ELIOS | Coolant Heater

Elios Coolant Heater

Generator Accessory

User Manual

Coolant Heater

User Manual

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1 Overview

The Elios Coolant Heater enjoys wide application on various engine coolant preheaters. It has a fine cast aluminum enclosure and self-extinguishing engineering plastics end closure, multiple installation ways and easy and convenient use.

If during cranking the outside temperature is lower than 4℃ engine coolant and lubricant may condense into solid state and lose their lubricating and cooling properties, which can damage the engine.

Engine heater should be installed to ensure normal starting and running of the engine when the outside temperature is lower than 4℃.

The Elios Coolant Heater combines the following features: cast stainless steel inner pipes and end closure with high corrosion resistance; power, heating and overheat protection light indicators; 3 kinds of heaters with different heating temperature are optional (Standard heater: 40℃; 50℃ and 60℃ heaters are needed to be customized).

This product is suitable for various engines with (0~13) L displacement.

2 Performance and Characteristics

- Fine cast aluminum enclosure and special surface treatment with high corrosion resistance and high/low temperature capability;
- Stainless steel inner pipes and end closure with high corrosion resistance;
- Coolant temperature is controlled by thermostat which is installed within the heater. It has simple connections and high reliability;
- Power, heating and overheat protection light indicators make it easy to observe the heater status;
- There is a water drain valve with seal ring on the bottom of the heater to be used when needed;
- Users can press “Test” button to test-run the machine in the extremely high ambient temperature;
- Overheating thermostat provides the protection of dry heating and overheating;
- Multiple installation ways apply to different installation situations;
- This product can work normally at -25℃ temperature.

3 Technical Parameters

Items	Description
Model	Elios-CH20HC
Rated power	595W (220V 500W)
Rated voltage	AC240V
Rated current	2.5 A
Engine displacement (L)	0~2.5
Thermostat set point	(40±3) ºC
Thermostat range	Off: (40±3) ºC. Reset: (25±6) ºC
Overheating thermostat range	Off: (110±3) ºC. Reset: manual (≤95ºC)
Insulating resistance	≥50MΩ
Electrical strength	AC 1.5kV 1min
Inlet/outlet size	3/4"(Φ19mm)
Max. water pressure	0.5 MPa
Protection level	IP54
Vibration resistance	(5~8) Hz; Amplitude±7.5mm; Triaxial (8~500) Hz; a=2g; Triaxial
Shock resistance	Half-sine Wave; a_{peak}=50g; Triaxial
Working temperature	-25℃~+70℃
Storage temperature	-30℃~+70℃
Case dimensions	208 x 150 x 177 mm
Weight (include accessories)	1.9 kg

4 Indicator

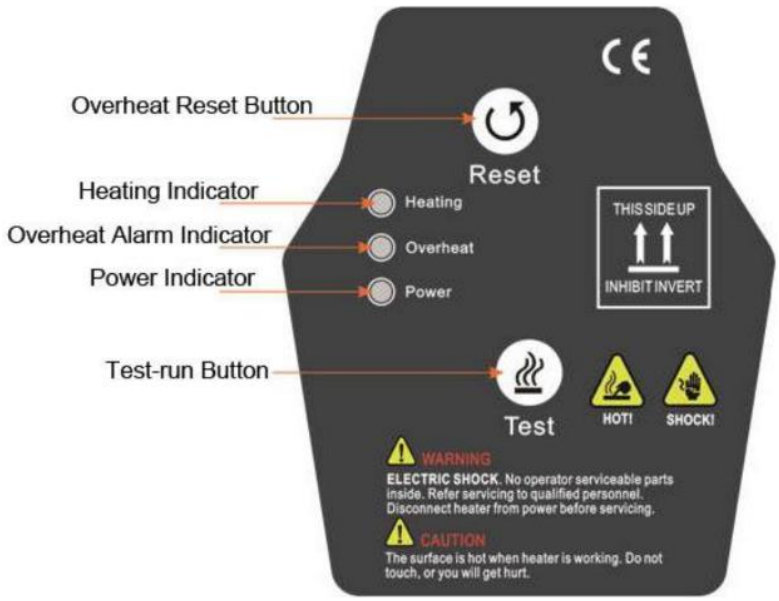

Fig.1 – Panel Indicator Drawing

5 Operation

5.1 Test running

If the heater is not heating and the overheat protection light is not on, users can press the “Test” button to perform the test-run operation.

5.2 Reset overheat protection

When the overheat alarm indicator is on, the heater will enter overheat protection status and stop heating. If heater temperature falls below the reset temperature limit of overheat protection thermostat (95℃), users need to press reset button and heater enters auto mode again.

6 Wire Connection

The supplied power cable is 1.2 m long. Please follow the back cover application diagram when wiring; the earth line must be soundly connected to earth. In the above diagram: L-Phase line (Red), N-Neutral line (Green), E-Earth line (Yellow).

7 Heater Connection

Please install the heater vertically according to the diagram before use. Paying attention to direction of heater inlet and outlet and ensure that the heater position is below the lowest water lever of the engine and that all the air is exhausted out of the heater, and it is topped off with coolant.

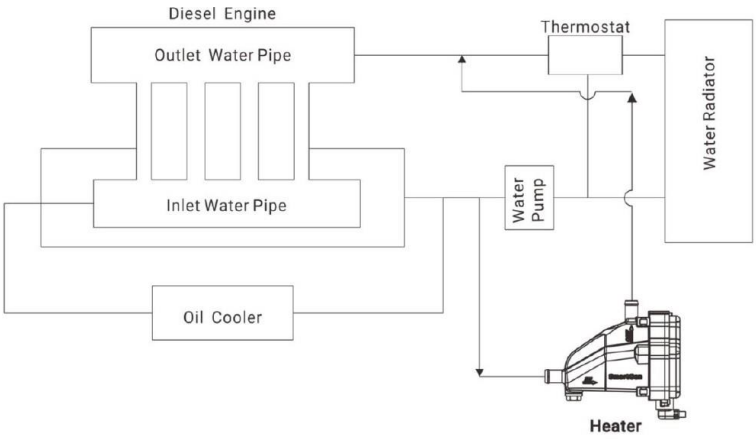

Fig.2 – Heater Operating Schematic Diagram

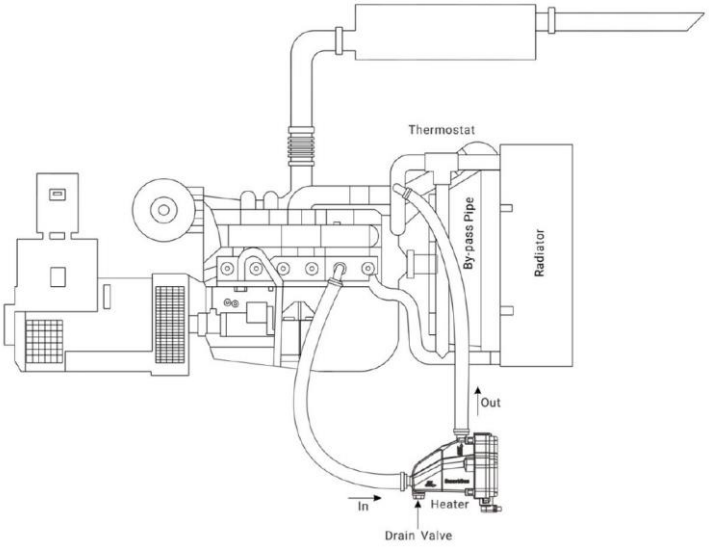

Fig.3 – Heater Position Diagram

Fig. 4 – Incorrect Pipe Connection Methods

- Note: If there is a W-shaped bend or reverse U-shaped bend during pipe connection, the air accumulated in the pipe cannot be discharged normally, resulting in the liquid cannot be circulated properly. The air dissolved in the liquid will be precipitated during heating and retained in the bend, so on the condition of unsmoothed pipeline, even if by the manual exhaust, it will repeat in the next heating process of air collection. To ensure that the smooth liquid circulation, the hosepipe with an inner diameter of more than 20mm and pipe joints with an inner diameter of more than 15mm should be selected.

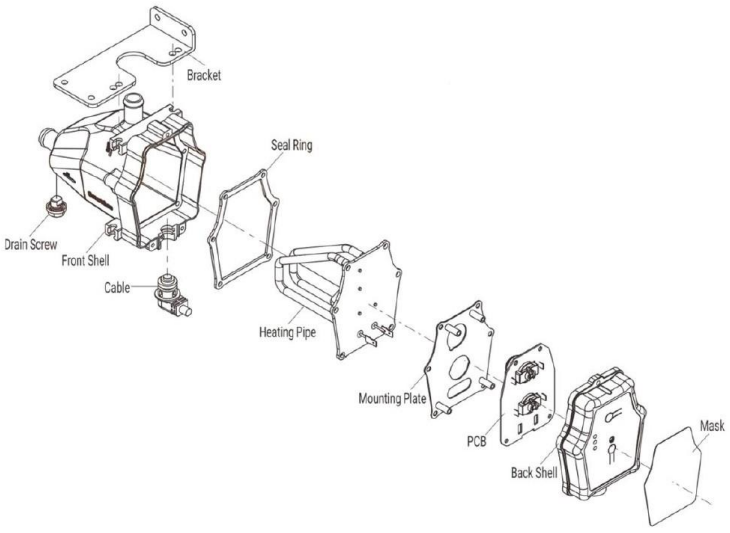

Fig.5 - Assembly Structure

8 Installation and Overall Dimensions

(Unit: mm)

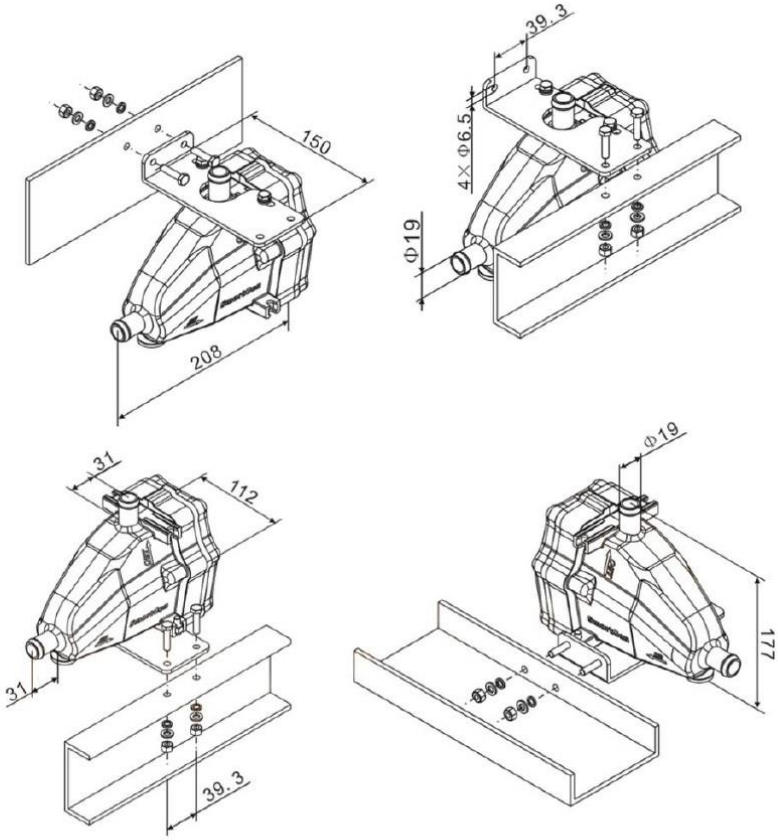

Fig.6 – Installation Dimensions

9 Caution

Before starting the machine, ensure that all the air is exhausted out of the heater and it is topped off with coolant. If water is used, please drain it off when the engine stops to avoid internal corrosion.

Otherwise, the remaining water freezes when temperature is lower than 0°C, which can damage the enclosure. Using tap water or river water will scale the surface of the heating pipe and shorten the life of the heater.

Corresponding antifreeze is strongly recommended. Earth line must be soundly connected to earth. Drain valve: Can be opened or closed using hexagonal wrench, adjustable wrench, or a cross screwdriver.

(Unit: mm)

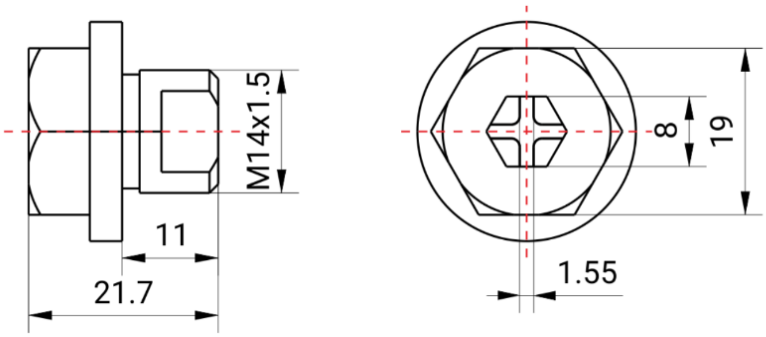

Fig.7 –Water Drain Valve

Common faults and solutions

1 Overheat protection:

a. Check the valve to assure whether it is opened and whether the heater is full of water;
b. Check whether the hosepipe has an obvious W-shaped or reverse U-shaped trend, and whether there is an obvious hot and cold alternating area;
Solutions: Shorten the hosepipe length and optimize the hosepipe trend;

2 High water outlet temperature:

Under normal circumstances, the outlet temperature is about 70℃. It occurs when the hosepipe is too long, the inner diameter of the hosepipe and the fitting joints is too small, or when the water flow is not smooth, preventing proper heat transfer.
Solutions: Shorten the hosepipe length, using the hose with an inner diameter of more than 20mm, and the connectors with an inner diameter of more than 15mm.

3 Unable to reach the preheating temperature:

a. The heater power is not enough;
b. The cable of the power supply is too long and result in dividing resistance of the cable;
Solutions: Replace the heater whose power matches the engine. Shorten the power cable as much as possible and increase the cable diameter.

10 Heater Packing List

No.	Name	Number	Remarks
1	Heater	1	
2	Bracket	1	
3	Flat gasket	4	
4	Spring washer	4	
5	Hexagon nut	4	
6	Hexagon screws	4	
7	Hose clamps	4	
8	User manual	1	