

MG

Installation and operating instructions



English (GB) Installation and operating instructions

Original installation and operating instructions.

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**Warning**

Prior to installation, read these installation and operating instructions. Installation and operation must comply with local regulations and accepted codes of good practice.

1. Symbols used in this document

**Warning**

If these safety instructions are not observed, it may result in personal injury.

**Warning**

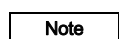
If these instructions are not observed, it may lead to electric shock with consequent risk of serious personal injury or death.

**Warning**

The surface of the product may be so hot that it may cause burns or personal injury.

**Caution**

If these safety instructions are not observed, it may result in malfunction or damage to the equipment.

**Note**

Notes or instructions that make the job easier and ensure safe operation.

1.1 Safety

Observe the safety instructions to ensure correct installation, operation and maintenance of the motor. The instructions must be known by any person installing, using or maintaining the motor. Failure to observe the instructions may invalidate the warranty.

Safety equipment required to prevent accidents must be made available according to local safety instructions.

2. Introduction

These installation and operating instructions apply to these Grundfos MG motors:

Model	Phase		Power range [kW]		IEC frame size	
	1	3	2-pole	4-pole	2-pole	4-pole
B	●		0.25 - 2.2	0.18 - 1.1	71 - 90	71 - 90
		●	0.25	-	71	-
C		●	0.37 - 11	0.25 - 5.5	71 - 132	71 - 132
D		●	1.1 - 11	1.1 - 4.0	90 - 160	90 - 112
F		●	7.5 - 22	5.5 - 15	132 - 180	132 - 160
H		●	0.75 - 22	0.75 - 15	80 - 180	90 - 160

For model designation, see section [4.2 Type key](#).

2.1 Application

MG motors can be used within the framework of IEC 60034.

3. Delivery and handling

3.1 Delivery

Immediately after the receipt, check the motor for external damage. If this is the case, contact the shipping agent immediately. Check whether all nameplate data are according to specifications, especially as regards the voltage and check also whether the winding has been connected correctly according to the wiring diagram in the terminal box cover and the nameplate data.

3.1.1 Unpacking

Caution Do not use sharp tools when unpacking the motor.

The motor should not be exposed to unnecessary impact and shocks.

Remove transport protectors, if any. Turn the shaft by hand to check that it rotates freely.

3.2 Handling

3.2.1 Lifting the motor

Lift the motor in the eye bolts. Take care not to damage additional equipment and cables.

The table shows the number of eye bolts and the maximum permissible weight.

Frame size	Model	Number of eye bolts/ max. permissible weight
90, 100	B, C, D, H	2 x M8/ 140 kg (1.4 kN)
112, 132	C, D, F, H	2 x M10/ 230 kg (2.3 kN)
160, 180	F, H	2 x M12/ 340 kg (3.4 kN)

Frame sizes 71 and 80 have no eye bolts.

3.2.2 Storage

Until installation, Grundfos motors should be stored in the packaging in which they were delivered.

Store the motors in an enclosed, dry and well-ventilated room. For protection, treat unprotected machine surfaces (shaft ends and flanges) with a corrosion inhibitor.

If MG motors are stored, the shaft must be turned by hand at least once a month to prevent it from getting stuck and to distribute the bearing grease.

Caution If the motor has been stored for more than two years before installation, the rotating parts must be dismantled and checked. Relubricate motors with lubricating nipples. Replace the greased-for-life bearings.

Storage temperature

-20 °C to +60 °C.

4. Identification

4.1 Nameplate

The motor has two nameplates:

- nameplate with electrical data (50 and 60 Hz)
- nameplate with mechanical data (irrespective of frequency).

The nameplates are positioned on the side of the motor.

4.2 Type key

Both 50 and 60 Hz data are indicated on the nameplates for three-phase motors.

Note Only 50 or 60 Hz data are indicated on the nameplates for single-phase motors.

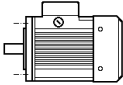
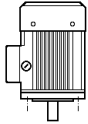
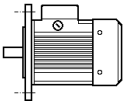
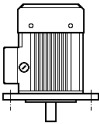
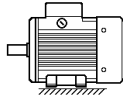
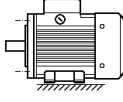
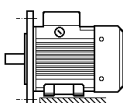
Only 60 Hz data are indicated on previous versions of ML motors.

The type designation is stated on the nameplate.

Example	MG 132 S B 2 -38 FF 265 -H 3
Motor Grundfos	
Frame size (centre-line height of shaft, foot-mounted motor [mm])	
Size, foot: [] = frame sizes 71, 80 S = small M = medium L = large	
Length of stator core: A B C D	
Number of poles: 2 4	
Diameter of shaft end [mm]	
Flange version: [] = foot-mounted motor, type IM B 3 FF = free-hole flange FT = tapped-hole flange	
Pitch circle diameter [mm] [] = IM B 3	
Model: A (discontinued) B C D F H	
Efficiency class: [] = NA 1 = IE2 motor 2 = IE1 motor 3 = IE3 motor	

5. Construction

5.1 Mounting designations

IEC 60034-7, Code I		IEC 60034-7, Code II
Flange-mounted motor (tapped-hole flange)		
IM B 14		IM 3601
IM V 18		IM 3611
Flange-mounted motor (free-hole flange)		
IM B 5		IM 3001
IM V 1		IM 3011
Foot-mounted motor		
IM B 3		IM 1001
Foot-mounted motor (tapped-hole flange)		
IM B 34		IM 2101
Foot-mounted motor (free-hole flange)		
IM B 35		IM 2001

5.2 Drain holes

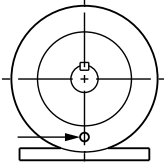
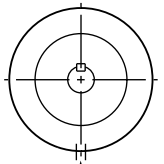
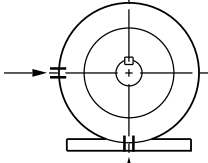
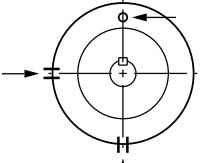
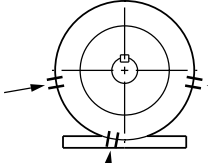
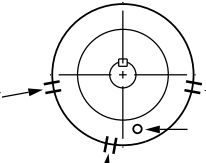
As standard, MG motors have drain holes in the drive end of the stator housing.

If the motor is installed in a humid environment or in areas with high air humidity, open the bottom drain hole. The drain holes enable the escape of water which has entered the stator housing, for instance through condensation.

Caution

If the drain plug is removed, the motor enclosure class will change from IP55 to IP44.

5.2.1 Number of drain holes

	B 3	B 14, B 5, B 34, B 35
	One drain hole closed with a plug ¹	One drain hole closed with a plug ¹
MG 71, 80		
	Two drain holes closed with plugs ²	Three drain holes closed with plugs ²
MG 90-132		
	Three drain holes closed with plugs ³	Four drain holes closed with plugs ³
MG 160, 180		

1. The flange can be turned 90 ° and 180 ° to both sides.

2. The flange can be turned 180 °.

3. The flange can be turned 90 ° to both sides.

5.3 Motor bearings

The motor bearing type is stated on the nameplate.

5.3.1 Motors with lubricating nipples

Frame size 160 and 180 motors have lubricating nipples both in the drive end and the non-drive end. The bearings are lubricated from factory and should therefore not be lubricated until commissioning.

The lubricating intervals are stated on the nameplate with mechanical data. For information about lubrication and maintenance of bearings, see section [11.2 Motor bearings](#).

5.4 Balancing

The rotor is dynamically balanced. As standard, the rotor has been balanced with a half key inserted (cylindrical shaft).

5.5 Cable entry/screwed connection

Motors are supplied without screwed cable entries. The table below shows the number and size of the cable entry holes of the terminal box according to EN 50262.

Frame size	Model	Number x dimensions	Description
71, 80	B, C, H	2 x (M20 x 1.5)	The holes have precast threads and are closed with knock-out cable entries.
90, 100	B, C, D, H	4 x M20	The holes are closed with knock-out cable entries.
112, 132	C, D, F, H	4 x M25	
160, 180	F, H	4 x M40 2 x M20	

6. Operating conditions

6.1 Ambient temperature and installation altitude

Grundfos motors are designed for operation at temperatures up to 40 °C. Grundfos MG motors are capable of continuous operation at ambient temperatures up to 60 °C, however subject to a shorter bearing life. See section [11.2 Motor bearings](#).

The ambient temperature and the installation altitude are important factors for the motor life. The table below shows max. ambient temperature and max. installation altitude.

The table does not show combined maximum values, meaning that the motor is not capable of operating at +60 °C at an altitude of 3500 m at the same time.

Efficiency class	Max. ambient temperature at full load [°C]	Max. installation altitude above sea level at full load [m]
NA	+40	1000
IE2	+60	3500
IE3		

If these values are exceeded, the motor must not be fully loaded due to the risk of overheating.

Overheating may result from excessive ambient temperatures or low density and consequently low cooling effect of the air.

In such cases, it may be necessary to reduce the load or use a motor with a higher rated output.

The curves below show the maximum motor load of the various efficiency classes.

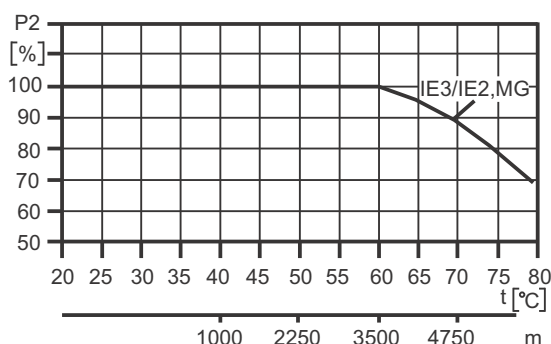


Fig. 1 Motor output in relation to temperature/installation altitude

Example

The example shows an IE2 motor under these operating conditions:

- Ambient temperature: 65 °C.
- Installation altitude above sea level: 4750 m.

Maximum load of the motor:

- Ambient temperature of 65 °C: 95 %.
- 4750 m above sea level: 88 %.

As both operating conditions apply, the motor must not be loaded more than $(0.95 \times 0.88) = 83.6$ %.

Caution

If the motor load is not reduced in case the ambient temperature or installation altitude is exceeded, the motor life will be limited, and the warranty is void.

6.2 Frequency converter operation

All three-phase MG motors with phase insulation can be connected to a frequency converter.

6.2.1 Phase insulation

MG 71 and 80

MG motors, frame sizes 71 and 80, do not have phase insulation as standard. The motors are not suitable for frequency converter operation as they are not protected against the voltage peaks caused by frequency converter operation.

Only motors with a rated voltage equal to or above 460 V have phase insulation.

Caution

Frequency converter operation of MG motors without phase insulation will cause damage to the motor.

MG 90 to 180

MG motors, frame sizes 90 to 180, have phase insulation. The motors are suitable for frequency converter operation, subject to these precautions:

Operating conditions for MG motors to be used for frequency converter operation

- Supply voltage up to 400 V:
 - Check that the motor has phase insulation. (Only motors with a rated voltage equal to or above 460 V have phase insulation.)
- Supply voltage above 400 V:
 - Check that the motor has phase insulation. (Only motors with a rated voltage equal to or above 460 V have phase insulation.)
 - Fit a sine-wave filter between the motor and the frequency converter.

6.2.2 Acoustic noise and voltage peaks

Frequency converter operation may cause increased acoustic noise from the motor and will often expose the motor insulation system to a heavier load due to voltage peaks reducing motor life. To prevent the voltage peaks from damaging the motor, make sure to observe the limits of IEC 60034-17.

Increased acoustic noise and detrimental voltage peaks can be eliminated by fitting an output filter between the frequency converter and the motor. For further details, contact your frequency converter supplier or Grundfos.

Figure 2 shows the maximum permissible voltage peaks measured at the motor terminals for a specific rise time.

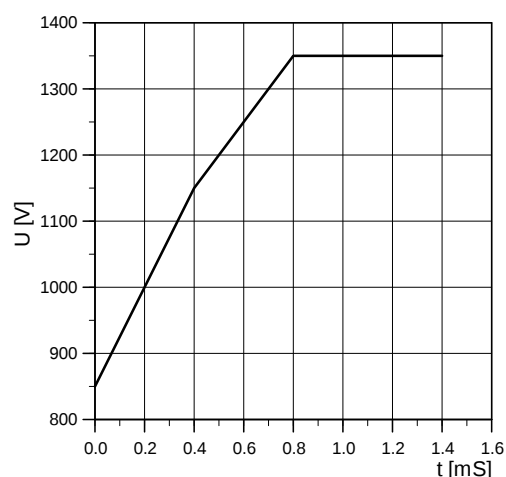


Fig. 2 Maximum values for voltage peaks

TM04 4556 1709

How to eliminate problems with noise

- Noise-critical applications:
Fit an output filter between the frequency converter and the motor. This will reduce the voltage peaks and consequently the noise.
- Particularly noise-critical applications:
Fit a sinusoidal filter. This will reduce the voltage peaks and optimise the sinusoidal wave of the power supply to the motor.

6.2.3 Cable length

The length of the cable between motor and frequency converter affects the motor load. Fit a cable that meets the specifications laid down by the frequency converter supplier.

6.2.4 Speed

Basically, MG motors are not suitable for oversynchronous operation. Contact Grundfos if oversynchronous operation is required.

Oversynchronous operation means that the motor runs at a frequency higher than 60 Hz. This can be achieved by using a frequency converter.

7. Mechanical installation

The installation must be carried out by authorised personnel in accordance with local regulations.

Check by hand that the shaft rotates freely.

7.1 Clearance

To ensure sufficient air circulation, a clearance of minimum 50 mm must be available over/around the motor.

7.2 Terminal box positions

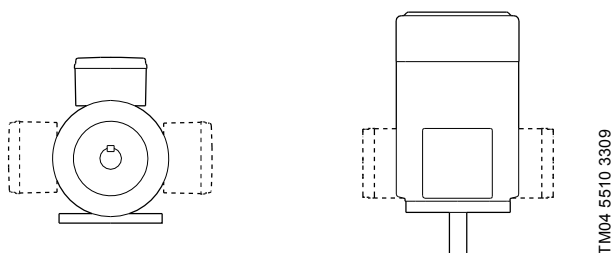


Fig. 3 Permissible terminal box positions

In case of vertically installed motors, the terminal box must not fall more than 10° below the horizontal plane.

Make sure that the motor drain holes are positioned so that condensed water can escape from the motor.
See section [5.2.1 Number of drain holes](#).

7.3 Outdoor installation

If it is installed outdoors, protect the motor against water and sunshine.

7.4 Foundation

Grundfos recommends to install motor and pump on a foundation which is heavy enough to provide permanent and rigid support. The foundation must be capable of absorbing any vibration, normal strain or shock.

Caution

Non-compliance may result in functional faults which will damage the motor components.

7.5 Alignment

Correct alignment is important to avoid problems with bearings, vibrations and possible fracture of shaft ends.

7.6 Fitting of coupling parts and pulleys

Fit coupling parts, pulleys and similar components using suitable equipment and tools that do not damage the motor bearings. Never knock a coupling part or pulley into position. Always carry out removal without pressing against the motor.

8. Electrical installation



Warning

Make sure that the power supply cannot be accidentally switched on during the electrical installation.

8.1 General information

Operating voltage and operating frequency are stated on the motor nameplate. Check that the motor is suitable for the power supply available at the installation site.

The voltage quality for MG motors, measured at the motor terminals, must be $\pm 10\%$ of the rated voltage during continuous operation (including variation in the supply voltage and losses in cables).



Warning

The motor must be connected to an external mains switch.

8.1.1 Motor protection

Single-phase motors

Single-phase motors are supplied with built-in thermal protection, according to IEC 60034-11, against thermal overload with both rapid and slow variation.

Three-phase motors

Three-phase motors must be protected by a motor-protective circuit breaker according to local regulations.

MG motors as from 3.0 kW are supplied with thermal switches (PTC) as standard and protected against thermal overload with both rapid and slow variation. The motor protection is stated on the nameplate.



Warning

Whenever motors incorporating a thermal switch or thermistors are to be repaired, make sure that the motor cannot start automatically after cooling.

8.2 Electrical connection

The electrical installation should be carried out by authorised personnel in accordance with local regulations.

The wiring diagram is located in the terminal box cover.



Warning

Before removing the terminal box cover and before any dismantling of the motor, switch off the power supply.

The terminal box of single-speed motors normally contains six winding terminals and at least one earth terminal.



Warning

The motor must be earthed.

Do not connect the motor to the voltage supply until the connection to earth has been carried out in accordance with local regulations.

8.2.1 Single-phase motor

Connect single-phase motors to the mains in accordance with the instructions located in the terminal box cover.

8.2.2 Three-phase motor

Three-phase motors can be connected in star (Y) or delta (D) according to IEC 60034-8. See the wiring diagram in the terminal box cover.

Voltage and connection are stated on the nameplate.

Example: 380-415 D/660-690 Y

- If the voltage supply is 380-415 V, the motor must be connected in delta.
- If the voltage supply is 660-690 V, the motor must be connected in star.

9. Start-up

9.1 Measuring the insulation resistance

Measure the insulation resistance before start-up and in case of any risk of moisture in the windings.



Warning

When measuring the insulation resistance, carefully follow the safety regulations of EN 50110-1 (operation of power plants) and the instruction manual for measuring and test equipment.

Calculate the minimum permissible insulation resistance, R , by multiplying the rated voltage (in kV) of the motor with the constant 0.5 megohm/kV.

Stop using the motor immediately if the insulation resistance falls below this value.

Example

If the rated voltage is 690 V, the measured resistance must be higher than $0.69 \text{ kV} \times 0.5 \text{ megohm/kV} = 0.35 \text{ megohm}$.

Measure the minimum permissible insulation resistance at a winding temperature of 25°C (+/- 15°C).

Procedure:

- Connect the megaohmmeter between phase and earth at a measuring voltage of 500 V DC.
- Read the value on the megaohmmeter.



Warning

During and immediately after the measurement, there will be a risk of electric shock. Do not touch the terminals until the windings are de-energised.

If the minimum insulation resistance is not attained, the windings are too moist and must be oven-dried.

The oven temperature must be 90°C for 12-16 hours and then 105°C for 6-8 hours.

Note

Remove any drain plugs before heating.

9.2 Direction of rotation

The direction of rotation is clockwise, seen from the motor drive end when the mains conductors are connected in accordance with the diagram located in the terminal box cover. The direction of rotation can be changed by switching two random mains conductors.

Caution

Some MG motors have a properly directed fan. The direction of rotation must be as stated on the motor.

10. Operation



Warning

During operation, the motor surface may be so hot that it may cause personal injury.

10.1 Max. number of starts per hour

See page 9.

11. Maintenance

11.1 Motor

Inspect the motor at regular intervals, determined by the environment in which the motor is installed. To ensure adequate ventilation, it is important to keep the motor clean. If the motor is installed in a dusty environment, it must be cleaned and checked more often than if it is installed in non-dusty environment.

In standard motors, condensed water cannot escape. The drain hole at the lowest point of the motor can be opened and ensure the escape of water entering the stator housing, for example in connection with condensation.

11.2 Motor bearings

11.2.1 Motors without lubricating nipples

The bearings are greased for life. The expected life is at least 18000 operating hours at an ambient temperature of up to 40°C . A higher ambient temperature reduces life. A temperature increase of 10°C reduces life by 50 %.

Bearing grease

The technical specifications of the grease must correspond to DIN 51825, K3N or better.

- 50 cSt (mm^2/s) at 40°C
- 8 cSt (mm^2/s) at 100°C .

Grease filling rate: 30-40 %.

11.2.2 Motors with lubricating nipples

Lubricate the bearings with high-temperature grease as specified on the motor nameplate with mechanical data.

Lubricating intervals are stated on the lubricating plate for 40°C and 60°C .

We recommend to dismantle the motor when the bearings have been relubricated five times. Clean and check the bearings for damage; replace them if necessary.

In the case of seasonal operation (motor is idle for more than six months of the year), we recommend to lubricate the motor bearings when you take it out of operation.

It is important to relubricate the bearings as specified on the motor nameplate with mechanical data. If this interval is not observed, the bearing life will be reduced.

Reduced lubricating interval

The lubricating interval must be reduced in these situations:

- Dirty and dusty environments. Reduce the lubricating interval by a factor 0.75.
- Very moist environments. Reduce the lubricating interval by a factor 0.9.

If the environments are both dusty and moist, multiply the factors.

Grease type and quantity

See the motor nameplate with mechanical data.

Note

Never mix grease with thickeners, such as lithium-based grease with polycarbamide-based grease.

12. Technical data

12.1 Weight

See nameplate, WinCAPS or WebCAPS.

12.2 Enclosure class

See nameplate, WinCAPS or WebCAPS.

12.3 Dimensional sketches

See page 10.

12.4 Sound pressure level

See WinCAPS or WebCAPS.

12.5 Winding resistances

See WinCAPS, WebCAPS or MG Product Information, PI-052, section "Technical data".

13. Fault finding



Warning

Before starting fault finding, switch off the power supply. Make sure that the power supply cannot be accidentally switched on.

Motor service and fault finding must be carried out by qualified personnel.

The table below covers the most frequent faults.

Contact Grundfos if the table does not cover the specific fault.

Fault	Cause
1. Motor does not start.	a) Power supply disconnected.
	b) Fuses blown.
	c) Automatic circuit breakers cut out.
	d) Motor-protective circuit breaker tripped.
	e) Thermal protection tripped.
	f) Contacts of motor-protective circuit breaker or magnet coil defective.
	g) Control circuit defective.
	h) Blocked rotor.
	i) Motor defective.
2. Motor-protective circuit breaker trips immediately when supply is switched on.	a) A fuse blown.
	b) Contacts of motor-protective circuit breaker defective.
	c) Blocked rotor.
	d) Cable connection loose or faulty.
	e) Motor winding defective.
	f) Motor-protective circuit breaker setting is too low.
3. Motor-protective circuit breaker trips occasionally.	a) Motor-protective circuit breaker setting is too low.
	b) Mains voltage periodically too low.
	c) Voltage asymmetry

14. Service

All repairs must be carried out in accordance with IEC 60079-19. Observe the provisions of EN 50110-1 until all maintenance work has been completed, and the motor has been assembled.

14.1 Motor bearings

Take care when replacing the motor bearings.

Caution

Do not expose the bearings to impacts or shocks.

14.2 Service documentation

Service documentation is available on www.grundfos.com > WebCAPS > Service.

If you have any questions, please contact the nearest Grundfos company.

15. Disposal

This product or parts of it must be disposed of in an environmentally sound way:

1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.

Subject to alterations.

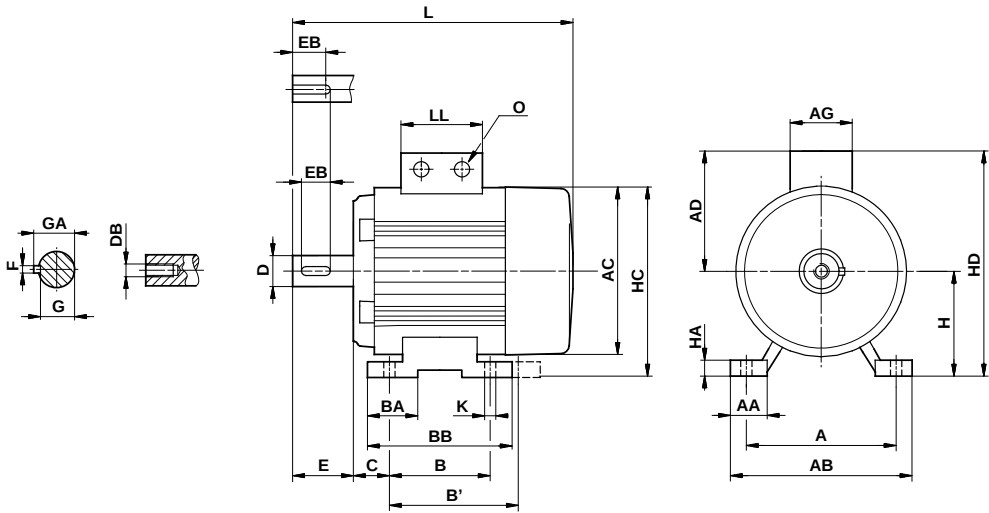
Appendix

Maximum number of starts per hour

2-pole motors	
Type designation	Maximum number of starts per hour
MG 71A2	250
MG 71B2	
MG 80A2	
MG 80B2	
MG 90SA2	
MG 90SB2	
MG 90LA2	
MG 90LB2	
MG 90LC2	
MG 100LA2	100
MG 100LC2	
MG 112MB2	
MG 112MC2	
MG 132SB2	50
MG 132SC2	
MG 132SD2	
MG 160MB2	
MG 160MD2	40
MG 160LB2	
MG 180MB2	

4-pole motors	
Type designation	Maximum number of starts per hour
MG 71A4	250
MG 71B4	
MG 80A4	
MG 80B4	
MG 90SA4	
MG 90SB4	
MG 90LA4	
MG 90LB4	
MG 90LC4	
MG 100LA4	100
MG 100LB4	
MG 100LC4	
MG 112MB4	50
MG 112MC4	
MG 132MB4	
MG 132SB4	
MG 132SC4	
MG 160MB4	
MG 160LB4	

Dimensional sketches



TM02 8800 0904

TM02 8805 0904

TM02 8804 0904

Fig. 1 Foot-mounted motor, IM B 3

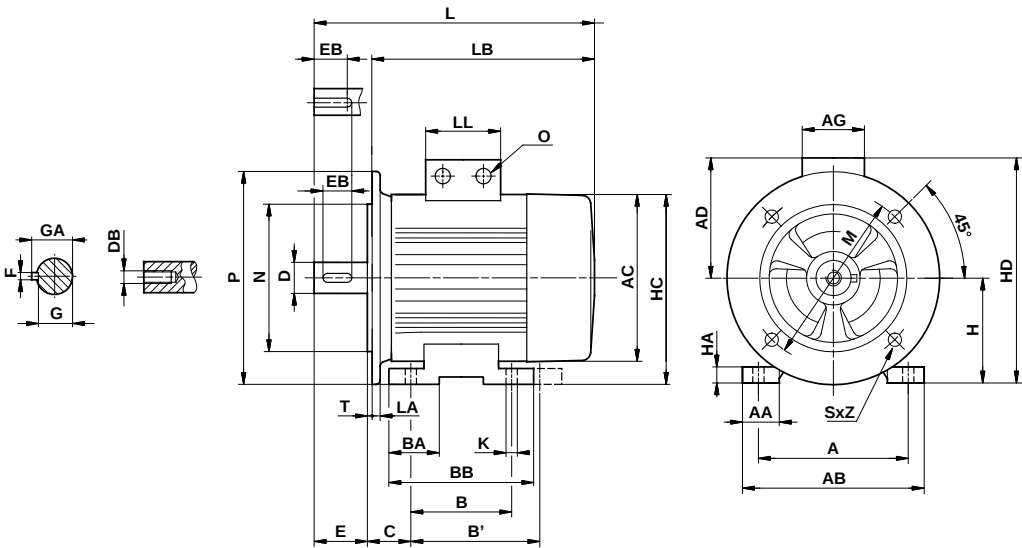


Fig. 2 Foot-mounted motor with free-hole flange, IM B 35
Motor with free-hole flange, IM B5/V1

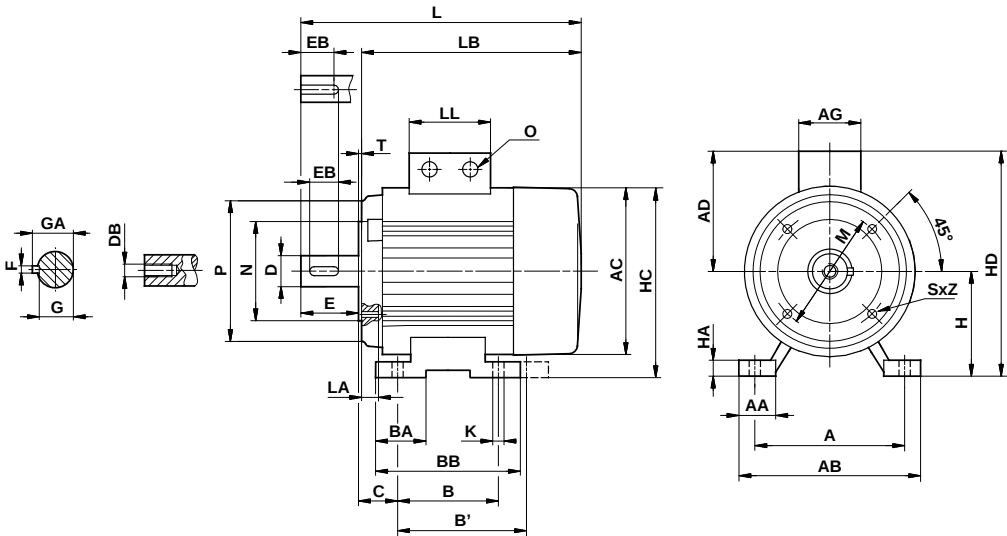


Fig. 3 Foot-mounted motor with tapped-hole flange, IM B 34
Motor with tapped-hole flange, IM B14/V18

Dimensions, 2-pole

Frame size	Stator housing				Shaft end				Flange IM B35, IM B5V1				Flange IM B34, IM B14V18				Foot IM B3, IM B35, IMB34				Cable entry																		
	AC	AD	AG	L	LB	LL	D	DB	E	EB	F	G	GA	LA	M	N	P	S	T	A	AA	AB	B	B'	BA	BB	C	H	HA	HC	HD	K	O						
Three-phase, 2-pole, IE not defined (P2 < 0.75 kW)																																							
MG71A2-C	141	109	82	221	191	82	14	M5	30	22	5	11	16	10	130	110	160	Ø10X4	3.5	12 ¹⁾	85	70	105	M6X4	2.5	112	27	139	90	-	20	110	45	71	3	142	180	7	2XM20
	141	109	82	221	191	82	14	M5	30	22	5	11	16	10	130	110	160	Ø10X4	3.5	12 ¹⁾	85	70	105	M6X4	2.5	112	27	139	90	-	20	110	45	71	3	142	180	7	2XM20
	141	109	82	271	231	82	19	M6	40	32	6	15.5	21.5	10	165	130	200	Ø12X4	3.5	12 ¹⁾	100	80	120	M6X4	3	125	37	159	100	-	25	125	50	80	3	151	189	10	2XM20
Three-phase, 2-pole, IE3 Range																																							
MG80A2-H3	141	109	82	271	231	82	19	M6	40	32	6	15.5	21.5	10	165	130	200	Ø12X4	3.5	12 ¹⁾	100	80	120	M6X4	3	125	37	159	100	-	25	125	50	80	3	151	189	10	2XM20
MG80C2-H3	141	109	82	291	251	82	19	M6	40	32	6	15.5	21.5	10	165	130	200	Ø12X4	3.5	12 ¹⁾	100	80	120	M6X4	3	125	37	159	100	-	25	125	50	80	3	151	189	10	2XM20
MG90SB2-H3	178	110	162	331	281	103	24	M8	50	40	8	20	27	18	165	130	200	Ø12X4	3.5	13 ¹⁾	115	95	135	M8X4	3	140	-	178	100	125	-	155	56	90	3	179	200	10	4XM20 ²⁾
MG90LC2-H3	178	110	162	371	321	103	24	M8	50	40	8	20	27	18	165	130	200	Ø12X4	3.5	13 ¹⁾	115	95	135	M8X4	3	140	-	178	100	125	-	150	56	90	3	179	200	10	4XM20 ²⁾
MG100LC2-H3	198	120	162	395	335	103	28	M10	60	50	8	24	31	10	215	180	250	Ø15X4	4	14 ¹⁾	130	110	160	M8X4	3.5	160	-	199	140	-	-	170	63	100	3	199	220	12	4XM20 ²⁾
MG112MC2-H3	220	134	202	432	372	103	28	M10	60	50	8	24	31	10	215	180	250	Ø15X4	4	14 ¹⁾	130	110	160	M8X4	3.5	190	-	228	140	-	-	172	70	112	4	222	246	12	4XM25 ²⁾
MG132SC2-H3	220	134	202	471	391	103	38	M12	80	70	10	33	41	12	265	230	300	Ø15X4	4	28 ¹⁾	165	130	200	M10X4	3.5	216	-	255	140	-	-	172	89	132	5	242	266	12	4XM25 ²⁾
MG132SB2-H3	260	159	203	459	379	135	38	M12	80	70	10	33	41	12	265	230	300	Ø15X4	4	43 ¹⁾	165	130	200	M10X4	3.5	216	42	244	140	-	-	164	89	132	6	262	257	12	4XM25 ²⁾
MG160MB2-H3	314	204	243	581	471	213	42	M16	110	82	12	37	45	12	300	250	350	Ø19X4	5	-	-	-	-	-	-	254	49	287	210	-	-	239	108	160	8	317	320	15	2XM20, 4XM40 ²⁾
MG160MD2-H3	314	204	243	581	471	213	42	M16	110	82	12	37	45	12	300	250	350	Ø19X4	5	-	-	-	-	-	-	254	49	287	210	-	-	239	108	160	8	317	320	15	2XM20, 4XM40 ²⁾
MG160LB2-H3	314	204	243	625	515	213	42	M16	110	82	12	37	45	12	300	250	350	Ø19X4	5	-	-	-	-	-	-	254	49	287	254	-	-	283	108	160	8	317	320	15	2XM20, 4XM40 ²⁾
MG180MB2-H3	314	204	243	651	541	213	48	M16	110	100	14	43	51.5	12	300	250	350	Ø19X4	5	-	-	-	-	-	-	279	61	312	241	279	-	308	121	180	8	337	340	15	2XM20, 4XM40 ²⁾
Three-phase, 2-pole, IE2 Range																																							
MG80B2-D1	141	109	82	271	231	82	19	M6	40	32	6	15.5	21.5	10	165	130	200	Ø12X4	3.5	12 ¹⁾	100	80	120	M6X4	3	125	37	159	100	-	25	125	50	80	3	151	189	10	2XM20
MG90SB2-D1	178	110	162	331	281	103	24	M8	50	40	8	20	27	18	165	130	200	Ø12X4	3.5	13 ¹⁾	115	95	135	M8X4	3	140	-	178	100	125	-	155	56	90	3	179	200	10	4XM20 ²⁾
MG90LC2-D1	178	110	162	371	321	103	24	M8	50	40	8	20	27	18	165	130	200	Ø12X4	3.5	13 ¹⁾	115	95	135	M8X4	3	140	-	178	100	125	-	150	56	90	3	179	200	10	4XM20 ²⁾
MG100LC2-D1	198	120	162	395	335	103	28	M10	60	50	8	24	31	10	215	180	250	Ø15X4	4	14 ¹⁾	130	110	160	M8X4	3.5	160	-	199	140	-	-	170	63	100	3	199	220	12	4XM20 ²⁾
MG112MC2-D1	220	134	202	432	372	103	28	M10	60	50	8	24	31	10	215	180	250	Ø15X4	4	14 ¹⁾	130	110	160	M8X4	3.5	190	-	228	140	-	-	172	70	112	4	222	246	12	4XM25 ²⁾
MG132SC2-D1	220	134	202	471	391	103	38	M12	80	70	10	33	41	12	265	230	300	Ø15X4	4	28 ¹⁾	165	130	200	M10X4	3.5	216	-	255	140	-	-	172	89	132	5	242	266	12	4XM25 ²⁾
MG132SB2-F1	260	159	203	459	379	135	38	M12	80	70	10	33	41	12	265	230	300	Ø15X4	4	43 ¹⁾	165	130	200	M10X4	3.5	216	42	244	140	-	-	164	89	132	6	262	257	12	4XM25 ²⁾
MG160MB2-F1	314	204	243	581	471	213	42	M16	110	82	12	37	45	12	300	250	350	Ø19X4	5	-	-	-	-	-	-	254	49	287	210	-	-	239	108	160	8	317	320	15	2XM20, 4XM40 ²⁾
MG160MD2-F1	314	204	243	581	471	213	42	M16	110	82	12	37	45	12	300	250	350	Ø19X4	5	-	-	-	-	-	-	254	49	287	210	-	-	239	108	160	8	317	320	15	2XM20, 4XM40 ²⁾
MG160LB2-F1	314	204	243	625	515	213	42	M16	110	82	12	37	45	12	300	250	350	Ø19X4	5	-	-	-	-	-	-	254	49	287	254	-	-	283	108	160	8	317	320	15	2XM20, 4XM40 ²⁾
MG180MB2-F1	314	204	243	651	541	213	48	M16	110	100	14	43	51.5	12	300	250	350	Ø19X4	5	-	-	-	-	-	-	279	61	312	241	279	-	308	121	180	8	337	340	15	2XM20, 4XM40 ²⁾

1) When fitting a component on the motor flange, check that the through-going screws do not penetrate deeper into the flange than the dimension LA. If the screws are too long, they can be screwed into the stator windings.

2) Knockouts.

Dimensions, 4-pole

Frame size	Stator housing				Shaft end				Flange IM B35, IM B5V1					Flange IM B34, IM B14/V18					Foot IM B3, IM B35, IMB34					Cable entry															
	AC	AD	AG	L	LB	LL	D	DB	E	EB	F	G	GA	LA	M	N	P	S	T	A	AA	AB	B	B'	BA	BB	C	H	HA	HC	HD	K	O						
Three-phase, 4-pole, IE not defined (P2 < 0.75 kW)																																							
MG71A4-C	141	109	82	221	191	82	14	M5	30	22	5	11	16	10	130	110	160	Ø 10X4	3.5	12 ¹⁾	85	70	105	M6X4	2.5	112	27	139	90	-	20	110	45	71	3	142	180	7	2XM20
MG71B4-C	141	109	82	221	191	82	14	M5	30	22	5	11	16	10	130	110	160	Ø 10X4	3.5	12 ¹⁾	85	70	105	M6X4	2.5	112	27	139	90	-	20	110	45	71	3	142	180	7	2XM20
MG80A4-C	141	109	82	271	231	82	19	M6	40	32	6	15.5	21.5	10	165	130	200	Ø 12X4	3.5	12 ¹⁾	100	80	120	M6X4	3	125	37	159	100	-	25	125	50	80	3	151	189	10	2XM20
MG80B4-C	141	109	82	271	231	82	19	M6	40	32	6	15.5	21.5	10	165	130	200	Ø 12X4	3.5	12 ¹⁾	100	80	120	M6X4	3	125	37	159	100	-	25	125	50	80	3	151	189	10	2XM20
Three-phase, 4-pole, IE3 Range																																							
MG90SC4-H3	178	110	162	321	281	103	19	M6	40	32	6	15.5	21.5	18	165	130	200	Ø 12X4	3.5	13 ¹⁾	115	95	135	M8X4	3	140	-	178	100	125	-	155	56	80	3	179	200	10	4XM20 ²⁾
MG90SB4-H3	178	110	162	371	321	103	24	M8	50	40	8	20	27	18	165	130	200	Ø 12X4	3.5	13 ¹⁾	115	95	135	M8X4	3	140	-	178	100	125	-	150	56	90	3	179	200	10	4XM20 ²⁾
MG90LC4-H3	178	110	162	371	321	103	24	M8	50	40	8	20	27	18	165	130	200	Ø 12X4	3.5	13 ¹⁾	115	95	135	M8X4	3	140	-	178	100	125	-	150	56	90	3	179	200	10	4XM20 ²⁾
MG100LB4-H3	198	120	162	395	335	103	28	M10	60	50	8	24	31	10	215	180	250	Ø 15X4	4	14 ¹⁾	130	110	160	M8X4	3.5	160	-	199	140	-	-	170	63	100	3	199	220	12	4XM20 ²⁾
MG100LC4-H3	198	120	162	395	335	103	28	M10	60	50	8	24	31	10	215	180	250	Ø 15X4	4	14 ¹⁾	130	110	160	M8X4	3.5	160	-	199	140	-	-	170	63	100	3	199	220	12	4XM20 ²⁾
MG112MC4-H3	220	134	202	432	372	103	28	M10	60	50	8	24	31	10	215	180	250	Ø 15X4	4	14 ¹⁾	130	110	160	M8X4	3.5	190	-	228	140	-	-	172	70	112	4	222	246	12	4XM25 ²⁾
MG132SB4-H3	260	159	203	459	379	135	38	M12	80	70	10	33	41	12	265	230	300	Ø 15X4	4	-	-	-	-	-	-	216	42	244	140	-	-	164	89	132	6	262	257	12	4XM25 ²⁾
MG132MB4-H3	260	159	203	509	429	135	38	M12	80	70	10	33	41	12	265	230	300	Ø 15X4	4	-	-	-	-	-	-	216	42	244	140	178	-	202	89	132	6	262	257	12	4XM25 ²⁾
MG160MA4-H3	314	204	243	655	545	213	42	M16	110	82	12	37	45	12	300	250	350	Ø 19X4	5	-	-	-	-	-	-	254	49	287	254	-	-	283	108	160	8	317	320	15	2XM20, 4XM40 ²⁾
MG160LB4-H3	314	204	243	685	575	213	42	M16	110	82	12	37	45	12	300	250	350	Ø 19X4	5	-	-	-	-	-	-	254	49	287	254	-	-	313	108	160	8	317	320	15	2XM20, 4XM40 ²⁾
Three-phase, 4-pole, IE2 Range																																							
MG80C4-D1	141	109	82	271	231	82	19	M6	40	32	6	15.5	21.5	10	165	130	200	Ø 12X4	3.5	12 ¹⁾	100	80	120	M6X4	3	140	-	178	100	125	-	150	56	90	3	179	200	10	4XM20 ²⁾
MG90SB4-D1	178	110	162	371	321	103	24	M8	50	40	8	20	27	18	165	130	200	Ø 12X4	3.5	13 ¹⁾	115	95	135	M8X4	3	140	-	178	100	125	-	150	56	90	3	179	200	10	4XM20 ²⁾
MG90LC4-D1	178	110	162	371	321	103	24	M8	50	40	8	20	27	18	165	130	200	Ø 12X4	3.5	13 ¹⁾	115	95	135	M8X4	3	140	-	178	100	125	-	150	56	90	3	179	200	10	4XM20 ²⁾
MG100LB4-D1	198	120	162	395	335	103	28	M10	60	50	8	24	31	10	215	180	250	Ø 15X4	4	14 ¹⁾	130	110	160	M8X4	3.5	160	-	199	140	-	-	170	63	100	3	199	220	12	4XM20 ²⁾
MG100LC4-D1	198	120	162	395	335	103	28	M10	60	50	8	24	31	10	215	180	250	Ø 15X4	4	14 ¹⁾	130	110	160	M8X4	3.5	160	-	199	140	-	-	170	63	100	3	199	220	12	4XM20 ²⁾
MG112MC4-D1	220	134	202	432	372	103	28	M10	60	50	8	24	31	10	215	180	250	Ø 15X4	4	14 ¹⁾	130	110	160	M8X4	3.5	190	-	228	140	-	-	172	70	112	4	222	246	12	4XM25 ²⁾
MG132SB4-F1	260	159	203	459	379	135	38	M12	80	70	10	33	41	12	265	230	300	Ø 15X4	4	-	-	-	-	-	-	216	42	244	140	-	-	164	89	132	6	262	257	12	4XM25 ²⁾
MG132MB4-F1	260	159	203	509	429	135	38	M12	80	70	10	33	41	12	265	230	300	Ø 15X4	4	-	-	-	-	-	-	216	42	244	140	178	-	202	89	132	6	262	257	12	4XM25 ²⁾
MG160MB4-F1	314	204	243	581	471	213	42	M16	110	82	12	37	45	12	300	250	350	Ø 19X4	5	-	-	-	-	-	-	254	49	287	210	-	-	239	108	160	8	317	320	15	2XM20, 4XM40 ²⁾
MG160LB4-F1	314	204	243	625	515	213	42	M16	110	82	12	37	45	12	300	250	350	Ø 19X4	5	-	-	-	-	-	-	254	49	287	254	-	-	283	108	160	8	317	320	15	2XM20, 4XM40 ²⁾

¹⁾ When fitting a component on the motor flange, check that the through-going screws do not penetrate deeper into the flange than the dimension LA. If the screws are too long, they can be screwed into the stator windings.

²⁾ Knockouts.

Declaration of conformity

GB: EU declaration of conformity

We, Grundfos, declare under our sole responsibility that the products MG, ML, to which the declaration below relates, are in conformity with the Council Directives listed below on the approximation of the laws of the EU member states.

CZ: Prohlášení o shodě EU

My firma Grundfos prohlašujeme na svou plnou odpovědnost, že výrobky MG, ML, na které se toto prohlášení vztahuje, jsou v souladu s níže uvedenými ustanoveními směrnice Rady pro sblížení právních předpisů členských států Evropského společenství.

DK: EU-overensstemmelseserklæring

Vi, Grundfos, erklærer under ansvar at produkterne MG, ML som erklæringen nedenfor omhandler, er i overensstemmelse med Rådets direktiver der er nævnt nedenfor, om indbyrdes tilnærmelse til EU-medlemsstaternes lovgivning.

ES: Declaración de conformidad de la UE

Grundfos declara, bajo su exclusiva responsabilidad, que los productos MG, ML a los que hace referencia la siguiente declaración cumplen lo establecido por las siguientes Directivas del Consejo sobre la aproximación de las legislaciones de los Estados miembros de la UE.

FR: Déclaration de conformité UE

Nous, Grundfos, déclarons sous notre seule responsabilité, que les produits MG, ML, auxquels se réfère cette déclaration, sont conformes aux Directives du Conseil concernant le rapprochement des législations des États membres UE relatives aux normes énoncées ci-dessous.

HR: EU deklaracija sukladnosti

Mi, Grundfos, izjavljujemo s punom odgovornošću da su proizvodi MG, ML, na koja se izjava odnosi u nastavku, u skladu s direktivama Vijeća dolje navedene o usklađivanju zakona država članica EU-a.

IT: Dichiarazione di conformità UE

Grundfos dichiara sotto la sua esclusiva responsabilità che i prodotti MG, ML, ai quali si riferisce questa dichiarazione, sono conformi alle seguenti direttive del Consiglio riguardanti il riavvicinamento delle legislazioni degli Stati membri UE.

LV: ES atbilstības deklarācija

Sabiedrība Grundfos ar pilnu atbildību paziņo, ka produkti MG, ML, uz kuru attiecas tālāk redzamā deklarācija, atbilst tālāk norādītajām Padomes direktīvām par ES dalībvalstu normatīvo aktu tuvināšanu.

PL: Deklaracja zgodności UE

My, Grundfos, oświadczamy z pełną odpowiedzialnością, że nasze produkty MG, ML, których deklaracja niniejsza dotyczy, są zgodne z następującymi dyrektywami Rady w sprawie zbliżenia przepisów prawnych państw członkowskich.

RO: Declarația de conformitate UE

Noi Grundfos declarăm pe propria răspundere că produsele MG, ML, la care se referă această declarație, sunt în conformitate cu Directivale de Consiliu specificate mai jos privind armonizarea legilor statelor membre UE.

RU: Декларация о соответствии нормам ЕС

Мы, компания Grundfos, со всей ответственностью заявляем, что изделия MG, ML, к которым относится нижеприведённая декларация, соответствуют нижеприведённым Директивам Совета Евросоюза о тождественности законов стран-членов ЕС.

SI: Izjava o skladnosti EU

V Grundfosu s polno odgovornostjo izjavljamo, da je izdelek MG, ML, na katerega se spodnja izjava nanaša, v skladu s spodnjimi direktivami Sveta o približevanju zakonodaje za izenačevanje pravnih predpisov držav članic EU.

TR: AB uygunluk bildirgesi

Grundfos olarak, aşağıdaki bildirim konusu olan MG, ML ürünlerinin, AB Üye ülkelerinin direktiflerinin yakınlaştırılmasıyla ilgili durumun aşağıdaki Konsey Direktifleriyle uyumlu olduğunu ve bununla ilgili olarak tüm sorumluluğun bize ait olduğunu beyan ederiz.

CN: 欧盟符合性声明

我们，格兰富，在我们的全权责任下声明，产品 MG、ML，即该合格证所指之产品，欧盟使其成员国法律趋于一致的以下理事会指令。

KO: EU

Grundfos MG, ML EU

BG: Декларация за съответствие на ЕС

Ние, фирма Grundfos, заявяваме с пълна отговорност, че продуктите MG, ML, за които се отнася настоящата декларация, отговарят на следните директиви на Съвета за уеднаквяване на правните разпоредби на държавите-членки на ЕС.

DE: EU-Konformitätserklärung

Wir, Grundfos, erklären in alleiniger Verantwortung, dass die Produkte MG, ML, auf die sich diese Erklärung beziehen, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EU-Mitgliedsstaaten übereinstimmen.

EE: EÜvastavusdeklaratsioon

Meie, Grundfos, kinnitame ja kanname ainuiskulist vastutust selle eest, et toode MG, ML, mille kohta all olev deklaratsioon käib, on kooskõlas Nõukogu Direktiividega, mis on nimetatud all pool vastavalt vastuvõetud õigusaktidele ühtlustamise kohta EÜ liikmesriikides.

FI: EU-vaatimustenmukaisuusvakuutus

Grundfos vakuuttaa omalla vastuullaan, että tuotteet MG, ML, joita tämä vakuutus koskee, ovat EU:n jäsenvaltioiden lainsäädännön lähentämiseen tähtäävien Euroopan neuvoston direktiivien vaatimusten mukaisia seuraavasti.

GR: Δήλωση συμμόρφωσης ΕΕ

Εμείς, η Grundfos, δηλώνουμε με αποκλειστικά δική μας ευθύνη ότι τα προϊόντα MG, ML, στα οποία αναφέρεται η παρακάτω δήλωση, συμμορφώνονται με τις παρακάτω Οδηγίες του Συμβουλίου περί προσέγγισης των νομοθεσιών των κρατών μελών της ΕΕ.

HU: EU megfeleléségi nyilatkozat

Mi, a Grundfos vállalat, teljes felelősséggel kijelentjük, hogy a(z) MG, ML termékek, amelyre az alábbi nyilatkozat vonatkozik, megfelelnek az Európai Unió tagállamainak jogi irányelveit összehangoló tanács alábbi előírásainak.

LT: ES atitikties deklaracija

Mes, Grundfos, su visa atsakomybe pareiškiame, kad produktai MG, ML, kuriems skirta ši deklaracija, atitinka žemiau nurodytas Tarybos Direktyvas dėl ES šalių narių įstatymų suderinimo.

NL: EU-conformiteitsverklaring

Wij, Grundfos, verklaren geheel onder eigen verantwoordelijkheid dat de producten MG, ML, waarop de onderstaande verklaring betrekking heeft, in overeenstemming zijn met de onderstaande Richtlijnen van de Raad inzake de onderlinge aanpassing van de wetgeving van de EU-lidstaten.

PT: Declaração de conformidade UE

A Grundfos declara sob sua única responsabilidade que os produtos MG, ML, aos quais diz respeito a declaração abaixo, estão em conformidade com as Diretivas do Conselho sobre a aproximação das legislações dos Estados Membros da UE.

RS: Deklaracija o usklađenosti EU

Mi, kompanija Grundfos, izjavljujemo pod punom vlastitom odgovornošću da je proizvod MG, ML, na koji se odnosi deklaracija ispod, u skladu sa dole prikazanim direktivama Saveta za usklađivanje zakona država članica EU.

SE: EU-försäkran om överensstämmelse

Vi, Grundfos, försäkrar under ansvar att produkterna MG, ML, som omfattas av nedanstående försäkran, är i överensstämmelse med de rättsdirektiv om inbördes närmande till EU-medlemsstaternas lagstiftning som listas nedan.

SK: ES vyhlásenie o zhode

My, spoločnosť Grundfos, vyhlasujeme na svoju plnú zodpovednosť, že produkty MG, ML na ktoré sa vyhlásenie uvedené nižšie vzťahuje, sú v súlade s ustanoveniami nižšie uvedených smerníc Rady pre zbliženie právnych predpisov členských štátov EÚ.

UA: Декларация відповідності директивам EU

Ми, компанія Grundfos, під нашу одноосібну відповідальність заявляємо, що вироби MG, ML, до яких відноситься нижченаведена декларація, відповідають директивам ЕУ, переліченим нижче, щодо тотожності законів країн-членів ЄС.

JP: EU 適合宣言

Grundfos は、その責任の下に、MG、ML 製品が EU 加盟諸国の法規に関連する、以下の評議会指令に適合していることを宣言します。

BS: Izjava o usklađenosti EU

Mi, kompanija Grundfos, izjavljujemo pod vlastitom odgovornošću da je proizvod MG, ML, na koji se odnosi izjava ispod, u skladu sa nižie prikazanim direktivama Vijeća o usklađivanju zakona država članica EU.

ID: Deklarasi kesesuaian Uni Eropa

Kami, Grundfos, menyatakan dengan tanggung jawab kami sendiri bahwa produk MG, ML, yang berkaitan dengan pernyataan ini, sesuai dengan Petunjuk Dewan berikut ini serta sedapat mungkin sesuai dengan hukum negara-negara anggota Uni Eropa.

MK: Декларација за сообразност на ЕУ

Ние, Grundfos, изјавуваме под целосна одговорност дека производите MG, ML, на кои се однесува долунаведената декларација, се во согласност со овие директиви на Советот за приближување на законите на земјите-членки на ЕУ.

NO: EUs samsvarsærklæring

Vi, Grundfos, erklærer under vårt eneansvar at produktene MG, ML som denne erklæringen gjelder, er i samsvar med styrets direktiver om tilnærming av forordninger i EU-landene.

TH: คำประกาศความสอดคล้องตามมาตรฐาน EU

เราในนามของบริษัท Grundfos ขอประกาศภายใต้ความรับผิดชอบของเราแต่เพียงผู้เดียวว่าผลิตภัณฑ์ MG, ML ซึ่งเกี่ยวข้องกับคำประกาศนี้ มีความสอดคล้องกับระเบียบคำสั่งตามรายการด้านล่างนี้ของสภารัฐชาติว่าด้วยคำประมาณตามกฎหมายของรัฐที่เป็นสมาชิก EU

VI: Tuyen bo tuân thủ EU

Chúng tôi, Grundfos, tuyên bố trong phạm vi trách nhiệm duy nhất của mình rằng sản phẩm MG, ML mà tuyên bố dưới đây có liên quan tuân thủ các Chỉ thị Hội đồng sau về việc áp dụng luật pháp của các nước thành viên EU.

KZ: Сәйкестік жөніндегі ЕО декларациясы

Біз, Grundfos, ЕО мүше елдерінің заңдарына жақын төменде көрсетілген Кеңес директиваларына сәйкес төмендегі декларацияға қатысты MG, ML өнімдері біздің жеке жауапкершілігімізде екенін мәлімдейміз.

MY: Perisytiharan keakuran EU

Kami, Grundfos, mengisytiharkan di bawah tanggungjawab kami semata-mata bahawa produk MG, ML, yang berkaitan dengan perisytiharan di bawah, akur dengan Perintah Majlis yang disenaraikan di bawah ini tentang penghampiran undang-undang negara ahli EU.

AR: إقرار مطابقة EU

نقرر نحن، جرونډفوس، بمقتضى مسؤوليتنا الفردية بأن المنتجين MG و ML، كورالذين يختص بهما الإقرار أدناه، يكونان مطابقين لتوجيهات المجلس المذكور أدناه بشأن التقريب بين قوانين الدول أعضاء المجموعة الأوروبية/الاتحاد الأوروبي (EU).

TW: EU 合格聲明

葛蘭富根據我們唯一的責任，茲聲明與以下聲明相關之 MG、ML 產品，符合下列近似 EU 會員國法律之議會指令。

AL: Deklara e konformitetit të BE

Ne, Grundfos, deklarojmë vetëm nën përgjegjësinë tonë se produktet MG, ML, me të cilat lidhet kjo deklaratë, janë në pajtueshmëri me direktivat e Këshillit të renditura më poshtë për përafrimin e ligjeve të shteteve anëtare të BE-së.

- Low Voltage Directive (2014/35/EU).
Standards used:
EN 60334-1:2010
- Ecodesign Directive (2009/125/EC).
Electric motors:
Commission Regulation No 640/2009.
Applies to 50 Hz or 50/60 Hz, three-phase Grundfos motors, in the range of 0.75 - 22 kW and 1.0 to 30 hp, marked IE2 or IE3. See the motor nameplate.
Standard used: EN 60034-30:2009.

These motors must not be put into service until the machinery into which they are to be incorporated has been declared in conformity with the relevant directives.

This EU declaration of conformity is only valid when published as part of the Grundfos installation and operating instructions (publication number 98079951 0516).

Bjerringbro, 17/3/2016



Zoltán Lajtos
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Person authorised to compile the technical file and empowered to sign the EU declaration of conformity.

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