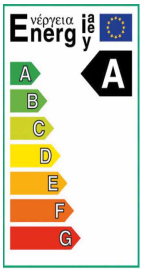
Circulation pump Alfa Max at high energy efficiency, class A

P.064

INSTALLATION AND INSTRUCTION MANUAL



EEI≤0,20

REV. 06/2023

CE RoHS

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Precautions in the use of the product - Component not intended for public use

Component not intended for public use.

01. Read the manual carefully before installation.

02. In case of damage caused to things and/or people due to lack of respect for installation and use precautions, the manufacturer cannot be held responsible.

03. For installation and use, comply with current regulations safety standards.

04. The user must ensure that the installation and maintenance is carried out by personnel qualified and informed about the present instructions.

05. The circulator must not be installed in humid environments or wherever it may be subject to water splashes.

06. To facilitate maintenance, it would be appropriate to place a ball valve with union connection at the inlet and outlet from the circulator.

07. Electricity must be cut off during the installation and maintenance of the circulator.

08. The P.064 series is not for circulating domestic hot water.

09. Using the circulator with water rich in calcium may cause blockage impeller.
10. Do not start the circulator when there is no liquid in the system.
11. Before removing the circulator it is necessary unload the relative section of the system in as much as the presence of water inside is under pressure and high temperature could cause damage to people and/or things.

12. During the summer period or when the room temperature is high, pay attention to ventilation to avoid condensation and consequent electrical failure.

13. During the winter when the temperature is ≤ 0°C, if the system is not operational, the relative section of the plant should be emptied thus avoiding that the frost cracks the body of the pump.

14. If the pump is not used for a long time period, close the shut-off valves delivery and outlet pipes of the pump and remove the electrical feed to the same.

15. If the cable is damaged, contact the maintenance supplier to have it replaced together with the connector.

16. If we are in the presence of the engine abnormally overheated, cut off the power immediately then close the shut-off valves.

17. If the fault cannot be found and resolved as instructed cut off the electrical supply, close the valves of interception and contact maintenance or service center.

18. Liquid under high pressure and high temperature it will flow out if the set of screws are removed: be careful that the liquid does not cause injury or damage.
19. The product must be installed outside of the reach of children.

20. The product must be installed in a dry,cool and ventilated environment.

Warning

Before installing, carefully read the instructions. The installment must comply with local safety regulations e follow the relevant rules.

Warning

This product is not intended for the general public, but for professionally specialized companies

Warning

Keep out of the reach of children

1. Description of symbols

WARNING:
Failure to heed the warning accompanying the symbol may result in damage to people and things.

CAUTION

CAUTION:
Failure to observe the warning accompanying the symbol may cause malfunction or damage to the equipment.

NOTE

NOTE:
Notes or instructions to facilitate safe installation and commissioning.

2 . Overview

2.1 **P.064** pumps are especially suitable for water recirculation for heating.

The P.064 series is suitable for:

- Heating systems with adjustable flow.
- Heating system with variable temperature.
- Heating systems with night mode.
- Systems with air conditioning.
- Industrial Circulation systems.

2.2 The installation of the **P.064 series presents numerous advantages:**

- The series is equipped with self-adaptation mode "AUTO" (factory setting).
- The series is equipped with a permanent magnets and controller of differential pressure which can fix performance of the pump automatically and continuously to cope to the needs of the system.
- The series is supplied with a front panel control to facilitate programming.
- Extremely silent.
- Energy saving Compared to pumps conventional consumption energy is very low. The minimum energy consumption P.064 series can reach only 5W.

3. Service conditions

3.1 **Room temperature:** The room temperature must be between 0°C and + 40°C

3.2 **Degree of humidity:** The degree of humidity must be < 95%

3.3 **Average temperature of the circulating liquid:** The temperature of the circulating liquid must be between +2°C and +110°C.

3.4 **System pressure: Maximum pressure 1.0 Mpa (10bar).**

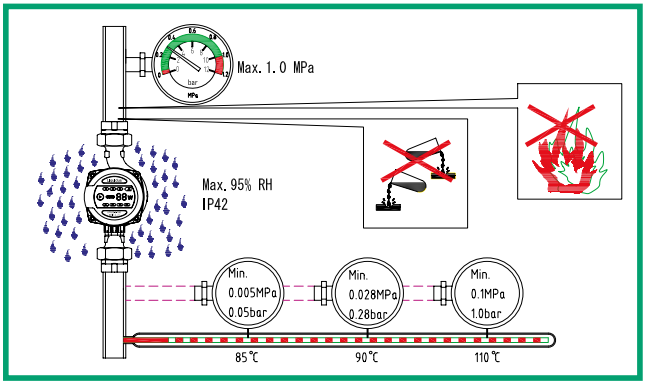
3.5 **Protection level: IP42**

3.6 **Inlet pressure:** To avoid damage to the pump due to cavitation, the following pressure must be maintained at the inlet

Liquid temperature	< 85°C	90°C	110°C
Inlet pressure	0.05 bar	0.28 bar	1 bar
	Head of delivery of 0.5m	Head of delivery of 2.8m	Head of delivery of 10m

3.7 Liquid inside the pump

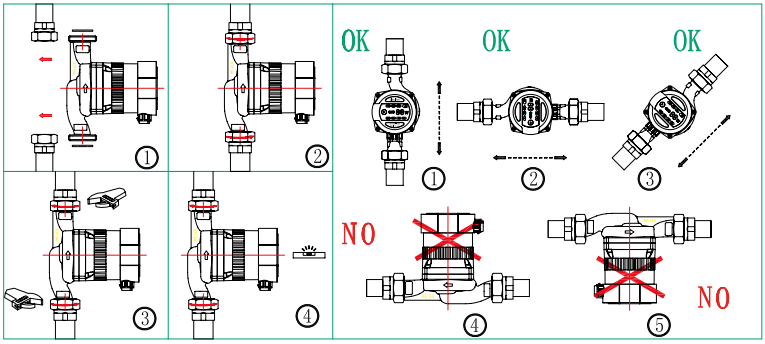
It must be fluid, clean, non-corrosive and non-explosive, without particles or fibers or mineral oils; the pump must be used for the flow / transport of inflammable liquid such as vegetable oil or diesel. If the circulation pump is used with a highly viscous liquid, the yield will be lower, therefore when choosing the pump, keep in mind or into into account the viscosity of the liquid.



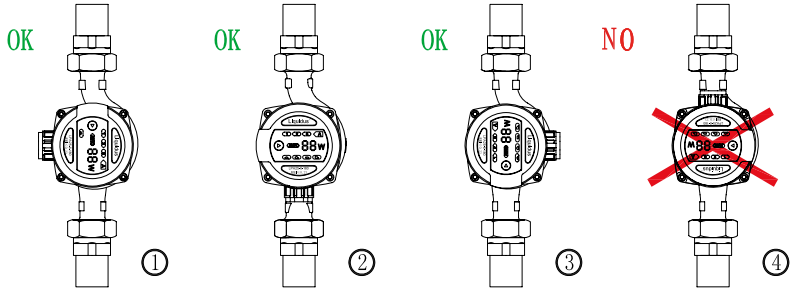
4. Installation

4.1 Installation

The arrows on the pump body indicate the direction of flow of the liquid passing through the pump. When the pump is installed, the inlet and outlet must be sealed with the two gaskets provided. During installation the pump shaft must be in a horizontal position.

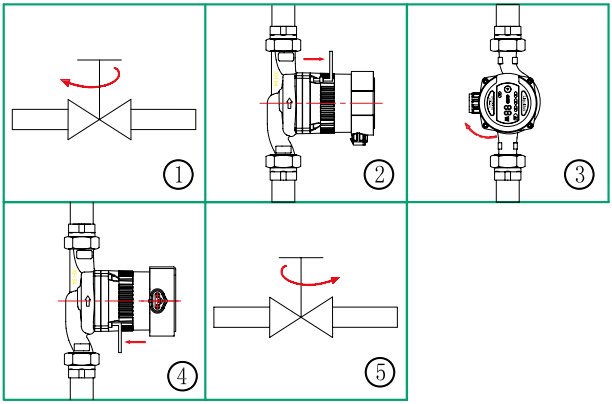


4.2 Location of the junction box



4.3 Change to the position of junction box

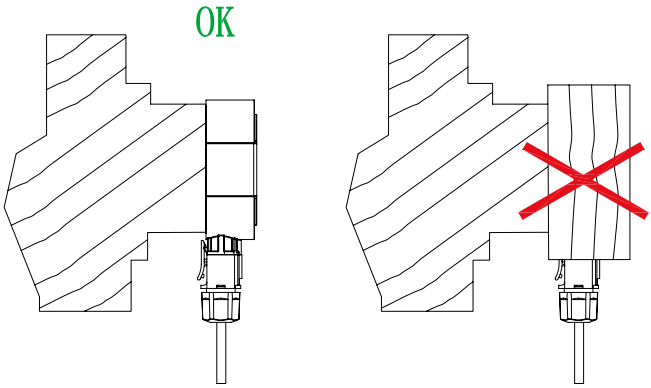
The junction box can rotate 90°. To change the position, follow the instructions below:
1 – Close the inlet and outlet valves.
2 – Unscrew and remove the four screws that connect the body to the pump
3 – Rotate the motor to the desired position and align the four screw holes
4 - Put the four screws in their place by tightening them with the "cross" method
5 – Gradually open the inlet and outlet valves



Warning:
The liquid flowing in the pump can have high pressure and temperature and therefore the system must be emptied or the two valves on both sides must be closed before removing the screws.

Caution

By changing the position of the junction box, the pump will not have to be started until the system will not have been filled with liquid and until both valves have been opened



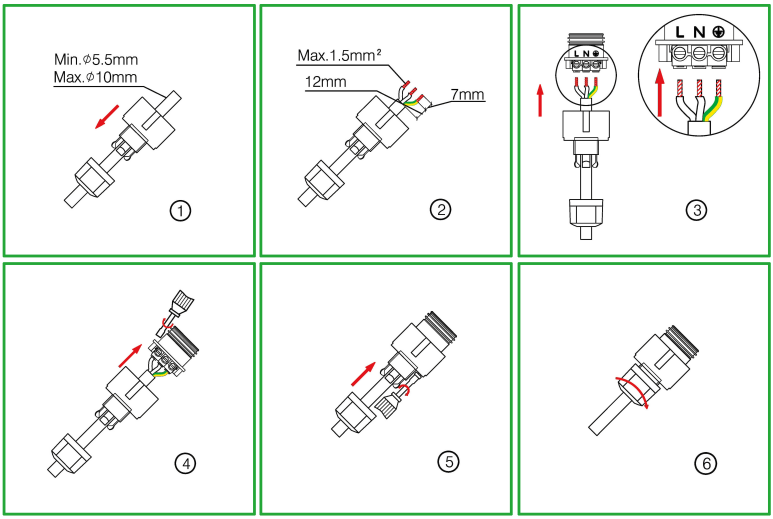
Note

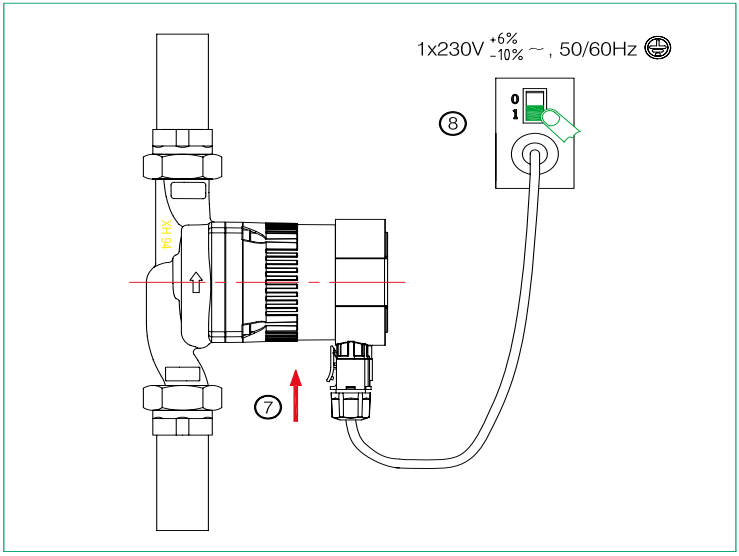
Limits heat loss from the pump and pipeline.

Caution

Do not insulate or cover the electrical part of the pump.

5. Electrical connections





Electrical connection and protection must be performed in accordance with local regulations.

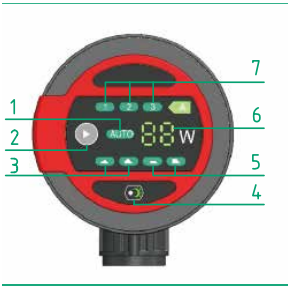
Warning:
The pump must be earthed.

- The P.064 series circulator does not require external motor protection.
- Verify that the supply voltage and frequency correspond to the marked parameters from the pump nameplate.
- Use the plug associated with the pump to connect the power supply.
- If the light on the control panel turns on, it means that the power is on.

6. Control panel

6.1 Control panel components

Number	Description
1	Automatic speed change display (AUTO)
2	Speed change button
3	Proportional pressure display (BL1/BL2)
4	Display and button for night mode
5	Constant pressure display (HD1/HD29)
6	Status display
7	Constant speed display (HS1/HS2/HS3



6.2 Error code display

After switching on, the status display (position 6) will show the status of the pump. During the correct operation, the display will always be on and will show the power absorbed by the pump. If the pump should not work properly, the light of the display will flash continuously, showing the code corresponding to one of the errors listed alongside

After viewing the failure, the power supply must be disconnected to facilitate the resolution of the problem. After troubleshooting, turn it on again the power supply and restart the pump

Fault code	Fault description
E0	Overvoltage protection
E1	Undervoltage protection
E2	Overload protection
E3	Underload protection
E4	Protection - phase and neutral – reversed
E5	Pump blockage
E6	Pump not starting

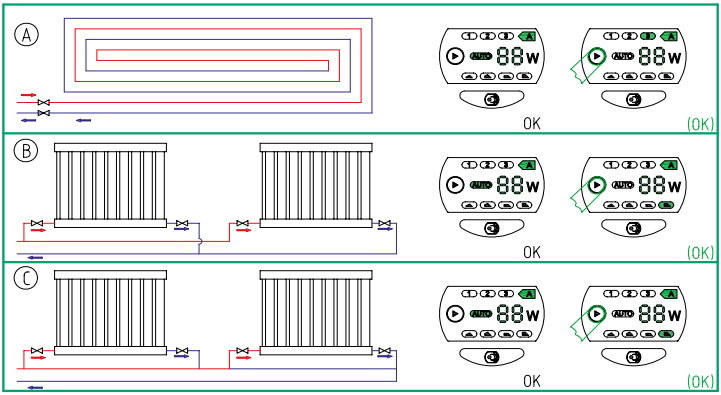
6.3 Selection programm

The P.064 series circulator has 9 types of settings that can be selected using a button:

Butto position	Times pressed	Fixed light	Mode
2	0	AUTO	Self adaptation
	1.2	BL1/BL2	Proportional pressure
	3.4	HD1/HD2	Constant pressure
	5.6.7	HS1/HS2/HS3	Constant speed
4	Switch on/off	Night mode	Night mode

7. Programming the pump

7.1 The pump should be programmed according to the system



Factory setting = AUTO (self-adaptation mode)

Available and recommended pump programs

Position	Type of system	Programming the pump	
		Optimal settings	Or other optional settings
A	Floor	AUTO	HD1/HD2
B	Double heating pipeline	AUTO	BL1/BL2
C	Single heating pipeline	BL1	BL1/BL2

The AUTO mode (self-adaptation) automatically adjusts the pump performance according to the actual demand system heat. Since the performance is adjusted gradually, it is recommended to leave it in AUTO mode (auto-adaptation) for at least a week before changing the pump settings.

- If we choose to return to AUTO mode (self-adaptation), the P.064 series pump remembers the set points of the previous AUTO mode.

- For the relationship between the pump settings and the performance curve, see Section 11.1.

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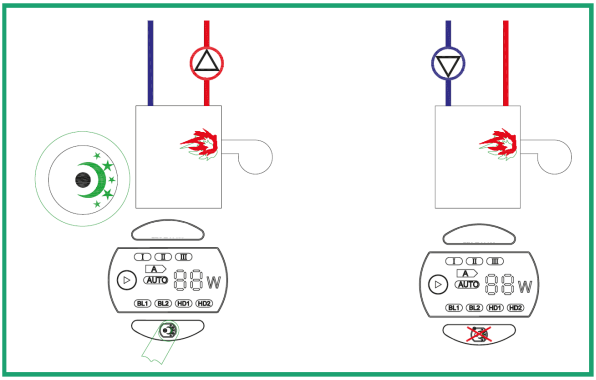
8. Night Mode

8.1 1 Basic principle



Warning:
Night mode should not be turned on in gas boiler heating systems with small capacity of water.

Note . If HS1, HS2 or HS3 mode is selected, night mode will be disabled.

Note If the heat supply to the heating system is insufficient, disable night mode.

To ensure correct operation in night mode, the following condition must be met:

- The pump must be installed on the system water delivery pipe and near the outlet water from the boiler.

  Press button to activate night mode.

8.2 Night mode function

Once night mode is set, the P.064 series pump will automatically alternate between normal and night mode. Switching of the P.064 series pump between normal mode and night mode depends on the temperature of the system delivery pipe. When the temperature drop of the system inlet pipeline within two hours is more than 10 ~ 15°C, the pump of the P.064 series will automatically switch to night mode. The temperature drop must be at least 0.1°C/min. When the system pipe temperature rises about 10°C, it will switch to normal mode.

9. System with diverter valve between delivery pipe and return pipe

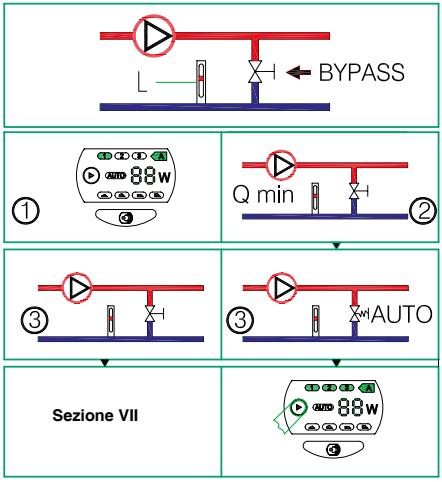
9.1 Use of bypass valve

Diverter valve:
The function of the diverter valve is to ensure that when all heating valves are closed, the flow from the boiler is diverted into the return, ensuring a minimum flow through the pump.

Components:
- Diverter valve
- Flow meter. L position

Minimum flow must be ensured even when all valves are closed.

The programming of the pump depends on the type of diverter valve inserted.
Ex diverter valves manually opened or thermostatic diverter valves.



9.2 Manual diverter valves

Follow these steps:

1/ When you adjust the diverter valve, the water pump should be in mod. HS1 (constant speed 1) The minimum system flow (Q min) must always be ensured. See valve supplier manual diverter.

2/ When the diverter valve has been adjusted, program the water pump by referring to section 11.1 pump programming.

9.3 Automatic diverter valves (thermostatic)

Follow these steps:

1/ When you adjust the diverter valve, the water pump should be in mod. HS1 (constant speed 1) The minimum system flow (Q min) must always be ensured. See valve supplier manual diverter

2/ When the diverter valve has been adjusted, program the pump in constant pressure mode. For the relationship between pump schedule and performance curve, see section 11.1

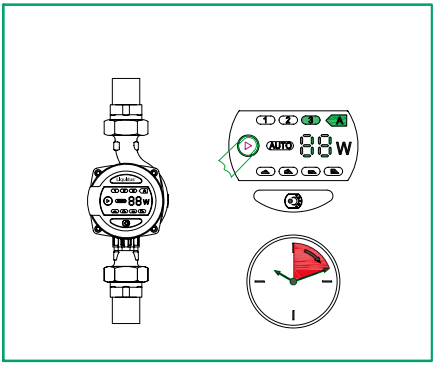
10. Start up

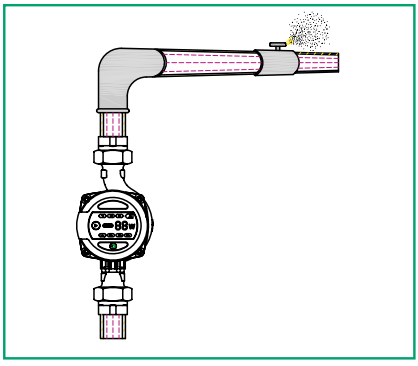
10.1 Before startup

Before starting the pump make sure that the system is full of liquid, the air is out and the pressure is inlet reaches the minimum pressure required (see chap.3)

10.2 Gas/air leaking from the pump

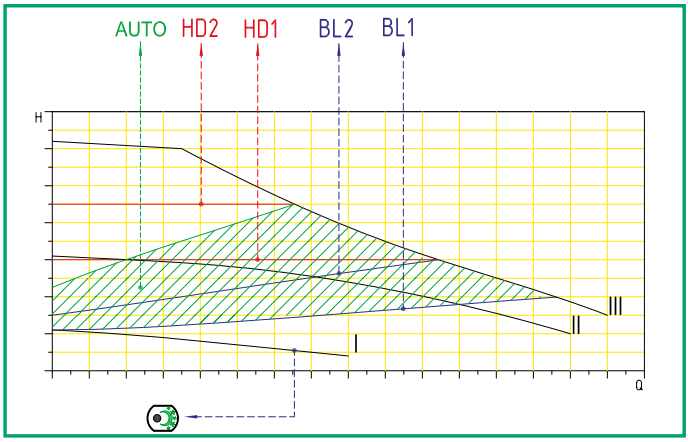
The P.064 series pump has the function of automatic gas discharge (vent). It is not necessary to discharge the gas before starting. The gas in the pump will cause noise. The noise will disappear after operating for a few minutes. Set the pump in HS3 mode and in short time, depending on the size and structure of the system, the gas will be discharged. After the gas purge, that is after the noise disappears, set the pump according to the recommended instructions. Please refer to chapter 7.





11. Pump programming and performance

11.1 Relationship between pump scheduling and performance



Settings	Water pump characteristic curve	Function
AUTO (factory settings)	From highest to lowest proportional pressure	The "Auto-adapt" function will automatically check the pump performance within the specified range • Adjust the performance of the water pump according to the system size • Adjusts pump performance according to load change
BL1/BL2	Proportional pressure	The duty point of the pump will move up and down on the curve proportional pressure according to system flow needs, when the flow demand decreases, the pressure supplied by the pump decreases while increases when the flow demand increases
HD1/HD2	Constant curve pressure	The duty point of the pump will move back and forth on the constant pressure curve according to flow rate requirements of the plant. The pressure supplied by the pump remains constant
HS1/HS2/HS3	Constant speed	Curve at constant speed. In HS mode (1-3), the pump is set to operate at constant speed in all conditions of work. Set the pump in HS3 mode and in a short time any gases in the pump will be vented
	Night mode	Operation at minimum performance and consumption.

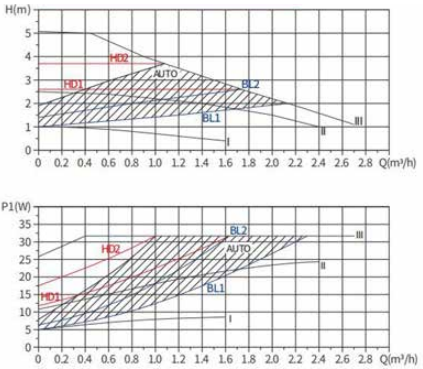
12. Characteristic curves of the P.064 series

12.1 -Working conditions described by the curves

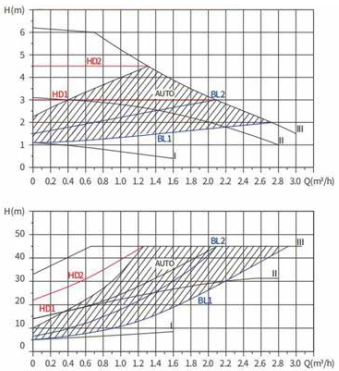
- Test liquid: gas-free water
- Density: p = 983.2 kg/m ³
- Liquid temperature + 60°C.
- Kinematic viscosity u = 0.474 mm²/s (0.474.CcST)

12.2 Curve conditions

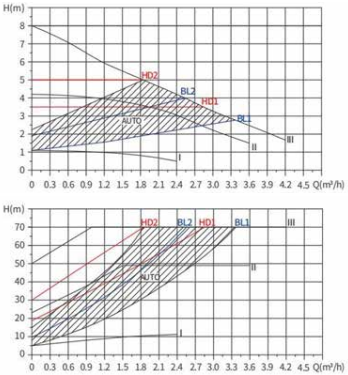
P. 064 series 5 m.



P. 064 series 6 m.

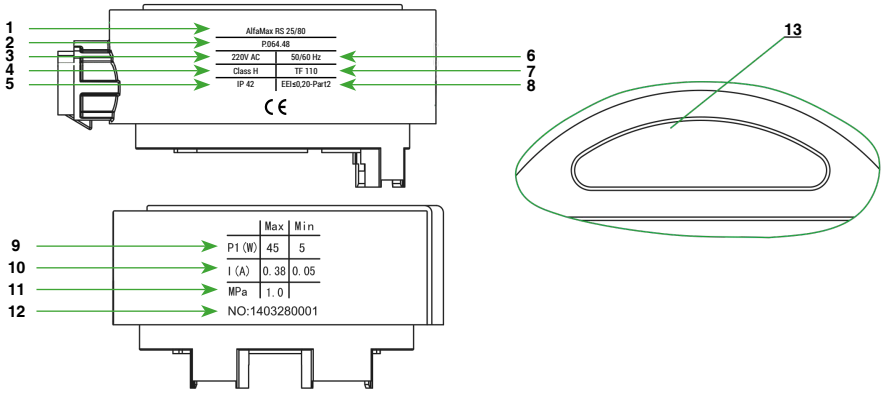


P. 064 series 8 m.



13. Characteristics

13.01 – Description on the badge



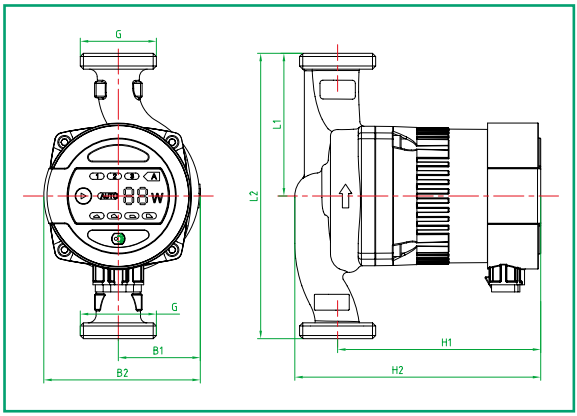
Number	Explanations	
1	Product name	
2	Product code	
3	Voltage	
4	Insulation class	
5	Degree of protection	
6	Frequency (Hz)	
7	Degrees temperature	
8	Energy efficiency label	
9	Power	Maximum power
		Minimum power
10	Current	Maximum current
		Minimum current
11	Maximum pressure	
12	Product number	
13	Manufacturer	

14. Technical information

14.1 Technical information

Supply voltage	1 x 230V +6%/-10%, 50Hz, PE	
Motor protection	The pump does not need external protection	
Protection Level	IP42	
Insulation class	H	
Ambient humidity	Max. 95%	
Maximum pressure	1.0mpa (MPa)	
Minimum pressure incoming	Liquid temperature	Minimum inlet pressure
	≤ +85°C	0.005 MPa
	≤ +90°C	0.028 MPa
	≤ +110°C	0.100 MPa
EMC standards	EN6 100-6-1 EN 61000-6-3	
Sound pressure level	Noise level of the pump less than 43dB (A)	
Ambient temperature	0 ~ +40°C	
Temperature degrees	TF 110	
Surface temperature	°C Maximum surface temperature must not exceed +125°C	
Liquid temperature	2 ~ +110°C	

14.2 Space encumbrance



Power input (W)	Model	Voltage	Material				Dimension(mm)						
		220~240V/50Hz	Cast Iron	Plastic	Copper	Stainless steel	L1	L2	B1	B2	H1	H2	G
32	P.064.59	•	•		•	•	65	130	52	99	133	153	1”
	P.064.50	•	•		•	•	65	130	52	99	128	156	1 1/2”
	P.064.58	•	•		•	•	90	180	52	99	128	156	1 1/2”
45	P.064.69	•	•		•	•	65	130	52	99	133	153	1”
	P.064.60	•	•		•	•	65	130	52	99	128	156	1 1/2”
	P.064.68	•	•		•	•	90	180	52	99	128	156	1 1/2”
	P.064.62	•	•		•	•	90	180	52	99	128	156	2”
70	P.064.89	•	•		•	•	30	130	52	99	133	153	1"
	P.064.84	•	•		•	•	65	130	52	99	128	156	1 1/2"
	P.064.80	•	•		•	•	65	180	52	99	128	156	1 1/2"
	P.064.82	•	•		•	•	65	180	52	99	128	156	2"

15. Problem solving

Warning
Before carrying out any maintenance and repairs on the electric pump, make sure that the power is disconnected and that no one accidentally reactivated it

Problem	Cause	Solution
Pump does not start	Connector disconnected	Connect connector
	Pump fault	Replace pump
	Voltage too low	Check that the voltage is in the established limits
	Rotor blocked	Remove impurities
Noise in the system	Air in the system	Venting
	Excessive flow	Reduce Pump Power
Noise in the pump	Air in the pump	Venting
	Inlet pressure too low	Increase inlet pressure
No heat	Pump performance too low	Increase inlet pressure