SHIMGE PUMP INDUSTRY GROUP CO., LTD.

Add：Dayangcheng Industrial Zone, Daxi, Wenling, Zhejiang, China
Tel: +86-576-86339960 Fax:+86-576-86337079
Http://www.shimge.com
E-mail:admin@shimge.com
P.C:317525

SHIMGE®

for better life

SERVICE MANUAL

XPM INTELLIGENT HOT WATER CIRCULATION PUMP

Model:XPM25-8-180

Warning

Ground motor before connecting to power supply.
- Do not touch the pump while it is running.
- Do not run the pump without water.

SHIMGE PUMP INDUSTRY GROUP CO., LTD.

CONTENTS

XPM Intelligent hot water circulating pump

Warranty Card

Dear Customer:

Thanks for purchasing this product and sincerely hope that you will enjoy more happiness and leisure for your choice.

Now, please read and fill out this Warranty Card carefully. You will obtain reasonable and reliable guarantee and at the same time enjoy high quality service during warranty period as a result.

Pump model : _____

Production batch number: _____

Invoice number: _____

Date of purchasing: _____

Purchased in: _____

User name: _____

Address: _____

Postal code: _____

Seal:

（This card is valid when affixed with the seal of the sales store.）

Type of pump	H(mm)	H1(mm)	L(mm)	B(mm)	B1(mm)	G(")	Weight (excluding cable) /kg
XPM20-6/8/10/12-130	146	100	130	130.5	86.5	1"	1.94
XPM25-6/8/10/12-130	146	100	130	130.5	86.5	1½"	2.12
XPM25-6/8/10/12-180	146	100	180	130.5	86.5	1½"	2.27
XPM32-6/8/10/12-180	146	100	180	130.5	86.5	2"	2.46

VI. Trouble shooting

Warning **Ensure that the power supply is cut off and will not be accidentally switched on before preparing any maintenance and repair of the pump.**

Symptom	Possible cause(s)	Corrective action
Pump will not start or run	Loose or broken wiring	Tighten connections,replace broken wiring
	Blown fuse or open circuit breaker	Replace fuse or close circuit breaker
	Fibers or foreign object lodged in impeller	Disassemble pump and clean
Pump vibrates and/or makes excessive noise	Foreign material in pump	Disassemble pump and remove foreign object
	Set flow too large	Switch to lower speed
	Gas within system	Exhaust the gas
Pump will not deliver water or develop pressure	Suction line (or valve) is closed	Open suction line or valve
	Gas within pipes or pump	Make pump running and loosen the connector of the outlet to ensure gas discharged

Correct Disposal of this product

This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

Precautions

1. Carefully read this operation manual before installation and use.
2. Personal injuries might be caused if one fails to observe what has been indicated by the safe warning marking. Should pump be damaged or losses be caused to other properties, the manufacturer will not take any responsibilities or compensate.
3. The installer and operator must observe the local safe regulations.
4. The user must ensure that: the product shall only be installed and maintained by the quali□ed personnel fully comprehend this manual and with professional quali□cation certi□cation.
5. Never install the pump in damp place or where may be splashed with water.
6. For easy maintenance, install a stop valve at both sides of the inlet and outlet of the pump respectively.
7. During installation and maintenance, it needs to cut off the pump power supply.
8. For circulating of domestic hot water, water pump made from brass or stainless steel must be used.
9. Non-softened water mustn't be frequently replenished inside the heating pipeline in case of increasing calcium in circulating water of the pipeline to block the impeller.
10. It is strictly forbidden to start the pump without pumping liquid.
11. Some models cannot be used for drinking water.
12. The pumping liquid might be of high temperature and high pressure, it has to drain the liquid inside the pump or close the stop valves at both sides of the pump before moving and dismantling the pump to prevent from scalding.
13. High temperature and high pressure liquid might □ow out when exhausting bolt is removed, it has to be sure that the liquid □owed out will not cause damage to people or other parts.
14. In summer or when it is very hot, please pay attention to ventilation in case of moisture condensation, causing electrical fault.
15. In winter, if the pump system doesn't run or it is below 0℃, it should drain the liquid inside the pipeline system in case of frost crack of pump head .
16. If the pump will not be used for a long time, please close the inlet valve and cut off pump power supply.
17. If the □exible cable is damaged, it requires professional personnel to replace it.
18. If the motor is hot and abnormal, immediately close the water inlet valve, cut off pump power supply and contact the local dealer or service center at once.
19. If troubleshooting cannot be achieved as per this manual, immediately close the water inlet valve, cut off pump power supply and contact the local dealer or service center at once.
20. The product should be placed beyond reach of children and should be isolated after installation in case of being available to children.
21. The product should be stored in dry, ventilated, shady and cool place under room temperature.

Ⅰ. Product Overview

1. XPM IFC Circulating Pump

XPM series IFC Circulating Pump is the high quality, mute and energy saving circulating pump especially designed for domestic heating system and domestic hot water system. It is most innovative product in Shimge with easy installation, which is preset when delivered and best applies to the following systems:

Floor heating system
Single pipeline heating system
Double pipeline heating system

XPM series adopts permanent magnet motor and combines frequency conversion technology which can run automatically according to user demand so as to reach energy saving effect.

2. Features of XPM IFC Circulating Pump

1) Simple structure and close contact between the control box and the pump;
2) Low noise of pump and system;
3) Permanent magnet motor and compact design of stator;
4) Intelligent frequency conversion;
5) Energy conservation to achieve European Class A energy ef□ciency requirements.

3. Application of XPM IFC Circulating Pump

- System Type:
  1) It requires the working point of the water is set to be optimum constant □ow system or variable flow system
  2) Pipeline temperature variation system
- Pumping liquid
  1) Clean, thin, non-corrosive, non flammable combustible and explosive liquid without solid fiber or mineral oil;
  2) In heating system, the pumping liquid should meet the water quality standard involved in heating system
  3) In domestic hot water system, water with active medium and temperature is betweeen +0℃~110℃.
- Protection grade: IP44
- System pressure: Maximum 1.0 MPa(10 bar)

Ⅱ. Model Description

XPM - 25 - 8 - 180

- 180: Length from inlet to outlet of the pump(mm)
- 8: Max. lift (m)
- 25: Nominal diameters of inlet and outlet (mm)
- XPM: Pump model

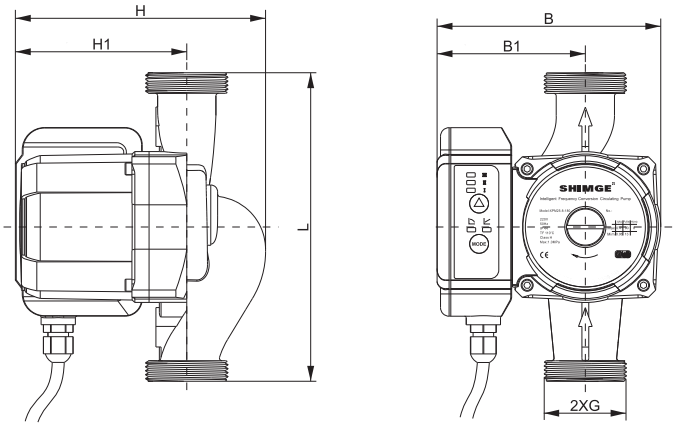
To prevent condensate water in the terminal box and the stator, the temperature of the pumping liquid in the pump must be higher than the ambient temperature.

Ambient temperature [℃]	Liquid temperature	
	Min. [℃]	Max.[℃]
0	2	110
10	10	110
20	20	110
30	30	110
35	35	90
40	40	70

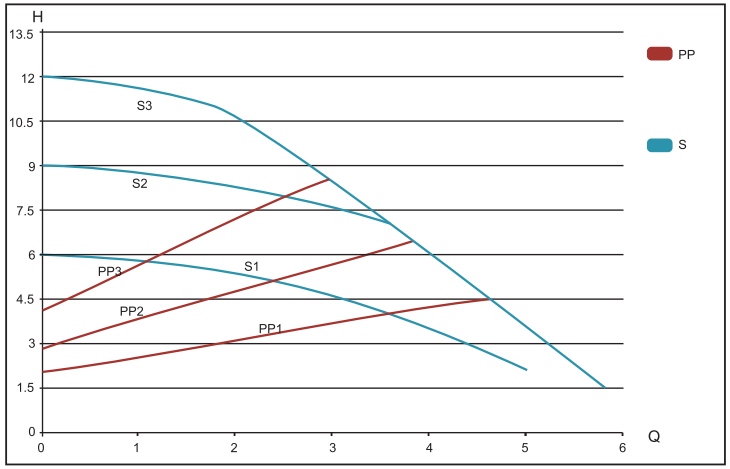
in domestic hot water system, it is recommended to keep the water temperature below 65℃ in order to reduce scale.

2. Installation dimensions

Dimensional sketch and dimensions table



(XPMXX - 12 - XX)



V. Technical Data and Installation Dimensions

1. Technical Data

Supply voltage	230V, -10 %/+ 6 %, 50Hz/60Hz, PE	
Motor protection	XPM circulating pump doesn't need external motor protection	
Protection grade	IP 44	
Insulation grade	F	
Relative ambient humidity	Max. 95%	
System pressure bearing	Max. 1.0 MPa, 10 bar, 102m water column	
Suction inlet pressure	Liquid temperature	Min. Inlet pressure
	≤+75 ℃	0.05 bar, 0.005 MPa, 0.5m water column
	+90℃	0.28 bar, 0.028 MPa, 2.8m water column
	+110 ℃	1.08 bar, 0.108 MPa, 10.8m water column
EMC Standard	EN 61000-6-1 and EN 61000-6-3	
Sound pressure level	The sound pressure level of the pump is less than 43 Decibel	
Ambient temperature	0℃ to +40℃	
Temperature grade	TF110	
Surface temperature	Max. Temperature is below +125℃	
Temperature	+2℃ to +110 ℃	

Ⅲ. Installation and Use

1. Installation Instructions

1.1 Before installing the pump, it needs to check whether the piping system is reliable and ensure that the impurities, slag, dirt and etc. in the pipeline have been removed; the power frequency is 50Hz/60Hz with voltage of 230V and voltage □uctuation value between -10% ~ +6%.

1.2 The pump should be stored in dry and ventilated area in case of short circuit due to humidity or being splashed with water, moreover, installation should facilitate future repair and change.

1.3 When the pump is installed in the open air, protection cover should be added; for indoor installation, it should prevent from splashing, which might cause electric shock. Never install the pump in the bathroom in case that the water vapor or water enters the junction box and causes electric leakage.

1.4 After installing the pump, carry out test running with power on. Then set the speed control switch to the rated high gear S3 and check whether it starts normally.

1.5 To facilitate repair of the pump, it is suggested to install separate stop valves at the outlet and inlet of the pump respectively.

1.6 The power plug should be strictly grounded, the ground pin of the plug should be reliably connected to the ground hole of the power socket. Never change the power ground plug without authorization.

1.7 When the pump runs, set up marked safety warning sign at the application site to prevent accident.

1.8 Regularly check the insulation resistance of the pump and the cold insulation resistance should not be less than 50MΩ.

1.9 If cable is damaged, it has to replace with special cable or special components.

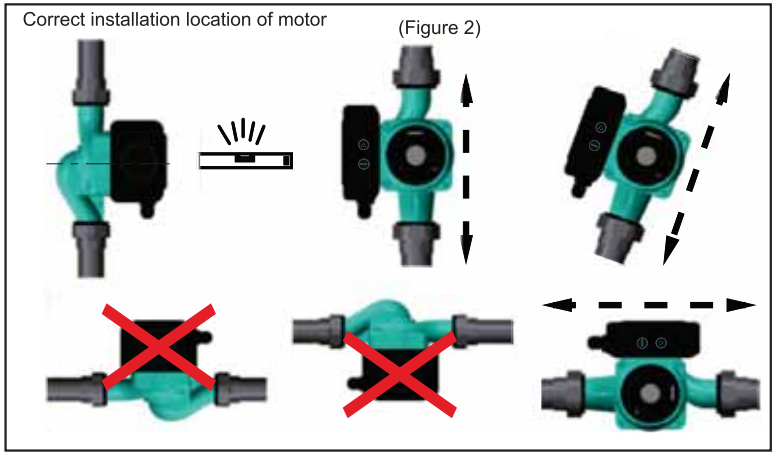
1.10 Pumped medium should be thin, clean, non-corrosive, non-explosive liquid without solid fiber or mineral oil.

2. Installation

2.1 Installation

(Figure 1)

Correct installation location of motor (Figure 2)

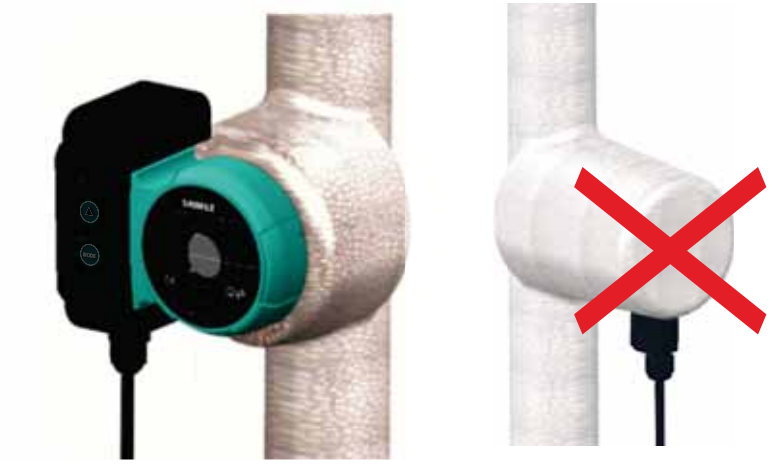


The arrows on the pump housing indicate the direction of liquid □owing through the pump.

Warning

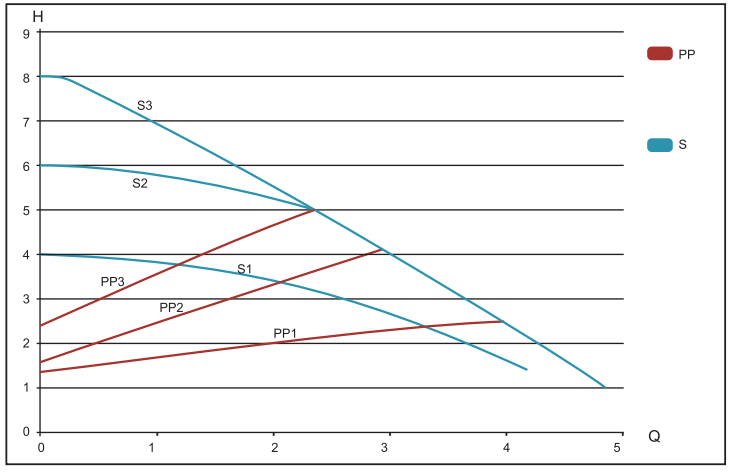
1. **When installing the pump in the pipeline, it needs to install the two sealed gaskets provided.(as steps in Figure 1)**
2. **When installing, the motor shaft should be horizontal(as steps in Figure 2)**

2.2 Pump Body and System Heat Insulation



(Heat insulation of the pump body)

(XPMXX - 8 - XX)



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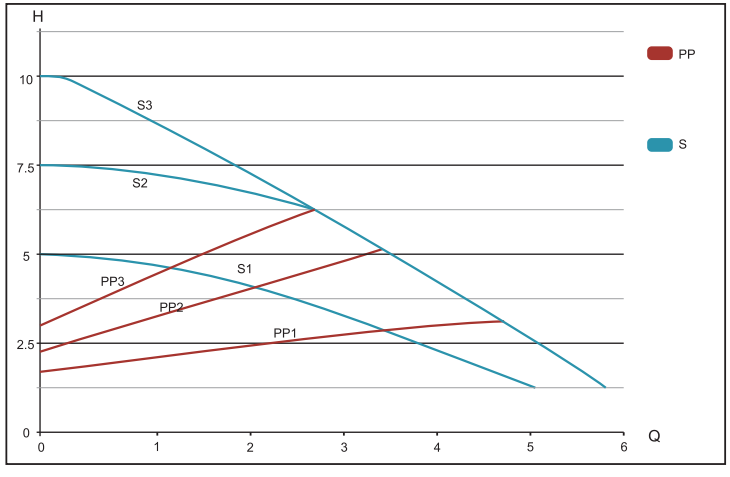
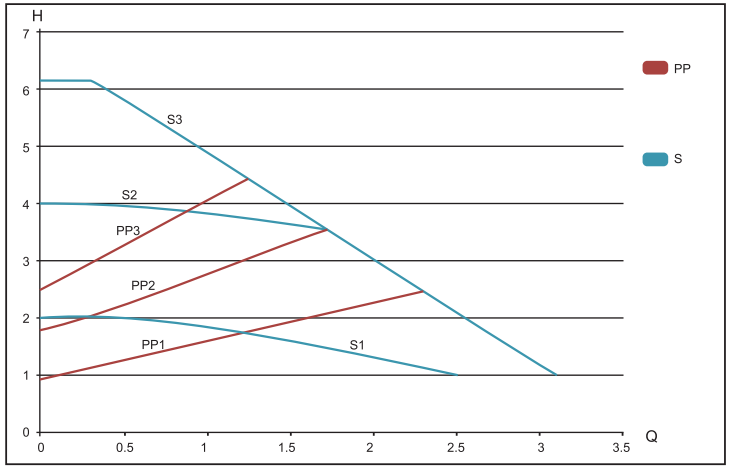


Setting	Pump features	Function
PP1	Min. Proportional pressure curve	The pump working point will move up and down at the Min. Proportional pressure curve according to flow demand of the system; when system flow demand increases, pump pressure increases.
PP2	Max. Proportional pressure curve	The pump working point will move up and down at the Mid. Proportional pressure curve according to flow demand of the system; when system flow demand decreases, pump pressure decreases.
PP2	Max. Proportional pressure curve	The pump working point will move up and down at the Max. Proportional pressure curve according to flow demand of the system; when system flow demand decreases, pump pressure decreases.
III	Speed III	The pump will run at the constant curve at constant speed. In speed III mode, the pump is set to be running at the max.curve in any working conditions.
II	Speed II	The pump will run at the constant curve at constant speed. In speed II mode, the pump is set to be running at the medium curve in any working conditions.
I	Speed I	The pump will run at the constant curve at constant speed. In speed I mode, the pump is set to be running at the min. curve in any working conditions.

11. Performance curve

(XPMXX - 6 - XX)



Restrict heat loss of the pump body and the pipeline.

Insulate pump body and the pipeline in order to reduce heat loss of the pump and he pipeline.

Warning **Do not insulate or cover the junction box and the control panel.**

2.5 Electrical connection

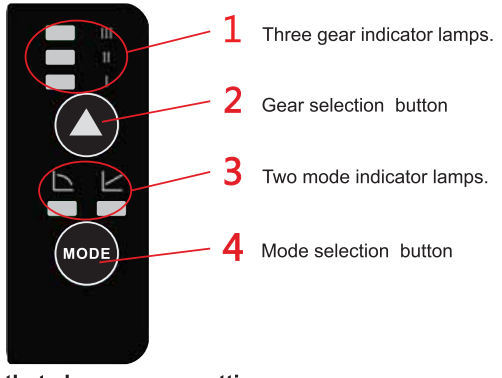
Warning **Pump must be connected to the ground wire** ⏚
The pump must be connected to an external power switch and the minimum clearance between the electrodes should be 3mm.

- XPM pump doesn't need external motor protection.
- Check whether the power supply voltage and frequency are consistent with values of the pump designation plate.
- When the indicator light on the control panel is on, it means it is powered on.
- Power connected with the pump needs 1A fuse.
- Wire end at cable 3 needs to be tin plated or fixed with wiring harness.
- If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.

IV. Operation Instructions

1. Operation Panel

1.1 Operation instructions for control panel



2. Lighting area that shows pump settings

XPM IFC Circulating Pump has six settings, which can be achieved through buttons. Pump setting is indicated by five different lighting areas.

Five Lighting Areas

MODE Pressing times	Lighting area	Description	▲ Pressing times	Lighting area	Description
0	◺	Constant speed mode (CS)	0	III	Constant speed curve, speed III
			1	II	Constant speed curve, speed II
			2	I	Constant speed curve, speed I
			3	III	Constant speed curve, speed III
1	◸	Proportional pressure mode (PP)	1	III	Min. proportional pressure curve
			2	II	Mid. proportional pressure curve
			3	I	Min. proportional pressure curve
			4	III	Min. proportional pressure curve
2	◺	Constant speed mode (CS)	0	III	Constant speed curve, speed III

3. Control of pump

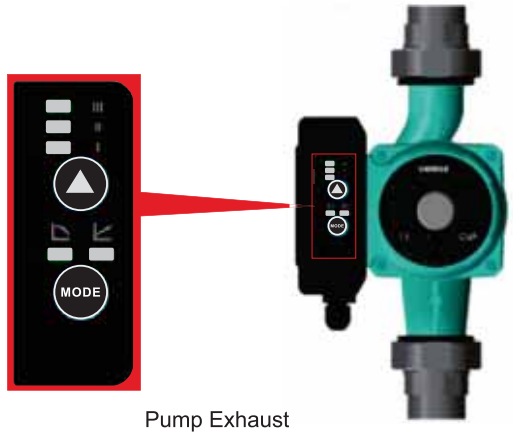
During operation, exert control over the pump as per , Proportioinal pressure control ″(PP)″ or Constant speed control ″(CS)″.
Under the abovementioned two control modes, the pump performance and corresponding consumption power shall be adjusted according to the heat loss of the system.
Proportional pressure control
Under this control mode, the pressure difference at both ends of the pump is controled by the flow. In Q/H diagram of proportional pressure curve, indicate with PP1、PP2 and PP3.
Proportional speed control
Under this control mode, the pump is similar to the asynchronous motor circulation pump with 3 gears

4. Start

4.1 Before starting

4.1.1 Before starting the pump, it must be sure that the system is □lled with liquid and air is drained out. The pump inlet must reach the min.inlet pressure requried.

4.2 Exhaust the pump



Pump Exhaust

The air in pump might cause noise, so the XPM pump will be running in speed III mode in beginning in order to drainning it out.
According to the system scale and structure, the air in the pump will be drained in short period. After that, the said noise will disappeared and then the pump can be set to the other mode as the recommended instructions.

Warning

The pump cannot go idling without pumping liquid.
Do not start the pump for sytem exhausting.

5. Relation between pump setting and performance

Relation between pump setting and performance is indicated with curve.