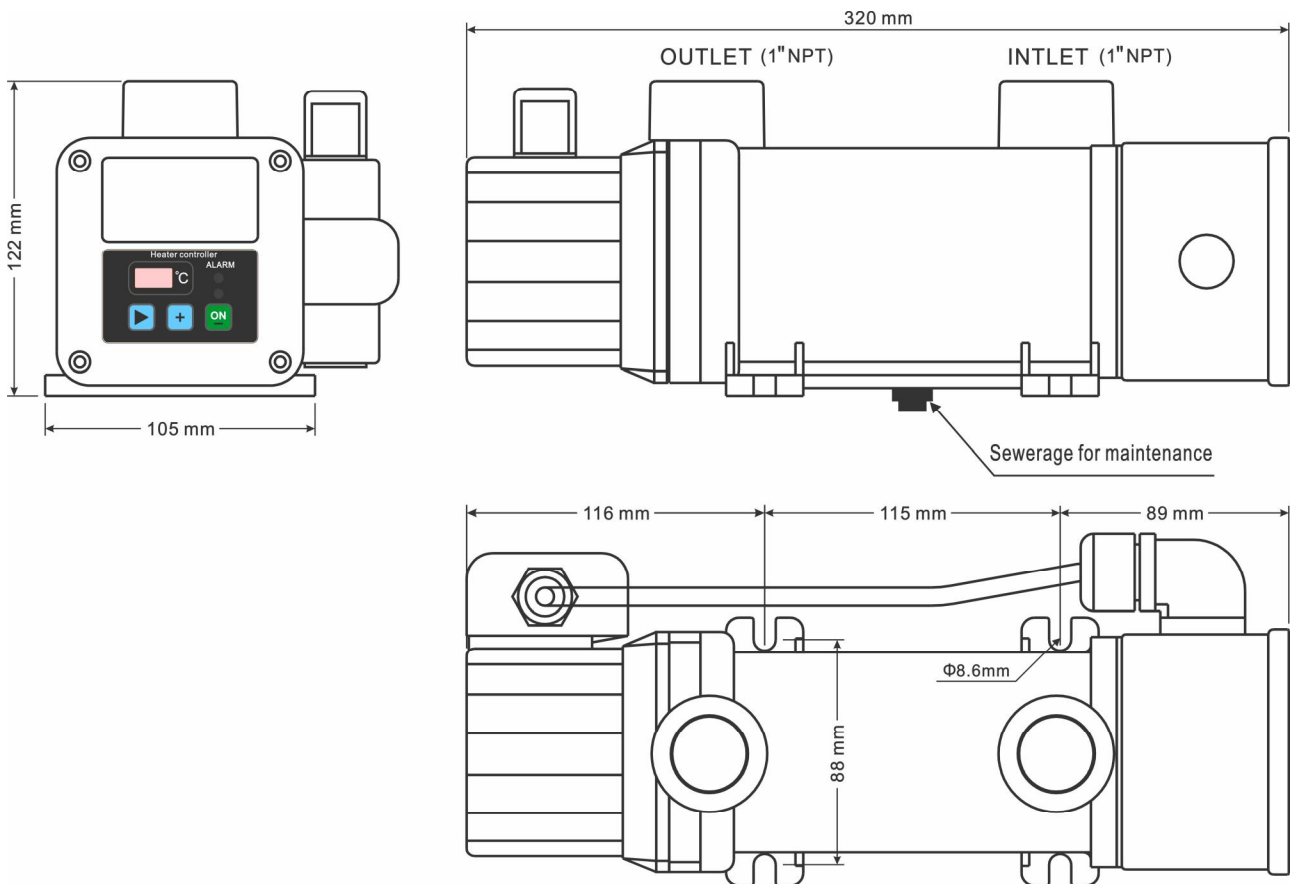


1 Introduction:

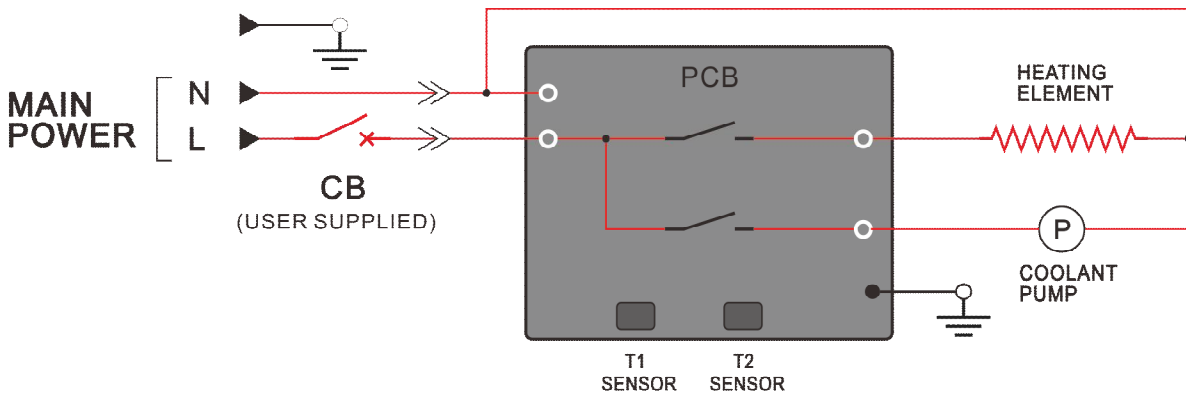
EHE Coercion water jacket heater consists of a water pump, heating element and a temperature intelligent control system, is designed for maximum cooling liquid amount of 20 liters of engine. After install the heater, the engine coolant through the centrifugal pump cycle in between the heating jacket and engine, intelligent control systems will control the heating process, finally keep temperature of the coolant at the set range. Then the engine starting ability will upgrade, reducing startup losses, reduce wear and save fuel. Feature:

- I Microcomputer temperature control
- I LED display temperature and working status
- I Precision die-cast aluminum water jacket case
- I Additional rubber sleeve to reduce thermal losses
- I Configurable temperature control range
- I Fully protected to reduce potential damage and make sure continuous running

2 Shape and installation dimensions:



3 Wiring and electrical schematics:



4 Installation

Installed correctly is very important for the normal work of the heater, otherwise it will damage the heater.

Position:

- I Must be mounted horizontally.
- I Isolation the engine vibration.
- I The heater water-jacket is setting in low position as far as possible below the engine cooling fluid.

Electrical connections:

- I Refer to the above wiring diagram.
- I Must provide the good ground to ensure that the heater effectively grounding protection.
- I User according to the power of the heater, select the appropriate main power circuit breaker to ensure the effective heater overcurrent protection.







Warning:

- I Heater installation and maintenance must be disconnected from the main power supply.
- I Must be installed and maintained by qualified engineers.
- I During transportation and parking, if the ambient temperature will cause the coolant in the heater jacket to freeze, the maintenance outlet must be used to cool the coolant beforehand.

5 Operating instructions

Operating buttons and LED

Functional Description	Name
Setting Continuous press this button 2 seconds to enter / exit parameter setting menu.	
Value Increase When in parameters setting mode, this button is used to increase value.	
START / LED When the preheater switch on power, press the start button, the indicate lights is on, the preheater into the automatic heating and protection of the work process. Cycled state is holding. When in parameters setting mode, this button is used to decrease value.	
Alarm (FAILURE) LED When the preheater is detected any one of the pump failure, sensor failure, high temperature failure, the indicator light flashes.	 ALARM

Control process:

When the preheater switch on power, press the start button, the indicate lights is on, the preheater enter into automatic heating working process, pump power relay is closed, the pump run for 60 seconds, if the jacket water temperature is higher than the **high limit temperature** setting value, the pump stops; if jacket water temperature is lower than the **high limit temperature** setting, heating pipe work power relay is closed, heating is started until the jacket water temperature is higher than the **high limit temperature** setting, heating pipe work power relay disconnect after the pump continue to run 60 seconds then stop.

After the pump stops running, the controller continues to detect the temperature of the water jacket, temperatures below the **lower limit temperature** setting value, the pump starts to run, after 60 seconds, if the temperature is higher than the **lower limit temperature** setting value, the pump is stopped, so the cycle . Until the pump run for 60 seconds, if jacket water temperature is below the **lower limit temperature** setting, heating pipe work power relay is closed, heating is started until the jacket water temperature is higher than the **high limit temperature** setting, heating pipe work power relay disconnect, the pump continue to run 60 seconds then stop. As above have been loop control process to ensure that the engine coolant temperature is always maintained within the setting range. Press the Start button to stop the automatic pre-heater make working process.

Protective function:

Sensor fault: Preheater temperature sensor, if detecting the sensor open or short circuit, the delay confirmation, the fault indicator light flash, the heater power supply relay is disconnected, the pump delay 60 seconds to stop, the digital display fault code: A02

Temperature fault: Any time the controller detects that the temperature sensor reaches 95 °C, fault indicator flashing, heating pipe work power relay disconnect, pump stop delay 60 seconds, digital display fault code: A-03. Failure is not locked until the temperature is below the **low limit temperature**, the fault indicator is off, continue to automatic control process.

Setting parameters: (Please enter the password first)

Low limit temperature: **Used to setting the temperature setting limits for starting heating.**

High limit temperature: **Used to set setting stop heating limit temperature.**

(Factory default heating temperature control range is 38 °C to 49 °C)

LED digital parameter display:

After the power is turned on, the digital display of the measured temperature in the water jacket. Unit: °C

Setting: (Example: high limit temperature is 65 °C)

Operation	Description
Press and hold 2 seconds to enter into the parameter setting menu, then displays the low temperature limit :	
Tap scrolls to high limit temperature :	
Press modify then PASS prompted for a password: enter 2213 ()	
Press or can modify the parameters, then displays:	
Then press and hold confirm and exit the modification.	

6 Specifications:

Model	EHE-1015	EHE-1020	EHE-1025
Voltage	240V (1P2W)		
Power	1500W	2000W	2500W
Current	6.3A	8.3A	10.4A
Suitable coolant volume	12L	16L	20L
Insulation resistance	10M Ω		
Voltage strength	1800V		
Pressure test	≥0.5Mpa		
Protection level	IP65		
Operating temperature range	-20 to 70°C		
Storage temperature range	-30 to 80°C		