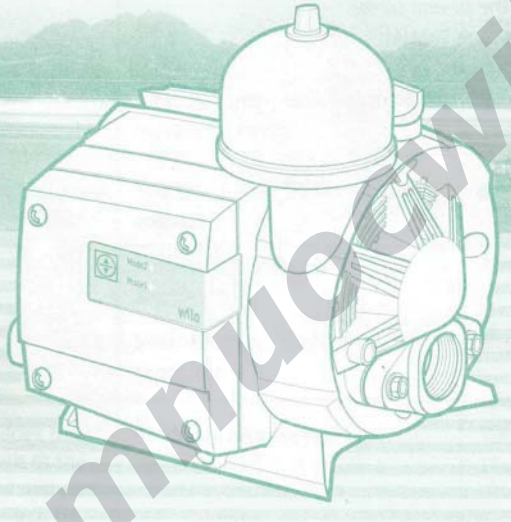
Sieu Phong co.,Ltd

wilo

INERGY+

AUTOMATIC PRESSURE BOOSTING PUMP

OWNER'S MANUAL



Models

PE-410MA

PE-350EA

- Before installing and operating the pump, the Safety Instructions must be thoroughly read for the proper use of the pump.
- Before installation, this manual should be completely studied. /Read this manual completely before any work on your unit.
- Keep this manual handy for future reference.
- Product warranty is attached to this manual.
- **ATTENTION**: To keep the pump at top efficiency, this manual should be thoroughly studied.

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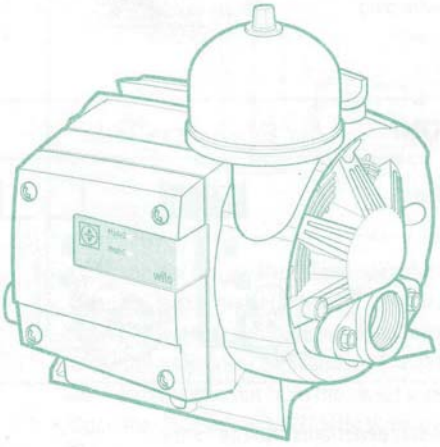
THANK YOU FOR PURCHASING THIS PUMP.

AUTOMATIC PRESSURE BOOSTING PUMP



- This manual includes installation and operation instructions for PE model of WILO Pumps.
- To keep the pump at top efficiency, follow the recommended instructions in this manual.
- In case of lending the pump, this manual should be attached.
- Improper operation not outlined in this manual may cause defects or physical damage that users are liable for.
- Keep this manual handy for future reference.

FEATURES OF THE PUMP

- **Energy-saving :** Up to 15% Compared to current models with inverter technology.
- **Automatic control :** Advanced auto-control by pressure sensor .
- **Anti-rust :** New material and coating technology application.
- **Low noise :** Silent operation 50db or less.
- **Protective function :** Protection from frost, dry running.
- **LED panel :** Operation mode & abnormal operation alarm display.

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CONTENTS

Thank you for purchasing our pump.

Follow the recommended instructions in this manual.

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SAFETY INSTRUCTIONS

These instructions contain important information which must be followed when installing and operating the pump. These operating instructions must therefore be read before assembly and commissioning by the installer and the responsible operator. Both the general safety instructions in the "Safety precautions" section and those in subsequent sections indicated with danger symbols should be carefully observed.

Indication of instructions in the Operating instructions

Safety precautions in these operating instructions which if not followed could cause personal injury are indicated by the symbol:

electrical warnings are indicated with:

The following symbol is used to indicate that by ignoring the relevant safety instructions, damage could be caused to the pump/machinery and its functions:

ATTENTION!

Staff training

The personnel installing the pump must have the appropriate qualifications.

Risks incurred by failure to comply with the safety precautions

Failure to comply with the safety precautions could result in personal injury, damage to the pump, or damage to the installation. Failure to comply with the safety precautions could also invalidate any claim for damages. In particular, lack of care may lead to problems such as:

-Failure of important pump or machinery functions,

-Personal injury due to electrical, mechanical and bacteriological causes.

Safety precautions for the operator

Existing regulations for accident prevention must be followed. Dangers caused by electrical energy are to be excluded. Directives issued by the VDE German Association of Electrical Engineers and the local electricity supply companies are to be observed.

Safety information for inspection and assembly

The operator must ensure that all inspection and installation work is carried out by authorized and qualified specialists who have carefully studied these instructions. Work on the pump/machinery should only be carried out when the machine has been brought to a standstill.

Unauthorized modification and manufacture of spare parts

Alterations to the pump or installation may only be carried out with the manufacturer's consent. The use of original spare parts and accessories authorized by the manufacturer will ensure safety. The use of any other parts may invalidate claims invoking the liabilitty of the manufacturer for any consequences.

Unauthorized operating methods

The operating safety of the pump or installation supplied can only be guaranteed if it is used in accordance with paragraph 1 of the operating instructions. The limiting values given in the catalogue or data sheet must neither be exceeded nor allowed to fall below those specified.

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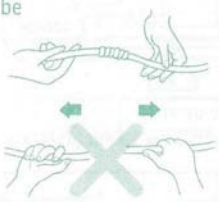
TRANSPORTATION AND INSTALLATION

WARNING!

- Install a breaker of electric leakage of under 30mA of rated sensitivity to prevent electric shock.

- Before installation, repair or removal of the pump, the power supply must be disconnected.

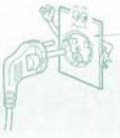
- The power cord must not be bent, tied, pulled or twisted by force. Electric leakage, electric shock, or fire can occur.



- Pay special attention to extensions of the power cord. Any electric leakage or disconnection in the extension may cause electric shock.
- How to extend the power cord.
  ①Peel off the rubber/plastic insulation of the cable as long as the connection terminal is.
  ②Insulate the connection and cover it with rubber tape. Then tightly cover it over four times with friction tape.

- Don't clasp the power cord in transportation and installation. The damaged cord may cause electric leakage or shock.

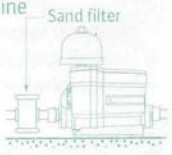
- Use a rated outlet with voltage fluctuation of less than ±10%.
- To prevent electric shock, never plug in a power cord under wet conditions.



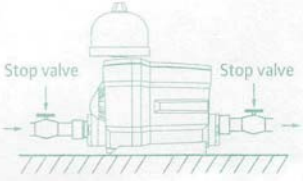
CAUTION!

- Install the pump where the pump can be conveniently checked or repaired after installation. If the space for the pump is narrow, make the room as described on the figure.

- When the pump is highly likely to suck in dust or foreign material, install a sand filter. Failure to do so may cause a decline in pressure and quantity of pumped water, and malfunction of the inverter.



- Install a stop valve on the suction side and the discharge side of the pump for easier pump maintenance.



- If the suction height exceeds 10m, it can lead to the function of abnormal overpressure or damage to the product. Use under 1kgf/cm² (Example: The maximum height from the suction must be under 10m)
- Do not connect to town water directly. It can lead to malfunction or damage to the product.

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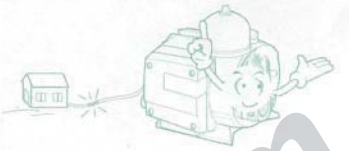
CAUTION!

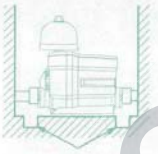
- When the power cord is extended, a voltage drop that keeps the pump from operation may be caused. Refer to the table for extended power cord.

Length of power cable	nominal dimension of the cable
shorter than 50 m	larger than 1.5mm²
shorter than 200 m	larger than 2.0mm²



- Minimize the number of elbows to prevent water leakages in the piping and to decrease water resistance.

- When installing the pump, make waterways to prevent damage caused by water leakage. Pay special attention to a basement, kitchen, and attic.



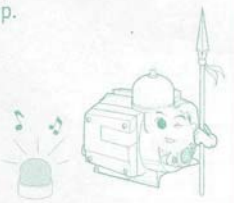
- Handle the pump with care. Do not drop.

Damage may occur.

- When the pump is used for drinking water, a water purifier must be installed

※The pump has no purification ability.

- Set an alarm system to notify the malfunction of the pump.



- The permitted voltage fluctuation is within 10% of the rated voltage. Otherwise contact a power company.
- The pump should not be connected directly to public waterworks. Permission from the authority should be granted. This could shorten the life of the pump.

- Don't expose the pump to direct sunrays or to rain, otherwise faulty parts or an electric shock may be caused.

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INSTALLATION

Wiring

ATTENTION! Only a qualified electrician should connect cables. Install a circuit breaker and connect earth wire to prevent any electrical accidents including electric shock.

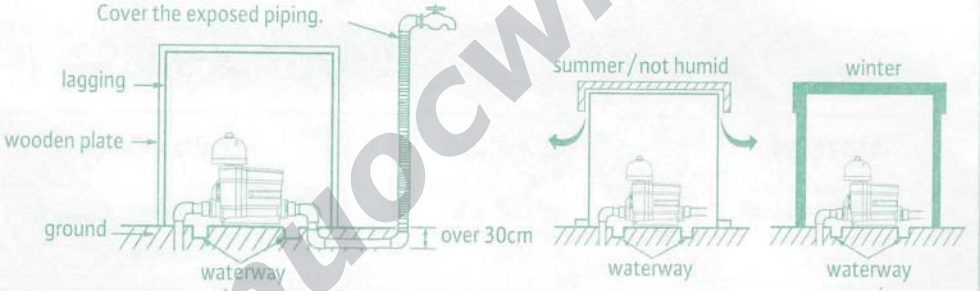
- The wiring of major parts including the motor and the pressure sensor is already finished. Wiring of earth and other optional parts should be conducted according to the wiring diagram.
- The power supply should be in accordance with the rated value marked on the nameplate.
- Before supplying power, check the following:
  ① if the circuit breaker at power is suitable (under 30mA of rated sensitivity).
  ② if the wiring is correct (connection and wire size).
  ③ If the connections with motor terminal are tightened (No operation with missing phase).

⚠ CAUTION!

In winter, install protections against cold weather.

- When the pump remains inactive for a long time at temperatures lower than 0°C, the pump body must be completely empty through the drain valve to prevent possible cracking of the hydraulic components.
- Bury the horizontal piping at least 30cm under ground.

CAUTION! To prevent a fire, don't cover the motor or pump with a blanket.



⚠ WARNING!

- At first running, if you notice abnormal vibration, noise, or strange smell, turn off and disconnect the pump from its source and contact the dealer or service center. Continuous operating in this case may cause fire or electric shock.
- Don't ever disassemble or alter the product.
  - Fire, electric shock, or physical injury may occur.
  - The pump must not be dismantled and repaired except by qualified skilled personnel.
  - Contact our service center or dealer to have the pump repaired.
- When the power cord is broken, the replacement should be carried out by our dealer or other qualified personnel.

⚠ CAUTION!

- After assembled, the pump should be put to test running.
  Incorrect assembly may cause malfunction, electric leakage, or water leakage.

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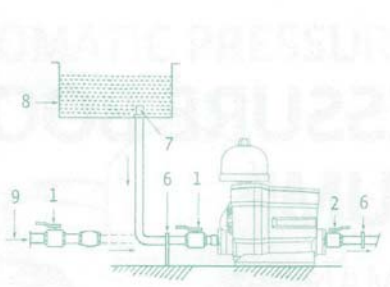
INSTALLATION



Part Description

1. Stop valve on the suction side
2. Stop valve on the discharge side
3. Hopper cap
4. Pressure Tank
5. Drain screw
6. Pipe support
7. Strainer
8. Water tank
9. Piping

-. Close the discharge valve(2) and open the Pressure Tank(4).
-. Open the suction valve(1) to fill the pump with water.
If don't fill water in pump, please open the air vent screw(3).
-. Close the air hopper cap(3) and the Pressure Tank(4)
when water comes out from the air vet screw.
-. Open the discharge valve(2) after turning on the pump.

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OPERATING INSTRUCTIONS

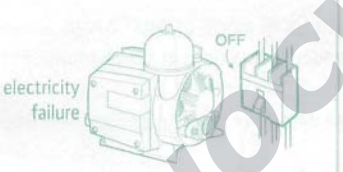
WARNING!

- To prevent a fire, never wrap the motor of the pump head in a blanket or a cloth to prevent freezing in cold weather.
  The customers are liable for any damage caused by improper wrapping.

CAUTION!

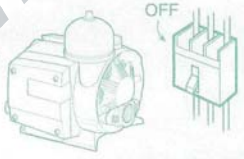
- Never conduct a shut-off operating under dry running condition and delivering no water.
  The life of the parts may be shortened and explosion may occur.

- In electricity failure, disconnect the pump with the power supply. Sudden start up may cause physical damage.



- If water penetrates into the motor, malfunction or electric leakage may occur.

- Disconnect the pump if it is unused for a long time.
  Otherwise old insulation may cause electric shock or fire.



- Never use the pump with liquids other than water. A fire may be caused,when chemicals or flammable liquids including petroleum, alcohol, or gasoline are used. In addition, the service life of the pump may be ened and highly likely to occur.

- Never use hot water over 35℃ in the pump. Rubber parts and packing may be deformed, and motor may be damaged.

- Never alter an automatic item into non-automatic one. Reconstruction of the pump is prohibited.
- Any physical damage and property losses cannot be compensated in this case.

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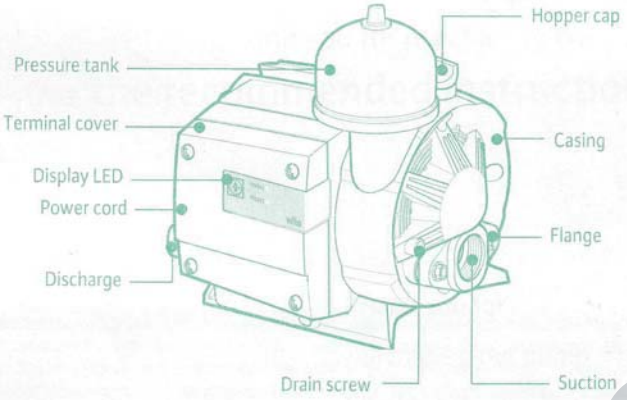
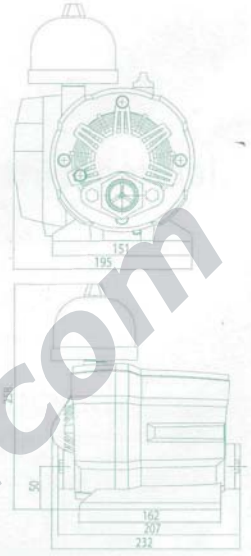
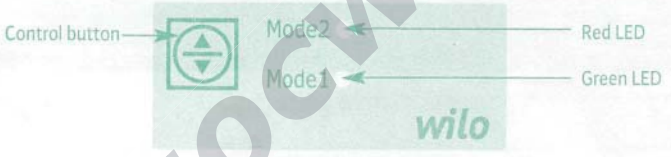
DIMENSION AND PARTS





SETTING THE OPERATING MODE



Operating mode

Display indicator	Mode		Condition	
			PE-410MA	PE-350EA
Green LED	Auto Mode 1	Pressure Range	1.0~2.3kgf/cm²	1.0~1.6kgf/cm²
Red LED	Auto Mode 2		1.5~2.3kgf/cm²	1.5~1.6kgf/cm²
Green/Red LED(+ Suction Pressure)	Auto Mode 3		-	1.5~1.6kgf/cm²
Green/Red LED flashing simultaneously	Manual Mode1		Constant high speed driving	
Green/Red LED flashing by turns	Manual Mode2		Constant medium speed driving	

PE-410MA

How to control the button (when push the button, below 1-2-3-4 repeating)

1. Push the button one time : Auto mode 1 → Auto mode 2
2. Push the button two times : Auto mode 2 → Manual mode 1
3. Push the button Three times : Manual mode 1 → Manual mode 2
4. Push the button four times : Manual mode 2 → Auto mode1

PE-350EA

How to control the button (when push the button, below 1-2-3-4-5 repeating)

1. Push the button one time : Auto mode 1 → Auto mode 2
2. Push the button two times : Auto mode 2 → Auto mode 3
3. Push the button three times : Auto mode 3 → Manual mode 1
4. Push the button four times : Manual mode 1 → Manual mode 2
5. Push the button five times : Manual mode 2 → Auto mode1

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PROTECTIVE FUNCTIONS & ALARMS

① **Frozen protection : Green LED flashes**

When water inside the pump reaches freezing temperatures, it makes pump operated automatically and prevent damage from frost by a temperature sensor.

② **Dry running protection : Red LED flashes**

The pump automatically stops after 10seconds when driving with no water inside the pump.
Automatically return to operation after 10 minutes.(Continuous dry running_10 seconds/10 minutes repeat when dry running continues)

③ **Operation disconnection and overload protection : Red LED flashes**

The pumps stops when the temperature inside the pump exceeds a certain level,
automatically return to operation when the temperature inside the pump reaches a certain level below.

④ **Leakage operation protection : Red LED flashes**

The pumps stops when the temperature inside the pump exceeds a certain level,
automatically return to operation when the temperature inside the pump reaches a certain level below.

⑤ **Over-pressure protection : Red LED 3time sand Green LED 3 times flashes alternately**

The pumps stops when the inside pump pressure exceeds 5kgf/㎠,
automatically return to operation when the inside pump pressure becomes less than 5kgf/㎠

SPECIFICATIONS

Specification	PE-410MA	PE-350EA
Power	1P,220V,60Hz	1P, 220-230V, 50Hz
Input	490W	380W
Output	350W	300W
Hmax.	25m	18m
Qmax.	60 l/min	55ℓ/min
Pipe	25mm (1")	
Insulation Class	IPX4	
Weight	5.5kg	

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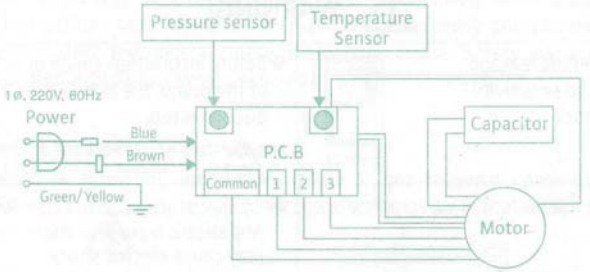
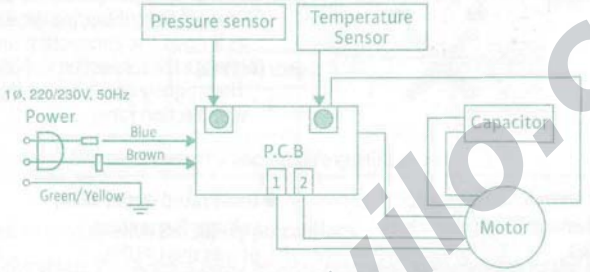
WIRING DIAGRAM

PE-410MA

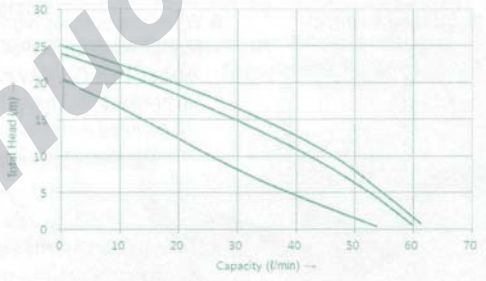


PE-350EA

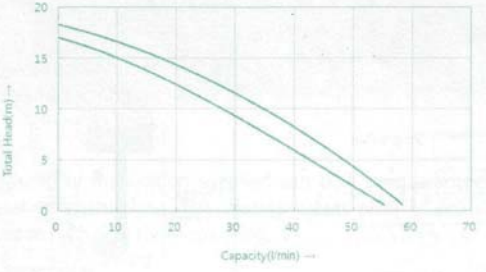


PERFORMANCE CURVE

PE-410MA



PE-350EA



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TROUBLES AND COUNTER-MEASURES

Troubles	Causes	Counter-Measures (The indication ● can be done by user.)
Motor does not start.	Thermal protector.	● If the motor is overheated, it doesn't operate.Then, wait till getting cold. (20_30 minutes)
	Faulty cord connection.	● Insert the plug securely.
	Cord disconnected.	Replace the new cord.
	Trouble in motor.	Repair or replace the motor.
	Too low power supply voltage.	● Consult with the power supply company.
Water is not pumped out although motor runs.	Water level of well is lower than standard level.	● Check the water level of well.
	Trouble in check valve.	Take off the check valve case. Then, clean the valve, the valve seat and the valve hole.
	Air drawn into suction pipe.	After checking the joints of piping, shut them perfectly.
	Air drawn into pump from mechanical seal.	Replace the new mechanical seal.
Thermal protector for motor works too often.	Too low or high power supply voltage.	● Consult with power supply company.
	Impeller is contact with another part.	Repair the defects.
	Short or open circuit of the capacitor.	Repair the capacitor.
Water does not come out at the first few minutes after switch on.	Air drawn into suction pipe.	Replace the defects of piping (To prevent air leaking)
Pump starts though no water is being used.	Water leaks at piping or pump.	Repair piping, pump parts and faucets etc.
	Water leaks at mechanical seal.	Repair the mechanical seal.
	Trouble in check valve.	Take off the check valve case. Then, clean the valve the valve seat and the valve hole.
	Defacement or transformation of the impeller.	Replace the impeller.

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