

CMB, CMB-SP

With PM START, PM PLUS

Installation and operating instructions



CMB, CMB-SP

English (GB)

Installation and operating instructions	4
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English (GB) Installation and operating instructions

Original installation and operating instructions

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1. General information



Appliances can be used by persons with reduced physical, sensory, or mental capabilities, as well as persons with a lack of experience and knowledge. This requires that they are given supervision or instruction concerning the use of the appliance in a safe way and that they understand the hazards involved. Cleaning and user maintenance shall not be carried out by children without supervision.



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 Target group

These installation and operating instructions are intended for professional as well as non-professional users.

2. Product description



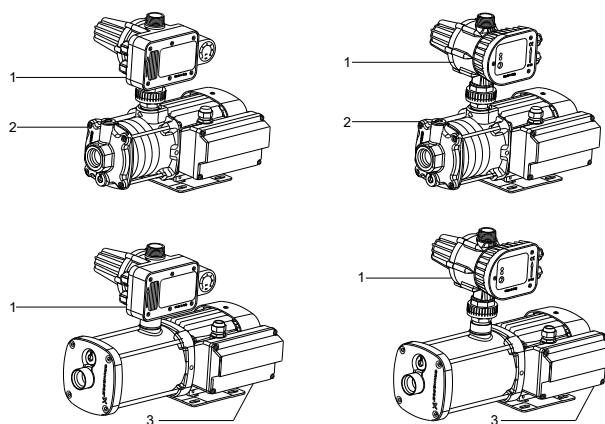
TM090439

The CMB and CMB-SP booster consist of a CMB or CMB SP pump and a pressure manager. The compact booster is designed for water supply in domestic and light commercial applications, and the modular pump design enables customised solutions.

CMB-SP must be primed before startup, after which it becomes self-priming. CMB-SP can create a suction lift of up to 4 metres. Once the system is connected to the pipes and plugged into a power socket, it is ready for operation.

CMB pumps have built-in current- and temperature-dependent motor protection in accordance with IEC 60034-11, requiring no additional motor protection.

2.1 Product overview



TM090253

Top left: CMB PM PLUS, top right: CMB PM START, bottom left: CMB-SP PM PLUS, bottom right: CMB-SP PM START

Pos.	Description
1	Pressure manager
2	CMB pump
3	CMB-SP pump

2.2 Intended use

! Only use the product according to the specifications stated in these installation and operating instructions.

The product is suitable for pressure boosting of clean water in domestic water-supply systems and small industrial systems.

Examples of applications:

- pressure boosting for home and gardening
- water supply for agriculture and irrigation
- transfer and pressure boosting in break tank and rainwater applications
- water supply from shallow wells.

2.3 Pumped liquids

WARNING
Flammable material



Death or serious personal injury

- Do not use the product for flammable liquids such as diesel oil, petrol or similar liquids. The product must only be used for water.

WARNING
Toxic material



Death or serious personal injury

- Do not use the product for toxic liquids. The product must only be used for water.

WARNING
Corrosive substance



Death or serious personal injury

- Do not use the product for aggressive liquids. The product must only be used for water.

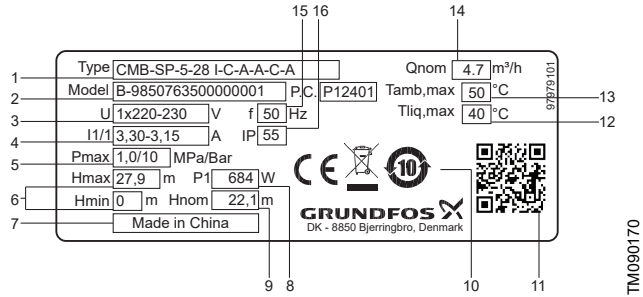
! If the water contains sand, gravel or other debris, there is a risk of pump blockage and pump damage. Install a filter on the inlet side or apply a floating strainer to protect the pump.

The product is suitable for pumping clean, thin, non-aggressive, non-toxic and non-explosive liquids without solid particles or fibres. Examples of liquids:

- potable water
- rainwater.

2.4 Identification

2.4.1 Nameplate



Nameplate example

Pos.	Description
1	Type
2	Model
3	Supply voltage
4	Rated current
5	Max. operating pressure
6	Min. and max. head
7	Country of origin
8	Power input
9	Nominal head
10	Approvals
11	QR code
12	Max. liquid temperature
13	Max. ambient temperature
14	Nominal flow rate
15	Frequency
16	IP class

2.4.2 Type key

The type key cannot be used for ordering as not all combinations are possible.

Example: CMB-SP-PM-5-28 I-C-A-A-C-A

Code	Designation	Explanation
CMB PM CMB-SP PM	CM Booster with PM START or PM PLUS CM Booster, self-priming, with PM START or PM PLUS	Type range
At 50 Hz [m ³ /h]		Rated flow rate
- 47		Max. head [m]
A	Inlet and outlet parts, EN-GJL-200 Pump shaft, EN 1.4301/AISI 304 Impellers or chambers, EN 1.4301/AISI 304 Pressure manager, PP 30GF	Materials in contact with the pumped liquid
I	Sleeve, EN 1.4301/AISI 304 Pump shaft, EN 1.4301/AISI 304 Impellers or chambers, EN 1.4301/AISI 304 Pressure manager, PP 30GF	
C	1 × 220-230/240 V, 50 Hz	Supply voltage [V]
A	Standard motor (IP55)	Motor
A	1.5 m cable with Australian plug	Main cable and plug
B	1.5 m cable with US plug	
C	1.5 m cable with Schuko plug	
D	1.5 m cable without plug	
E	No cable, no plug	
H	1.5 m cable with IRAM (Argentinian) plug	
G	2 m cable with UK plug	
O	1.5 m cable with Thai plug	
P	2.5 m cable with Indian plug IS 1293	
E	PM START (1.5 bar)	Controller
F	PM START (2.2 bar)	
H	PM PLUS (1.5 to 3.0 bar)	
A	Rp 1	Thread

3. Receiving the product

The weight of the product is stated on the packaging.

CAUTION

Back injury

Minor or moderate personal injury



- Use lifting equipment which is approved for the weight of the product.
- Use a lifting method suitable for the weight of the product.
- Do not lift the product by lifting it in the packaging inlay.
- Wear personal protective equipment.

CAUTION

Crushing of limbs

Minor or moderate personal injury



- Avoid insecure stacking of the product.

The pumps are delivered from factory in a packaging specially designed for manual transport or transport by forklift truck or a similar vehicle.

3.2 Scope of delivery

The box contains the following items:

- 1 Grundfos CM Booster
- 1 pressure manager
- safety instructions.

4. Installation requirements

4.1 Location

The product can be installed both indoors and outdoors.

The installation location must be protected from rain, humidity, condensation, direct sunlight and dust.

Please observe the following:

- Install the product to enable easy inspection, maintenance, and service.
- We recommend that you place the product as close as possible to the liquid to be pumped.
- We recommend that you install the product near a drain or in a drip tray connected to a drain in order to lead away possible condensation from cold surfaces.

4.2 Minimum space

Ensure sufficient space for service and maintenance and for motor cooling.

- We recommend a clearance of 0.5 m on three sides of the product.
- The motor is fan cooled, so do not block the fan cover.
- If you install the product with one side against a wall, make sure that the nameplate is visible.

4.3 Installation of the product in a frosty environment

Protect the product from freezing if it is to be installed outdoors where frost may occur.

4.4 Ambient temperature during operation

The ambient temperature for CMB PM and CMB-SP PM is 0-50 °C.

5. Mechanical installation

Before installing the pump, check that the pump type and parts are as ordered.



CAUTION

Hot or cold surface

Minor or moderate personal injury



- Make sure that no one can accidentally come into contact with hot or cold surfaces.

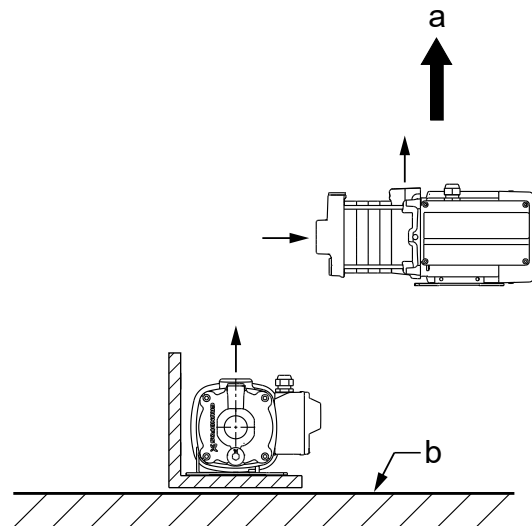
5.1 Installing the pump



To avoid leakage, make sure to tighten the cable gland as well as the connector between the pump and the pressure manager.

1. Install the pump on a plane surface using the mounting holes in the motor base plate and a minimum of four bolts. Tighten each of the four bolts to a torque of 10 Nm.
2. Install the pump so that air pockets are avoided in the pump housing and pipes.

The below figure shows the allowed pump positions.



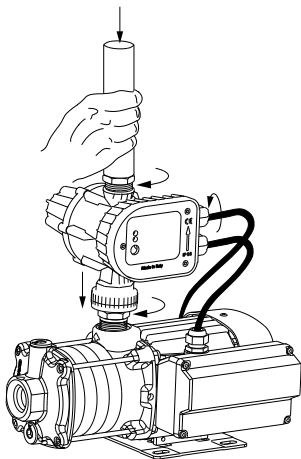
TM090303

Pump positions

Pos.	Description
a	Up
b	Floor

3. Install the pump so that inspection, maintenance and service can easily be performed.
4. Install the pump in a well-ventilated location.
5. Loosen the connector between the pressure manager and the pump, and rotate the pressure manager to the position that fits your installation.

6. Tighten the cable glands and connector on the pressure manager.



TM090304

Tightening the cable glands and the connector

5.2 Pipes

We recommend that you fit isolating valves on either side of the pump. It is thus not necessary to drain the system if the pump needs service.

If the pump is installed above the liquid level, a non-return valve must be fitted in the inlet pipe below the liquid level. See the figure about recommended pipes for a self-priming pump in the section on pipe connection (self-priming pumps).

Self-priming pumps

We recommend an opening pressure of the non-return valve which is lower than 0.05 bar. Otherwise, the additional resistance will reduce the suction capability of the pump.

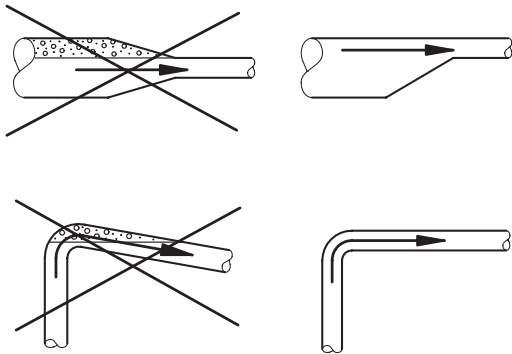
If the pump is to be used for pumping rainwater or well water, we recommend that you fit a filter to the inlet of the inlet pipe.

The pump must not be stressed by the pipes.

Install the pipes according to the design requirements given in EN ISO 13480-3:2012. Tolerances must comply with EN ISO 13920:1996, class C.

The pipes must be correctly sized taking due account of the pump inlet pressure.

Install the pipes so that air pockets are avoided, especially on the inlet side of the pump. See the figure below.



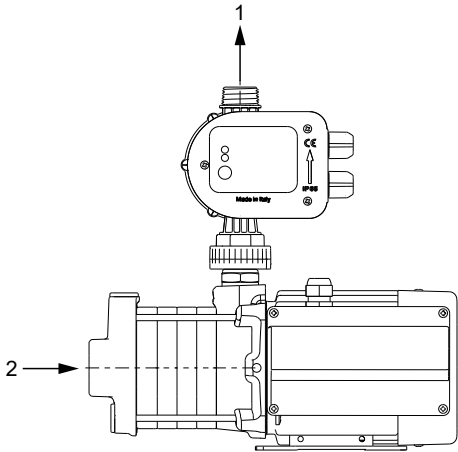
TM040338

Pipes

5.2.1 Pipe connection (non-self-priming pumps)

! Make sure not to damage the pump when connecting the inlet and outlet pipes.

Inlet torque: 50-60 Nm. The stated torque must not be exceeded.



TM090306

Inlet and outlet ports

Pos.	Description
1	Outlet port
2	Inlet port

5.2.2 Pipe connection (self-priming pumps)

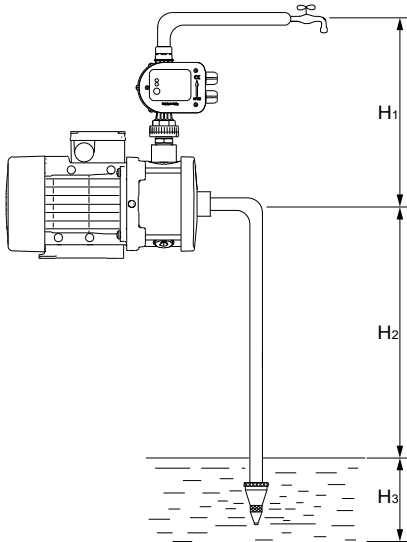
! Ensure that there is no air in the pipe system, and that the pump is primed before startup.

The height from the centre of the inlet port to the first tapping point (H_1) must be observed. For more details on product curves, go to <https://product-selection.grundfos.com/>

The maximum suction lift (H_2) is 4 metres

The inlet pipe must be at least 0.5 metres below the liquid level (H_3).

💡 For optimum suction capability, the pump must be located near the well or tank to ensure that the inlet pipe is as short as possible. This will reduce the self-priming time, especially in case of a high suction lift.



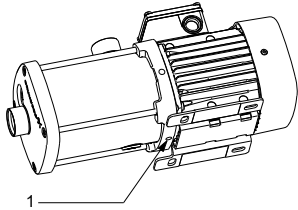
Pipe connection example

TM090305

5.2.3 Avoiding condensation in the motor

If the liquid temperature falls below the ambient temperature, condensation may form in the motor during standstill. Condensation can occur in moist surroundings or areas with high humidity.

To avoid condensation, open the bottom drain hole in the motor flange by removing the plug. See the figure below. This reduces the motor enclosure class to IPX5.



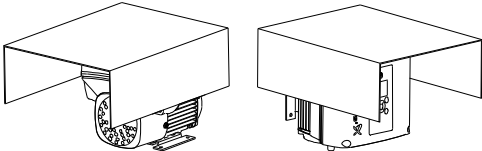
TM063860

Motor drain plug

Pos.	Description
1	Motor drain plug

The open drain hole helps prevent condensation in the motor as it makes the motor self-venting and allows water and humid air to escape.

When you install the pump outdoors, provide the motor with a cover to minimise condensation (not supplied by Grundfos).



Examples of covers (not supplied by Grundfos)

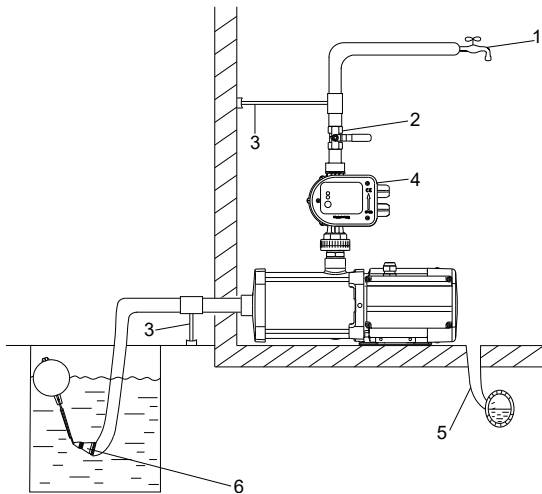
TM053496

5.3 Installation examples

We recommend that you follow the installation examples. Valves are not supplied with the pump.

5.3.1 Suction from a tank

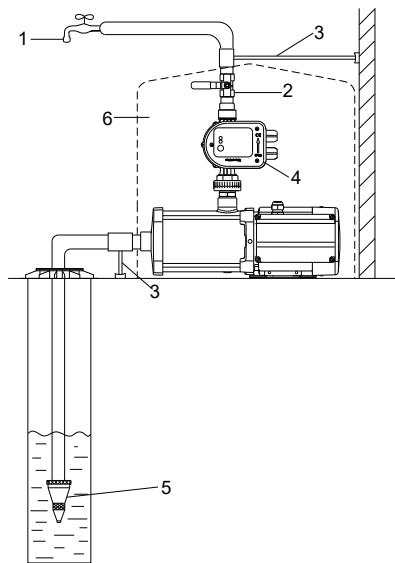
This installation example shows CMB PM, but it applies to all variants of the CMB range.



Pos.	Description
1	Highest tapping point
2	Isolating valve
3	Pipe support
4	Pressure manager
5	Drain to sewer (recommended for indoor installations)
6	Strainer. A foot valve is optional. We recommend using a foot valve together with CMB.

5.3.2 Suction from a well

This installation example shows the CMB PM, but it applies to all variants of the CMB range.



Pos.	Description
1	Highest tapping point
2	Isolating valve
3	Pipe support
4	Pressure manager
5	Foot valve with strainer. The foot valve is optional. We recommend using a foot valve together with CMB PM.
6	Pump cover (recommended for outdoor installation)

6. Electrical connection

WARNING **Electric shock**

Death or serious personal injury

- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.
- The product is supplied with a grounding conductor and grounding-type attachment plug. To reduce the risk of electric shock, be certain that the product is connected only to a properly grounded, grounding-type receptacle (protective earth).
- If national legislation requires a residual-current device (RCD) or equivalent in the electrical installation, this must be type A or better.
- If the product is used for cleaning or maintenance of swimming pools, garden ponds or similar places, make sure that the product is supplied through a residual-current device (RCD) with a rated residual operating current not exceeding 30 mA.



All electrical connections must be carried out by qualified persons in accordance with local regulations.



Make sure that the electrical installation supports the rated current [A] of the product. See the product's nameplate.

6.2 Power cable

In order to comply with the EN 60335-1 standard, the power cable must as a minimum be rated for an operating temperature of 105 °C (221 °F).

6.3 Motor protection

The single-phase motors have built-in current- and temperature-dependent motor protection in accordance with IEC 60034-11 and require no further motor protection.

The motor protection is of the TP 211 type which reacts to both slow- and quick-rising temperatures. The motor protection is automatically reset.

7. Startup of the product

WARNING **Electric shock**

Death or serious personal injury

- Do not use the product for cleaning and other maintenance of swimming pools or similar places if there are people in the water.



CAUTION **Hot surface**

Minor or moderate personal injury

- Use protective gloves if the liquid or ambient temperature is higher than 40 °C.



CAUTION **Hot surface**

Minor or moderate personal injury

- Do not run the pump continuously with a closed inlet or outlet valve.



CAUTION **Hot or cold liquid**

Minor or moderate personal injury

- Make sure that escaping hot or cold liquid does not cause injury to persons or damage to the equipment.



Do not turn on the power supply until the pump has been filled with liquid.



The number of starts and stops must not exceed 20 times per hour.



The pump must not run without delivering water for more than 5 minutes.



Only use the product for the intended use and for the pumped liquids stated in these installation and operating instructions.

7.1 Starting up the product

After installing the product, do the following:

1. Open all isolating valves.
Make sure that the water supply is sufficient on the inlet side of the pump.
2. Prime the pump.
3. Switch on the power supply to the pump, and the pump starts.
If there is a suction lift, it can take up to five minutes before the pump delivers water. This period depends on the length and diameter of the inlet pipe.
4. Open the tapping point that is highest or furthest away from the pump to let out air trapped in the system.
5. When water flows through the tapping point, close it.
6. Startup is completed, and the pump is ready for operation.

7.2 Startup of CMB PM

For CMB pumps with pressure manager, see the PM START quick guide for instructions on how to start the product.



QR92949257

<http://net.grundfos.com/qr/i/98388184>



If a pressure is not built up in the system within five minutes after startup, the dry-running protection is activated and the pump stops. Check the priming conditions of the pump before attempting to restart it.

7.3 Shaft seal run-in

The shaft seal faces are lubricated by the pumped liquid. A slight leakage from the shaft seal of up to 10 ml per day or 8 to 10 drops per hour may occur. Under normal conditions, the leaking liquid will evaporate. As a result, no leakage will be detected.

When the pump is started for the first time, or when the shaft seal has been replaced, a certain run-in period is required before the leakage is reduced to an acceptable level. The time required for this depends on the operating conditions, that is, every time the operating conditions change, a new run-in period will be started.

Leaking liquid will drain through the drain holes in the motor flange. Install the product in such a way that leakage cannot cause undesirable collateral damage.

7.4 Filling the product with liquid

CAUTION

Hot or cold liquid

Minor or moderate personal injury



- Wear personal protective equipment.
- Pay attention to the direction of the vent hole when you fill the pump with liquid and vent it.
- Make sure that no persons are hurt by the escaping liquid.



Pay attention to the direction of the vent hole during liquid filling and venting. Make sure that the escaping liquid does not cause damage to the motor or other components.

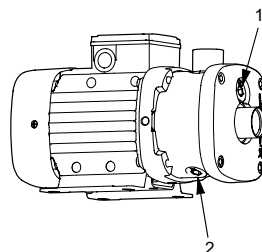
1. Close the isolating valve on the outlet side of the pump.
2. Open the isolating valve in the inlet pipe completely before starting the pump.
3. Remove the filling plug. See the figure below.
4. Fill the pump housing and the inlet pipe completely with liquid until a steady stream of liquid runs out of the filling hole.
5. Fit and tighten the filling plug.
6. Start the pump and slowly open the outlet isolating valve while the pump is running. This ensures venting and pressure build-up during startup.



The outlet isolating valve must be opened immediately after startup of the pump. Otherwise, the temperature of the pumped liquid may become too high and cause damage to the equipment.



If dry running is detected, the pressure manager will automatically stop the pump to prevent it from being damaged. To resume operation, ensure that water supply is restored, and press the **RESET** button on the pressure manager.



TM038774

Position of filling hole and drain hole

Pos.	Description
1	Filling hole
2	Drain hole



If it is difficult for the pump to build up pressure, it may be necessary to repeat steps 1 to 6.

Related information

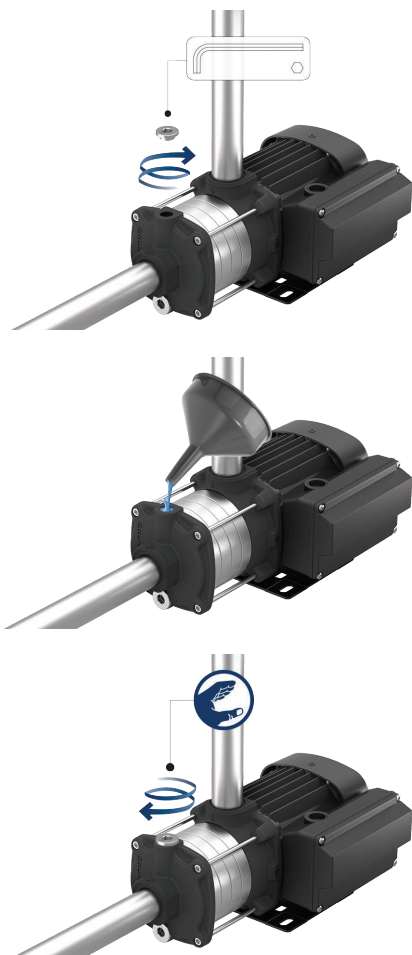
[10. Fault finding the product](#)

7.5 Priming the product



Always tighten the priming plug by hand.

1. Unscrew the priming plug.
2. Fill the pump with water.
3. Refit the priming plug and tighten by hand.



TM090438

8. Service

WARNING

Electric shock

Death or serious personal injury



- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.

WARNING

Chemical hazard

Death or serious personal injury



- Make sure that the product has only been used for water. If the product has been used for pumping aggressive liquids, flush the system with clean water before you start work on the product.

WARNING

Biological hazard

Death or serious personal injury



- Make sure that the product has only been used for water. If the product has been used for pumping aggressive liquids, flush the system with clean water before you start work on the product.

WARNING

Pressurised system

Death or serious personal injury



- Before dismantling the pump, drain the system or close the isolating valves on both sides of the pump. Slowly loosen the drain plug and unpressurise the system.



CAUTION

Hot or cold liquid

Minor or moderate personal injury



- Wear personal protective equipment.

CAUTION

Impurities in the water

Minor or moderate personal injury



- Before the pump is used for supplying drinking water, flush the pump thoroughly with clean water.
- Use spare parts approved by Grundfos.

CAUTION

Back injury

Minor or moderate personal injury



- Use lifting equipment which is approved for the weight of the product.
- Use a lifting method suitable for the weight of the product.
- Wear personal protective equipment.



Only qualified persons are allowed to service the pump.

The internal pump parts are maintenance-free. You must keep the motor clean in order to ensure adequate cooling of the motor. If the pump is installed in dusty environments, clean the pump regularly. Take the enclosure class of the motor into account when cleaning. The motor has maintenance-free, greased-for-life bearings.



Before startup after a period of inactivity, the pump and the inlet pipe must be completely filled with liquid. See the section on starting up the product.

8.1 Service documentation

Service documentation is available in Grundfos Product Center:
<http://product-selection.grundfos.com>.

If you have any questions, contact the nearest Grundfos company or service workshop.

9.1 Storage of the product

WARNING **Electric shock**



Death or serious personal injury

- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.

If the product is to be stored for a period of time, for example during winter, drain it by removing the drain plug and store the product indoors in a dry location.

During storage the temperature must be between -40 and +70 °C and have a maximum relative humidity of 98 % RH.

9.2 Frost protection

If the product is not used during periods of frost, it must be drained to avoid damage.

10. Fault finding the product

WARNING **Electric shock**



Death or serious personal injury

- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.

WARNING **Chemical hazard**



Death or serious personal injury

- Make sure that the product has only been used for water. If the product has been used for pumping aggressive liquids, flush the system with clean water before you start work on the product.

WARNING **Pressurised system**



Death or serious personal injury

- Before dismantling the product, drain the system or close the isolating valves on both sides of the product. Slowly loosen the drain plug and unpressurise the system.



CAUTION **Hot or cold liquid**



Minor or moderate personal injury

- Wear personal protective equipment.

CAUTION **Back injury**



Minor or moderate personal injury

- Use lifting equipment which is approved for the weight of the product.
- Use a lifting method suitable for the weight of the product.
- Wear personal protective equipment.

Related information

[7.4 Filling the product with liquid](#)

10.1 The pump does not run

Cause	Remedy
Supply failure.	- Switch on the switch. - Check cables and cable connections for defects and loose connections.
Motor protection has tripped.	- Replace the contacts of the motor-protective circuit breaker, the magnet coil or the entire motor-protective circuit breaker. - Check cables and cable connections for defects, and replace the fuses. - Repair or replace the motor. - Switch off the power supply, and clean or repair the pump. - Set the motor-protective circuit breaker according to the rated current of the motor ($I_{1/1}$). See the nameplate.
Control-current circuit is defective.	Repair or replace the control-current circuit.

10.2 Motor-protective circuit breaker has tripped (trips immediately when power supply is switched on)

Cause	Remedy
Contacts of the motor-protective circuit breaker or magnet coil are defective.	Replace the contacts of the motor-protective circuit breaker, the magnet coil or the entire motor-protective circuit breaker.
Cable connection is loose or faulty.	Check cables and cable connections for defects, and replace the fuses.
Motor winding is defective.	Repair or replace the motor.
The pump is mechanically blocked.	Switch off the power supply, and clean or repair the pump.
The setting of the motor-protective circuit breaker is too low.	Set the motor-protective circuit breaker according to the rated current of the motor ($I_{1/1}$). See the nameplate.

10.3 The motor-protective circuit breaker trips occasionally

Cause	Remedy
The setting of the motor-protective circuit breaker is too low.	Set the motor-protective circuit breaker according to the rated current of the motor ($I_{1/1}$). See the nameplate.
Periodic supply fault.	Check cables and cable connections for defects, and replace the fuses.
Periodically low voltage.	- Check cables and cable connections for defects and loose connections. - Check that the power cable of the pump is correctly sized.

10.4 The motor-protective circuit breaker has not tripped, but the pump is inadvertently out of operation

Cause	Remedy
Supply failure.	- Switch on the switch. - Check cables and cable connections for defects and loose connections.
Motor protection has tripped.	- Replace the contacts of the motor-protective circuit breaker, the magnet coil or the entire motor-protective circuit breaker. - Check cables and cable connections for defects, and replace the fuses. - Repair or replace the motor. - Switch off the power supply, and clean or repair the pump. - Set the motor-protective circuit breaker according to the rated current of the motor ($I_{1/1}$). See the nameplate.
Control-current circuit is defective.	Repair or replace the control-current circuit.
The pump is mechanically blocked.	Switch off the power supply, and clean or repair the pump.

10.5 The pump performance is unstable

Cause	Remedy
Pump inlet pressure is too low.	Check for proper inlet conditions.
Inlet pipe is partly blocked by impurities.	Remove and clean the inlet pipe.
Leakage in the inlet pipe.	Remove and repair the inlet pipe.
Air in the inlet pipe or pump.	Vent the inlet pipe or pump. Check for proper inlet conditions.

10.6 The pump performance is unstable, and the pump is noisy

Self-priming pumps only:

Cause	Remedy
The differential pressure across the pump is too low.	Close the tap gradually until the outlet pressure is stable and the noise has ceased.

10.7 When startup is attempted, the pump starts, but delivers no pressure or flow

Self-priming pumps only:

Cause	Remedy
Liquid column above non-return valve in the outlet pipe prevents the pump from self-priming.	Empty the outlet pipe. Make sure that the non-return valve does not hold back liquid in the outlet pipe. Repeat the startup procedure in the section on pipe connection (self-priming pumps).
Inlet pipe draws in air.	Make sure that the inlet pipe is airtight from pump to liquid level. Repeat the startup procedure in the section on pipe connection (self-priming pumps).

10.8 The pump runs, but does not deliver the rated flow

Self-priming pumps only:

Cause	Remedy
The internal valve did not close.	Close the tap gradually until a sudden rise in pressure or flow rate can be seen. Then open the tap gradually until you reach the required flow rate.

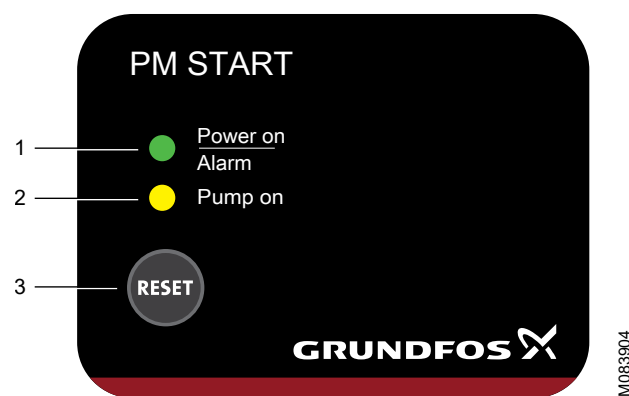
10.9 The pump runs backwards when switched off

Cause	Remedy
Leakage in the inlet pipe.	Remove and repair the inlet pipe.

10.10 Fault finding products with PM START

10.10.1 Operating panel, PM START

PM START offers a user-friendly interface with indicator LEDs and a reset button.



TM083904

Pos.	Description	Function
1	Power on Alarm	The green indicator light is permanently on when the power is on. The green indicator light flashes when there is an operating fault in the pump.
2	Pump on	The yellow indicator light is on when the pump is in operation.
3	RESET	The button is used for resetting fault indications.

10.10.2 The "Alarm" indicator light flashes once at a regular interval

For systems without a pressure tank.

The anti-cycling function has stopped the pump because the pump starts and stops too frequently.

Cause	Remedy
A tap has not been entirely closed after use.	Make sure all taps are closed.
There is a minor leakage in the system.	Make sure there are no leakages in the system.

10.10.3 The "Power on" indicator light is off even though the power supply has been switched on

Cause	Remedy
The fuses in the electrical installation have blown.	Replace the fuses. If the new fuses also blow, check the electrical installation for malfunctions.
The earth-leakage circuit breaker or the voltage-operated circuit breaker has tripped.	Cut in the circuit breaker.
The pressure manager is defective.	Repair or replace the pressure manager. Find more information in the service instructions at https://product-selection.grundfos.com.

10.10.4 The "Pump on" indicator light is on, but the pump does not start

Cause	Remedy
The power supply to the pump is disconnected.	Check the plug and cable connections, and make sure that the built-in circuit breaker of the pump is switched off.
The motor protection of the pump has tripped due to overload.	Make sure the motor or pump is not blocked.
The pump is defective.	Repair or replace the pump.
The pressure manager is defective.	Repair or replace the pressure manager. Find more information in the service instructions at https://product-selection.grundfos.com.

10.10.5 The pump does not start when water is consumed

The "Pump on" indicator light is off.

Cause	Remedy
There is too big a difference in height between the pressure manager and the tapping point.	Adjust the installation, or increase the start pressure.
The pressure manager is defective.	Repair or replace the pressure manager. Find more information in the service instructions at https://product-selection.grundfos.com.

10.10.6 The pump does not stop

Cause	Remedy
The pump cannot deliver the necessary outlet pressure.	Replace the pump.
The start pressure is set too high.	- PM 1: The start pressure is factory set. Make sure that your product is dimensioned correctly. - PM 2, PM TWIN: Decrease the start pressure.
The non-return valve is stuck in open position.	Clean or replace the non-return valve.
The pressure manager is defective.	Repair or replace the pressure manager. Find more information in the service instructions at https://product-selection.grundfos.com.

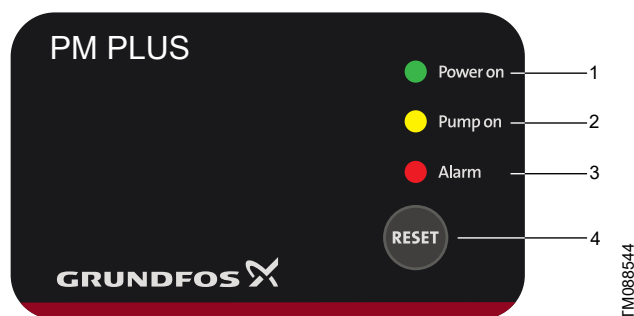
10.10.7 The pump runs with reduced performance

Cause	Remedy
Pump inlet pressure is too low.	Check for proper inlet conditions.
Inlet pipe is partly blocked by impurities.	Remove and clean the inlet pipe.
Leakage in the inlet pipe.	Remove and repair the inlet pipe.
Air in the inlet pipe or pump.	Vent the inlet pipe or pump. Check for proper inlet conditions.

10.11 Fault finding products with PM PLUS

10.11.1 Operating panel

The product offers a user-friendly interface with a **Reset** button and indicator lights.



Pos.	Description	Function
1	Power on	The green indicator light is permanently on when the power is on.
2	Pump on	The yellow indicator light is on when the pump is in operation.
3	Alarm	The red indicator light flashes in case of dry running.
4	Reset	The button is used for resetting fault indications.

10.11.2 The pump does not start

Cause	Remedy
The fuses in the electric installation are blown.	- Replace the fuses. - If the new fuses also blow, check the electrical installation.
The earth leakage circuit breaker or voltage-operated circuit breaker has tripped.	Cut in the circuit breaker.
No power supply.	Contact the power supplier.
The motor protection has cut off the power supply due to overload.	Check whether the motor or pump is blocked.
The pump is defective.	Repair or replace the pump.
The device is off.	Replace the control box.

10.11.3 The pump does not start when water is consumed

The indicator light is on.

Cause	Remedy
The system pressure is too high.	Open a tap to reduce the pressure.
Too big distance of height between the product and the draw-off point.	Adapt the installation.

10.11.4 Frequent starts and stops

Cause	Remedy
Leakage in the pipes lower than 1 l/min.	Check and repair the pipes.

10.11.5 The pump does not stop

Cause	Remedy
A tap is open.	Close the tap.
Leakage in the pipes higher than 1 liter/min.	Check and repair the pipes.
The product is installed in horizontal position.	Install the product in vertical position.

10.12 The red indicator light flashes

Cause	Remedy
Insufficient flow.	Check the pipes.
The pump starts to self prime.	Start the pump again.
The pump is unable to deliver the required outlet pressure.	- Adjust the installation. - Replace the pump.
The pump or pressure manager is defective.	Replace the pump or pressure manager.

11. Technical data

System pressure	Max. 10 bar
Suction lift (H ₂)	0 < H ₂ ≤ 5m (CMB-SP) Including inlet-pipe pressure loss at a liquid temperature of 20 °C
Liquid temperature	0 to 60 °C
Ambient temperature	0 to +50 °C
Relative humidity	Max. 95 %
Enclosure class	IP55
Insulation class	F
Sound pressure level	The sound pressure level of the pump is below 55 dB(A). Note: During priming the sound level may be higher.
Supply voltage	1 × 220-240 V, 50 Hz
Start/stop frequency	Max. 60 per hour
Cut-in pressure	1.5 - 3 bar (adjustable)

11.1 Quick sizing of PM PLUS

The below sizing table can help you determine which cut-in pressure suits your application requirements.

Cut-in pressure	1.5 bar (22 psi)	2 bar (29 psi)	2.5 bar (36 psi)	3 bar (44 psi)
Number of floors	5	6	8	10
Building height (H)	15 m (49 ft)	25 m (82 ft)	30 m (98.4 ft)	35 m (114.8 ft)
Min. pump pressure	3 (44 psi)	3.5 (51 psi)	4 (58 psi)	4.5 (65 psi)

12. 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.
3. Dispose of the waste battery through the national collective schemes. If in doubt, contact your local Grundfos company.



The crossed-out wheellie 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.

13. Document quality feedback

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