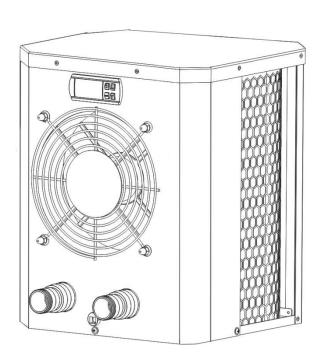


Mini Heater

User and Service Manual



MINI HEATER

User and Service manual

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Thank you for using Mini Heater for your pool heating, it will heat your pool water and keep the constant temperature when the air ambient temperature is above 12 $^{\circ}$ C



ATTENTION: This manual includes all the necessary information with the use and the installation of your heat pump.

The installer must read the manual and attentively follow the instructions in implementation and maintenance.

The installer is responsible for the installation of the product and should follow all the instructions of the manufacturer and the regulations in application. Incorrect installation against the manual implies the exclusion of the entire guarantee.

The manufacturer declines any responsibility for the damage caused with the people, objects and of the errors due to the installation that disobey the manual guideline. Any use that is without conformity at the origin of its manufacturing will be regarded as dangerous.

M WARNING

- Please always keep the heat pump in the ventilation place and away from anything which could cause fire.
- Don't weld the pipe if there is refrigerant inside machine. Please keep the machine out of the confined space when make gas filling.
- Please always empty the water in heat pump during winter time or when the ambient temperature drops below 0° C, or else the Titanium exchanger will be damaged because of being frozen, in such case, your warranty will be lost.
- Please always cut the power supply if you want to open the cabinet to reach inside the heat pump, because there is high voltage electricity inside.
- Please well keep the display controller in a dry area to protect the display controller from being damaged by humidity.
- Action of filling gas must be conducted by professional with R32 operating license.

1. Specifications

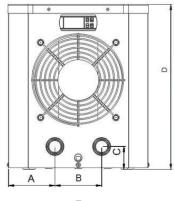
1.1 Technical data pool heat pumps

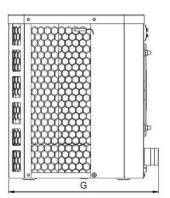
CE Standard, gas R32

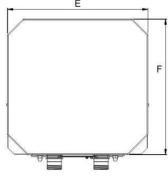
| Model | | Mini 2.5 | Mini 4.5 | Mini 6 |
|---------------------------------------|------------------|---------------------------|------------|---------|
| *Heating Capacity at Air | . 28℃, Wat | er 28℃,Humidity 80% | 6 | |
| Heat Output | kW | 2.5 | 4.2 | 5.5 |
| Power Consumption | kW | 0.59 | 1.00 | 1.31 |
| СОР | | 4.2 | 4.2 | 4.2 |
| *Heating Capacity at Air | 24℃, W at | er 26℃,Humidity 70% | 6 | |
| Heat Output | kW | 2.4 | 4.1 | 5.4 |
| Power Consumption | kW | 0.59 | 1.00 | 1.31 |
| СОР | | 4.1 | 4.1 | 4.1 |
| *Heating Capacity at Air | 15℃, W at | er 26℃,Humidity 70% | 6 | |
| Heat Output | kW | 1.9 | 3.2 | 4.2 |
| Power Consumption | kW | 0.56 | 0.91 | 1.2 |
| СОР | | 3.4 | 3.5 | 3.5 |
| * General data | | | | |
| Voltage | | 220-240V/50Hz/1PH | | |
| Rated Current | А | 2.6 | 4.4 | 5.8 |
| Min Fuse | А | 10 | 10 | 10 |
| Advised pool volume (with pool cover) | m³ | 0-10 | 5-16 | 10-20 |
| Advised water flow | m³/h | 2 | 2 | 2.5-3.2 |
| Water Pressure Drop | KPa | 15 | 15 | 15 |
| Condenser | | Titanium exchanger in PVC | | |
| Water pipe in-out | mm | | 32 or 38mm | |
| Fan Speed | RPM | 2100 | 1100 | 1100 |
| Noise level(10m) | dB(A) | 48 | 46 | 46 |
| Noise level(1m) | dB(A) | 57 | 55 | 55 |
| Refrigerant type | | R32 | R32 | R32 |
| Refrigerant amount | g | 150 | 280 | 450 |
| CO2 quota | tonne | 0.11 | 0.19 | 0.31 |
| * Dimension/ Weight | | | | |
| Net Weight | kg | 20 | 26 | 28 |
| Gross Weight | kg | 24 | 32 | 34 |
| Net Dimension | mm | 310*364*375 | 434*43 | 33*460 |
| Packing Dimension | mm | 455*450*450 | 495*52 | 20*530 |

^{*}Above data is subject to modification without prior notice.

2. Dimension







| Item / (mm) | Α | В | С | D | E | F | G |
|------------------|-------|-----|----|-----|-----|-----|-------|
| Mini 2.5 | 90.4 | 130 | 50 | 375 | 310 | 300 | 363.5 |
| Mini 4.5/ Mini 6 | 116.5 | 200 | 50 | 460 | 434 | 365 | 432.5 |

3. Installation and connection

Attention:

Please observe the following rules when installing the heat pump:

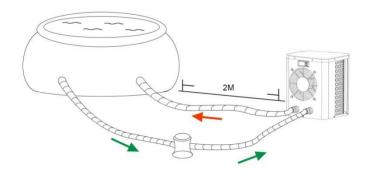
- 1. Any addition of chemicals must take place in the piping located **downstream** from the heat pump.
- 2. Always hold the heat pump upright. If the unit has been held at an angle, wait at least 24 hours before starting the heat pump.

3.1 Heat pump location

The unit will work properly in any desired location as long as the following three items are present:

1. Fresh air - 2. Electricity - 3. Swimming pool filters

The unit may be installed in virtually any <u>outdoor</u> location as long as the specified minimum distances to other objects are maintained (see drawing below). Please consult your installer for installation with an indoor pool. Installation in a windy location does not present any problem at all, unlike the situation with a gas heater (including pilot flame problems).

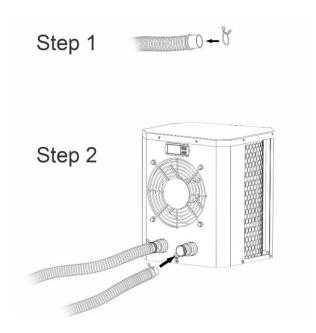


ATTENTION: Never install the unit in a closed room with a limited air volume in which the air expelled from the unit will be reused, or close to shrubbery that could block the air inlet. Such locations impair the continuous supply of fresh air, resulting in reduced efficiency and possibly preventing sufficient heat output.

3.2 Initial operation

Note: In order to heat the water in the pool (or hot tub), the filter pump must be running to cause the water to circulate through the heat pump. The heat pump will not start up if the water is not circulating.

3.3 Hose connection



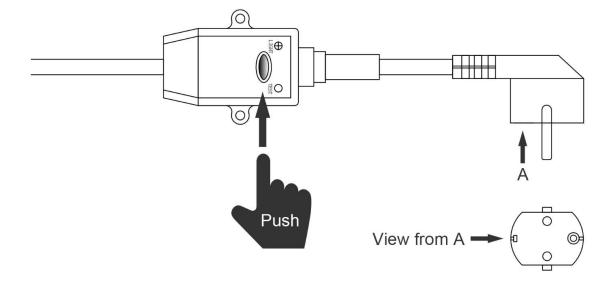
Note:

Two hoses & clamp are provided in the accessory.

3.4 Electrical connection

Before connecting the unit, verify that the supply voltage matches the operating voltage of the heat pump.

The RCD plug has been included with power cable, which can offer electrical protection.

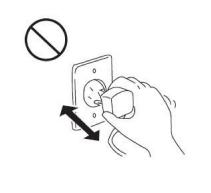


Attention:

Ensure the power plug is secure If the plug is not secure, it may cause an electric shock, over-heating or fire

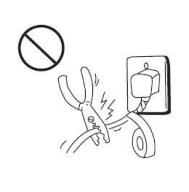
Never pull out the power plug during operation

Otherwise, it may cause an electric shock or a fire due to over-heating.



Never use damaged electric wires or unspecified electric wires.

Otherwise it may cause an electric shock or a fire.



After all connections have been made and checked, carry out the following procedure:

- 1. Switch on the filter pump. Check for leaks and verify that water is flowing from and to the swimming pool.
- 2. Connect power to the heat pump and press the On/Off button $^{(\!\!\!\!)}$ on the electronic control panel. The unit will start up after the time delay expires (see below).
- 3. After a few minutes, check whether the air blowing out of the unit is cooler.
- 4. When turn off the filter pump, the unit should also turn off automatically.

Depending on the initial temperature of the water in the swimming pool and the air temperature, it may take several days to heat the water to the desired temperature. A good swimming pool cover can dramatically reduce the required length of time.

Time delay - The heat pump has a built-in 3-minute start-up delay to protect the circuitry and avoid excessive contact wear. The unit will restart automatically after this time delay expires.

If first power on or additional power interruptions, the heat pump starts 10s later after pressing 'ON/OFF' button.

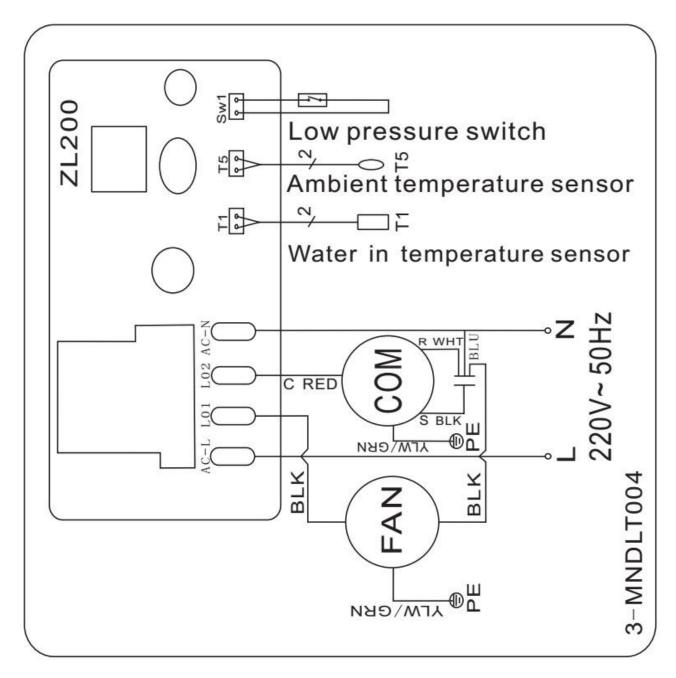
3.5 Condensation

The air drawn into the heat pump is strongly cooled by the operation of the heat pump for heating the pool water, which may cause condensation on the fins of the evaporator. The amount of condensation may be as much as several litters per hour at high relative humidity. This is sometimes mistakenly regarded as a water leak.

4. Electrical wiring

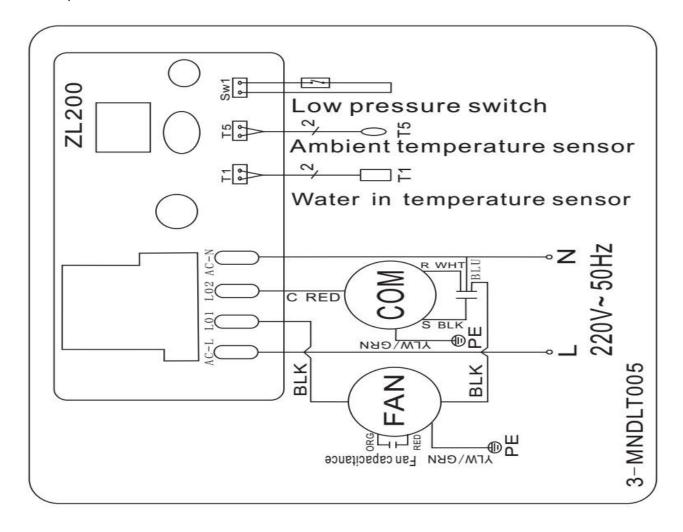
4.1 Swimming pool heat pump wiring diagram

Mini 2.5



4.2 Swimming pool heat pump wiring diagram

Mini 4.5/Mini 6



NOTE:

- (1) Above electrical wiring diagram only for your reference, please subject machine posted the wiring diagram.
- (2) The swimming pool heat pump must be connected ground wire well, although the unit heat exchanger is electrically isolated from the rest of the unit. Grounding the unit is still required to protect you against short circuits inside the unit. Bonding is also required.

Disconnect: A disconnect means (circuit breaker, fused or un-fused switch) should be located within sight of and readily accessible from the unit. This is common practice on commercial and residential heat pumps. It prevents remotely-energizing unattended equipment and permits turning off power at the unit while the unit is being serviced.

5. Display controller operation

5.1 The buttons of LED wire controller



When the heat pump is running, the LED display shows the water inlet temperature.

LED 1 is on when compressor is running.

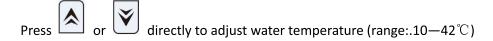
LED 2 is on when failure occurs.

5.2 Turn on/off the heat pump

Press to turn on the heat pump, the LED display shows the water setting temperature for 5s, then show water inlet temperature.

press again to turn off the heat pump.

5.3 Set the water temperature



Press to save the setting then exit.

NOTE: the heat pump can run only if the water circle/filtration system is running.

5.4 Parameter checking

Press set, it will enter the parameter checking, Press or to choose the code d0/d1, press again, it will show the measured value. Lastly press to exit.

| Code | Parameter |
|------|----------------------|
| d0 | Ambient temperature |
| d1 | Water in temperature |

Notice: It can't set the Parameter data by end-users.

6. Trouble shooting

6.1 Error code on the LED controller

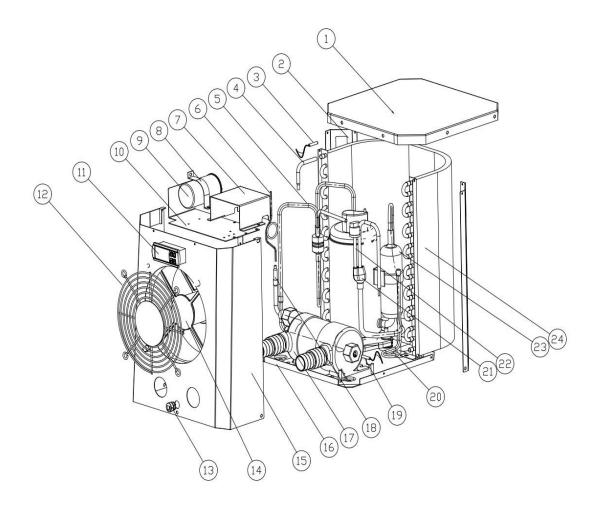
| Malfunction | Code | Reason | Solution |
|--|------|---|--|
| Too low or too high ambient temperature protection | PO | Ambient temperature is out of operating range: 12°C-42°C. Controller failure. | Wait the ambient temperature rising to 13°C or cooling down to 40°C to res-start. Replace the new controller. |
| Water temperature sensor failure | P1 | Water temperature sensor open circuit or short circuit. | Replace the new water temperature sensor. |
| Ambient temperature sensor failure | P2 | Ambient temperature sensor open circuit or short circuit. | Replace the new ambient temperature sensor. |
| Low pressure protection | EL | Low pressure switch disconnected or failure. Gas leakage. | It must be repaired by the professional technicians. |

6.2 Other Malfunctions and Solutions (No display on LED wire controller)

| Malfunctions | Observing | Reason | Solution |
|---------------|--|---|--|
| Heat num is | LED wire controller no display. | No power supply. | Check cable and circuit breaker if it is connected. |
| not running | not running LED wire controller displays the actual water temperature. 1. Water temperature is reaching to setting value, HP under constant temperature status. 2. Heat pump just starts to run. | | Verify water temperature setting. Startup heat pump after a few minutes. |
| Short running | LED displays actual water temperature, no error code displays. | Fan NO running. Air ventilation is not enough. Refrigerant is not enough. | Check the cable connections between the motor and fan, if necessary, it should be replaced. Check the location of heat pump unit and eliminate all obstacles to make good air ventilation. Replace or repair the heat pump unit. |
| Water stains | Water stains on heat pump unit. | Concreting. Water leakage. | No action. Check the titanium heat exchanger carefully if it is any defect. |

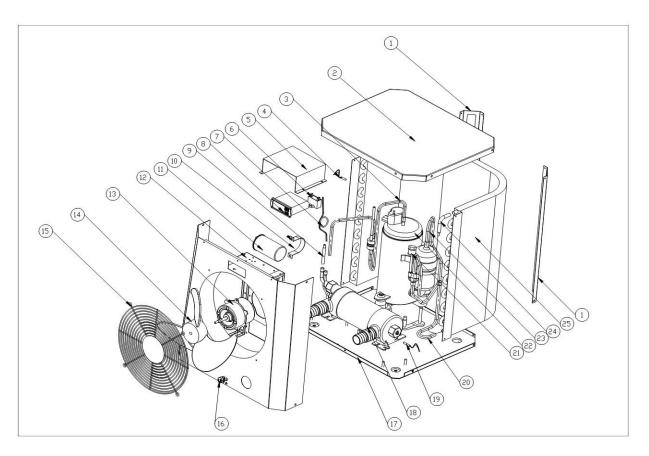
7. Exploded diagram

Mini 2.5



| No. | Spare parts | No. | Spare parts |
|-----|------------------------|-----|----------------------------|
| 1 | Top cover | 13 | Power cord buckle |
| 2 | Pillar | 14 | Fan and fan motor assembly |
| 3 | Ambient temp. sensor | 15 | Front panel |
| 4 | Transition tube | 16 | Base |
| 5 | Gas collecting pipe | 17 | Titanium heat exchanger |
| 6 | Capillary | 18 | Coupling tube |
| 7 | Electric box | 19 | Water in temp. sensor |
| 8 | Cilp | 20 | Gas collecting pipe |
| 9 | Compressor capacitance | 21 | Gas return piping |
| 10 | Fan motor top plate | 22 | Low pressure switch |
| 11 | Controller | 23 | Compressor |
| 12 | Front grill | 24 | Evaporator |

Mini 4.5/Mini 6



| No. | Spare parts | No. | Spare parts |
|-----|-----------------------------|-----|-------------------------|
| 1 | Pillar | 14 | Fan blade |
| 2 | Top cover | 15 | Front grill |
| 3 | Exhaust pipe | 16 | Power cord buckle |
| 4 | Ambient temp. sensor | 17 | Base |
| 5 | Electric box | 18 | Titanium heat exchanger |
| 6 | Fan capacitor | 19 | Water in temp. sensor |
| 7 | Capillary | 20 | Gas collecting pipe |
| 8 | Controller | 21 | Low pressure switch |
| 9 | Copper pipe | 22 | Compressor |
| 10 | Compressor capacitance clip | 23 | Gas return piping |
| 11 | Compressor capacitance | 24 | Copper pipe |
| 12 | Front panel assemble | 25 | Evaporator |
| 13 | Fan motor | | |

8. Maintenance

| (1) You should check the water supply system regularly to avoid the air entering the system and occurrence of low water flow, because it would reduce the performance and reliability of HP unit. |
|---|
| (2) Clean your pools and filtration system regularly to avoid the damage of the unit as a result of the dirty of clogged filter. |
| (3) You should discharge the water from heat pump if it will stop running for a long time (especially during the winter season). |
| (4) In another way, you should check the unit is water fully before the unit start to run again. |
| (5) When the unit is running, there is all the time a little water discharge under the unit. |