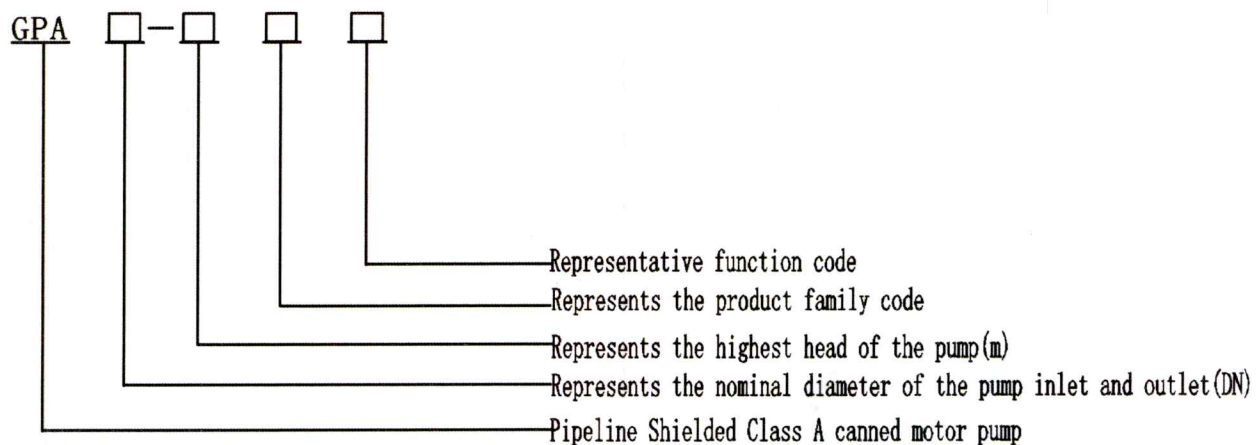
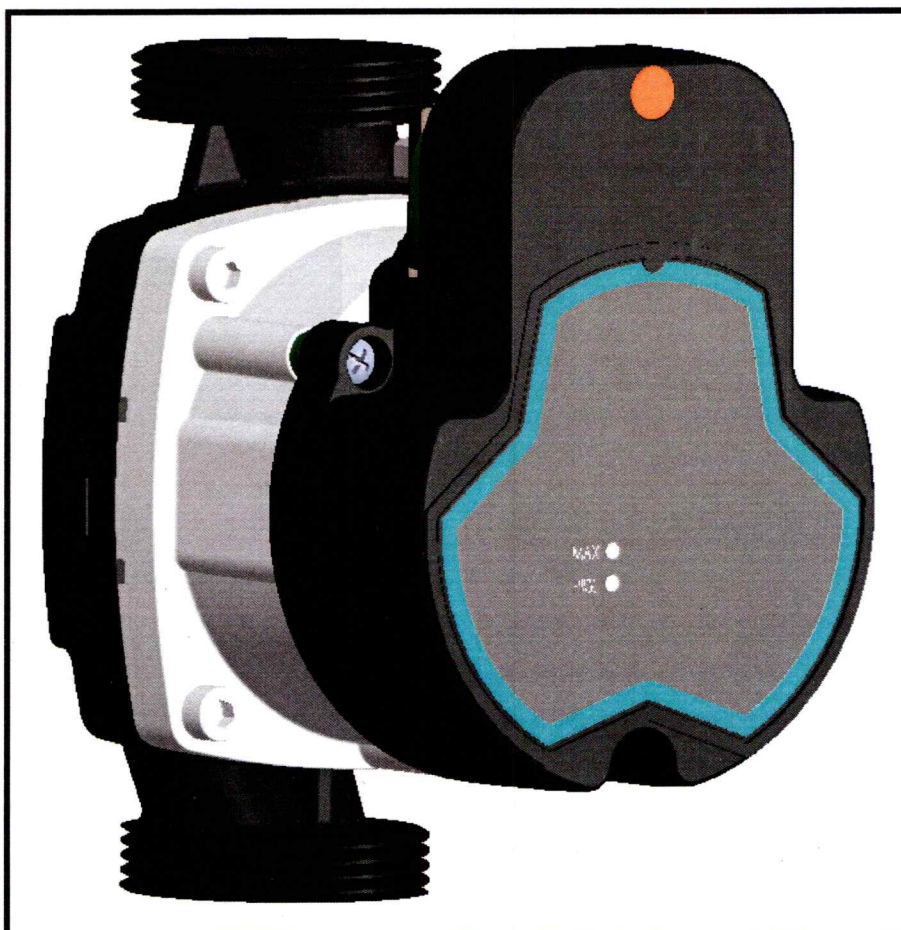


## 1. Product Model



Model example: GPA25-9 H, indicating that the pump inlet and outlet diameter for DN25, the maximum lift is 9M, Heat pump series products.

## 2. Product Photo



### 3. Scope of use

Air source heat pump combined supply system

### 4. Product certification

The product meets the requirements of TUV、CE、EMC、RoHS、REACH、EEI $\leq$ 0.21-part3 certification

### 5. Basic parameters

	GPA20-9H	GPA25-9H	GPA32-9H
Maximum flow (m <sup>3</sup> /h)	4.0	4.5	5.0
Maximum head (m)	9.0	9.0	9.0
Rated flow (m <sup>3</sup> /h)	2.2	2.5	2.5
Rated head (m)	7	6.5	6.5
EEI	EEI $\leq$ 0.21-part3	EEI $\leq$ 0.21-part3	EEI $\leq$ 0.21-part3

Rated voltage : 220-240V AC	Rated current :0.9A	Frequency : 50/60Hz
Maximum power : 95 W	Surge current : <10A	Standby power : ≤3W
Design pressure : 1.0MPa	Noise : <42dB (A)	Temperature class : TF95
Degree of protection : IP44	Insulation class : H	Weight : About 2kg (complete machine)/
Steering: clockwise when Viewed from the pump inlet		

Remarks: the product is strictly prohibited to operate in an environment higher than the design protection grade;

### 6. Media requirements

Medium: water or water + glycol ( $\leq$ 50%) mixture	Medium temperature : 2℃~95℃
PH value of medium : 6.5-8.5	Medium hardness : 25° dH
Content of solid impurities in medium: diameter and length direction of solid impurities $\leq$ 0.1mm, and volume ratio $\leq$ 0.1%.	

### 7. Service environment requirements

Usage: keep the shaft horizontal	Altitude: < 1000M
Operating ambient temperature: -30 ℃ ~ 55 ℃ (there is no freezing in the pipeline and water pump)	Operating ambient humidity $\leq$ 95%

### 8. Storage environment requirements

Storage ambient temperature: - 30 ℃ ~ 70 ℃ (there is no freezing in the pipeline and water pump)	Humidity of storage environment: $\leq$ 95%
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## 9. Start and stop of pump

**Starting time:** the starting time of the water pump is less than 3S, that is, the time from power on to reaching the maximum speed

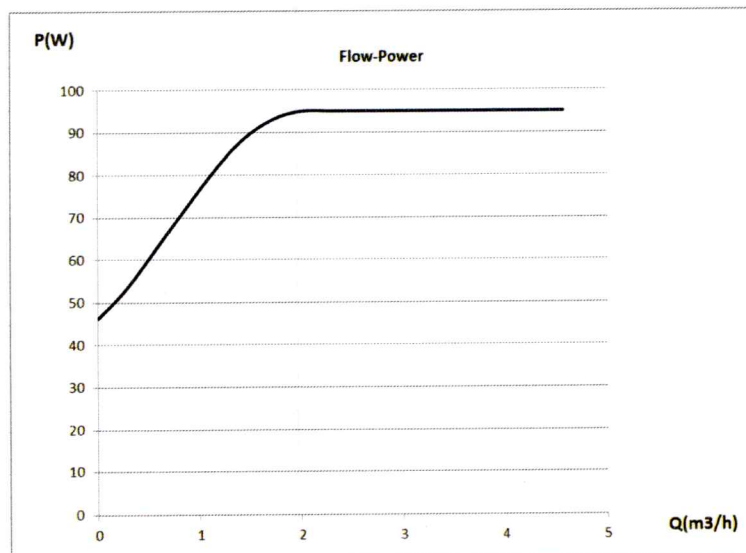
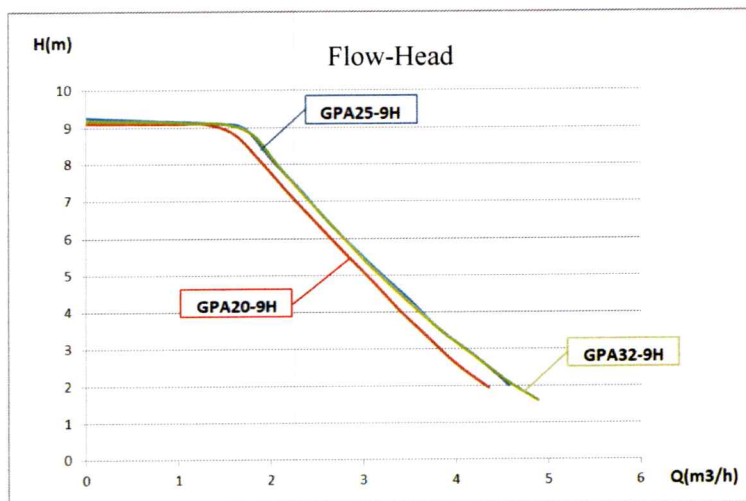
In PWM mode, when starting from the stop state of the water pump (without power supply), 90% of the maximum speed must be reached in at least 3 seconds

In PWM mode, start from standby mode and reach 90% of the maximum speed in at least 3 seconds

**Shutdown time:** the shutdown time of the water pump is less than 300ms, that is, the time from power failure to shutdown of the water pump

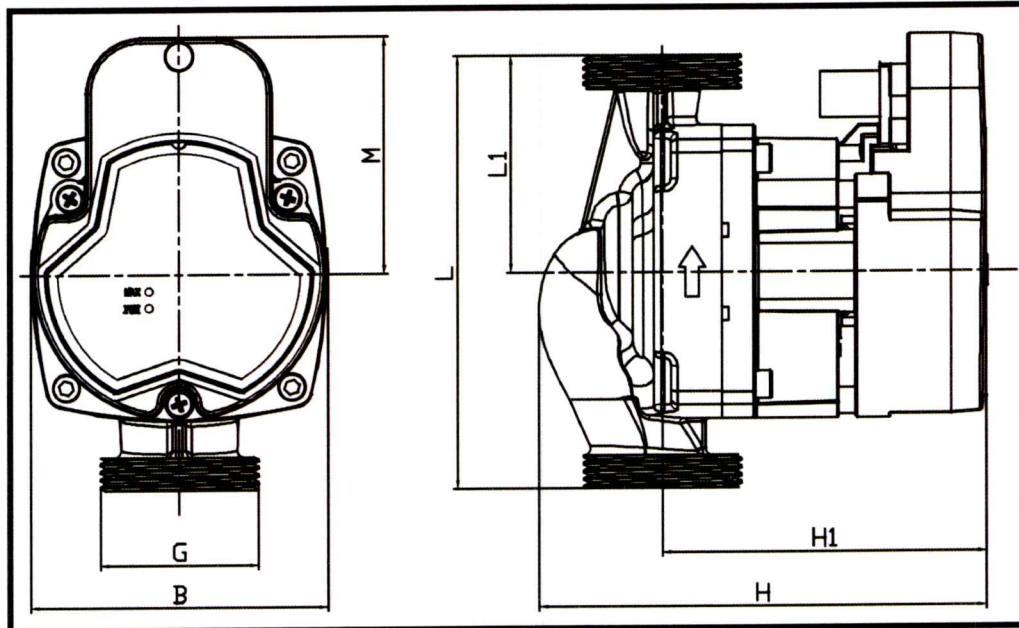
## 10. Performance curve

This performance curve is suitable for normal temperature water, such as pump for non-water medium, the hydraulic performance of the pump will be reduced , therefore , in the selection of pump, must consider the characteristics of the liquid medium.



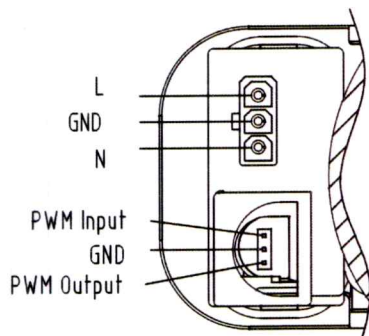


## 11. Installation dimension drawing



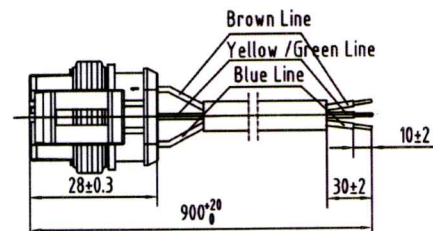
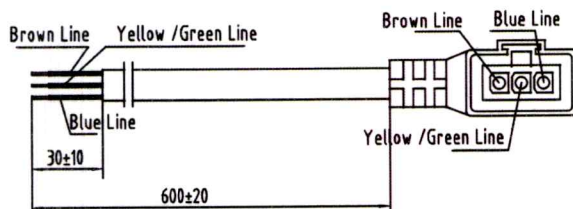
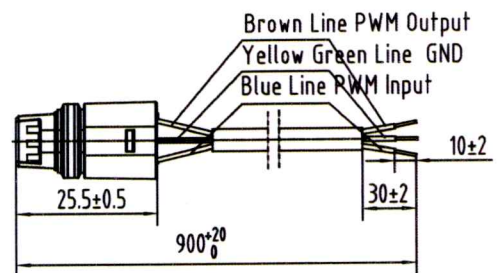
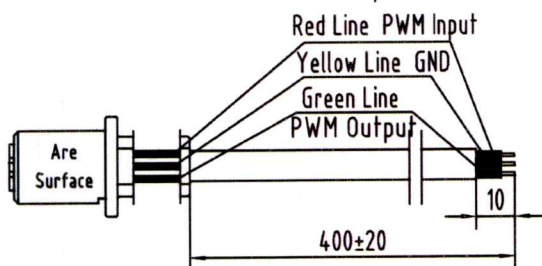
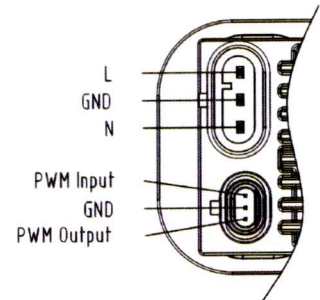
Molex M-M

TE M-M



**Warning:**

The Pump must be connected to the ground wire.



Model	G	B	M	L	L1	H	H1
GPA20-9H/130	1"	90	71	130	65	135	98
GPA25-9H/130	1 1/2"	90	71	130	65	135	98
GPA25-9H/180	1 1/2"	90	71	180	90	135	98
GPA32-9H/180	2"	90	71	90	90	135	98

## 12. Product connection

### 12.1 Power connection

Voltage: 220-240V AC( $\pm 10\%$ )      Frequency : 50/60Hz

### 12.2 信号连接 (PWM)

PWM input signal voltage: 4-24V

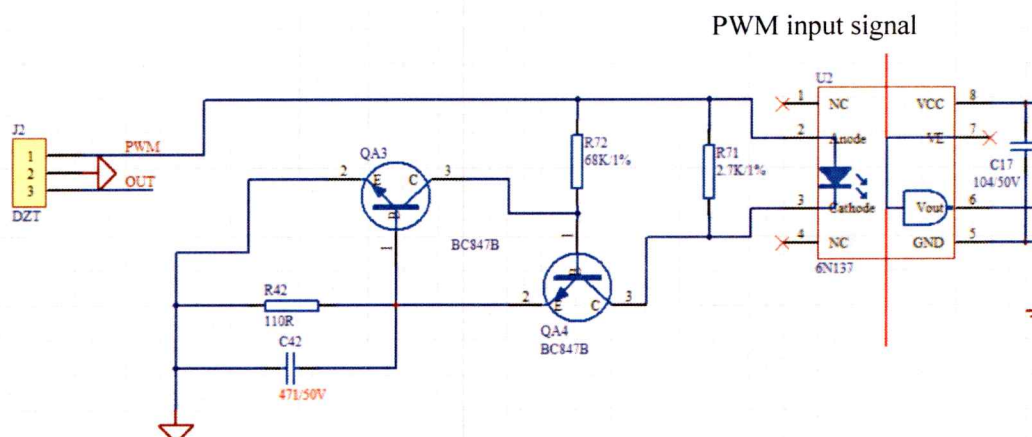
minimum input current: 4mA

PWM input signal frequency: 100-4000Hz

PWM output signal: collector open drain output, pull-up resistance must be connected, and 5V DC is recommended.

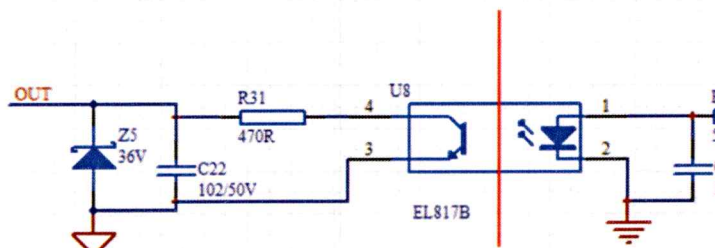
### 12.3 Interface circuit of PWM signal

Interface circuit of PWM input signal



PWM output interface circuit

PG output signal.



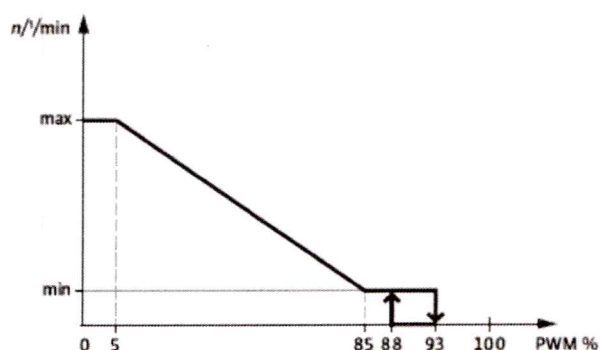
## 13. Electric control description

### 13.1 PWM control

#### 13.1.1 PWM signal input

Under fixed frequency, different duty cycles correspond to different motor given speed signals.

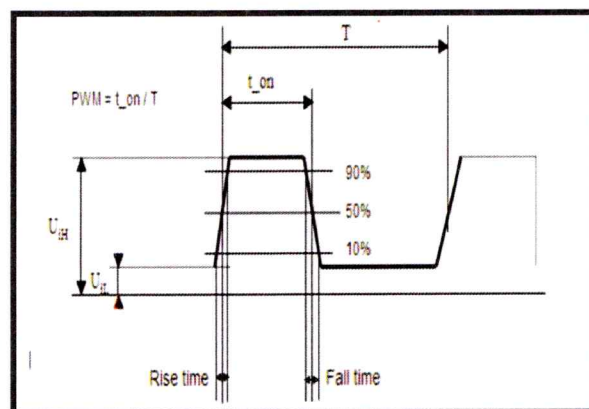
Inverse proportional control mode is adopted. The specific control logic is as follows:



PWM input signal (%)	Water pump status
0	When the water pump is switched to non PWM mode (maximum speed operation), the system has no PWM signal by default
<5	The water pump operates at maximum speed
5~85	Pump linearity from highest to lowest
85~88	The water pump operates at the lowest speed
88~93	If the input signal fluctuates near the speed change point, the starting of the water pump will be prevented according to the hysteresis principle
93~99	Standby, the water pump stops running
100	Standby, the water pump stops running

When the PWM signal is less than 5%, the water pump operates at the highest speed. At this time, the maximum input power of the corresponding water pump is 95w and maximum head is 9m

PWM input signal	parameter
Current isolation in pump	YES
Frequency input	100 – 4000 Hz
Input voltage high level	4.0 – 24 V
Input voltage low level	≤ 0.7V
Input current high level	Max 10 mA@100Ohms
Input PWM duty cycle	0 – 100 %
Signal polarity	Fixed changeless
Rise time	≤ T/1000

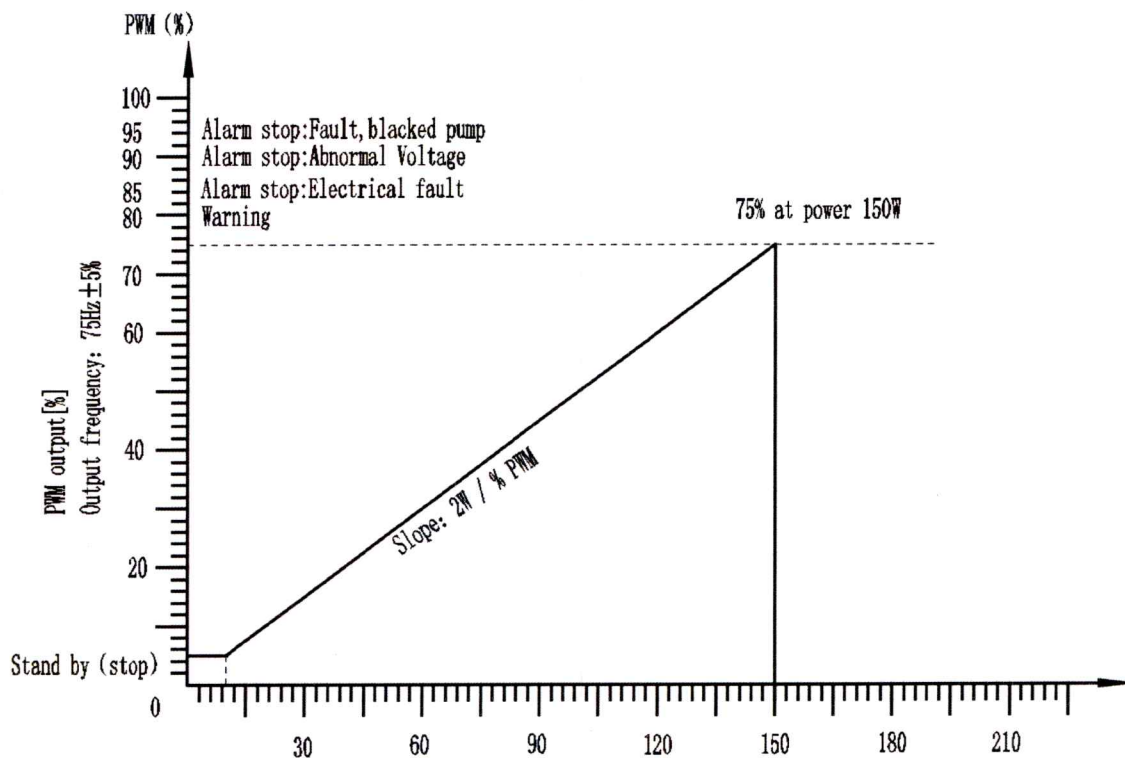




### 13.1.2 PWM feedback

Voltage amplitude: 4V~24V;

Frequency range: 75±5%Hz



Corresponding relationship between output signal and operation state of water pump

PWM output signal (%)	State	Potential causes
0	PWM Signal shorted out	The PWM output interface is short circuited , pump shutdown
2	Standby	/
5-75	The water pump works normally	10-150W (slope: 2W/% PWM)
80	Abnormal working mode, poor water pump performance	The working voltage of the water pump is the upper limit of undervoltage protection ( $140\pm 5V\sim 195\pm 15V$ . At this time, the performance of the water pump is attenuated
85	In abnormal operation mode, the water pump stops, but it can work normally	The water pump is in the protection state of Undervoltage, Overvoltage
90	In abnormal working mode, the water pump is shut down, but it can work. Check the installation device and medium of the water pump	The water pump is in the protection state of light load, phase loss, overcurrent and overtemperature
95	Permanent shutdown of water pump	Pump locked rotor
100	Pump Standby	The PWM output interface is short circuited , pump shutdown

### 13.1.3 Fault protection description

1. **Overvoltage protection:** Test under full load condition: after detecting that the input voltage is higher than  $278 \pm 10V$  for 2S, enter overvoltage protection, the indicator flashes once, the water pump stops running. When the voltage returns to  $150 \pm 5V$ , the water pump works normally.

2. **Undervoltage protection:** Test under full load: detect that the input voltage is lower than  $140 \pm 5V$ , enter undervoltage protection after 2S, the indicator flashes twice, the water pump stops running. After the voltage returns to  $150 \pm 5V$ , the water pump works normally.

3. **Overcurrent protection:** When the electric pump is running at full load, if the current is too large (higher than  $1.5A$ ), turn on the overcurrent protection. In case of overcurrent, the water pump stops working immediately, the indicator light flashes for 3 times, and the water pump restarts after 8s. If the fault has not been eliminated, Always circle.

4. **Phase failure protection:** When the motor is in phase failure, the indicator light flashes for 4 times. The water pump stops working immediately. After 8s, the water pump restarts. After the cumulative number of protection times reaches 5, the water pump is completely protected and will not be restarted. It needs to be powered on again.

5. **Stall protection:** If the pump speed is detected to be less than 500RPM for 3S, the controller will trigger the stall protection, the indicator light flashes 5 times, the pump stops working, and the pump restarts after 8s. If the fault is not eliminated, the accumulated protection times reach 5 times. , the pump is completely protected, no restart, and needs to be powered on again.

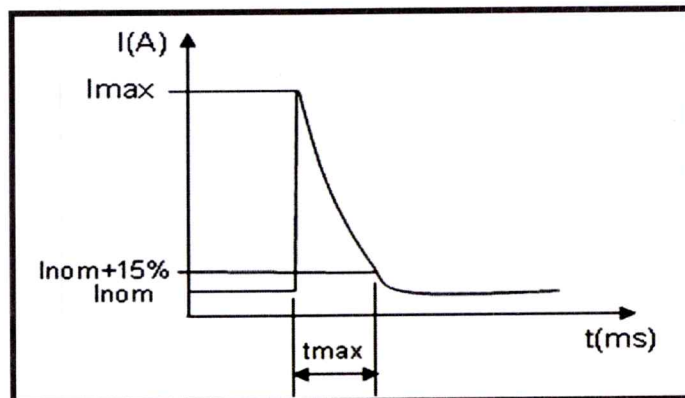
6. **Light load protection:** When the pump is running and the running time is 8s, the light load protection is turned on, and the indicator light flashes 6 times. After 8s, the pump restarts, and after the accumulative number of protections reaches 5, the pump is completely protected and will not restart, and needs to be powered on again.

7. **Over temperature protection:** When the surface temperature of IPM module is higher than  $130 \pm 10\% ^\circ C$  under the rated voltage, frequency, high temperature environment and high temperature water operation, the water pump will stop and the at the same time , the indicator light flashes 8 times. When the IPM surface temperature is lower than  $100 \pm 10\% ^\circ C$ , the water pump returns to normal operation (the IPM surface temperature limit is  $125 ^\circ C$ ).

8. **Overheating treatment:** The water pump is in the state of reduced power operation. When the surface temperature of IPM module is higher than  $125 \pm 10\% ^\circ C$ , the water pump will operate at 0.5 times of rated power, and the temperature is lower than  $100 \pm 10\% ^\circ C$ , and the water pump will resume normal operation.

## 14. Surge current

Test conditions:	Surge current	Duration
$T=20 \pm 5^\circ C$	$<10A$	$<4ms$





## 15. Factory inspection

Motor turn to turn detection	Motor insulation test	Withstand voltage detection
Leakage current detection	Steering detection	Tightness test
Drive plate detection	PWM signal detection	

## 16. Reliability test

performance testing	Vibration test	Noise test
Pressure test	The electrical safety test of the whole machine	surge test
Protection class test	Aging test	High temperature and humidity test
High ring temperature and low water temperature test	Low ambient temperature and high water temperature test	High temperature environment test
Condensation protection structure test	Temperature rise test	Start stop test
Machine storage test	Stall protection durability test	Life test

## 17. Nameplate parameters

**220-240V AC|50/60 Hz**  
**Class H | TF 95**  
**IP44 |**



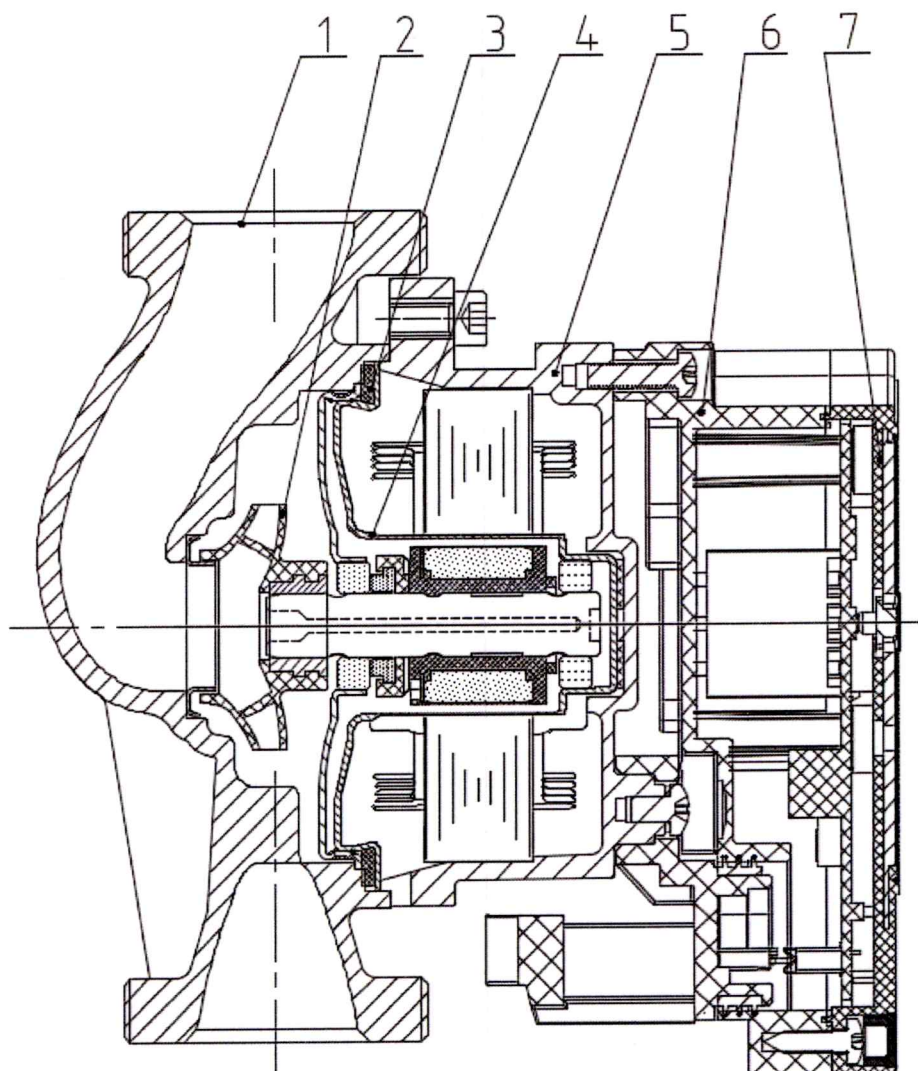
Hefei Xinhua Canned Motor Pump Co.,Ltd  
No.1 Yanglin Road, Hi-tech Development Zone, Hefei, Anhui, China

	Max	Min
P1 (W)	95	3
I (A)	0.9	0.04
MPa	1.0	

**NO:2101020001**



18. Assembly drawing and main part material table



No.	Part	Part material	Note
1	Pump housing	Cast iron	/
2	Impeller	Composite material	/
3	Rotor assembly	assembly	/
4	Shielding sleeve assembly	SUS304	/
5	Base	Aluminium Alloy	/
6	Control panel	Composite material	/
7	Control panel	Composite material	/

<b>Shinhoo® 新沪</b> CANNED MOTOR PUMP	<b>Document name</b>	No. : F218AZ01
	<b>GPAXX-9H Series Product Spec</b>	Version: A/0
		Published date: 2022-03-07

## 19. Packing method

Mass production product packaging: pallet


Single product packaging: carton (1 box of 4 or 8)



## 20. Product features

This product has the characteristics of simple structure, small volume, convenient installation, easy maintenance, low noise and no leakage. It is a centrifugal pump with low flow and high head; The product is driven by intelligent program, with low-voltage protection, overvoltage protection, overcurrent protection, locked rotor protection, and power limiting function to prevent overload.



	Document name	No. : F218AZ01
	GPAXX-9H Series Product Spec	Version: A/0
		Published date: 2022-03-07

## 21. Installation and safe use instructions

1. The pumped liquid may be high temperature and high pressure liquid. Before moving and disassembling the water pump, the liquid in the system must be drained or the stop valves on both sides of the water pump must be closed to avoid scalding.
2. In winter, if the pump system does not operate or the ambient temperature is lower than 0 °C, the liquid in the pipeline system shall be drained to avoid freezing crack of the pump body.
3. If the water pump is not used for a long time, please close the water pipe valve at the inlet and outlet of the water pump and cut off the power supply of the water pump. If the motor is hot or abnormal, please immediately close the valve at the inlet of the water pump, cut off the power supply of the water pump, and immediately contact the local dealer or service center.
4. This product should be placed out of the reach of children. After installation, isolation measures should be taken to prevent children from touching.
5. The installation direction of the water pump is that the pump shaft is placed horizontally.
6. The water pump shall be installed to prevent rain, water and sun exposure.
7. The water pump shall not be directly impacted by hard objects, and shall not be impacted by more than 10kg water hammer.
8. There is no special anti pull off structure design for the motor lead. Do not force directly to avoid wire breakage.
9. It is forbidden to operate the water pump without water to prevent product wear and consumption or even burning.
10. The pumped liquid is a thin, clean, non-corrosive and non-explosive liquid, and does not contain any solid particles, fibers or mineral oil. The pump must never be used to transport flammable liquids such as rapeseed oil and gasoline. If the circulating pump is used in the occasion of high viscosity, the pump performance will be reduced, so when choosing a pump, the viscosity of the liquid medium should be considered.
11. It is recommended to use Sentinel brand X100 scale inhibitor for the water pump, with a ratio of 100 to water: 3.75 to scale inhibitor

### Additional remark:

This specification is proposed by Hefei Xinhua Canned Pump Co., LTD

The Drafters of This specification: Jiao Pengwei 2022.3.07

The reviewer of this specification: Chen Xue Cheng 2022.3.07

The approver of this specification: Wang Yu (Quan) 2022.03.07

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Number of Revisions	Count	Description of change	Change number	Issue date	Author