

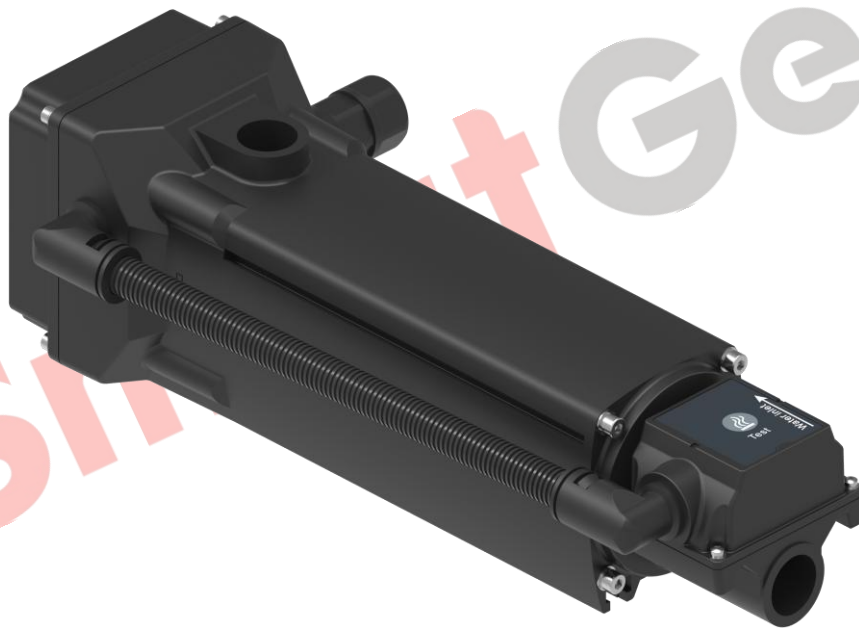


**SmartGen**  
ideas for power

**HT40N**

**WATER ENGINE HEATER**

**USER MANUAL**



**SMARTGEN (ZHENGZHOU) TECHNOLOGY CO., LTD.**



Chinese trademark

**SmartGen** English trademark

**SmartGen** — make your generator *smart*

SmartGen Technology Co., Ltd.

No.28 Jinsuo Road

Zhengzhou City

Henan Province

P. R. China

Tel: 0086-(0)371-67988888/67981888

0086-(0)371-67991553/67992951

0086-(0)371-67981000(overseas)

Fax: 0086-(0)371-67992952

Web: [www.smartgen.com.cn](http://www.smartgen.com.cn)

[www.smartgen.cn](http://www.smartgen.cn)

Email: [sales@smartgen.cn](mailto:sales@smartgen.cn)

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Table 1 Software Version

Date	Version	Note
2020-05-14	1.0	Original release.

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## 1 OVERVIEW

HT40N Water Engine Heater applies fine cast aluminium enclosure, and flame retardant engineering plastic end cap, which is suitable for engine coolant liquid pre-heating of all types. It is easy and simple to use.

When engine ambient environment is below 4°C, engine coolant and lubrication oil may condense to solid state at cranking phase, losing lubrication and cooling functions. This may hurt the engine. Therefore when engine ambient environment is below 4°C, it shall be added a heater to ensure engine normal cranking and running.

Inside heating tube of heater adopts stainless steel, with strong corrosion resistance. Heater has lamp indicator function, which can clearly indicate Power On and Heating status. There are 3 heating temperatures to select (standard temperature 40°C; and 50°C and 60°C heaters are custom made).

This product suits all kinds of engines with displacement (13-25) L.

For selecting heater models please login our official website.

## 2 PERFORMANCE AND CHARACTERISTICS

- Fine cast aluminum is used for heater enclosure and stainless steel material is used for internal heating tube;
- Coolant liquid temperature is controlled by thermostat switch inside the heater; simple structure and reliable performance;
- Power, Heating, Over heating protection indicators are installed on the panel, which is convenient to observe heater's working status;
- There is a water drain valve with sealing gasket at the bottom of the heater, it can be used in need;
- Over heating thermostat switch is installed inside, providing dry-heating prevention and over heating protection functions;
- When environment is too high, commissioning operation can be done via Test button;
- This product can work normally in the environment of -40°C temperature.

### 3 TECHNICAL PARAMETERS

Table 2 HT40N Heater Detailed Parameters

Item	Contents
Model	HT40N
Rated Power	4000W
Rated Voltage	AC 240V
Rated Current	16.7A
Working Voltage	AC 190V~AC277V
Applicable Engine Displacement (L)	(13~25)L
Thermostat Switch Range	HT40N: Off: (40±3)°C    On: (25±5)°C
	HT40N-T50: Off: (50±3)°C    On: (35±5)°C
	HT40N-T60: Off: (60±3)°C    On: (45±5)°C
Overheating Thermostat Range	Off: (95±3)°C    On: (80±5)°C
Insulating Resistance	≥50MΩ
Electrical Strength	AC 1.5kV 1min, ≤2.5mA
Inlet/Outlet Size	3/4"(φ19mm)
Max. Water Pressure	0.5MPa
Protection Level	IP54
Vibration Resistance	(5~8)Hz;    Amplitude±7.5mm;    Triaxial
	(8~500)Hz;    a=2g;    Triaxial
Shock Resistance	Half-sine Wave;    a <sub>peak</sub> =50g;    Triaxial
Working Conditions	-40°C ~+70°C
Storage Conditions	-40°C ~+70°C
Case Dimensions	389mm×193mm×110mm
Weight	3.5kg

**4 PANEL INDICATOR**

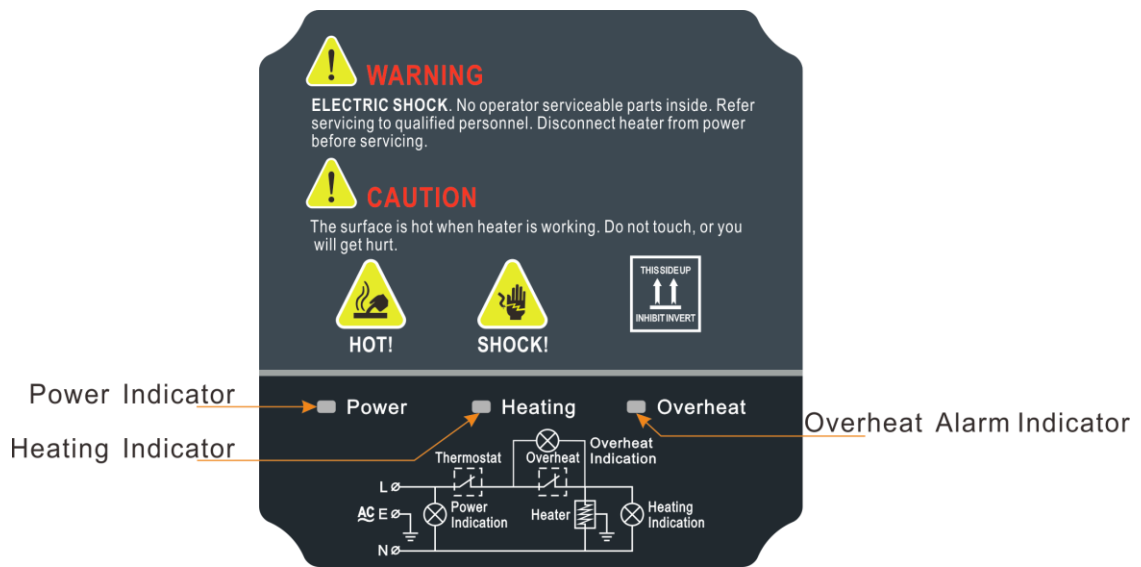


Fig. 1 Back Panel Indicators

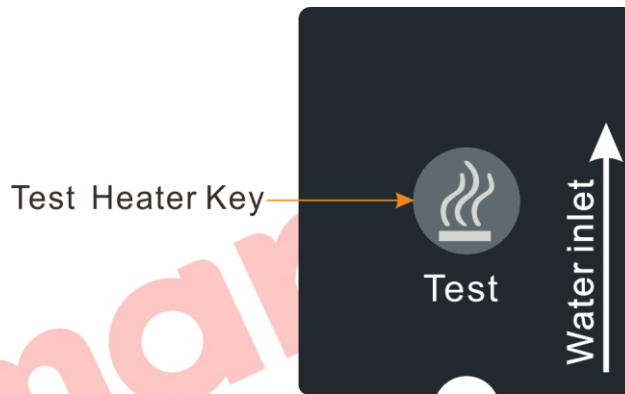


Fig. 2 Front Panel Indicator

## 5 CONNECTIONS

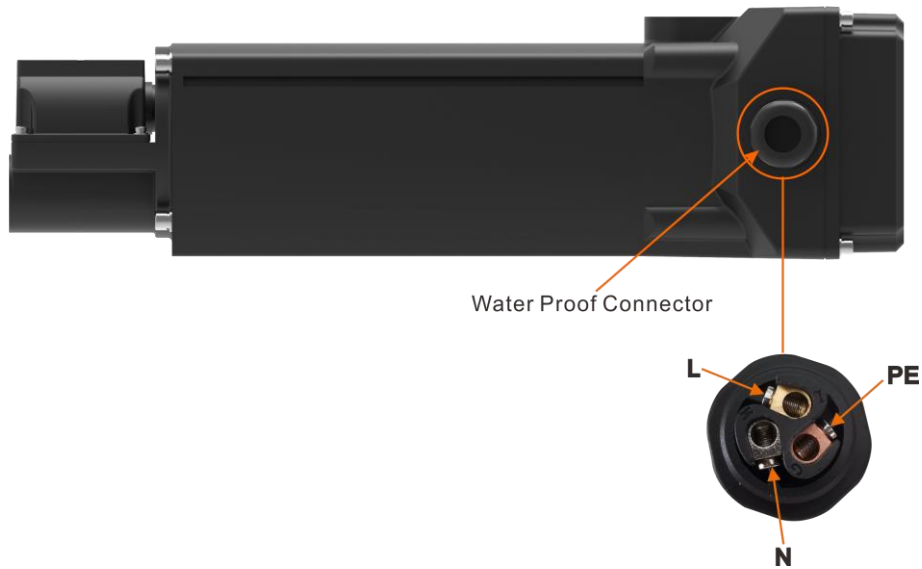


Fig. 3 Water Proof Connector

First of all unscrew the water proof connector, then put 4 mm<sup>2</sup> power line in the connector and lock and tighten the cap. Connect power line according to above picture and connect in L, N, G binding posts. Screw the connector and tighten the cap.

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## 6 HEATER INSTALLATION

Please install the heater in vertical direction as the picture shows before using it. Pay attention to the water inlet/outlet directions of heater and meanwhile ensure heater is installed below the lowest point of engine's water jacket and all air is exhausted, and coolant is fully filled.

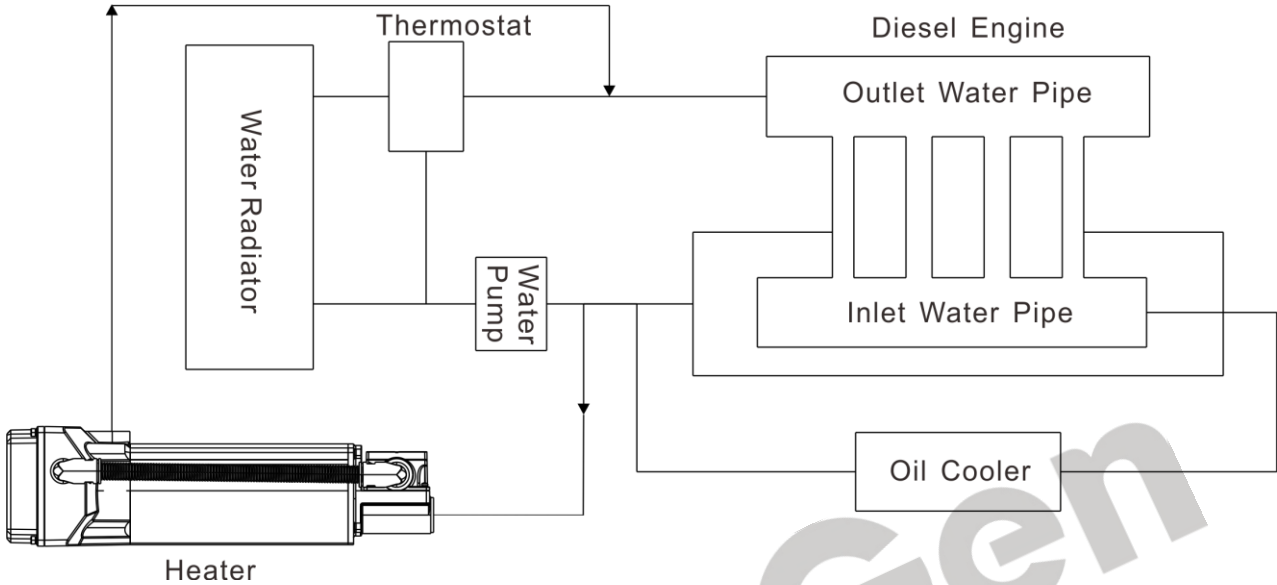


Fig. 4 Working Diagram

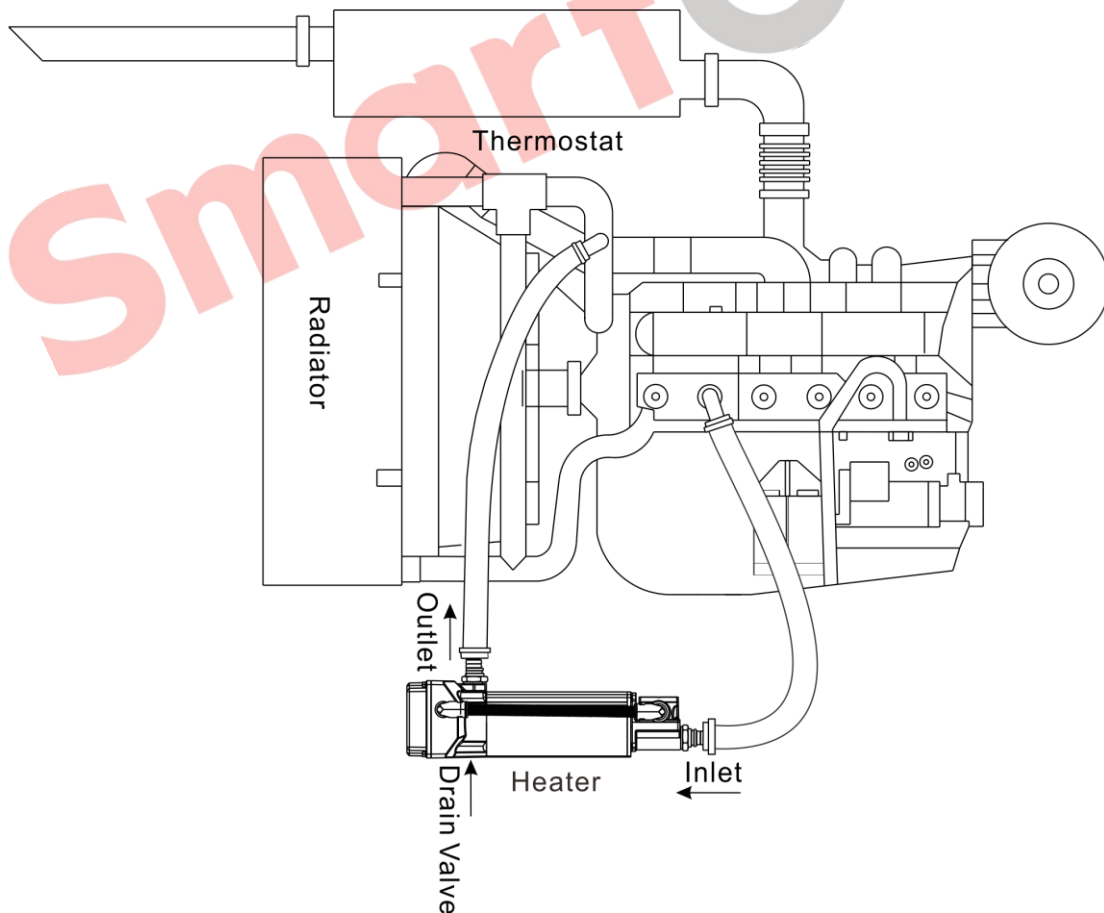


Fig. 5 Installation Positions



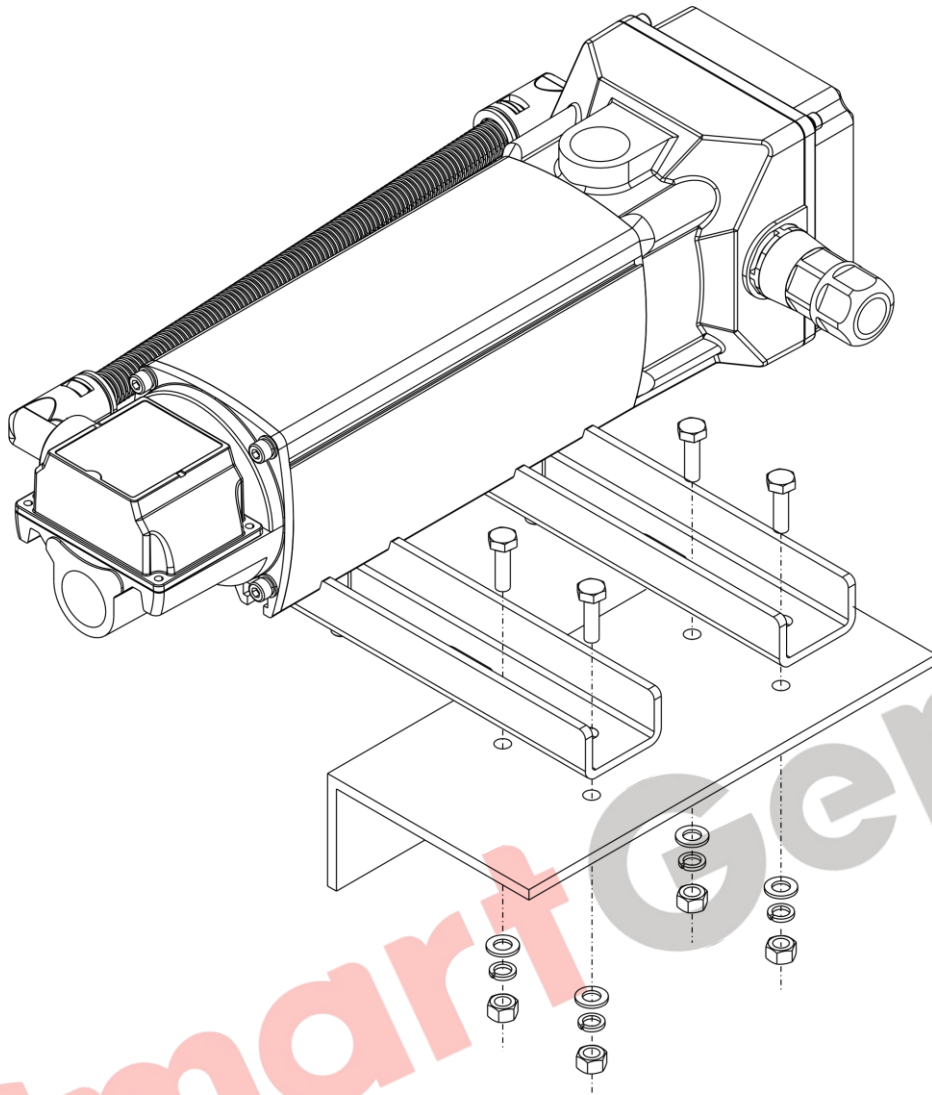


Fig. 6 Installation Method

## 7 OPERATION

### 7.1 TEST HEATER

When heater is not heating, and Overheat indicator is not illuminated, press Test key and it can conduct test heater operation.

### 7.2 OVERHEAT PROTECTION RESET

When overheat alarm indicator is illuminated, heater goes to overheat protection status. It won't heat and when heater temperature drops below thermostat reset temperature (25°C), it again enters heating status.

## 8 CAUTION

Before starting the machine, please ensure that all the air is exhausted out of the heater and it is fully filled with coolant. If water is not used and environment temperature is below 0°C, please drain water off when ordinary water is used. This is to prevent the water in the heater from getting frozen and resulting in heater fracture.

It is recommended to use coolant of corresponding tab of environment temperature.

Please use power line of high temperature resistance.

Earth line must be soundly connected to earth.

Drain valve: Can be opened or closed by using hexagonal tools.

(Unit: mm)

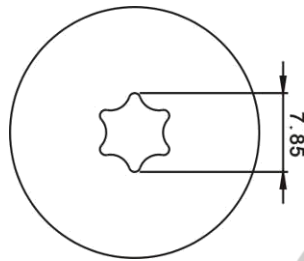


Fig. 7 Drain Valve Size

9 CASE AND INSTALLATION DIMENSIONS

(Unit: mm)

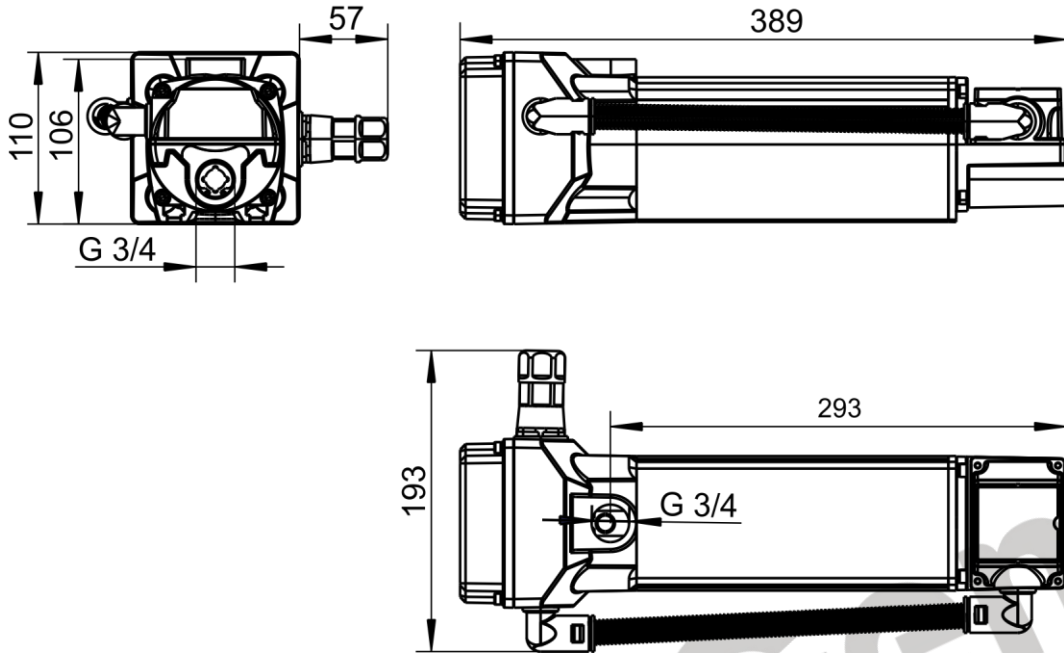


Fig. 8 Case Dimensions

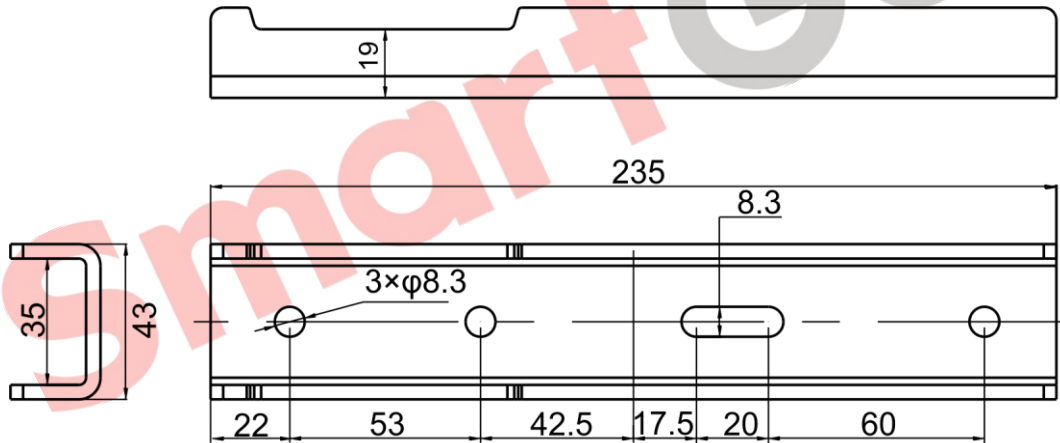


Fig. 9 Mounting Bracket Size

**10 PACKING LIST**

Table 3 Packing List

No.	Item	Model	Number for one unit
1	Mounting Bracket	ZJ-HT40N	2
2	Flat Gasket	GB/T 95 8	8
3	Spring Washer	GB/T 93 8	8
4	Hexagon Nut	GB/T 41 M8	8
5	Hexagon Head Bolt	GB/T 5781 M8x40	8
6	User Manual		1

Table 4 Hose and Hydraulic Tube Fittings

No.	Item	Model	Number for one unit
1	Pagoda Joint	BTJT-G3/4- $\Phi$ 19.5	2
2	ED Gasket	ED-23.9x29.2x1.5	2

Table 5 Threaded Fittings

No.	Item	Model	Number for one unit
1	Reducer	1B-08-12/2WD	2
2	ED Gasket	ED-23.9x29.2x1.5	2
3	ED Gasket	WD-B08	2

Fittings Selection Illustration:

Pagoda Joint is suitable for crimping connection of rubber hose and hydraulic tube. Each heater needs 2 Pagoda joints and 2 ED gaskets (ED-23.9x29.2x1.5).

Reducer is suitable for tube fittings with G1/2 ports. Each heater needs 2 reducers, 2 ED gaskets (ED-23.9x29.2x1.5), and 2 ED gaskets (WD-B08).

(Unit: mm)

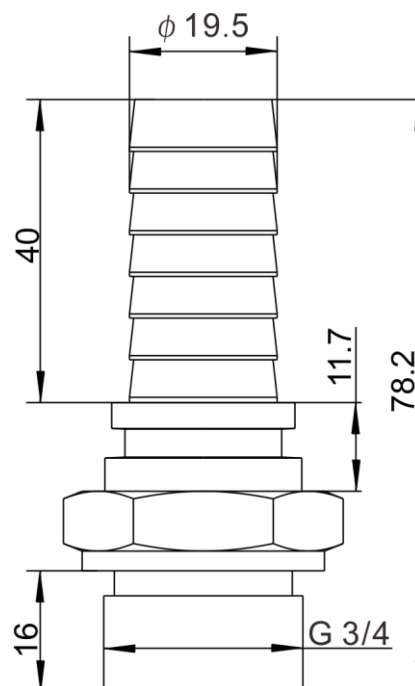


Fig. 10 Pagoda Joint Size

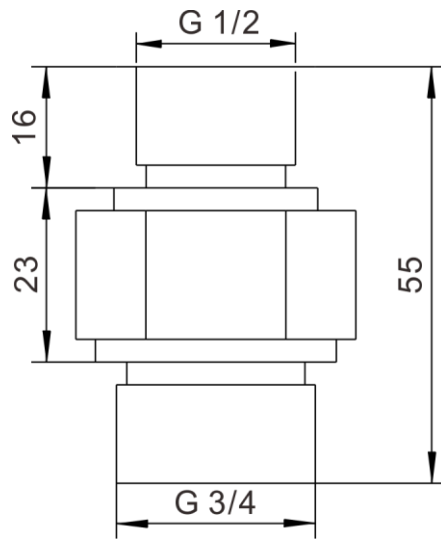


Fig. 11 Reducer Size

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