

Microcirculation Series Energy-saving pipe Canned Motor Pump



Installation and Operating Instructions



CE RoHS

Precautions for use of LPA Series products

01. Read the installation manual carefully before installation and use.
02. The manufacturer will not be liable for any personal injury, motor pump damage and other property damage due to failure to comply with contents specified in safety warning signs.
03. The installers and operators must comply with local safety regulations.
04. The user must confirm that only qualified personnel with professional certification and proficiency of this manual is allowed to install and maintain this product.
05. The microcirculation series energy-saving pipe canned motor pump (also called in abbreviation of "motor pump") must not be installed in a place that is damp or may be splashed by water.
06. For convenient access of maintenance, a shut-off valve shall be installed on each side of inlet and outlet of the motor pump.
07. The power supply of the motor pump shall be cut off before installation and maintenance.
08. For circulation of domestic hot water, copper or stainless steel motor pump body shall be used.
09. Heat supply pipelines shall not be frequently filled with non-softened water so as to avoid increasing calcium in the circulating water inside the pipeline, which may thus block the impeller.
10. Do not start the motor pump without pumping liquid.
11. Some models are not suitable for pumping drinking water.
12. Motor pump liquid may be high-temperature and high-pressure; therefore, the liquid in the system must be completely drained or the shut-off valves on both sides must be closed before moving and dismantling the motor pump to prevent burning.
13. Ventilation must be ensured in summer or high ambient temperature period to avoid condensation that may cause electrical malfunctions.

14. If in winter, the pump system does not work or when the ambient temperature drops below 0°C , liquid in the piping system shall be completely drained so as to avoid frost cracking of motor pump body.
15. If the motor pump is left unused for a long time, please close the pipe valve in the inlet and outlet of the pump and cut off the power supply of pump.
16. If the flexible cord of cable is damaged, it must be replaced by a qualified person.
17. Please close the valve at the inlet of motor pump and cut off power of the motor pump immediately if overheating and abnormality of motor is detected, and contact your vendor or service center immediately.
18. If trouble cannot be addressed according to the manual, please close the valves on the inlet and outlet of the motor pump immediately, cut off power supply of the motor pump and contact your vendor or service center immediately.
19. This product shall be put in a place out of reach of children. After installation, take an isolation measures to avoid access of children.
20. This product shall be stored in a dry, well ventilated and cool place under room temperature.
21. This appliance can be used by children aged from 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 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.



Warning

Before installation, you must carefully read the installation and operation manual. The installation and use of the equipment must comply with local regulation and applicable operation standards.



Warning

Those who have weak physical strength, react slowly and lack experience and knowledge (including children) can use this motor pump only under the monitoring and direction of his/her safety personnel.

1. Signs



Caution

Failure to comply with this safety instruction may lead to personal injury!

Failure to comply with this safety instruction may lead to equipment malfunction or damage!

Note

Note or instruction for easy and safe operations.

2. General:

The motor pump is easy to install maintenance-free, low noise, automatic regulation performance which is the best choice for hot-water circulation system.

Main application:

1. Heating and Domestic hot-water circulation system
2. Water heater circulation system

3. Operation Conditions

3.1 Power supply

Voltage 220V-240V, frequency 50/60Hz, single-phase AC power.

3.2 Ambient Temperature

Ambient temperature: 0 °C ~ +40 °C

3.3 Medium (liquid delivery) temperature

To avoid condensation in terminal box and the stator, the temperature of liquid pumped by the motor pump must be always higher than ambient temperature.

3.4 System pressure

Maximum pressure 1.0MPa(10bar).

3.5 Degree of Protection

IP44

3.6 Inlet pressure

To avoid damage to the motor pump bearing due to cavitation noise, the motor pump inlet shall maintain the following minimum pressure:

Liquid temperature	<85°C	95°C
Inlet pressure	0.05bar	0.28bar
	0.5m head	2.8m head

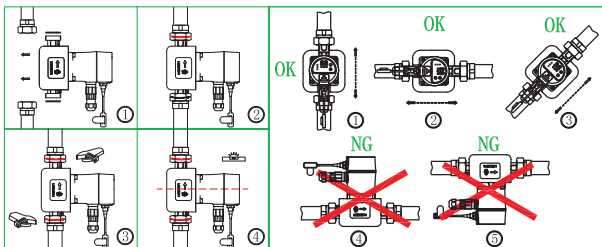
3.7 Pumping liquid

The pumping liquid includes thin, clean, non-corrosive and non-explosive liquid which shall not contain any solid particles, fiber or mineral oil, and motor pump must definitely not be used to pump inflammable liquid such as rapeseed oil and gasoline. If the motor pump is used in a place with relatively high viscosity, the motor pump has lower performance. So when choosing a motor pump, the viscosity of liquid must be taken into account.

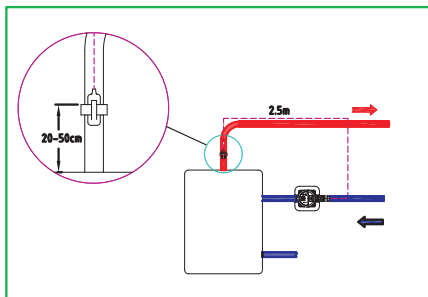
4. Installation

4.1 Installation

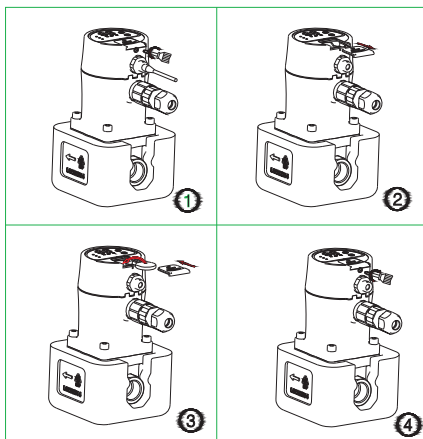
- When installing microcirculation series energy-saving pipe canned motor pump, the arrow on motor pump casing indicates the flow direction of liquid through the pump.
- When installing the motor pump in the pipeline, two gaskets must be installed at the inlet and outlet.
- During the installation, the shaft of motor pump must be horizontal.



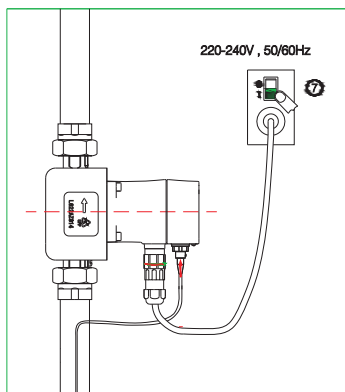
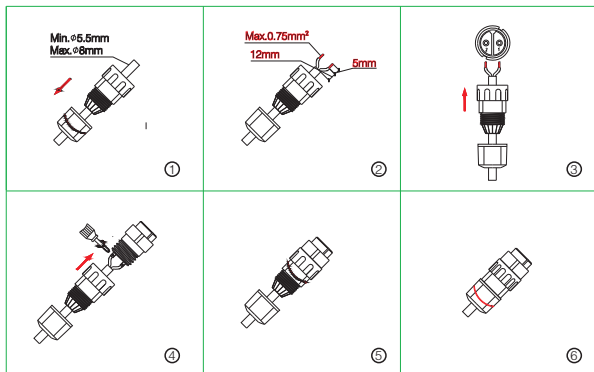
Schematic diagram for Installing Temperature Controlled Plug



Schematic diagram for Installing Battery



5. Electrical connection



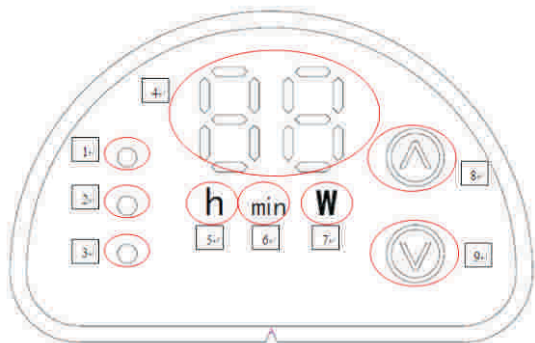
Electrical connection and protection shall comply with local codes and norms.



The motor pump needs no protection from external motor.

- Check if the supply voltage and frequency are the same as parameters indicated on the nameplate of the motor pump.
- Connect the motor pump and power supply with the plug supplied together with the pump.
- After the power is supplied, the indicator lamp on the control panel is ON.

6. Control panel



Position	Descriptions
1	Indicating constant speed running mode
2	Indicating Auto operation mode
3	Indicating temperature control mode
4	1. Power indicated 2. running (or stop) time indicated in timing mode
5	Running (or stop) hours setting in timing mode for display
6	Running (or stop) minutes setting in timing mode for display
7	Power unit shown under normal operation
8	1. Switch on various running modes 2. Increasing time in timing mode
9	Decreasing time in timing mode

7. Control of Motor Pump

7.1 The constant speed running mode

Motor pump runs in the constant speed when it is in constant speed running mode. Green light 1 as well as light 4 which is showing current power, will be always on while the light 7 will also be on.

7.2 The auto operation mode

Motor pump will automatically exert necessary adjustment according to current systematic performance when it is in the auto operation mode. Green light 2 as well as light 4 which is showing current power, will be always on while the light 7 will also be on.

7.3 Temperature control mode

Temperature sensor will obtain the feedback in terms of fluid temperature and make a judgment on whether start or stop when it is in the indicating temperature control mode. In such mode, the motor pump will stop when temperature is over 50 centigrade, but it will run in constant speed when temperature is below 36 centigrade. Green light 3, as well as light 4 which is showing current power, will be on while the light 7 will also be on.

7.4 Timing mode

Motor pump will run in constant speed within time set by time controller when it is in timing mode. The light 4 indicates the current time by showing the hour and minute alternately. When it comes to the hour, light 5 will be on while light 6 is on in the case of showing the minute. User can set and inquire the start and end time point for 3 periods about the running of pumps. And time points for 3 period are unnecessary to be reset when the power is off due to the controller can keep a record of running parameters set by users automatically.

7.5 Flushing function

When pumps are in the mode of standby for 8 hours, pumps will restart automatically and then flush the pipe for 15 minutes. At the moment, it runs in the constant speed mode. The flushing function is effective when it is in either Temperature control mode or Timing mode. Under the circumstance, the light 7 is on as well as light 4 is shining and the current running power is presented.

7.6 Key pressing specification

The factory setting for pumps is that it is in the constant speed running mode. When the power is on, Slightly pressing on "8" can help you switch between different running modes. (It can be switched among the constant speed running mode, the auto operation mode, temperature control mode and timing mode.)

• Illustration for the timing mode setting

The light 4 will show the current time when it is in the timing mode. Hour and minute are presented alternately.

The first step: Entering the timing mode (only in the timing mode the setting of the timing mode is available.):

Pressing "8" and "9" for 3s then setting mode is activated. In the mode, light 4 is flashing and 88 positions shows the time period. (F0-F6)

The second step: settings for the current time and timing time:

When it comes to the setting mode, "88" can be switched from F0 to F6: F0-F6 represents 7 time periods and their significance are presented below

- F0 settings on current time
- F1 settings on the start time of the first period
- F2 settings on the end time of the first period
- F3 settings on the start time of the second period
- F4 settings on the end time of the second period
- F5 settings on the start time of the third period
- F6 settings on the end time of the third period

After firstly pressing "9" for 3s, Setting on hours is available (light 5 is flashing) and now the current hour is shown. When pressing "9", one hour has been cut while pressing "8" vice versa.

If it is set then please secondly long press the "9" for 3s, Setting on minute is available (light 5 is flashing). When pressing "9", one minute has been cut while pressing "8" vice versa.

After thirdly long pressing "9" for 3s

Settings on the next time period is available (For instance if F0 has been set currently, then next step is for F1) and others are the same.

The third step: Quit the setting mode:

When any state from F0 to F6 is shown on the 88 position, and after long pressing "8" and "9" for 3s, user can quit the setting mode; Now the time is shown normally (light 4 shows current time)

Range for time setting is 24 hours and all hour figure can be set from 0 to 23 as well as minute figure set from 0 to 59. Once finishing the setting and quit the corresponding mode, the hour and minute shows alternately;

For example: when showing 8 in terms of 8:30 AM, the light 5 is on and when it comes to 30 the light 6 is on. In addition, when showing 13 in terms of 1:25 PM, the light 5 is on and light 6 is on when it comes to showing the 25. It will take 2s for switching time and showing alternately.

If users don't need 3 time period timing function and only one of them is needed, the other two time periods are not necessary to be set in terms of factory settings.(both of them can also be set as some same time).

If users only need one time period ,which is from 17:30 to 21:30 ,to be set and running of pumps is not required at other time period, then we can make some adjustments as following:

Time period	Hour	Minute
F1	17	30
F2	21	30
F3	0	0
F4	0	0
F5	0	0
F6	0	0

The time for factory setting is defaultly set as 0 and it can be modified as any other identical values ,but it must make sure the rest of time periods shares the same.

• Illustration for inquire on the time in timing mode:

In the timing mode:

After firstly long pressing the “8” for 3s,

Now the inquiry function for setting time is activated and it shows the current time(F0). The figures for the hour and minute set by users are both showing alternately and at the same moment LED light is flashing. Then short press “8” and F1 mode is available. It plays the same rules for others and such kind of function can help users to check the accuracy of time.

After long press “8” for 3s,Then quit the inquiry mode.

7.7 Indication lamp area of power consumption of motor pump

After the power is connected, the light 4 is on and the monitor in Position 4 works.During operation, the indicated value is in Watt, showing the actual power consumption of the motor pump. When the motor pump fails to work, the monitor indicates :

Fault Code	Description
E2	Over-current protection
E4	Open-phase protection-phase protection
E5	Locked-rotor protection
E6	Motor start failure protection(Motor parameters do not match)
light 3 Red LED light is on	

If malfunction is detected, the power supply must be cut off before trouble-shooting. After the trouble is addressed, re-connect the power and start the motor pump.

8. Technical Parameters and Installation Dimensions

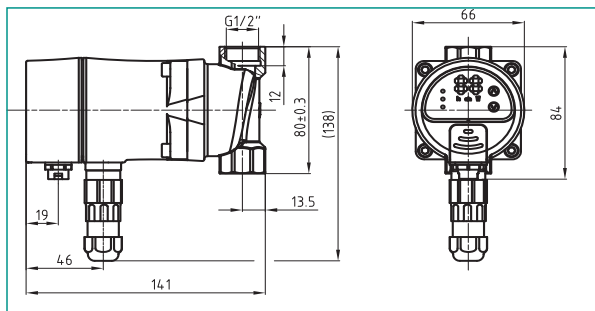
8.1 Technical Parameters

Power Supply Voltage	220–240V, 50/60Hz	
Motor Protection	the pump needs no external protection	
Degree of Protection	IP44	
Input power	GPA15–1.5B 8W GPA15–1.5LB 5W	
Insulation Class	F	
Relative Humidity (RH)	Max. 95%	
The system pressure	1.0 MPa	
Suction Port Pressure	Liquid Temperature	Minimum Inlet Pressure
	≤ +85°C	0.005 MPa
	≤ +95°C	0.028MPa
EMC Standard	EN61000–3–2 and EN61000–3–3 EN55014–1 and EN55014–2	
Sound Pressure Class	The sound pressure level of the motor pump is lower than 42dB (A)	
Ambient Temperature	0~+40°C	
Temperature Grade	TF95	
Surface Temperature	The maximum surface temperature is not higher than +110°C	
Liquid Temperature	2 ~ +95°C	

To prevent condensation in the terminal box and rotor, the temperature of pumping liquid of the motor pump must be always higher than ambient temperature.

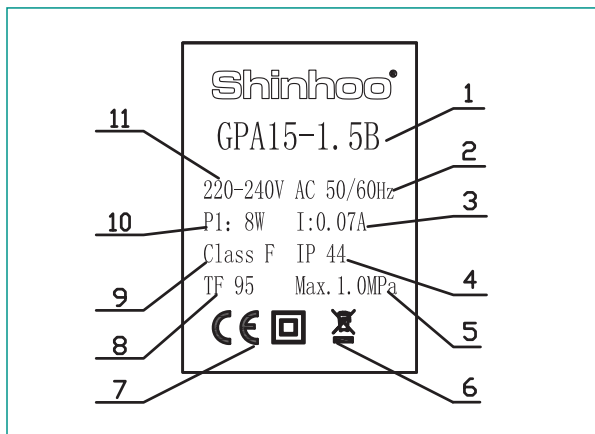
For domestic hot water, it is suggested that water temperature should remains below 65°C to reduce scaling.

8.2 Installation Dimensions



Power (W)	Model	Material of Pump Body	Control Mode of Motor Pump				
			Constant speed running mode	Auto operation mode	Temperature control mode	Timing mode	Flushing function
8	GPA15-1.5B	●	●	●	●	●	●
5	GPA15-1.5LB	●	●	●	/	/	/

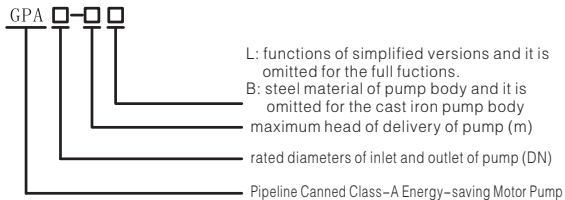
8.3 Nameplate Instructions



NO.	Descriptions
1	Product Model
2	Frequency (Hz)
3	Max Current (A)
4	Degree of protection
5	Maximum system load bearing (Mpa)
6	unrecyclable label
7	Authentication mark
8	Temperature class
9	Insulation class
10	Power(W)Maximum mode maximum input power P1
11	Voltage (v)

8.4 Model Instructions

The model of motor pump is composed of capitalized Latin letters and Arabic numbers, which means:



Model Example: GPA15-1.5B means the inlet and outlet diameter of pump in which pump body made of bronze are DN15 with 1.5 meters of maximum head.

9. Performance Curve

9.1 Guide on Performance Curve

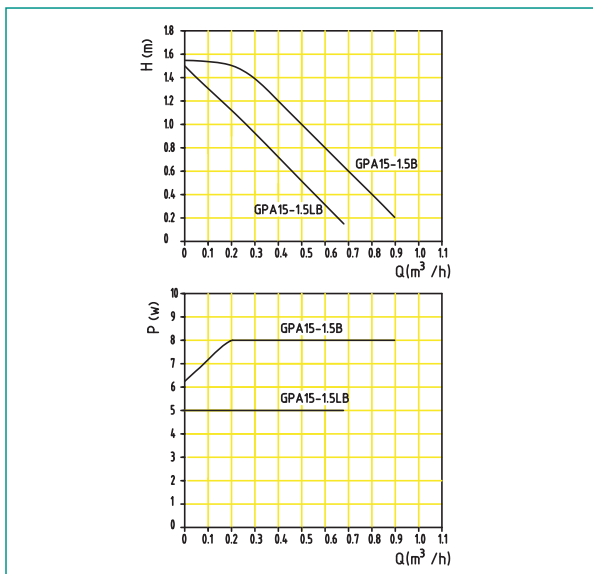
Every setting of the motor pump has corresponding performance curve (Q/H curve). The input power curve (P1 curve) belongs to every Q/H curve. Power curve represents the power consumption of motor pump in given Q/H curve with Watt as the unit. P1 value corresponds to the readings taken from the monitor of motor pump.

9.2 Curve conditions

The followings are applicable to the performance curve specified in the Microcirculation series manual:

- Test liquid: air-free water.
- Applicable density of curve $\rho = 983.2 \text{ kg/m}^3$, and liquid temperature $+60^\circ\text{C}$.
- All curves represent averaged value, and shall not be used as guarantee curve. If a specific performance is needed, then separate measuring shall be conducted.

9.3 Performance Curve



10. Trouble-Shooting Schedule



Warning

Before conducting any maintenance and repair of the motor pump, ensure that power supply has been cut off and will not be connected accidentally.

Fault	Control Panel	Cause	Corrective Action
Motor pump cannot be started	Indication lamp "Off"	The circuit breaker of current control or voltage control opens	Connect the circuit breaker
		Failure of motor pump	Replace the motor pump
		Under voltage	inspect whether power supply is in specified range
	Indicating "E2"	Over-current protection	Replace the motor pump
	Indicating "E4"	Open-phase protection	Replace the motor pump
	Indicating "E5"	Locked-rotor protection	Replace the motor pump
	Indicating "E6"	Motor start failure protection(Motor parameters do not match)	Replace the motor pump

Meaning of crossed  out wheeled dustbin:

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being. When replacing old appliances with new ones, the retailer is legally obligated to take back your old appliance for disposals at least free of charge.



Product warranty book of Hefei Xihu

Hefei Xihu Canned Motor pump Co., Ltd provides 12 months' quality assurance for the products since the sales date, and shall be responsible for the product failure or damage caused by manufacturing and material defects. The warranty is on condition that the installation of product should be in line with Xihu Installation and Use Manual and recognized good operation specification.

This warranty does not apply to the product ailure or damage caused by ① use the product other than for the usage recommended by Xihu; ② misuse of the product that does not conform to Xihu Installation and Use Manual; ③ improper maintenance and handling of product; ④ disassemble products and replace parts by oneself.

Any product provided rather than manufactured by Hefei Xihu Canned Motor pump Co., Ltd should comply with the quality assurance provisions of the manufacturer.

Within warranty period, the product repair is guaranteed by purchase invoice and warranty bill. Please send or return the product in need of repair to the local dealer of Hefei Xihu Canned Motor pump Co., Ltd. or designated maintenance point for repair. Hefei Xihu Canned Motor pump Co. may determine whether home maintenance service shall be provided for free in accordance with its maintenance policies in the local. Guarantee repair of parts is free.

Hefei Xihu Canned Motor pump Co., Ltd. will not accept claims to damage which should be borne by a third party or caused by product failure of any other company.

Hefei Xihu Canned Motor pump Co., Ltd shall not be responsible for the product failure or damage due to abnormal operating conditions, war, riot, wind (rain) storm, disaster or other force majeure.

Hefei Xihu Canned Motor pump Co., Ltd reserves the power of interpretation on the unaccomplished matter in the product warranty book.

HEFEI XINHU CANNED MOTOR PUMP CO., LTD

Hi-Tech Industrial Development Zone, Hefei, P.R. China.