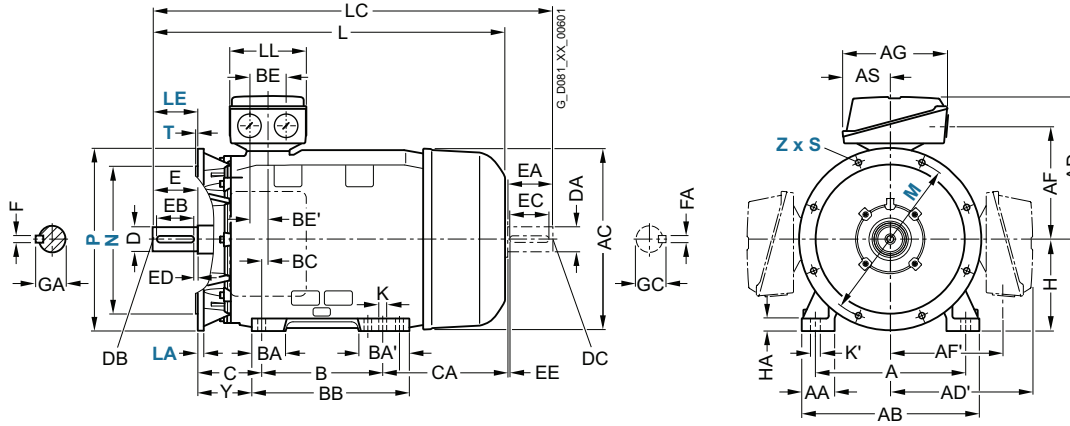
For motor			Dimension designation acc. to IEC																			
Frame size	Motor type	No. of poles	A	AA	AB	AC	AD	AD'	AF	AF'	AG	AH	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA
180 M	1EA2	2	279	65	339	356	286	286	234	234	190	468	92	241	85	120	328	34	60	30	121	202
	1EB2	4																				
180 L	1EB4	4	279	65	339	356	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																				



**Dimensional drawings** (continued)

**Type of construction IM B35**

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



For motor	Dimension designation acc. to IEC	DE shaft extension										NDE shaft extension															
Frame size	Motor type	No. of poles	H	HA	Y	HH	K	K'	L	L <sup>1)</sup>	LC <sup>2)</sup>	LL	D	DB	E	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

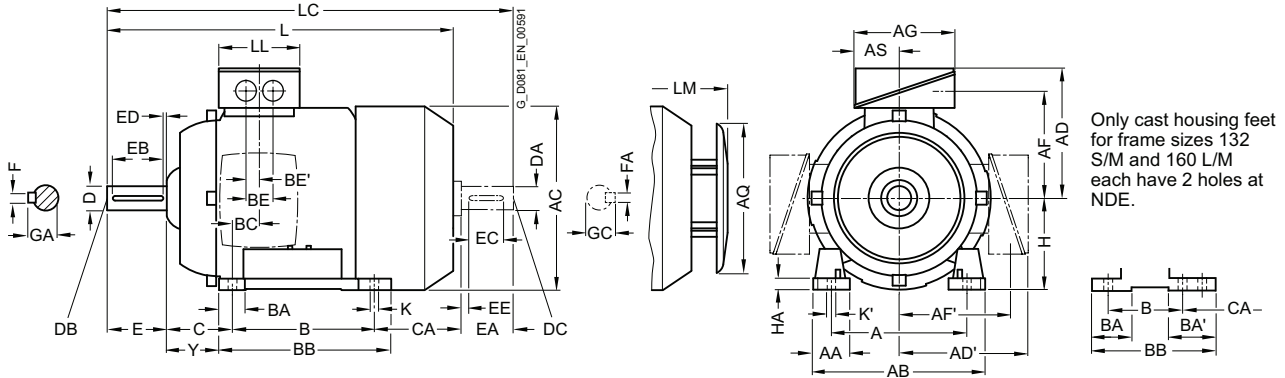
## Dimensions

### SIMOTICS XP 1MB1 explosion-proof motors

Cast-iron series, self-ventilated – IE2 · Frame sizes 71 M to 160 L

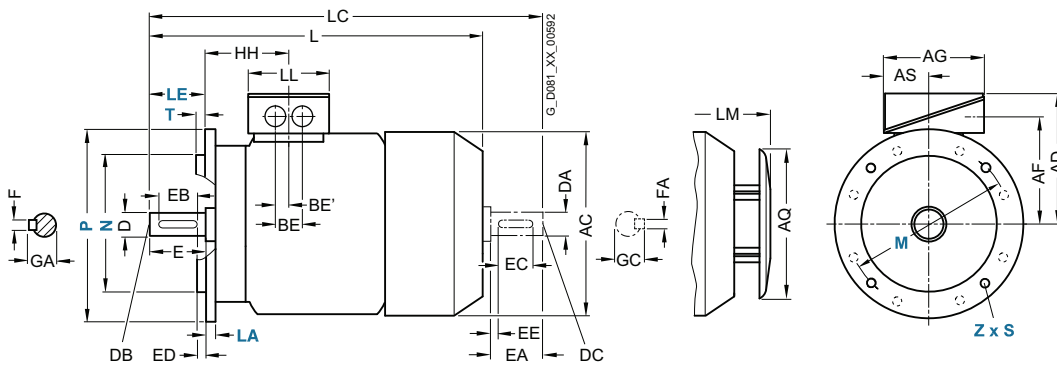
#### Dimensional drawings (continued)

##### Type of construction IM B3



##### Types of construction IM B5 and IM V1

For flange dimensions, see page 1/53 (Z = the number of retaining holes)



Frame size	Motor type	No. of poles	Dimension designation acc. to IEC																					
			A	AA	AB	AC	AD	AD'	AF	AF'	AG	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA	H	HA	Y
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																							
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																							
132 S	All	2, 4, 6, 8	216	53	256	262	214.5	214.5	169	169	163	80.5	140	44	81 <sup>1)</sup>	218 <sup>3)</sup>	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 <sup>1)</sup>	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 <sup>2)</sup>	300 <sup>4)</sup>	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 <sup>2)</sup>	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.

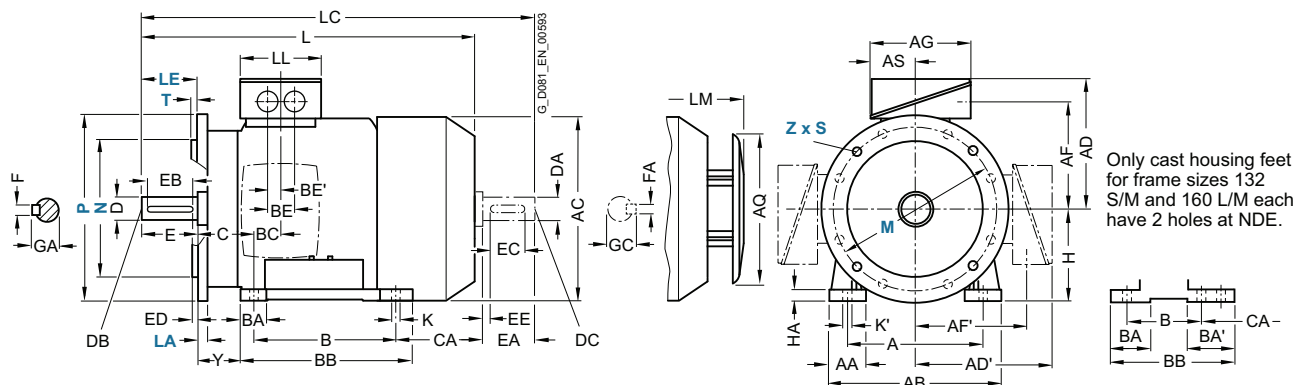
3) With screwed-on feet, dimension BB is 180 mm.

4) With screwed-on feet, dimension BB is 256 mm.

Dimensional drawings (continued)

**Type of construction IM B35**

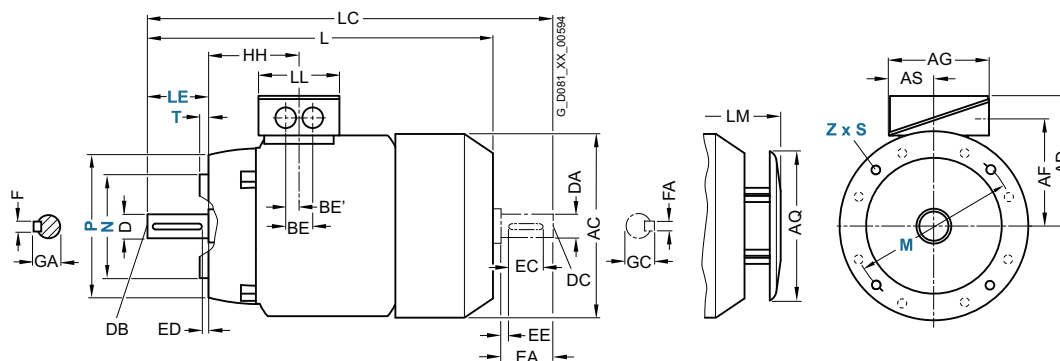
For flange dimensions, see page 1/53 (Z = the number of retaining holes)



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 flange dimensions, see page 1/53 (Z = the number of retaining holes)



Frame size	Motor type 1MB15.1, 1MB16.1	No. of poles	Dimension designation acc. to IEC					DE shaft extension					NDE shaft extension									
			HH	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

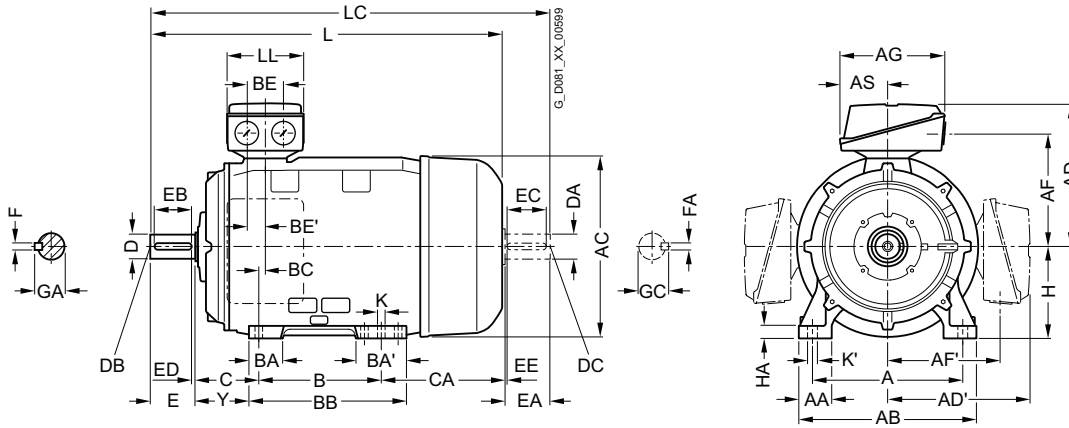
## Dimensions

### SIMOTICS XP 1MB1 explosion-proof motors

Cast-iron series, self-ventilated – IE2 · Frame sizes 180 M to 250 M

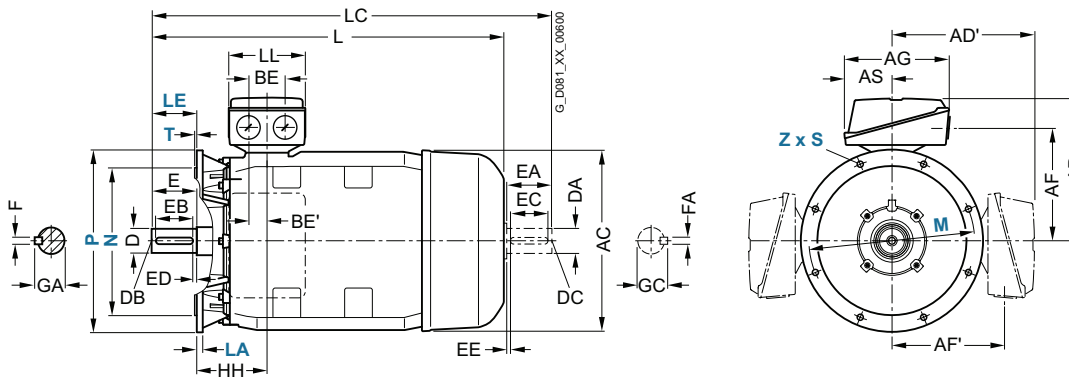
#### Dimensional drawings (continued)

##### 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)



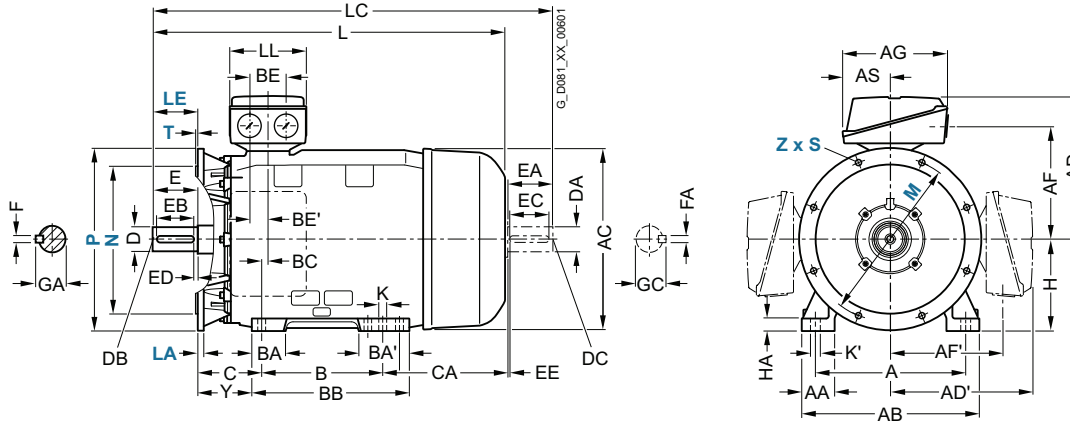
For motor			Dimension designation acc. to IEC																			
Frame size	Motor type	No. of poles	A	AA	AB	AC	AD	AD'	AF	AF'	AG	AH	AS	B	BA	BA'	BB	BC	BE	BE'	C	CA
180 M/ 180 L	1EA2, 1EB24	2, 4	279	65	339	356	286	286	234	234	190	468	92	241	85	120	328	34	60	30	121	202
	1EC4, 1ED4	6, 8												279								
	1EB4	4																				
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,	4, 8	356	80	436	449	338	338	282	282	266	556	112	311	92	117	361	15	85	42.5	149	253
	2BB2, 2BC2, 2BD2	4, 6, 8																				
	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
	2CB2, 2CC2, 2CD2	4, 6, 8																				

5

**Dimensional drawings** (continued)

**Type of construction IM B35**

For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)



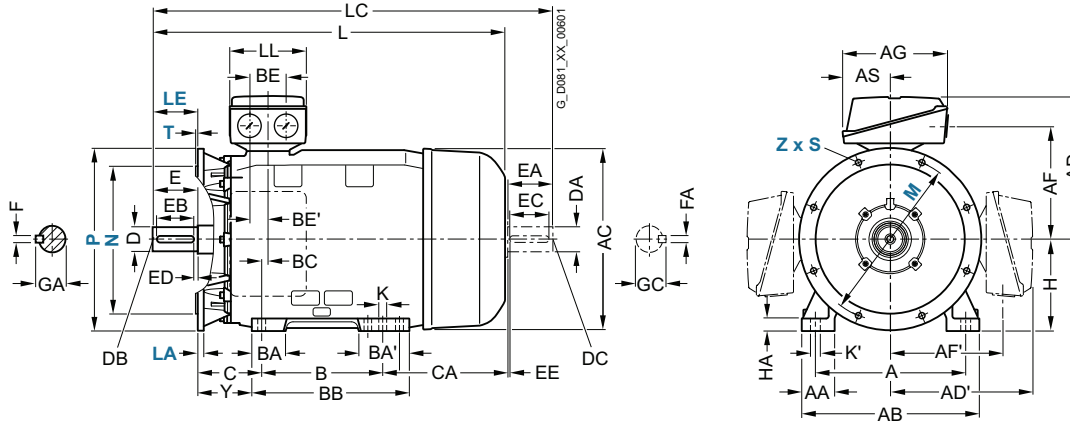
For motor			Dimension designation acc. to IEC										DE shaft extension				NDE shaft extension								
Frame size	Motor type	No. of poles	H	HA	Y	HH	K	K'	L	LC	LL	D	DB	E	EB	ED	F	GA	DA	DC	EA	EC	EE	FA	GC
180 M/ 180 L	1EA2, 1EB2	2, 4	180	20	95	155	15	19	668	784	165	48	M16	110	100	5	14	52	48	M16	110	100	5	14	51.5
	1EC4, 1ED4	6, 8																							
	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/ 225 M	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
	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



**Dimensional drawings** (continued)

**Type of construction IM B35**

For flange dimensions, see page 1/53 (**Z** = the number of retaining holes)



For motor		No. of poles	Dimension designation acc. to IEC										DE shaft extension				NDE shaft extension								
Frame size	Motor type		H	HA	Y	HH	K	K'	L	LC	LL	D	DB	E	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

## Dimensions

### Notes