

## Installation Instructions

### Installation Method:

The engine preheater shall be installed vertically or at least incline 45 degree in the position 20cm or 40cm lower than the radiator cap. **The water inlet shall be lower than the outlet.**

### Installation procedures:

1. Cut off the return pipe of radiator;
2. Connect the water inlet of the preheater to water pipe at the engine side, and connect the outlet to the water pipe at the radiator side.

In this way, it could draw the antifreeze from the motor to the engine preheater, and draw the heated antifreeze back to the motor after heating by the preheater. The circulation direction of the preheater is opposite to the water circulation of the motor.

### 3. Note:

- 1) AFTER INSTALLATION, DO REMEMBER TO EXHAUST AIR FROM ANTIFREEZE WATERWAY WHOLLY before use to avoid any gas blocks. Or the preheater could be damaged for dry-running.
- 2) Before using the preheater, please check whether the water tank is full and whether the preheater is leaking. If the preheater is leaking, please pull out the plug and dismantle it in case of electric shock.

### 4. Procedure of venting air after installation:

Start the engine and keep it running at a high revolving speed -- open the radiator cap and you will see some bubbles up or antifreeze drop --- replenish antifreeze until the radiator is full --- repeat the above procedures until the antifreeze doesn't fall (if necessary, it's recommend to check if the radiator is full of antifreeze on the next day after installation. If not, repeat the procedures of exhausting air) -- touch the pipe that the antifreeze goes through to see if all the pipe is hot. If so, then the work for venting air has been finished. The preheater could be used.

5. It's recommended to go to the formal experienced repair plant to install the preheater.

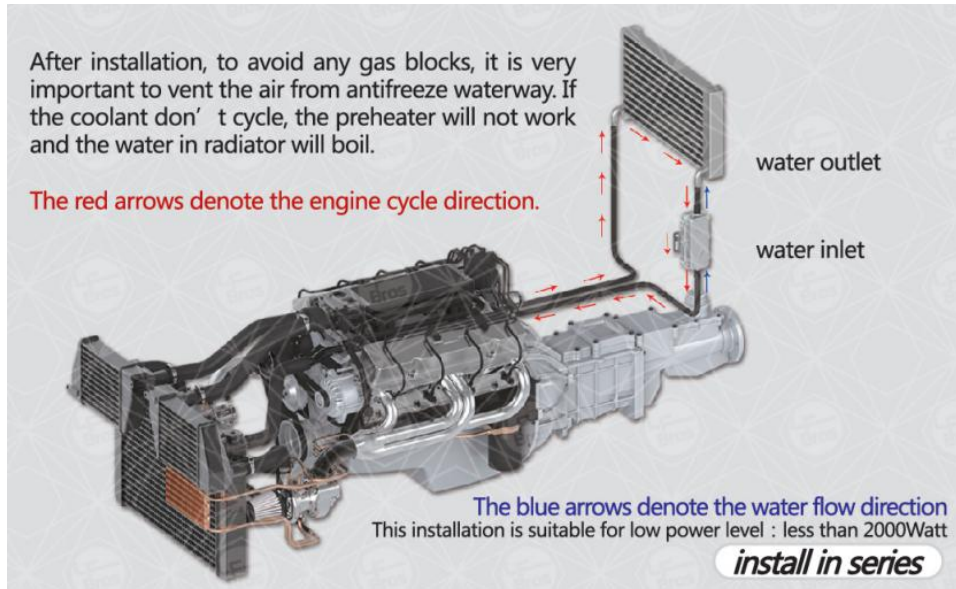
### Ways of Installation:

There are two ways of installation of engine preheaters: Series Installation and Parallel Installation.

#### 1. Series Installation:

- 1) cut off the return pipe, and clamp the two ends;
- 2) Connect the inlet of the preheater with the end of pipe at the motor side first;
- 3) Until antifreeze flowing out from the preheater, connect the outlet of the preheater with the end at the radiator side.
- 4) After fixing, start the car to circulate the antifreeze to exhaust air. Touch the pipeline that the antifreeze going through to see if every part is hot. The preheater could only be used when no

gas block exists. For the first-time use, touch the surface of the preheater after plug in to see if the preheater is thorny. If it's thorny, then gas exists and the engine preheater is dry running. One shall turn off the power and re-exhaust air. If the surface of the preheater is hot but not thorny, the preheater are under normal work.



## 2. Parallel Installation:

That's to connect the preheater to return pipe at the motor side and with a water block to let the antifreeze go through small circulation to the radiator's return pipe and then back to the motor.

3. The antifreeze through the heater are going through big circulation for series installation. It's fit for small vehicle, whose antifreeze is not big. While for truck it's recommended to use parallel installation method. Compared with series installation, the heat-efficiency for parallel installation is better.

