

**Work hard for a perfect car life
Serve you wholeheartedly**

Portable air heater

Technical description, installation,
Instructions for operation and maintenance.

WARNING

1. When installing, the fixing plate must be sealed with the automobile sheet metal to prevent the exhaust from entering the cab and causing harm to drivers and passengers.
 2. Exhaust pipe length shall not be less than 30 cm
 3. Exhaust outlet must be fixed in open space
 4. Exhaust pipes are not allowed to move in the direction of traffic.
- Suggestion: After fixing the heater, it is recommended to use sealant to seal the installation gap.



D5 Diesel air heater 12V/24V

Catalog

I 、 Introduction	01
1, Introduction of portable air heater	01
2, Application fields and uses	01
3, Safety instructions for installation and operation	01
II 、 Product information	02
1, Complete set of portable air heater and accessories	02
2, Working principle of portable air heater	05
3, Technical parameter	06
4, Product size	06
5, Packing list	08
6, Operating instructions	08
III 、 Installation and safety instructions	09
1, Installation reference	09
2, Installation angle and fixing	10
3, Installation of air inlet and hot air outlet	10
4, Installation of combustion air intake pipe and exhaust device	11
5, Installation and safety instructions for oil tank	12
6, Diesel filling and safety instructions	13
7, Installation and safety instructions of circuit wires	13
IV 、 Use and maintenance	15
V 、 After sales and service	16
1, Faults and Solutions	16
2, Warranty card	17

V After-sales service



Please note that!

If the heater is changed by someone else or by parts of unknown origin, the customer will lose the right to ask for warranty.

Warranty card

Distributor:

date:

User name		Contact number	
Heater Model		Installation location	
License Plate Model		Installation time	
Vehicle type		Installer	
Maintenance time		Maintenance project	

The following items should be checked in case of failure

- The heater does not start work starting:
 - Shut down and then reboot.
- The heater still does not start, so check:
 - Is the circuit of the air heater well connected?
 - Is there any fuel in the tank?
 - Is the connected power supply voltage normal?
 - Is the fuse in the circuit normal?
 - Are the circuits, connections and connectors in good condition?
 - Is the heating air guiding device, combustion-supporting air guiding device or exhaust emission device blocked?
- If the heater fails during start-up or operation, the corresponding safety procedures will be executed according to the type of failure, and the work will be stopped.
- If an abnormal use of the heater may lead to a failure, the following table is the general conditions of use

Item	Unit	Minimum	Normal	Maximum
Rated voltage	V	9\22	12\24	16\28
Rated current	A	0.06	2	10
Operating noise	dB	35	55	65
Fuel consumption	Lirre/hr	0.138	—	0.472
Circulating air volume	cfin	30	—	85

- If all the above are normal, and the heater is still malfunctioning, or other functions are not working, please contact the sales or installation company.

Introduction of Portable air heater

The air heater (also known as parking heater, diesel parking heater, diesel heater,) is an on-board heating device independent of automobile engine, which has its own fuel pipeline, circuit, combustion heating device and control device. The car cab parked in the cold and cold environment in winter can be preheated and heated without starting the engine. With the continuous improvement of production technology and level of air heater, the application fields are increasing. There are small spaces for cryogenic operation such as automobiles, trucks, engineering vehicles, cars, buses, tricycles, four-wheeled electric vehicles, van cars, ships, warehouses, stores and so on.

Application fields and uses

The air heater is not affected by the engine and is designed to comply with its heating work, it is installed in the following vehicles:

- Various type of vehicles and their trailers
- Construction machinery
- Agricultural machinery
- Boats, ships, yachts
- RV
- Other spaces that need heating

Use of portable air heater

- Preheat and defrost the glass
- Heat the following areas:
 - Cab or studio
 - Bus or cabin or RV
 - Freight warehouse
 - Heating other spaces

⚠ Safety instructions

According to the requirements of the air heater function, it should not be used in the following situations:

- Continuous heating for a long time:
 - Living room, garage
 - Household boats, etc.
- Heating or drying
 - Life(Human or animal) in the form of direct blowing hot air
- Articles
- Blow hot air into the container

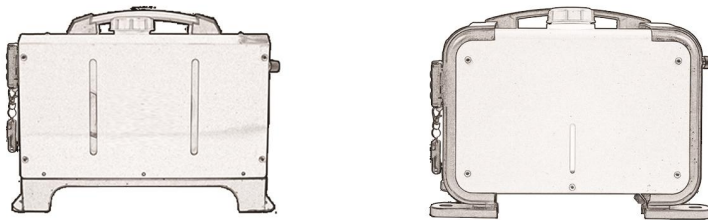
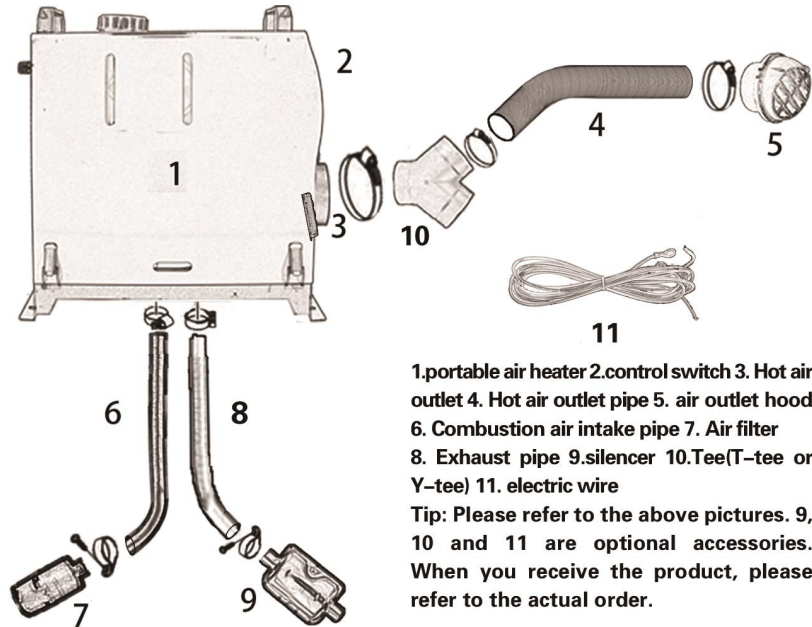
Safety instructions for installation and operation

- Only original accessories and components are allowed for installation or maintenance.
- The following measures are not allowed:
 - Change the key components on the air heater.
 - Use accessories from other manufacturers without permission of our company.
 - Violate the specifications in this instruction manual during installation or operation.
- Air heaters are not allowed to be used where flammable steam or dust can be formed, such as in or near:
 - Fuel depot
 - Carbon depot
 - Wood storage
 - Granaries and similar locations
- The air heater must be turned off when refueling.
 - In case of fuel leakage, the air heater shall not be used and must be inspected and repaired.
- During the operation of the air heater, it is not allowed to cut off the power to stop the air heater.

Please read the installation method and safety instructions in this manual carefully.

II Product information

Portable air heater complete equipment and installation components



For other types of portable air heater and its completes set of accessories, please refer to the picture above.

IV Use and maintenance

Instructions for use and maintenance

- 1.After purchase, please install the parking heater correctly according to the installation instructions.
- 2.After installation, the parking heater is started for the first time, and the ignition is not successful, which is a normal phenomenon. Because the oil pipe is empty, the oil pump needs process to pump oil. After repeated starting, it can work normally. (the parking heater of-A of our factory has its own restart function. Don't worry about it.)
- 3.The diesel oil to be used must be the diesel oil with the temperature suitable for the current season. If the diesel oil is not in accordance with the standard, the performance and service life of the parking heater will be affected.
- 4.The natural air inlet and the hot air pipe outlet must be unobstructed, otherwise the heat dissipation of the parking heater will be affected, and the high temperature alarm will be easy to affect the normal operation of the parking heater.
- 5.Shut down the parking heater normally. Do not cut off the power supply directly. If the power is cut off instantaneously, the motor of the machine will stop working and the fan will stop suddenly. The internal temperature of the parking heater will be too high to dissipate heat in time, causing the fan to burn down.
- 6.In summer, after the parking heater is out of use, pay attention to maintenance once a month, turn on it and let it work normally for about 10 minutes to ensure the stability of it performance.
- 7.Before using the parking heater, please check whether there is blockage in the oil pipe, check whether each connector has aging, loosening and leakage; check whether the circuit has leakage and short circuit; check whether the battery connection is firm; check whether the air inlet and outlet are blocked; check whether the air inlet and exhaust pipe are dirty and blocked; if there is any abnormality, please handle it quickly.
- 8.After the parking heater is started, check whether the fan rotates normally. If there is any abnormality, please shut it down and use it after the problem is solved.
- 9.If the car is driving in the environment with bad road conditions, such as coal mine, iron ore, construction site, hillside, river, etc., where there is much sand and soil, please check whether the air intake pipe and exhaust pipe installed outdoors are contaminated with dirt and dust after driving. If so, please handle it quickly, otherwise the service life and working performance of the machine will be affected.

Thank you for reading the manual carefully. I hope our products will make your life more convenient.

III Installation and safety instructions

- The positive and negative poles of the power line should correspond, and must not be wrongly connected.
- Fix the circuit wires in a safe position with a tie to prevent them from loosening and falling off.

⚠ Safety instructions for electric wires and circuits

The power supply of the air heater must be independent and cannot be controlled by the key of the car. When the air heater is out of service, it must be shut down according to the operation requirements. It can not be forced to stop work by sudden power failure, which will cause the air heater to be damaged due to high temperature.

- Attention should be paid to protect the wiring harness, never damage its insulation, must avoid: scratch, excessive bending, clamping or heating and other damage.

- When fixing the wire harness, never fix the wire harness on the moving or vibrating parts, so as to avoid breaking the wire harness or dropping the plug.

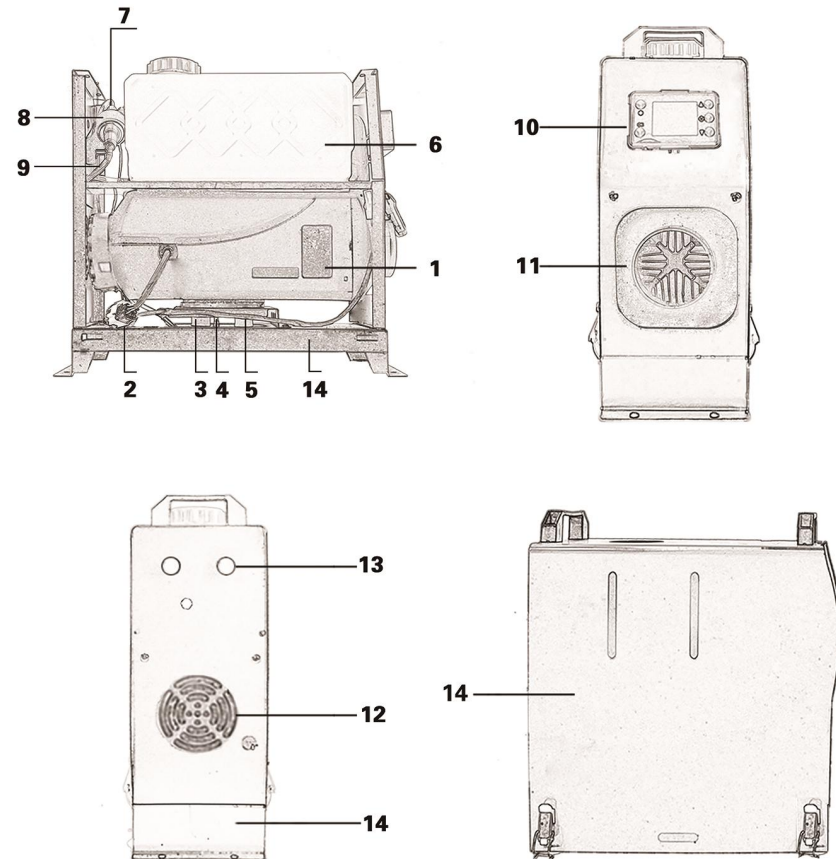
- When fixing the wire harness, keep away from the heating parts to avoid damage to the wire harness due to high temperature, resulting in failure and danger.

- When the wires, switches and controllers are placed in the vehicle, they should also be far away from the heating parts to avoid the fault and danger caused by high temperature.

- Please keep every socket and connector of the harness waterproof, fire-proof, anti fouling, and avoid failure and danger.

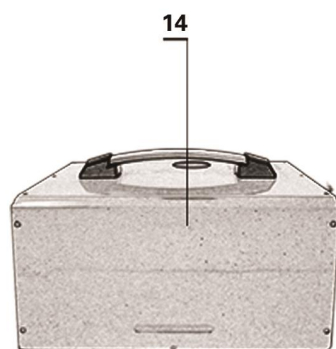
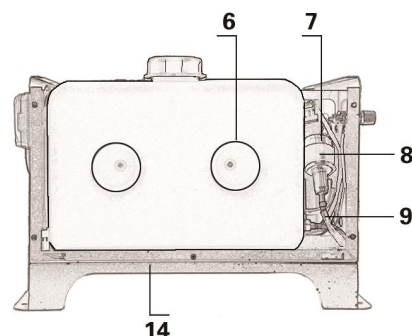
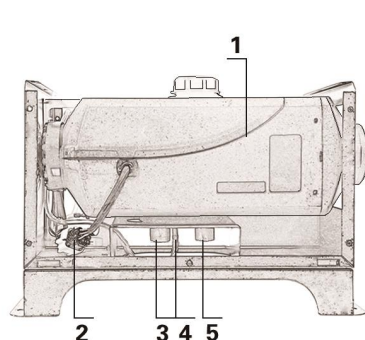
II Product information

Internal and external structure diagram

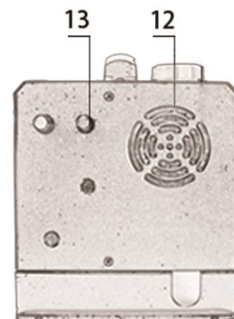
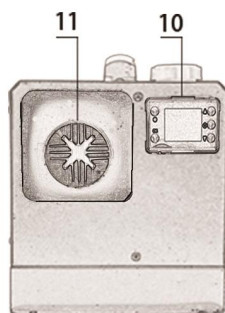


- 1.Air heater 2. Main harness 3. Combustion air inlet 4. Oil inlet 5. Exhaust gas outlet
6.Oil tank 7.Oil pump 8. Oil pump fixing sleeve 9.Oil pipe 10. Control switch (remote control) 11.Hot air outlet 12.Air inlet 13. Electric wire interface 14. Bracket and housing of portable air heater

II Product information



- 1. Air heater 2. Main harness
- 3. Combustion air inlet
- 4. Oil inlet 5. Exhaust gas outlet
- 6. Oil tank 7. Oil pump
- 8. Oil pump fixing sleeve
- 9. Oil pipe
- 10. Control switch (remote control)
- 11. Hot air outlet 12. Air inlet
- 13. Electric wire interface
- 14. Bracket and housing of Portable air heater



III Installation and safety instructions

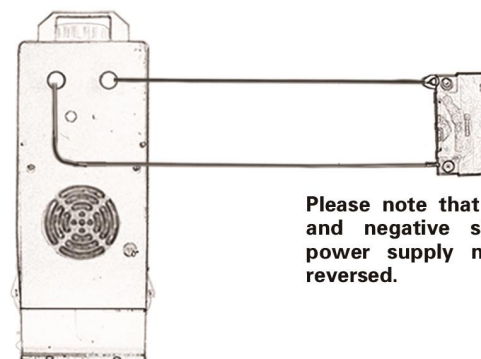
5. Installation and safety instructions for oil tank

- The oil tank of the portable air heater has been installed in the factory. If it needs to be disassembled, please refer to the complete set of spare parts drawings or consult the after-sales service.
- The fuel tank is filled with diesel, please keep away from high temperature, fire source and other environment that may cause safety hazards.
- After filling the diesel oil, the cover of the fuel tank must be tightened to avoid the leakage of diesel oil and the entry of dust and impurities into the fuel tank.
- The amount of diesel oil in the fuel tank should be observed frequently, and the diesel oil should be filled in time to avoid the air heater stop working due to the lack of diesel oil.
- Always check the condition of the oil tank, to avoid long-term use, aging, leakage and other phenomena. Once found, please replace the fuel tank in time.

6. Diesel filling and safety instructions

- After installing the air heater, please add high-quality diesel into the fuel tank, and then start the air heater.
- Please choose good quality diesel, and the diesel model is suitable for use in cold weather temperature. If you choose unsuitable diesel, it will affect the normal use of air heater.
- The air heater must be turned off before filling diesel oil.

7. Installation and safety instructions of circuit wires



Please note that the positive and negative sides of the power supply must not be reversed.

- The internal circuit of the portable air heater has been installed in the factory. Customers only need to connect the external power supply.
- If you need to check the internal circuit of the portable air heater, please refer to the internal structure diagram or consult after-sales service.
- When installing circuit wires, please check whether the circuit ports corresponding to each accessory are consistent with each other, and connect each socket correctly.

III Installation and safety instructions

Installation of combustion air intake pipe

- The combustion air intake pipe is a 25 mm diameter hose, Please don't change its length.
- Fix combustion air intake pipe at the corresponding position of the air heater with a hose hoop, connect the other end to the air filter, and then fix it with a tie to prevent it from shaking and falling.

⚠ Safety instructions for installation of combustion air intake pipe:

- The combustion air intake pipe must not be excessively bent and must be kept unblocked.
- The combustion air inlet must be far away from the exhaust gas, and the exhaust gas shall not be inhaled as combustion air.
- The combustion air intake port shall not face the driving direction.

Installation of exhaust device

- The exhaust pipe is a steel pipe with a diameter of 22mm–25mm. According to the installation, its length should be between 30cm–1m.
- The exhaust pipe is fixed at the corresponding position of the air heater with hose hoop, and the other end can be installed with or without silencer. The whole device is fixed on the vehicle body with a bracket to keep it firm and prevent it from shaking and falling.

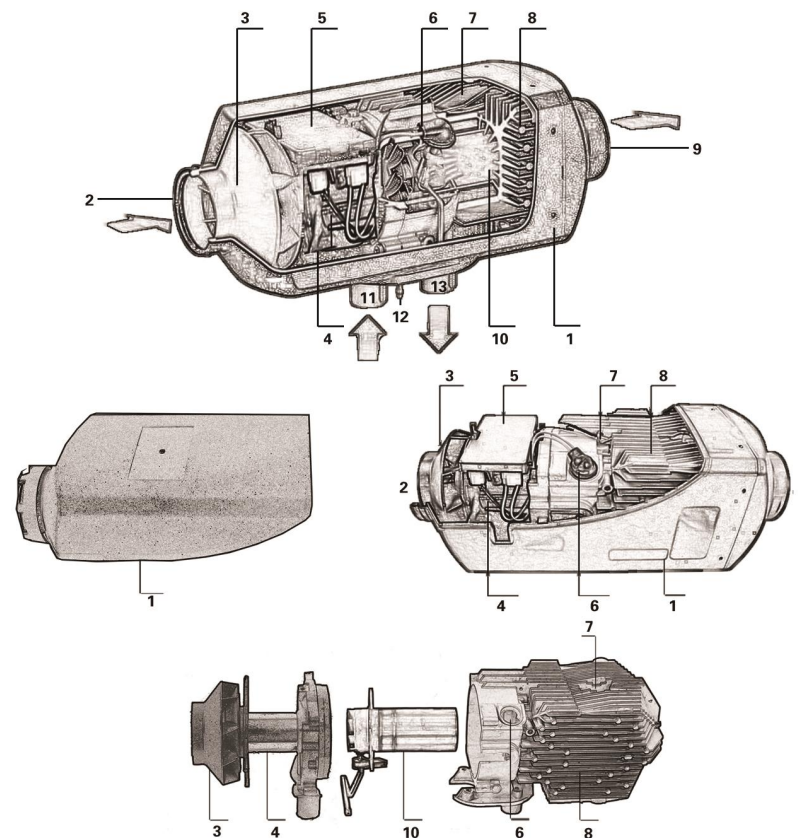
⚠ Safety instructions for installation of exhaust device:

- During the whole process of the air heater from the beginning of operation, the temperature of all part+s of the exhaust device is very high. Please be sure to install the exhaust device according to the installation instructions.
- Exhaust devices must be installed outside the vehicle or outdoors.
- The exhaust pipe must not extend beyond the boundary of the side of the vehicle body.
- The exhaust pipe outlet should be inclined downward so that the exhaust gas and condensate can be discharged.
- When installing, pay attention to that the exhaust pipe should keep enough space between the heat sensitive parts. Pay special attention to fuel pipe, electric wire and brake hose.
- In order to prevent the exhaust pipe from being damaged by vibration, it must be fixed firmly.
- After the exhaust pipe is installed, attention must be paid not to let the exhaust gas be inhaled as combustion air.
- The outlet of the exhaust pipe shall not be blocked by dirt and other debris.
- The outlet of the exhaust pipe must not face the direction of travel.
- When the air heater works, the temperature of the exhaust pipe will be very high, and the exhaust device must be installed according to the instructions
- When the air heater is working, it is not allowed to work in the exhaust guide area to avoid injury.
- When it is necessary to work on exhaust emission devices and equipment, the air heater should be turned off first until all components are completely cooled, and protective gloves should be worn if necessary.
- Exhaust gas is toxic gas and cannot be inhaled.

II Prouduct information

The working principle of air heater

Air heater is an intelligent controlled micro-burner, which uses diesel oil as fuel and is supplied by an oil pump. The atomized diesel oil is ignited by a high-temperature preheated ignition plug. It fully combusts in the combustion chamber and releases heat, which is blown away by the circulating fan and blown out hot air through the outlet to heat the low-temperature space to achieve heating.



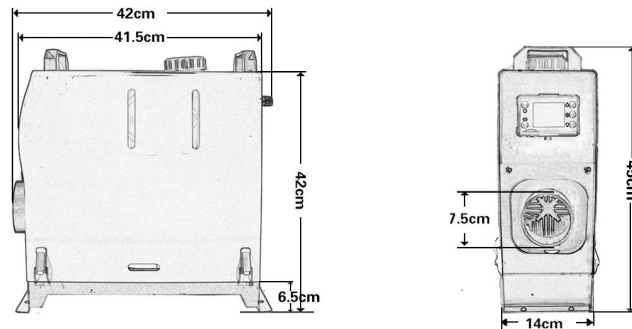
1.Shell 2.Air inlet 3.Fan 4.Blower motor 5.Main control circuit board
6.Ignition plug 7.Sensor 8.Heat exchanger 9.Hot air outlet 10.Combustion chamber 11.Combustion air intake port 12.Oil inlet port 13.Exhaust gas outlet

II Prouduct information

Technical parameter

Heater Model	ZB-AIR D8	ZB-AIR D5	ZB-AIR D2
Heater medium	Air		
Heater fuel	Diesel		
Calorific value(W)	8000	5000	2000
Fuel consumption(L/H)	0.28-0.58	0.20-0.50	0.15-0.35
Power consumption (W)	40	40	39
Rated voltage	12V/24V		
Undervoltage Lower limit	10.5V/21V	10.5V/21V	10.5V/21V
Overvoltage upper limit	16V/28V	16V/28V	16V/28V
Ambient temperature	-40℃~40℃		
Working temperature	-40℃~85℃		
Size (mm)	Type-1: 420*140*415, Type-2: 310*225*420, Type-3: 310*225*420, other size or customized.		

Product size Type-1

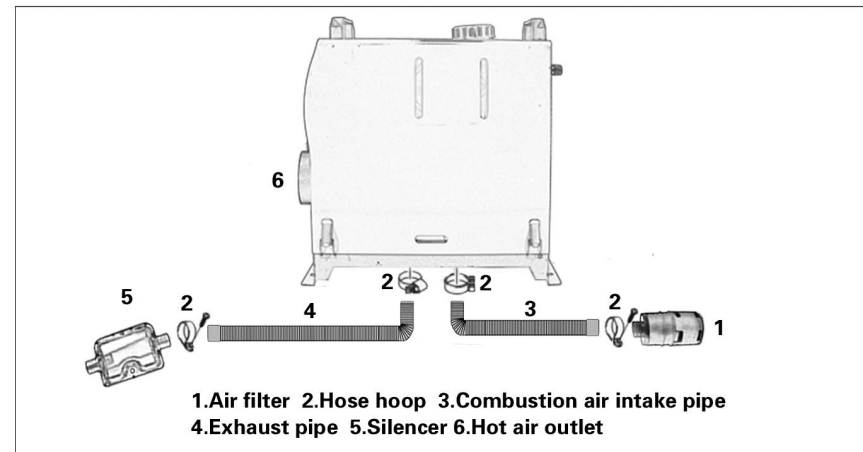


III Installation and safety instructions

Hot air outlet tips:

- The hot air outlet needs to be connected with an air outlet pipe. Its diameter is 75mm, or 42mm. For specific standards, please refer to the actual air heater.
- When installing the hot air outlet pipe, make sure it has enough space.
- The hot air outlet pipe should not be excessively bent to avoid the failure caused by the high temperature of the air heater due to the unsmooth hot air outlet.
- When installing and fixing the hot air outlet pipe, please pay attention not to contact it or directly blow people, animals or high temperature sensitive materials with hot air because of the large heat radiation, so as to avoid unnecessary injury and damage.
- When the air heater starts to operate and during the whole operation, the temperature of the hot air outlet pipe is very high. Please avoid working in its area.
- If you want to work in the area where the air heater and its hot air outlet pipe are located, please turn off the air heater first, wait for all parts to cool down completely, and then operate. If necessary, please wear gloves.
- If the fault occurs due to high temperature, the local hot air temperature may be too high before the work is stopped due to the fault. Therefore, only the original high temperature resistant hot air outlet pipe in the installation components of our company is allowed to guide the hot air.
- During the function check, after about 10 minutes of operation, the average temperature of hot air measured at about 30 cm away from the hot air outlet should not exceed 110 ℃ (the air intake temperature is about 20 ℃).
- The portable air heater and its air outlet pipe and other components shall not be covered, heavily pressed or trampled, so as to avoid personal injury, combustible burning or air heater damage.
- The other end of the hot air outlet duct should be equipped with a deflecting hood, which can adjust the direction of hot air blowing out and prevent other objects from entering the outlet pipe.

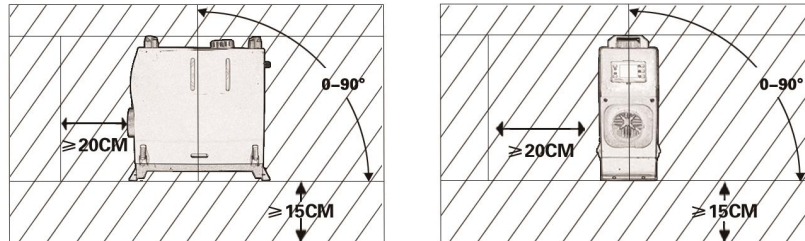
4.Installation of combustion air intake pipe and exhaust device



III Installation and safety instructions

2.Installation angle and fixing:

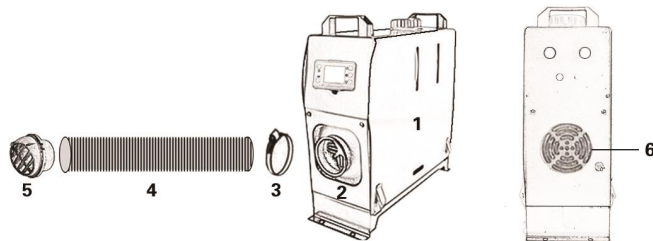
The air heater must be installed in a horizontal position.



Installation instructions and tips:

- Before installation, please check whether the fan is rotating normally. If there is any abnormality, please check and adjust it.
- It must prevent objects around the air heater from being affected or damaged by high temperature.
- There must be room for heat dissipation and maintenance around the air heater.
- The air heater shall not be covered .
- After installation, please check the tight connection of each part, and the inspection screw must be tightened.

3.Installation of the air inlet and hot air outlet



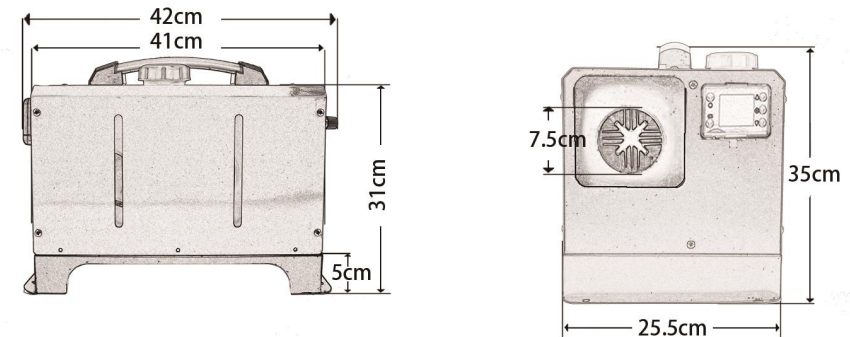
- 1.Portable air heater 2.Hot air outlet 3. Hose hoop
4.Hot air outlet pipe 5. Air outlet hood 6.Air inlet

The air inlet Tips:

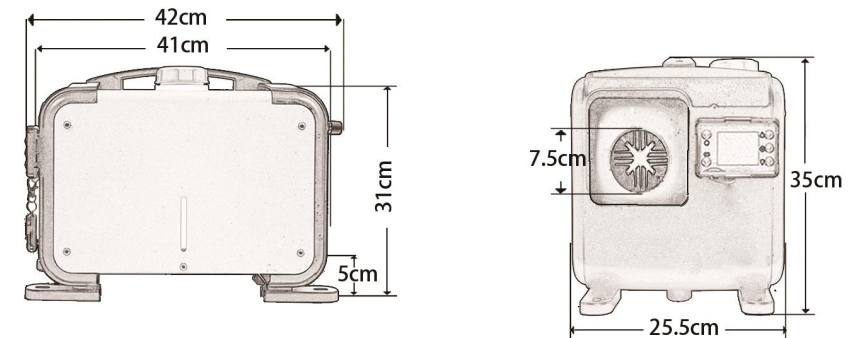
- The air inlet must have more than 20cm space for the air flow.
- Keep the air inlet unobstructed and clean.
- The supply of heating air must consist of fresh air or circulating air.
- Under normal working conditions, the natural air inlet shall not inhale the exhaust gas of vehicle engine and air heater, and shall not penetrate into dust, salt spray, etc.

II Prouduct information

Product size Type-2



Product size Type-3



The diameter of one outlet is 7.5cm, the diameter of four outlets is 4.2cm. This picture is for reference only. Please take your order as the standard.

II Prouduct information

Packing list

- | | |
|---|-------------------------|
| 1、 Portable air heater with switch (remote control)-1 | 7、 Tee-1 |
| 2、 Hot air outlet pipe-1 | 8、 Instructions-1 |
| 3、 Combustion air intake pipe-1 | 9、 Switch instruction-1 |
| 4、 Air filter-1 | 10、 larynx hoop-several |
| 5、 Exhaust pipe-1 | 11、 Tie-3 |
| 6、 Silencer-1 | 12、 Other screws-some |

The quantity of accessories in the packing list is only for reference. Due to the different types of products, different configurations selected by customers and changes in the quantity of accessories, please take the actual order as the standard.

Operating instructions

1. After installing the air heater, check each connection to ensure that there is no problem with the installation of the air heater. Please read the instructions of the switch carefully first.

2. Starting the air heater for the first time, because there is no diesel in the oil circuit, it needs a process to pump oil. It is normal that the first start fails. Please wait patiently. After the air heater fails to start and stops, please restart it. After starting the air heater, please wait patiently. Do not operate any key of the switch at will to avoid errors.

There is a switch with the function of single pump oil. Before the first start, please use the function of pump oil first. After the oil circuit is full of diesel oil, start the air heater again. It is easy to start successfully. Please read the operation manual of the switch carefully to ensure that the operation is accurate.

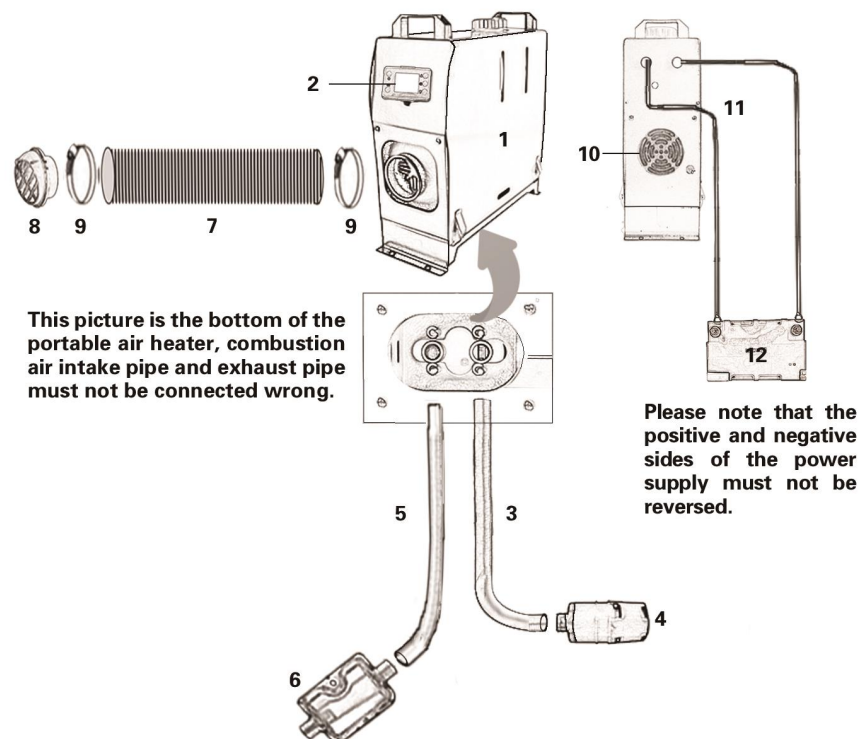
3. When the air heater works normally, you can set the required temperature and select the required mode through the function key of the switch.

4. When the air heater is not used, it must be turned off according to the normal operation. Never turn off the power directly to avoid high temperature burning the fan and main board of the heater.

5. Before using the air heater, you must read the product manual and switch manual carefully.

III Installation and safety instructions

1.Installation reference



- 1.Portable air heater 2. Control switch (remote control) 3. Combustion air inlet pipe 4. Air filter 5. Exhaust pipe 6. Silencer 7. Hot air outlet pipe 8. Air outlet hood 9. Larynx hoop 10.Air inlet 11. Electric wire 12.Battery

This picture is for installation reference. Please install your air heater according to the actual environment. Please read the manual carefully.