

# MG

## Installation and operating instructions





# MG

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## Original installation and operating instructions

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## 1. General information



Read this document before you install the product. Installation and operation must comply with local regulations and accepted codes of good practice.

## 1.1 Hazard statements

The symbols and hazard statements below may appear in Grundfos installation and operating instructions, safety instructions and service instructions.

**DANGER**

Indicates a hazardous situation which, if not avoided, will result in death or serious personal injury.

**WARNING**

Indicates a hazardous situation which, if not avoided, could result in death or serious personal injury.

**CAUTION**

Indicates a hazardous situation which, if not avoided, could result in minor or moderate personal injury.

The hazard statements are structured in the following way:

**SIGNAL WORD****Description of the hazard**

Consequence of ignoring the warning

- Action to avoid the hazard.

## 1.2 Notes

The symbols and notes below may appear in Grundfos installation and operating instructions, safety instructions and service instructions.



Observe these instructions for explosion-proof products.



A blue or grey circle with a white graphical symbol indicates that an action must be taken.



A red or grey circle with a diagonal bar, possibly with a black graphical symbol, indicates that an action must not be taken or must be stopped.



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



Tips and advice that make the work easier.

## 1.3 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. Product introduction

### 2.1 Product description

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 the section about type key.

#### Related information

##### [2.2.2 Type key](#)

#### 2.1.1 Application

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

### 2.2 Identification

#### 2.2.1 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.

#### 2.2.2 Type key



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

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 MG motors.

The type designation is stated on the nameplate.

**Example: MG 132 S B 2-38 FF 265-H 3**

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

### 3. Receiving the product

#### 3.1 Inspecting the product

Immediately after the receipt, check the motor for external damage. In case of damage, contact the carrier 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



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 and storing the product

##### 3.2.1 Lifting the product

###### WARNING Crushing of feet

Death or serious personal injury



- Wear personal protective equipment and attach lifting equipment to the motor eyebolts when handling the product.
- Keep other persons at a safe distance when handling the product.

###### CAUTION Crushing of feet

Minor or moderate personal injury



- Make sure that the eyebolts are secured in position.

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

The table shows the number of eyebolts and the maximum permissible weight.

Frame size	Model	Number of eyebolts/ 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 eyebolts.

##### 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.



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 to +60 °C.

### 4. Mechanical installation

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

Check by hand that the shaft rotates freely.

###### WARNING Body injury

Death or serious personal injury



- If you test the motor without any device fitted to it, make sure that the key is secured in the shaft keyway, so that it cannot be ejected when starting the motor.

###### WARNING Crushing of feet

Death or serious personal injury



- Wear personal protective equipment and attach lifting equipment to the motor eyebolts when handling the product.
- Keep other persons at a safe distance when handling the product.

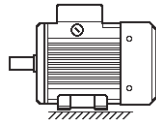
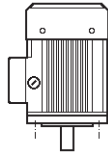
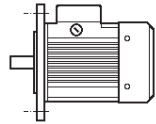
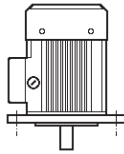
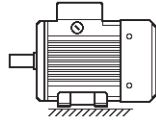
###### CAUTION Crushing of feet

Minor or moderate personal injury



- Make sure that the eyebolts are secured in position.

#### 4.1 Mounting designations

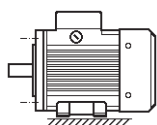
IEC 60034-7, Code I		IEC 60034-7, Code II
<b>Flange-mounted motor (tapped-hole flange)</b>		
IM B 14		IM 3601
IM V 18		IM 3611
<b>Flange-mounted motor (free-hole flange)</b>		
IM B 5		IM 3001
IM V 1		IM 3011
<b>Foot-mounted motor</b>		
IM B 3		IM 1001

IEC 60034-7, Code I

IEC 60034-7, Code II

**Foot-mounted motor (tapped-hole flange)**

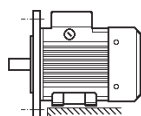
IM B 34



IM 2101

**Foot-mounted motor (free-hole flange)**

IM B 35



IM 2001

**4.2 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.



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

**4.2.1 Number of drain holes**

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

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.

**4.3 Motor bearings**

The motor bearing type is stated on the nameplate.

**4.3.1 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 the section about motor bearings.

**Related information**

[7.2 Motor bearings](#)

**4.4 Balancing**

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

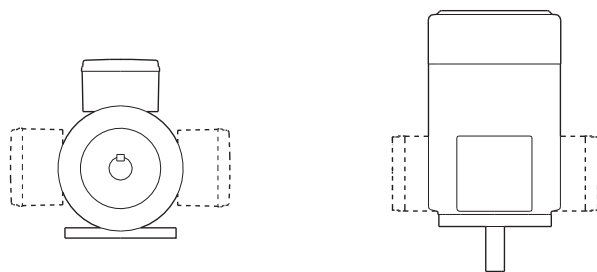
**4.5 Cable entry connection**

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 or with blanking plugs.
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	

**4.6 Clearance**

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

**4.7 Terminal box positions**

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 the section about drain holes.

**Related information**

[4.2 Drain holes](#)

#### 4.8 Outdoor installation

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

#### 4.9 Foundation

Grundfos recommends installing 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.



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

#### 4.10 Alignment

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

#### 4.11 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.

### 5. Electrical connection

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

The wiring diagram is located in the terminal box cover.

#### WARNING

##### Electric shock

Death or serious personal injury



- Before removing the terminal box cover and before any dismantling of the motor, switch off the power supply.
- Follow the wiring diagram located in the terminal box cover.
- Do not remove nor move the insulation material, if any, present inside the terminal box.

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

#### WARNING

##### Electric shock

Death or serious personal injury



- 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.

#### 5.1 Single-phase motor

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

#### 5.2 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.

#### 5.3 Electrical installation

#### WARNING

##### Electric shock

Death or serious personal injury



- Before starting any work on the product, switch off the power supply. Make sure that the power supply cannot be accidentally switched on.

#### 5.4 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

##### Electric shock

Death or serious personal injury



- The motor must be connected to an external main switch.

#### WARNING

##### Electric shock

Death or serious personal injury



- Always use original Grundfos spare parts.



### 5.4.1 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

##### Electric shock

Death or serious personal injury



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

## 6. Starting up the product

### 6.1 Measuring the insulation resistance

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

#### WARNING

##### Electric shock

Death or serious personal injury



- 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  $25 \text{ }^\circ\text{C} (\pm 15 \text{ }^\circ\text{C})$ .

Procedure:

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

#### WARNING

##### Electric shock

Death or serious personal injury



- During and immediately after the measurement, there is 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  $90 \text{ }^\circ\text{C}$  for 12-16 hours and then  $105 \text{ }^\circ\text{C}$  for 6-8 hours.



Remove any drain plugs before heating.

### 6.2 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.



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

## 7. Service

Service must be carried out by qualified persons. 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.

### WARNING Electric shock

Death or serious personal injury

- Before starting any work on the product, switch off the power supply. Make sure that the power supply cannot be accidentally switched on.
- Follow the wiring diagram located in the terminal box cover.
- Do not connect the motor to the voltage supply until the connection to earth has been carried out in accordance with local regulations.
- Do not remove nor move the insulation material, if any, present inside the terminal box.
- Before repairing or replacing the thermal switch or thermistor, if any, make sure that the motor cannot restart automatically after cooling.



### WARNING Crushing of feet

Death or serious personal injury

- Wear personal protective equipment and attach lifting equipment to the motor eyebolts when handling the product.
- Keep other persons at a safe distance when handling the product.



### CAUTION Crushing of feet

Minor or moderate personal injury

- Make sure that the eyebolts are secured in position.



### WARNING Body injury

Death or serious personal injury

- After assembling the motor, make sure that there are no loose objects, for example near the ventilator or under the fan cover, which could be ejected when starting the motor.
- After assembling the motor, if you test the motor without any device fitted to it, make sure that the key is secured in the shaft keyway, so that it cannot be ejected when starting the motor.



### CAUTION Hot surface

Minor or moderate personal injury

- Wear personal protective equipment.



### 7.1 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 a 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.

### 7.2 Motor bearings

Take care when replacing the motor bearings.

#### WARNING Electric shock

Death or serious personal injury

- Do not remove nor move the insulation material, if any, present inside the motor.



Do not expose the bearings to impacts or shocks.

#### 7.2.1 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<sup>2</sup>/s) at 40 °C
- 8 cSt (mm<sup>2</sup>/s) at 100 °C.

Grease filling rate: 30-40 %.

#### 7.2.2 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 dismantling the motor when the bearings have been relubricated five times. Clean and check the bearings for damage, and replace them if necessary.

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



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

### 7.3 Service documentation

Service documentation is available on [www.grundfos.com](http://www.grundfos.com) > Grundfos Product Center > Service.

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

## 8. Fault finding

### WARNING Electric shock

Death or serious personal injury



- 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 persons.

The table below covers the most frequent faults. Contact Grundfos if the table does not cover the specific fault.

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

## 9. Technical data

### 9.1 Operating conditions

#### 9.1.1 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 the section about 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.

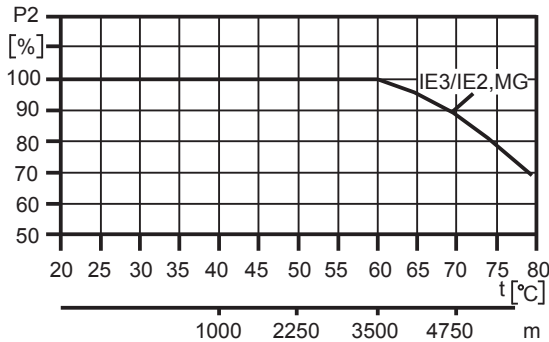
Efficiency class	Max. ambient temperature at full load [°C]	Max. installation altitude above sea level at full load [m]
NA	+40	1000
IE2	+60	3500
IE3		

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.



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  $(0.95 \times 0.88) = 83.6 \%$ .



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.

#### Related information

[7.2 Motor bearings](#)

#### 9.1.2 Frequency converter operation

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

#### 9.1.2.1 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.



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

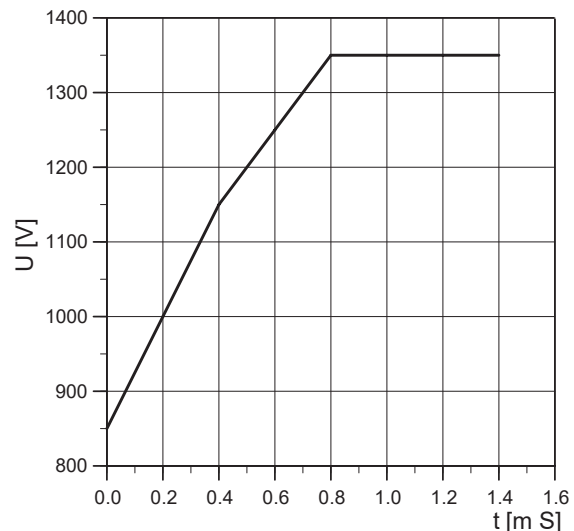
- Supply voltage up to 400 V:
  - Check that the motor has phase insulation. (Only motors with a rated voltage equal to or above 460 V have phase insulation.)
- Supply voltage above 400 V:
  - Check that the motor has phase insulation. (Only motors with a rated voltage equal to or above 460 V have phase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

#### 9.1.2.2 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.

The figure below shows the maximum permissible voltage peaks measured at the motor terminals for a specific rise time.



Maximum values for voltage peaks

#### 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.

### 9.1.2.3 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.

### 9.1.2.4 Operation



#### CAUTION Hot surface

- Minor or moderate personal injury
- Wear personal protective equipment.

### 9.1.2.5 Max. number of starts per hour

See the appendix.

#### Related information

[A.1. Appendix](#)

### 9.1.2.6 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.

## 9.2 Tightening torques for screws and plugs

### Tightening torques for BMC terminal cover screws

Type	Thread size [mm]	Tightening torque [Nm]
MG71/80	d 5.0	1.8 - 2.2
MG90/100	d 5.0	3-4
MG112/132	d 5.0	3-4
MG160/180	d 6.0	4-6

### Tightening torques for cable glands

Type	Thread size	Tightening torque [Nm]
MG71/80	M20/PG16	2.5 - 3
MG90/100	M20/PG16	2.5 - 3
MG112/132	M25	3 - 3.5
MG160/180	M40	3 - 3.5

## 9.3 Other technical data

Technical data	Location
Weight	See nameplate or Grundfos Product Center.
Enclosure class	See nameplate or Grundfos Product Center.
Dimensional sketches	See the appendix.
Sound pressure level	See Grundfos Product Center.
Winding resistances	See Grundfos Product Center or MG Product Information, PI-052, the section on technical data.

Grundfos Product Center: Please use the country selector.



QR\_GFC

## 10. Disposing of the product

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.



The crossed-out wheeled bin symbol on a product means that it must be disposed of separately from household waste. When a product marked with this symbol reaches its end of life, take it to a collection point designated by the local waste disposal authorities. The separate collection and recycling of such products will help protect the environment and human health.

See also end-of-life information at [www.grundfos.com/product-recycling](http://www.grundfos.com/product-recycling).

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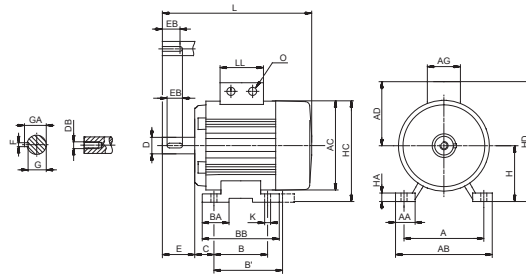
## Appendix A

## A.1. Appendix

## Maximum number of starts per hour

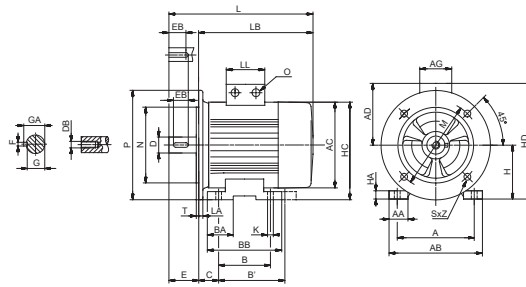
2-pole motors		4-pole motors	
Type designation	Maximum number of starts per hour	Type designation	Maximum number of starts per hour
MG 71A2	250	MG 71A4	250
MG 71B2		MG 71B4	
MG 80A2		MG 80A4	
MG 80B2		MG 80B4	
MG 90SA2		MG 90SA4	
MG 90SB2		MG 90SB4	
MG 90LA2		MG 90LA4	
MG 90LB2		MG 90LB4	
MG 90LC2		MG 90LC4	
MG 100LA2		100	
MG 100LC2	MG 100LB4		
MG 112MB2	MG 100LC4		
MG 112MC2	MG 112MB4		
MG 132SB2	50	MG 112MC4	50
MG 132SC2		MG 132MB4	
MG 132SD2		MG 132SB4	
MG 160MB2		MG 132SC4	
MG 160MD2	40	MG 160MB4	
MG 160LB2		MG 160LB4	
MG 180MB2			

Dimensional sketches



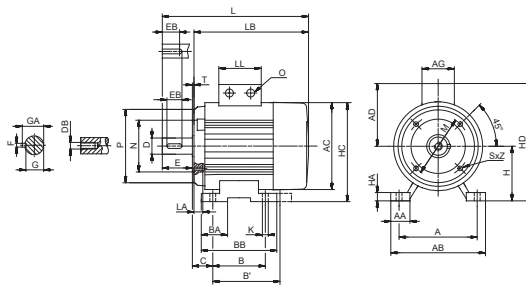
TM028800

Foot-mounted motor, IM B 3



TM028805

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



TM028804

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 B5/V1										Flange IM B34, IM B14V18										Foot IM B3, IM B35, IM B34										Cable entry									
	AC	AD	AG	L	LB	LL	D	DB	E	EB	F	G	GA	LA	M	N	P	S	T	LA	M	N	P	S	T	A	AA	AB	B	B'	BA	BB	C	H	HA	HC	HD	K	O																			
<b>Three-phase, 2-pole, IE not defined (P2 &lt; 0.75 kW)</b>																																																										
MG71A2-C	141	109	82	221	191	82	14	M5	30	22	5	11	16	10	130	110	160	∅10X4	3.5	12 <sup>1)</sup>	85	70	105	M6X4	2.5	112	27	139	90	-	20	110	45	71	3	142	180	7	2XM20																			
MG71B2-C	141	109	82	221	191	82	14	M5	30	22	5	11	16	10	130	110	160	∅10X4	3.5	12 <sup>1)</sup>	85	70	105	M6X4	2.5	112	27	139	90	-	20	110	45	71	3	142	180	7	2XM20																			
MG80A2-C	141	109	82	271	231	82	19	M6	40	32	6	15.5	21.5	10	165	130	200	∅12X4	3.5	12 <sup>1)</sup>	100	80	120	M6X4	3	125	37	159	100	-	25	125	50	80	3	151	189	10	2XM20																			
<b>Three-phase, 2-pole, IE3 Range</b>																																																										
MG80A2-H3	141	109	82	271	231	82	19	M6	40	32	6	15.5	21.5	10	165	130	200	∅12X4	3.5	12 <sup>1)</sup>	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	∅12X4	3.5	12 <sup>1)</sup>	100	80	120	M6X4	3	125	37	159	100	-	25	125	50	80	3	151	189	10	2XM20																			
MG90S2-H3	178	110	162	331	281	103	24	M8	50	40	8	20	27	18	165	130	200	∅12X4	3.5	13 <sup>1)</sup>	115	95	135	M8X4	3	140	-	178	100	125	-	155	56	90	3	179	200	10	4XXM20 <sup>2)</sup>																			
MG90LC2-H3	178	110	162	371	321	103	24	M8	50	40	8	20	27	18	165	130	200	∅12X4	3.5	13 <sup>1)</sup>	115	95	135	M8X4	3	140	-	178	100	125	-	150	56	90	3	179	200	10	4XXM20 <sup>2)</sup>																			
MG100LC2-H3	198	120	162	395	335	103	28	M10	60	50	8	24	31	10	215	180	250	∅15X4	4	14 <sup>1)</sup>	130	110	160	M8X4	3.5	160	-	199	140	-	-	170	63	100	3	199	220	12	4XXM20 <sup>2)</sup>																			
MG112MC2-H3	220	134	202	432	372	103	28	M10	60	50	8	24	31	10	215	180	250	∅15X4	4	14 <sup>1)</sup>	130	110	160	M8X4	3.5	190	-	228	140	-	-	172	70	112	4	222	246	12	4XXM25 <sup>2)</sup>																			
MG132SC2-H3	220	134	202	471	391	103	38	M12	80	70	10	33	41	12	265	230	300	∅15X4	4	28 <sup>1)</sup>	165	130	200	M10X4	3.5	216	-	255	140	-	-	172	89	132	5	242	266	12	4XXM25 <sup>2)</sup>																			
MG132SB2-H3	260	159	203	459	379	135	38	M12	80	70	10	33	41	12	265	230	300	∅15X4	4	43 <sup>1)</sup>	165	130	200	M10X4	3.5	216	42	244	140	-	-	164	89	132	6	262	257	12	4XXM25 <sup>2)</sup>																			
MG160MB2-H3	314	204	243	581	471	213	42	M16	110	82	12	37	45	12	300	250	350	∅19X4	5	-	-	-	-	-	-	254	49	287	210	-	-	239	108	160	8	317	320	15	2XXM20, 4XXM40 <sup>2)</sup>																			
MG160MD2-H3	314	204	243	581	471	213	42	M16	110	82	12	37	45	12	300	250	350	∅19X4	5	-	-	-	-	-	-	254	49	287	210	-	-	239	108	160	8	317	320	15	2XXM20, 4XXM40 <sup>2)</sup>																			
MG160LB2-H3	314	204	243	625	515	213	42	M16	110	82	12	37	45	12	300	250	350	∅19X4	5	-	-	-	-	-	-	254	49	287	254	-	-	283	108	160	8	317	320	15	2XXM20, 4XXM40 <sup>2)</sup>																			
MG180MB2-H3	314	204	243	651	541	213	48	M16	110	100	14	43	51.5	12	300	250	350	∅19X4	5	-	-	-	-	-	-	279	61	312	241	279	-	308	121	180	8	337	340	15	2XXM20, 4XXM40 <sup>2)</sup>																			
<b>Three-phase, 2-pole, IE2 Range</b>																																																										
MG80B2-D1	141	109	82	271	231	82	19	M6	40	32	6	15.5	21.5	10	165	130	200	∅12X4	3.5	12 <sup>1)</sup>	100	80	120	M6X4	3	125	37	159	100	-	25	125	50	80	3	151	189	10	2XM20																			
MG90S2-D1	178	110	162	331	281	103	24	M8	50	40	8	20	27	18	165	130	200	∅12X4	3.5	13 <sup>1)</sup>	115	95	135	M8X4	3	140	-	178	100	125	-	155	56	90	3	179	200	10	4XXM20 <sup>2)</sup>																			
MG90LC2-D1	178	110	162	371	321	103	24	M8	50	40	8	20	27	18	165	130	200	∅12X4	3.5	13 <sup>1)</sup>	115	95	135	M8X4	3	140	-	178	100	125	-	150	56	90	3	179	200	10	4XXM20 <sup>2)</sup>																			
MG100LC2-D1	198	120	162	395	335	103	28	M10	60	50	8	24	31	10	215	180	250	∅15X4	4	14 <sup>1)</sup>	130	110	160	M8X4	3.5	160	-	199	140	-	-	170	63	100	3	199	220	12	4XXM20 <sup>2)</sup>																			
MG112MC2-D1	220	134	202	432	372	103	28	M10	60	50	8	24	31	10	215	180	250	∅15X4	4	14 <sup>1)</sup>	130	110	160	M8X4	3.5	190	-	228	140	-	-	172	70	112	4	222	246	12	4XXM25 <sup>2)</sup>																			
MG132SC2-D1	220	134	202	471	391	103	38	M12	80	70	10	33	41	12	265	230	300	∅15X4	4	28 <sup>1)</sup>	165	130	200	M10X4	3.5	216	-	255	140	-	-	172	89	132	5	242	266	12	4XXM25 <sup>2)</sup>																			
MG132SB2-F1	260	159	203	459	379	135	38	M12	80	70	10	33	41	12	265	230	300	∅15X4	4	43 <sup>1)</sup>	165	130	200	M10X4	3.5	216	42	244	140	-	-	164	89	132	6	262	257	12	4XXM25 <sup>2)</sup>																			
MG160MB2-F1	314	204	243	581	471	213	42	M16	110	82	12	37	45	12	300	250	350	∅19X4	5	-	-	-	-	-	-	254	49	287	210	-	-	239	108	160	8	317	320	15	2XXM20, 4XXM40 <sup>2)</sup>																			
MG160MD2-F1	314	204	243	581	471	213	42	M16	110	82	12	37	45	12	300	250	350	∅19X4	5	-	-	-	-	-	-	254	49	287	210	-	-	239	108	160	8	317	320	15	2XXM20, 4XXM40 <sup>2)</sup>																			
MG160LB2-F1	314	204	243	625	515	213	42	M16	110	82	12	37	45	12	300	250	350	∅19X4	5	-	-	-	-	-	-	254	49	287	254	-	-	283	108	160	8	317	320	15	2XXM20, 4XXM40 <sup>2)</sup>																			
MG180MB2-F1	314	204	243	651	541	213	48	M16	110	100	14	43	51.5	12	300	250	350	∅19X4	5	-	-	-	-	-	-	279	61	312	241	279	-	308	121	180	8	337	340	15	2XXM20, 4XXM40 <sup>2)</sup>																			

<sup>1)</sup> 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.  
<sup>2)</sup> Knockouts.



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

<sup>1)</sup> 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.

<sup>2)</sup> 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 sbližení 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 dolje navedenim direktivama Vijeća 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 quale 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 Directivele 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 нижеприведенная декларация, соответствуют нижеприведенным 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.

**BG: Декларация за съответствие на ЕО**

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 ЕО.

**DE: EU-Konformitätserklärung**

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

**EE: EÜ vastavusdeklaratsioon**

Meie, Grundfos, kinnitame ja kanname ainuisikulist 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 megfelelőségi nyilatkozat**

Mi, a Grundfos vállalat, teljes felelősséggel kijelentjük, hogy a(z) MG/ML termékek, amelyekre 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 Directivas 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 rådsdirektiv 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 zblíženie právnych predpisov členských štátov EÚ.

**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 系列，其制造和性能完全符合以下所列欧盟委员会指令。

**KO: EU 적합성 선언**

Grundfos는 아래의 선언과 관련된 MG/ML 제품이 EU 회원국 법률에 기반하여 아래의 이사회 지침을 준수함을 단독 책임 하에 선언합니다.

**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 производителите 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 ขอประกาศภายใต้ความรับผิดชอบของเรา แต่เพียงผู้เดียวว่าผลิตภัณฑ์ MG/ML ซึ่งเกี่ยวข้องกับคำประกาศนี้ มีความสอดคล้องกับระเบียบคำสั่งตามรายการด้านล่างนี้ของสภาวิชาชีพว่าด้วยค่าประมาณตามกฎหมายของรัฐที่เป็นสมาชิก EU

**VI: TUYÊN BỐ 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.

**IS: ESB-samræmisýfirlýsing**

Við, Grundfos, lýsum því yfir og ábyrgjumst að fullu að vörurnar MG/ML, sem þessi yfirlýsing á við um, samræmist tilskipunum ráðs Evrópubandalaganna um samræmingu laga aðildarríkja ESB.

- Low Voltage Directive (2014/35/EU)  
Standard used: EN 60034-1:2010
- Ecodesign Directive (2009/125/EC)  
Electric motors:  
Commission Regulation (EU) No 2019/1781  
Commission Regulation (EU) No 2021/341  
Standard used: EN 60034-30-1:2014
- RoHS Directive: 2011/65/EU and 2015/863/EU  
Standard used: EN IEC 63000:2018

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 numbers 98079951 (MG) and 99381720 (ML)) or safety instructions (publication number 98079934).

Bjerringbro, 19/May/2023



Jimm Feldborg  
Head of PD IND  
Grundfos Holding A/S  
Poul Due Jensens Vej 7  
8850 Bjerringbro, Denmark

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

**UA: Декларація відповідності директивам ЕУ**

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 加盟諸国の法規に關連する、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 niže prikazanim direktivama Vijeća o usklađivanju zakona država članica 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 الاتحاد الأوروبي (EU)**

نقر نحن، جروندفوس، بمقتضى مسؤوليتنا الفردية بأن المنتجين MG/ML اللذين يختص بهما الإقرار أدناه، يكونان مطابقين لتوجيهات المجلس المذكورة أدناه بشأن التقريب بين قوانين الدول أعضاء 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: Deklarata 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 përafirimin e ligjeve të shteteve anëtare të BE-së.

## Declaration of conformity

**GB: Moroccan declaration of conformity**

We, Grundfos, declare under our sole responsibility that the products to which the declaration below relates, are in conformity with Moroccan laws, orders, standards and specifications to which conformity is declared, as listed below:

Valid for products:

MG, ML

Law No 24-09, 2011 Safety of products and services and the following orders:

Order No 2573-14, 2015 Safety Requirements for Low Voltage Electrical Equipment

Standards used: NM EN 60034-1:2019

This Moroccan declaration of conformity is only valid when accompanying Grundfos instructions.

**FR: Déclaration de conformité marocaine**

Nous, Grundfos, déclarons sous notre seule responsabilité que les produits auxquels se réfère cette déclaration, sont conformes aux lois, ordonnances, normes et spécifications marocaines pour lesquelles la conformité est déclarée, comme indiqué ci-dessous :

Valable pour les produits Grundfos :

MG, ML

Sécurité des produits et services, loi n° 24-09, 2011 et décrets suivants :

Exigences de sécurité pour les équipements électriques basse tension, ordonnance n° 2573-14, 2015

Normes utilisées : NM EN 60034-1:2019

Cette déclaration de conformité marocaine est uniquement valide lorsqu'elle accompagne la notice d'installation et de fonctionnement Grundfos.

**AR: إقرار المطابقة المغربي**

نحن، جروندفوس، نفر تحت مسؤوليتنا وحدنا بأن المنتجات التي يتعلق بها الإقرار أدناه، تتوافق مع القوانين والقرارات والمعايير والمواصفات المغربية التي تم إقرار المطابقة بشأنها، كما هو موضح أدناه:

سارٍ على منتجات جروندفوس:

MG, ML

قانون رقم 24-09، 2011 بشأن سلامة المنتجات والخدمات والقرارات التالية:

القرار رقم 14-2573، 2015 متطلبات السلامة للمعدات الكهربائية ذات الجهد المنخفض المعايير المستخدمة:

NM EN 60034-1:2019

يكون إقرار المطابقة المغربي صالحًا فقط عند نشره كجزء من تعليمات جروندفوس.

Bjerringbro, 13/December/2019

Árpád Erdélyi

Engineering Manager

Grundfos Holding A/S

Poul Due Jensens Vej 7

8850 Bjerringbro, Denmark

GB: Manufacturer and person empowered to sign the Moroccan declaration of conformity.

FR: Fabricant et personne habilitée à signer la Déclaration de conformité marocaine.

AR: الجهة المصنعة والشخص المفوض بتوقيع إقرار المطابقة المغربي.

10000268460

## Declaration of conformity

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### UK declaration of conformity

We, Grundfos, declare under our sole responsibility that the products to which the declaration below relates, are in conformity with UK regulations, standards and specifications to which conformity is declared, as listed below:

Valid for Grundfos products:

#### MG/ML models

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- Electrical Equipment (Safety) Regulations 2016.  
Standard used: EN 60034-1:2010
- The Ecodesign for Energy-Related Products and Energy Information Regulations 2021.  
Standard used: EN 60034-30-1:2014
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2019.  
Standard used: EN IEC 63000:2018

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 UK declaration of conformity is only valid when published as part of the Grundfos installation and operating instructions (publication numbers 98079951 (MG) and 99381720 (ML)) or safety instructions (publication number 98079934).

UK Importer: Grundfos Pumps Ltd. Grovebury Road, Leighton Buzzard, LU7 4TL.

Bjerringbro, 19/May/2023



Jimm Feldborg  
Head of PD IND

Grundfos Holding A/S  
Poul Due Jensens Vej 7  
8850 Bjerringbro, Denmark

Manufacturer and person empowered to sign the UK declaration of conformity.  
[10000337401]

## Declaration of conformity

**GB: Ukrainian declaration of conformity**

We, Grundfos, declare under our sole responsibility that the products to which the declaration below relates, are in conformity with Ukrainian resolutions, standards and specifications to which conformity is declared, as listed below:

Valid for Grundfos products:

**MG/ML**

**Resolution No. 1067, 2015 - Technical Regulation of Low Voltage Electrical Equipment**

**Resolution No. 533, 2018 - Amendments to some provisions**

Standards used: ДСТУ EN 60034-1:2016

**Resolution No 804, 2018 - Establishing a Framework for the Setting of Ecodesign Requirements for Energy-related Products**

**Resolution No. 157, 2019 - Ecodesign Requirements for Electric Motors**

Standards used: ДСТУ IEC 60034-2-1:2019

**Resolution No. 139, 2017 - Technical Regulations on Use of Certain Hazardous Substances in Electrical and Electronic Equipment**

Standards used: ДСТУ EN IEC 63000:2020

Importer address:

LLC Grundfos Ukraine, Business Center Europe

103, Stolychne Shose, UA-03026 Kyiv, Ukraine

Phone: (+380) 44 237 0400

Email: ukraine@grundfos.com

This Ukrainian declaration of conformity is only valid when accompanying Grundfos instructions.

**UA: Українська декларація відповідності**

Ми, Grundfos, заявляємо про свою виключну відповідальність за те, що продукція, до якої відноситься ця декларація, відповідає вимогам українським постановам, стандартам та технічним умовам, щодо яких заявлена відповідність, як зазначено нижче:

Дійсно для продуктів Grundfos:

**MG/ML**

**Постанова № 1067 від 2015 р., Технічний регламент низьковольтного електричного обладнання**

**Постанова № 533 від 2018 р., Про внесення змін до деяких положень**

Застосовані стандарти: ДСТУ EN 60034-1:2016

**Постанова № 804 від 2018 р., Встановлення системи для визначення вимог з екодизайну енергоспоживчих продуктів**

**Постанова № 157 від 2019 р., Вимоги до екодизайну електродвигунів**

Застосовані стандарти: ДСТУ IEC 60034-2-1:2019

**Постанова № 139 від 2017 р., Технічний регламент обмеження використання деяких небезпечних речовин в електричному та електронному обладнанні**

Застосовані стандарти: ДСТУ EN IEC 63000:2020

Адреса імпортера:

ТОВ "Грундфос Україна", Бізнес Центр "Європа"

Столичне шосе, 103, м. Київ, 03026, Україна

Телефон: (+380) 44 237 0400

Ел. пошта: ukraine@grundfos.com

Ця українська декларація відповідності дійсна лише за наявності інструкцій Grundfos.

Bjerringbro, 28/February/2022

Jimm Feldborg  
Head of PD IND

Grundfos Holding A/S  
Poul Due Jensens Vej 7  
8850 Bjerringbro, Denmark

GB: Manufacturer and person empowered to sign the Ukrainian declaration of conformity  
UA: Виробник та особа, уповноважена підписати українську декларацію відповідності

[10000438708]

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**Columbia**

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