



Wilo-PB Pressure Booster Pump Instruction Manual

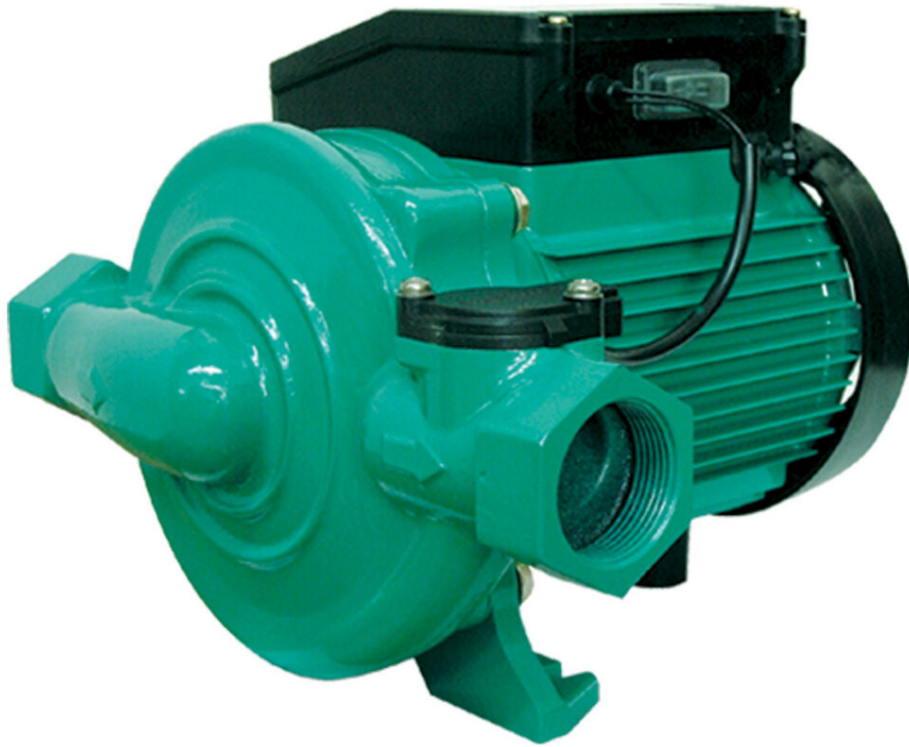
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Wilo-PB Pressure Booster Pump



About this document

The language of the original operating instructions is English. All other languages of these instructions are translations of the original operating instructions. These installation and operating instructions are an integral part of the product. They must be kept readily available at the place where the product is installed. Strict adherence to these instructions is a precondition for the proper use and correct operation of the product. This installation and operating instructions correspond to the relevant version of the product and the underlying safety standards valid at the time of going to print.

EC declaration of conformity:

A copy of the EC declaration of conformity is a component of these operating instructions. If a technical modification is made on the designs named there without our agreement, this declaration loses its validity.

Safety

These operating instructions contain basic information which must be adhered to during installation, operation and maintenance. For this reason, these operating instructions must, without fail, be read by the service technician and the responsible specialist/operator before installation and commissioning. It is not only the general safety instructions listed under the main point "safety" that must be adhered to but also the special safety instructions with danger symbols included under the following main points.

General danger symbol

Danger due to electrical voltage

Personnel qualifications

The installation, operating, and maintenance personnel must have the appropriate qualifications for this work. Area of responsibility, terms of reference, and monitoring of the personnel are to be ensured by the operator. If the personnel are not in possession of the necessary knowledge, they are to be trained and instructed. This can be accomplished if necessary by the manufacturer of the product at the request of the operator.

The danger in the event of non-observance of the safety instructions

Non-observance of the safety instructions can result in a risk of injury to persons and damage to the environment and the product/unit. Non-observance of the safety instructions results in the loss of any claims to damages.

In detail, non-observance can, for example, result in the following risks:

- Danger to persons from electrical, mechanical, and bacteriological influences,
- Damage to the environment due to leakage of hazardous materials.
- Property damage
- Failure of important product/unit functions
- Failure of required maintenance and repair procedures.

Safety consciousness on the job

The safety instructions included in this installation and operating instructions, the existing national regulations for accident prevention together with any internal working, operating, and safety regulations of the operator are to be complied with.

Safety instructions for the operator

This appliance can be used by children aged 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning the use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

- If hot or cold components on the product/the unit lead to hazards, local measures must be taken to guard them against touching.
- Guards protecting against touching moving components (such as the coupling) must not be removed whilst the product is in operation.
- Leakages (e.g. from the shaft seals) of hazardous fluids (which are explosive, toxic or hot) must be led away so that no danger to persons or to the environment arises. National statutory provisions are to be complied with.
- Highly flammable materials are always to be kept at a safe distance from the product.
- Danger from electrical current must be eliminated. Local directives or general directives [e.g. IEC, VDE, etc.] and local power supply companies must be adhered to.

Safety instructions for installation and maintenance work

The operator must ensure that all installation and maintenance work is carried out by authorized and qualified personnel, who are sufficiently informed from their own detailed study of the operating instructions. Work on the product/unit must only be carried out when at a standstill. It is mandatory that the procedure described in the installation and operating instructions for shutting down the product/unit be complied with. Immediately on conclusion of the work, all safety and protective devices must be put back in position and/or recommissioned.

Unauthorized modification and manufacture of spare parts

Unauthorized modification and manufacture of spare parts will impair the safety of the product/personnel and will make void the manufacturer's declarations regarding safety. Modifications to the product are only permissible after consultation with the manufacturer. Original spare parts and accessories authorized by the manufacturer ensure safety. The use of other parts will absolve us of liability for consequential events.

Improper use

The operating safety of the supplied product is only guaranteed for conventional use in accordance with Section 4 of the operating instructions. The limit values must on no account fall under or exceed those specified in the catalog/datasheet.

Transport and interim storage

When you receive the equipment, check that it has not been damaged during transport. If you notice a fault, take all necessary action with the carrier within the time allowed.

CAUTION! Storage environment may cause damage

If the equipment is to be installed at a later date, store it in a dry place and protect it from impacts and any external stresses (humidity, frost, etc.). Temperature range for transport and storage:

- – 30°C to +60°C

Handle the pump with care so as not to damage the product before installation.

Application

These devices are domestic pressure-boosting systems designed for pressurizing clean water. The downward type is designed for boosting water from the roof-top water tank to lower floors using water and the upward type is designed for boosting water from the tank on the ground to the upper floors.

DANGER! Risk of explosion!

Do not use this pump to convey flammable or explosive liquids.

Technical data

Data table

Upward type (60 Hz)

Hydraulic data	PB-410SMA	PB-601SMA
Maximum operating pressure	3.8 bar (3.8 x 10 ⁵ Pa)	4.2 bar (4.2 x 10 ⁵ Pa)
Maximum suction pressure	1.3 bar (1.3 x 10 ⁵ Pa)	1.4 bar (1.4 x 10 ⁵ Pa)
Maximum altitude	1000 m	
Suction head	Max. 3 m (available with foot valve at the end of suction pipe only)	
DN of suction connection	1"	1 1/4"
DN of pressure connection		
Temperature range		
Fluid temperature range	+5°C to +60°C	
Ambient temperature	max. +40°C	
Electrical data		
Motor protection rating	IPX4	
Insulation class	F ₁₅₅	
Frequency	60 Hz 220 V	
Voltage		
Other		
Max. sound level	62 dB(A)	

Upward type (50 Hz)

Hydraulic data	PB-250SEA	PB-401SEA
Maximum operating pressure	2.7 bar (2.7 x 10 ⁵ Pa)	3.1 bar (3.1 x 10 ⁵ Pa)
Maximum suction pressure	0.9 bar (0.9 x 10 ⁵ Pa)	1 bar (1 x 10 ⁵ Pa)
Maximum altitude	1000 m	
Suction head	Max. 3 m (available with foot valve at the end of suction pipe only)	
DN of suction connection	1"	1 1/4"
DN of pressure connection		
Temperature range		
Fluid temperature range	+5°C to +60°C	
Ambient temperature	max. +40°C	
Electrical data		
Motor protection rating	IPX4	
Insulation class	F_155	
Frequency	50 Hz 220 V – 230 V	
Voltage		
Other		
Max. sound level	62 dB(A)	

Downward type (60 Hz)

Hydraulic data	PB-138MA	PB-S250MA	PB-350/351MA	PB-600MA
Maximum operating pressure	1.8 bar (1.8 x 10 ⁵ Pa)	2.3 bar (2.3 x 10 ⁵ Pa)	3.2 bar (3.2 x 10 ⁵ Pa)	4.2 bar (4.2 x 10 ⁵ Pa)

Maximum suction pressure	0.6 bar (0.6 x 10 ⁵ Pa)	0.8 bar (0.8 x 10 ⁵ Pa)	1.1 bar (1.1 x 10 ⁵ Pa)	1.4 bar (1.4 x 10 ⁵ Pa)
Maximum altitude	1000 m			
Suction head	–			
DN of suction connection	3/4"			1 1/4"
DN of pressure connection				
Temperature range				
Fluid temperature range	+5°C to +80°C			
Ambient temperature	max. +40°C			
Electrical data				
Motor protection rating	IPX4			
Insulation class	F ₁₅₅			
Frequency	50 Hz 220 V – 230 V			
Voltage				
Other				

Max. sound level	62 dB(A)
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Downward type (50 Hz)

Hydraulic data	PB-088EA	PB-S125EA	PB-201EA	PB-400EA
Maximum operating pressure	1.2 bar (1.2 x 10 ⁵ Pa)	1.6 bar (1.6 x 10 ⁵ Pa)	2.2 bar (2.2 x 10 ⁵ Pa)	3 bar (3 x 10 ⁵ Pa)
Maximum suction pressure	0.4 bar (0.4 x 10 ⁵ Pa)	0.5 bar (0.5 x 10 ⁵ Pa)	0.7 bar (0.7 x 10 ⁵ Pa)	1 bar (1 x 10 ⁵ Pa)
Maximum altitude	1000 m			
Suction head	–			
DN of suction connection	3/4"			1 1/4"
DN of pressure connection				
Temperature range				
Fluid temperature range	+5°C to +80°C			
Ambient temperature	max. +40°C			
Electrical data				
Motor protection rating	IPX4			
Insulation class	F_155			
Frequency	50 Hz 220 V – 230 V			
Voltage				
Other				
Max. sound level	62 dB(A)			

Scope of delivery

- Single-stage horizontal automatic pump
- Installation and operating instructions
- Assembly package (2 sets of unions, nipples, and gaskets for piping, for PB-088EA, PB-138MA, and PB-350MA only)
- Assembly package (2 sets of flanges, gaskets, for upward type only).

Products and functions

Product Description (see Figures)

Pressure boosting systems for domestic applications require higher water pressure from a roof-top water tank (downward type) or a water tank on the ground (upward type).

Product function

Operating options as “Auto”, “Manual”, and “Off” for downward type only. Automatic operation with the flow switch. Automatic operation with flow switch and pressure switch in case of upward type.

The pump

Single-stage horizontal centrifugal, non-self-priming pump. Shaft sealing with mechanical seal.

The motor

Single-phase, 2-pole, 50 Hz and 60 Hz motor, the capacitor in the terminal box, thermal protector for motor protection.

- Protection class: IPX4
- Insulation class: F_155

Frequency		50 Hz	60 Hz
Speed in RPM		~ 2900	~ 3500
Voltage	1 ~	230V (±10%)	220V (-10%) 240V(+6%)

Installation and connections

All installation and electrical connection work must be carried out solely by authorized and qualified personnel, in accordance with applicable regulations.

WARNING! Physical injuries!

The applicable regulations for the prevention of accidents must be complied with.

Upon receipt of the product

- Unpack the pump and recycle or dispose of the packaging in an environmentally responsible manner.

Hydraulic connections

General connection instructions

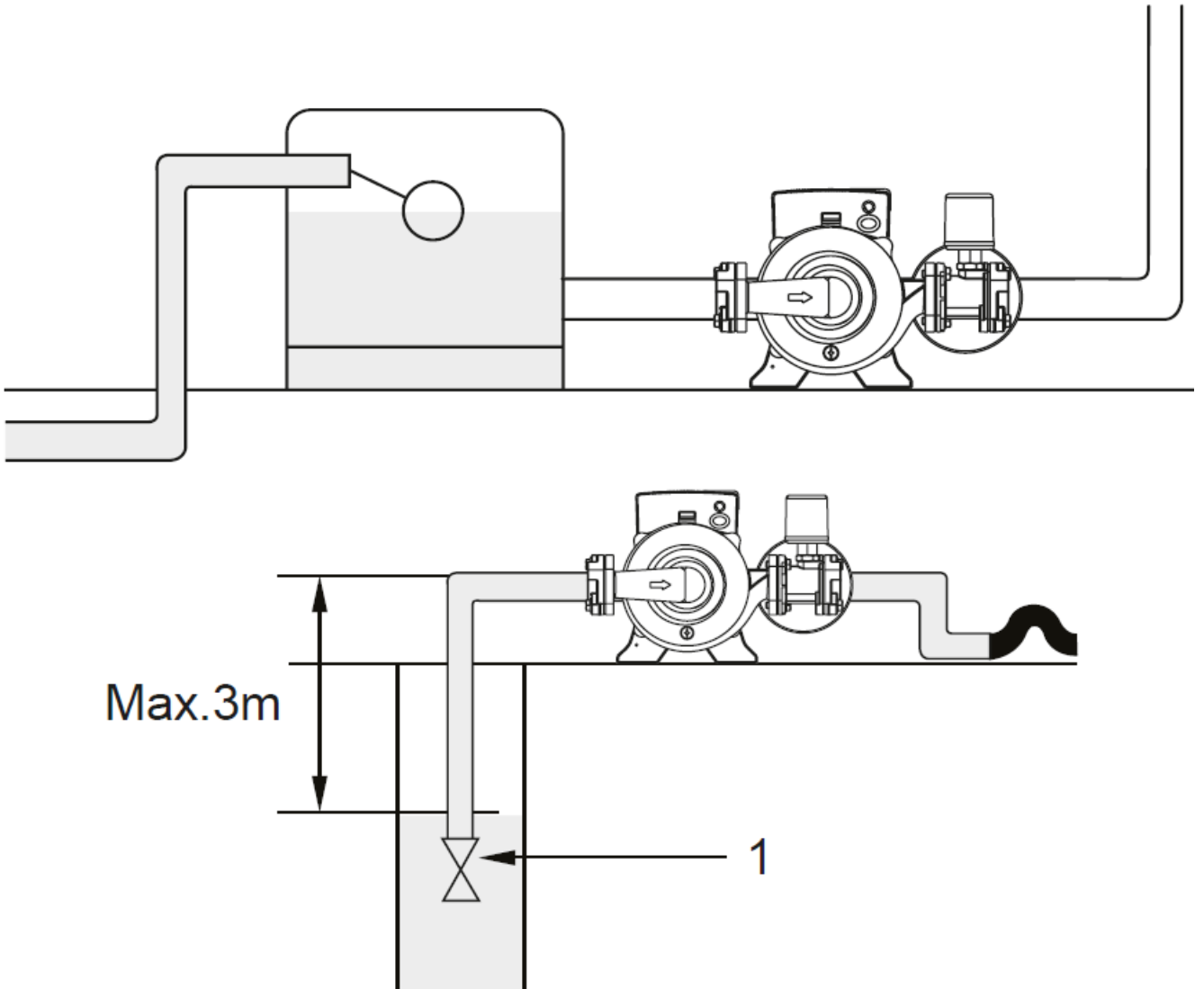
- Use flexible, braid-reinforced hose piping or rigid piping.
- The pump must not bear the weight of the pipes.
- Seal the piping well using appropriate products.

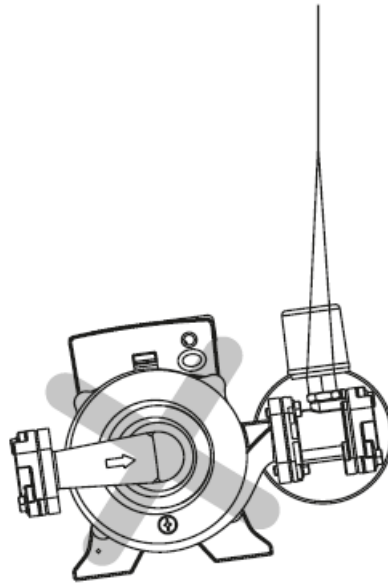
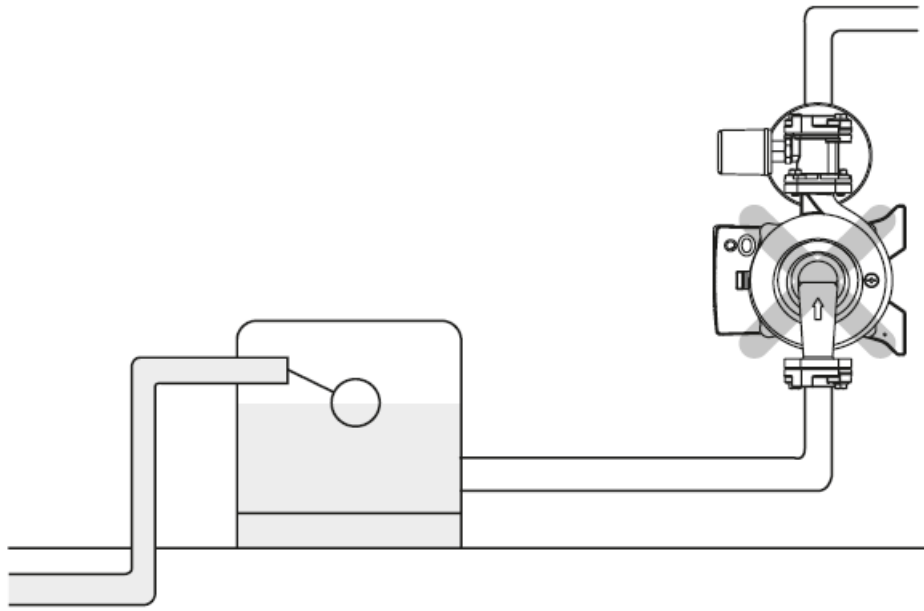
Suction connections

- The diameter of the suction pipe must never be less than the port on the product.

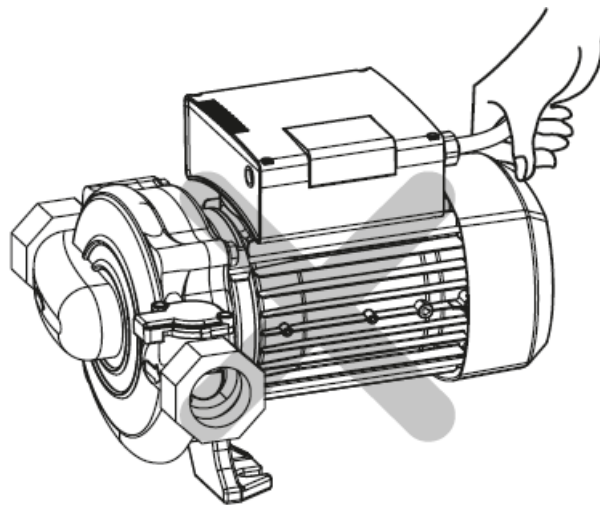
Handling and installation

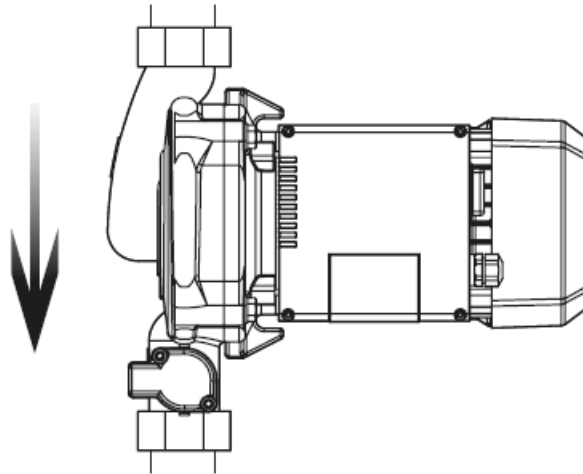
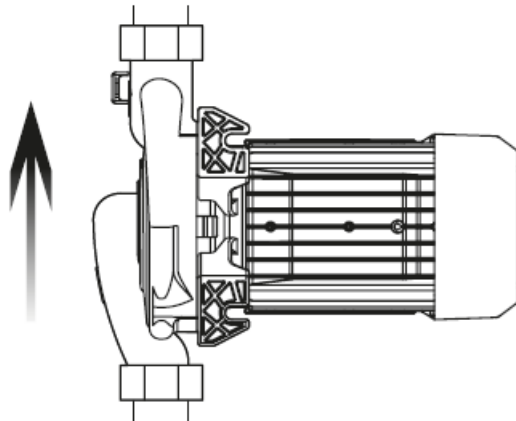
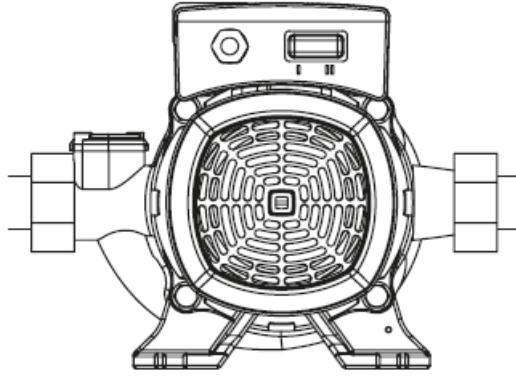
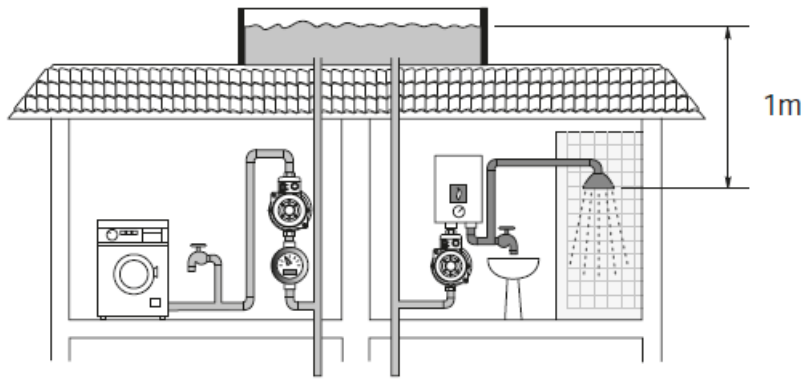
- See Fig. 1 to 4 for the upward type.

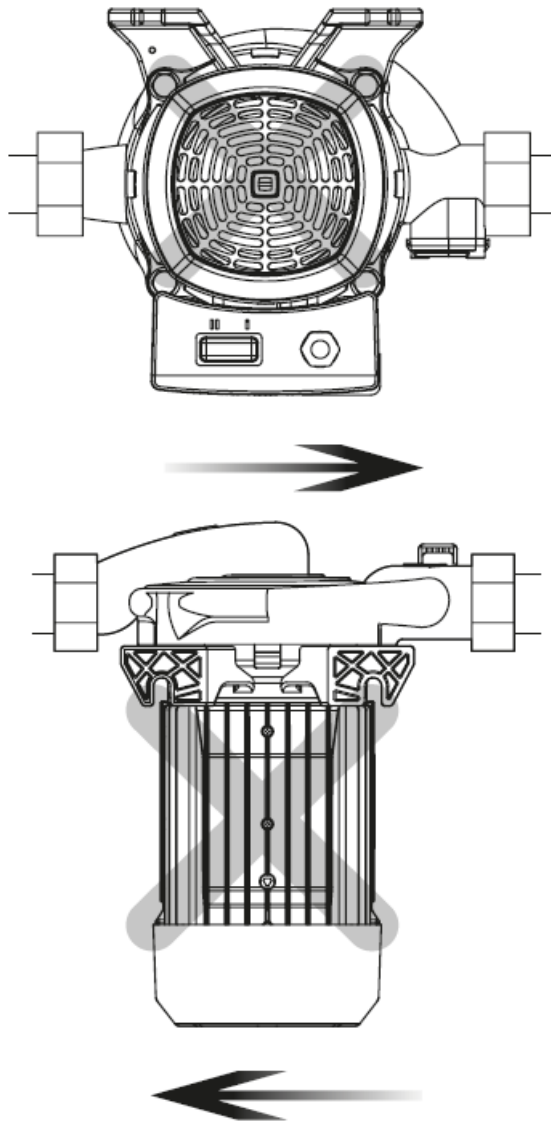




- See Fig. 5 to 11 for the downward type. (Fig. 8 installation is available only for PB-200EA and PB-350MA)
- Suction mode installation of upward type (Fig. 2). Fig. 2, item 1: Foot valve (not in the scope of delivery)







Electrical connection

WARNING! Risk of electric shock!

Danger from electrical current must be eliminated.

- Have all electrical work carried out by a qualified electrician only!
- Before any electrical connection is made, the pump must be de-energized (switched off) and protected against unauthorized restarting.
- To ensure safe installation and operation, the unit must be earthed correctly with the earth terminals of the power supply.

CAUTION!

An error in the electrical connection will damage the motor. The power cable must never touch the piping or the pump and must be kept away from any moisture.

- See the pump cladding for its electrical characteristics (frequency, voltage, current).
- The single-phase motor of this pump has a built-in thermal protector.
- See the wiring diagram marked on the inside of the terminal cover, fasten the cable with the cable gland and cable anchorage located in the terminal box securely when the cable connector.
- The cross-section of the supply cord for this pump shall be at least $3 \times 0,75 \text{ mm}^2$ and the properties of the

supply cord shall be at least ordinary polychloroprene sheathed cords (60245 IEC 57).

- A damaged cable or connector must be replaced by the corresponding part available from the manufacturer or the manufacturer's customer service.

Commissioning

Check that there are no leaks at the connections to the sanitary devices connected to the lifting unit.

- Switch the power supply to the unit.
- Check that the current consumed is less than or equal to the rated current.

Maintenance

All maintenance work must be carried out by authorised and qualified personnel!

WARNING! Risk of electric shock!

Danger from electrical current must be eliminated.

Before carrying out any electrical work, the pump must be de-energized (switched off) and protected against unauthorised restarting. It is recommended to disconnect the plug.

- No special maintenance work is required during operation.
- Keep the pump clean.
- If the pump is deactivated for a long period and there is no risk of freezing, it is best not to drain the pump. In the event of prolonged absence, be sure to cut off the mains water supply and protect the installation from freezing.

Faults, causes, and remedies

Faults	Causes	Remedies
Motor does not start	Thermal protector	If the motor is overheated, it will not operate. Then, wait until the motor is cold. (20 – 30 minutes)
	Faulty cable connection	Insert the power plug securely
	Cable is disconnected or damaged.	Replace the cable
	Trouble in the motor	Repair or replace the motor
	Power supply voltage is too low.	Check the voltage of the power supply and consult with the local power supplier

Water is not pumped out even though the motor is running	Water level of well is lower than standard level	Check the water level of well
	Fault in foot valve	Take off the check valve case and then clean the valve, valve seat and valve hole
	Air is drawn into suction hose	Check for leaks in the entire pipe and seal these if any are found
	Air is drawn into pump from mechanical seal	Replace the mechanical seal
Thermal protector for motor works too often	Power supply voltage is either too low or too high	Check the voltage of the power supply and consult with the local power supplier
	Impeller is in contact with another component	Repair the defects.
	Short or open circuit of the capacitor	Repair or replace the capacitor.
Water does not come during the first few minutes after being switched on	Air is drawn into suction pipe	Check for leaks in the entire pipe or replace the defective piping (to prevent air leaking)
Pump starts without water	Piping or pump are leaking water	Repair piping, pump parts and faucets, etc
	Water leaks on mechanical seal	Replace the mechanical seal
	Trouble in check valve	Take off the check valve case and then, clean the valve, valve seat and valve hole

	Defacement or transformation of the impeller	Replace the impeller
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If you cannot remedy the fault, please contact Wilo customer service.

Spare parts

All spare parts should be ordered directly from Wilo customer service. To prevent errors, always quote the data on the pump's rating plate when making an order. The spare parts catalog is available at: www.wilo.com.

Disposal

Your device contains valuable raw materials which can be recycled. Therefore, please take your device to your local collection point in your town or district.

Subject to technical modifications!

Contact Information

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Documents / Resources

	<p>wilo Wilo-PB Pressure Booster Pump [pdf] Instruction Manual Wilo-PB Pressure Booster Pump, Wilo-PB, Pressure Booster Pump, Booster Pump, Pump</p>
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References

-  [Canada.Com | Homepage | Canada.Com](#)
-  [USA Location information - USA.com](#)
-  [Wilo Corporate - Pioneering for You | WILO](#)

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