

## CM Booster PS, PT

Installation and operating instructions, supplement



# English (GB) Installation and operating instructions

Original supplement to Quick Guide.

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### Warning

Prior to installation, read this document and the quick guide. Installation and operation must comply with local regulations and accepted codes of good practice.



### Warning

The use of this product requires experience with and knowledge of the product. Persons with reduced physical, sensory or mental capabilities must not use this product, unless they are under supervision or have been instructed in the use of the product by a person responsible for their safety. Children must not use or play with this product.

## 1. Symbols used in this document



### Warning

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



### Warning

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



### Caution

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



### Note

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

## 2. Applications

The CM Booster is suitable for pressure boosting of clean fresh water in domestic water supply systems.

## 3. System sizing



### Warning

The system in which the CM Booster is incorporated must be designed for the maximum pump pressure.



### Note

The default setting can be found in the quick guide.

## 4. Mechanical installation



### Warning

Before starting any work on the CM Booster, make sure that the power supply has been switched off and that it cannot be accidentally switched on.

Make sure that the pump is not stressed by the pipework.

## 5. Electrical connection

The electrical connection should be carried out by an authorised electrician in accordance with local regulations.



### Warning

Check that the supply voltage and frequency match the voltage and frequency on the nameplate.

### Warning

Before making any connections in the unit, make sure that the power supply has been switched off and that it cannot be accidentally switched on.



The unit must be connected to an external mains switch with a contact gap of at least 3 mm in all poles.

As a precaution, the unit must be connected to a socket with earth connection.

We recommend to fit the permanent installation with an earth leakage circuit breaker (ELCB) with a tripping current < 30 mA.

Single-phase motors incorporate a thermal switch and require no additional motor protection.

Three-phase motors must be connected to an external mains switch and a motor-protective circuit breaker.

## 6. Start-up

### Caution

Do not start the pump until it has been filled with liquid.

### 6.1 Shaft seal run-in

The seal faces are lubricated by the pumped liquid, meaning that there may be a certain amount of leakage from the shaft seal.

When the pump is started up for the first time, or when a new shaft seal is installed, 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, i.e. every time the operating conditions change, a new run-in period will be started.

Under normal conditions, the leaking liquid will evaporate. As a result, no leakage will be detected.

## 7. Adjustment

### Note

The default setting can be found in the quick guide.

If the pressure settings are not suitable for the application, adjust according to the following.

### 7.1 Calculating the cut-in and cut-out pressures

The cut-in pressure is the sum of these variables:

- required minimum pressure at the highest tapping point
- head from the pump to the highest tapping point
- pressure loss in pipes.

Recommended cut-out pressure:  
cut-in pressure + 0.8 - 1.5 bar.

### Note

The cut-out pressure must not exceed the maximum discharge pressure of the pump.

### 7.2 Adjusting the precharge pressure

When the pump cut-in pressure has been determined, the required precharge pressure of the diaphragm tank can be calculated. The precharge pressure must be adjusted to 90 % of the cut-in pressure.

### Caution

When adjusting/reading the precharge pressure, make sure that there is no water pressure on the diaphragm tank from the pipework.

### Note

If the pressure switch setting is changed, the precharge pressure must be adjusted too.

See the installation and operating instructions for the diaphragm tank.

## 7.3 Setting the pressure switch



### Warning

Switch off the power supply before adjusting the pressure switch.

Fit the cover on the pressure switch before you switch on the power supply to check the cut-in and cut-out pressure.

The cut-out pressure must be lower than the maximum operating pressure of the pump and tank.

Remove the cover from the pressure switch to access the adjusting screws. See fig. 1.

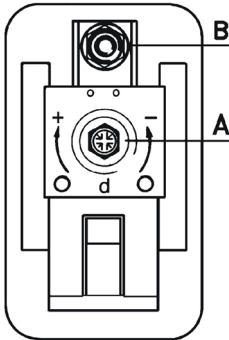


Fig. 1 Pressure switch

### Setting the cut-out pressure

1. Turn screw (pos. A) clockwise to increase the cut-out pressure. Turn it counter-clockwise to reduce the cut-out pressure. The differential pressure range remains unchanged.
2. Start the pump and check by reading the pressure gauge whether the desired cut-out and cut-in pressures have been obtained.

### Setting the cut-in pressure

1. Turn screw (pos. B) clockwise to reduce the cut-in pressure. Turn it counter-clockwise to increase the cut-in pressure. The differential pressure range is widened and narrowed respectively.
2. Start the pump and check by reading the pressure gauge whether the desired cut-out and cut-in pressures have been obtained.

Repeat the procedure until the right cut-in and cut-out pressures have been obtained.

## 8. Operation and maintenance



### Warning

Prior to start-up, the system should be flushed through with clean water and drained to remove possible impurities.



Do not cover the motor of the booster system as an adequate supply of cool air must reach the motor cooling fan.

## 9. Frost protection

If there is a risk of frost, the tank and pump must be drained.

## 10. Technical data

### Ambient temperature

See nameplate.

### Storage temperature

Minimum -10 °C.  
Maximum +45 °C.

### Liquid temperature

See nameplate.

### System pressure

See nameplate.

### Inlet pressure

At inlet pressures above 1.5 bar, the discharge pressure must be at least 2.5 bar.

### Supply voltage

See nameplate.

### Insulation class

F.

### Enclosure class

See nameplate.

### Relative air humidity

Maximum 95 %.

### Start/stop frequency

Maximum 100 per hour.

TM01 6914 3799

## 11. Fault finding



### Warning

Before starting fault finding, switch off the power supply.

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

Fault	Cause	Remedy
1. The pump does not start.	a) The fuses in the electric installation have burnt.	Replace the fuses. If the new fuses also burn, check the electric installation.
	b) The earth leakage circuit breaker or the voltage-operated circuit breaker has tripped.	Cut in the circuit breaker and check the electric installation.
2. There is power on the pressure switch but not the pump.	a) The power supply to the pump is disconnected after the pressure switch unit.	Check the cable connections.
	b) The pressure switch unit is defective.	Repair or replace the pressure switch unit.*
3. The pump does not start when water is consumed.	a) Too big difference in height between the pressure switch unit and the tapping point.	Adjust the cut-in pressure.
	b) The pressure switch unit is defective.	Repair or replace the pressure switch unit.*
4. Frequent starts/stops.	a) Leakage in the pipework.	Check and repair the pipework.
	b) The pressure tank has no precharge pressure, or the tank size is insufficient.	Check the tank precharge pressure, and recharge the tank, if necessary. See section <a href="#">7.2 Adjusting the precharge pressure</a> .
5. The pump does not stop.	a) The pressure switch unit is defective.	Repair or replace the pressure switch unit.*
6. The motor cuts out during operation.	a) Single-phase motors: The thermal switch in the motor has tripped due to overheating.	The thermal switch will cut in automatically when the motor has cooled sufficiently. If the problem still persists, check these two possible causes: <ul style="list-style-type: none"> <li>• Impeller stuck. Clean the pump.</li> <li>• Motor defective. Repair or replace the motor.*</li> </ul>
	b) Three-phase motors: Motor-protective circuit breaker has tripped.	Cut in the motor-protective circuit breaker. If the problem still persists, check these two possible causes: <ul style="list-style-type: none"> <li>• Impeller stuck. Clean the pump.</li> <li>• Motor defective. Repair or replace the motor.*</li> </ul>

\* Or contact the nearest Grundfos company or service workshop.

## 12. Disposal

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

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

Subject to alterations.

## Declaration of conformity

**GB: EC/EU declaration of conformity**

We, Grundfos, declare under our sole responsibility that the products CM Booster PS, CM Booster PT, to which the declaration below relates, are in conformity with the Council Directives listed below on the approximation of the laws of the EC/EU member states.

**CN: 欧共体 / 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 CM Booster PS, CM Booster PT，即该合格证所指之产品，符合欧共体 / 欧盟使其成员国法律趋于一致的以下理事会指令。

**ID: Deklarasi kesesuaian Komunitas Eropa/Uni Eropa**

Kami, Grundfos, menyatakan dengan tanggung jawab kami sendiri bahwa produk CM Booster PS, CM Booster PT, yang berkaitan dengan pernyataan ini, sesuai dengan Petunjuk Dewan berikut ini serta sedapat mungkin sesuai dengan hukum negara-negara anggota Komunitas Eropa/Uni Eropa.

- Machinery Directive (2006/42/EC).  
Standards used: EN 809:1998 + A1:2009
- Low Voltage Directive (2014/35/EU)  
Standards used: EN 60335-1:2012 + A11:2014, EN 60335-2-51:2003 + A1:2008 + A2:2012.
- Ecodesign Directive (2009/125/EC).

Electric motors:

Commission Regulation No. 640/2009.

Applies only to three-phase Grundfos motors marked IE2 or IE3.

See motor nameplate.

Standard used: EN 60034-30:2009.

This EC declaration of conformity is only valid when published as part of the Grundfos Installation And Operating instructions (publication number 98175689 0516).

Bjerringbro, 18th May 2016



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