



ALSAVO MINI

Swimming Pool Heat Pump

User and Service Manual



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Regulation (EU) n° 517/2014 of 16/04/14 on fluorinated greenhouse gases and repealing Regulation (EC) n° 842/2006

Leak checks

1. Operators of equipment that contains fluorinated greenhouse gases in quantities of 5 tons of CO₂, equivalent or more and not contained in foams shall ensure that the equipment is checked for leaks.
2. For equipment that contains fluorinated greenhouse gases in quantities of 5 tons of CO₂ equivalent or more, but of less than 50 tons of CO₂ equivalent: at least every 12 months.

Picture of the equivalence CO₂

1. Load in kg and Tons amounting CO₂.

Load and Tons amounting CO₂	Frequency of test
From 7 at 75 kg load = from 5 at 50 Tons	Each year

Do no release R32 coolant liquid into the atmosphere. This is a fluoride greenhouse effect gas covered by the Kyoto agreement with a global warming potential (GWP) = 675 - (see the European Community regulations on fluoride greenhouse effect gases Regulation (EU) No 517/2014).

Concerning the Gas R32, 7.40kg amounting at 5 tons of CO₂, commitment to check each year.

Training and certification

1. The operator of the relevant application shall ensure that the relevant personnel have obtained the necessary certification, which implies appropriate knowledge of the applicable regulations and standards as well as the necessary competence in emission prevention and recovery of fluorinated greenhouse gases and handling safety the relevant type and size of equipment.

Record keeping

1. Operators of equipment which is required to be checked for leaks, shall establish and maintain records for each piece of such equipment specifying the following information:
 - a) The quantity and type of fluorinated greenhouse gases installed;
 - b) The quantities of fluorinated greenhouse gases added during installation, maintenance or servicing or due to leakage;
 - c) Whether the quantities of installed fluorinated greenhouse gases have been recycled or reclaimed, including the name and address of the recycling or reclamation facility and, where applicable, the certificate number;
 - d) The quantity of fluorinated greenhouse gases recovered
 - e) The identity of the undertaking which installed, serviced, maintained and where applicable repaired or decommissioned the equipment, including, where applicable, the number of its certificate;
 - f) The dates and results of the checks carried out;
 - g) If the equipment was decommissioned, the measures taken to recover and dispose of the fluorinated greenhouse gases.
2. The operator shall keep the records for at least five years, undertakings carrying out the activities for operators shall keep copies of the records for at least five years.

Contrôles d'étanchéité

1. Les exploitants d'équipements qui contiennent des gaz à effet de serre fluorés dans des quantités supérieures ou égales à 5 tonnes équivalent CO₂, veillent à ce que ces équipements fassent l'objet de contrôles d'étanchéité.
2. Au 1 janvier 2017 les contrôles d'étanchéité sont à effectuer au moins tous les douze mois, pour les équipements dans des quantités supérieures ou égales à 5 tonnes équivalent CO₂ mais inférieures à 50 tonnes équivalent CO₂.

Tableau des équivalences CO₂

1. Charge en kg et Tonnes équivalent CO₂.

Charge et Tonnes équivalent CO ₂	Fréquence du contrôle
De 7 à 75 kg de charge soit de 5 à 50 Tonnes	Tous les ans

Il est interdit de rejeter le gaz R32 dans l'atmosphère. Ce gaz à effet de serre fluorés est régulé par les accords de Kyoto, son impact est en (GWP) = 675 - (Se référer au règlement de la communauté européenne relatif aux gaz à effet de serre fluorés, règlement (EU) No 517/2014).

Pour le Gaz R32, 7.40kg équivalences à 5 tonnes de CO₂ donc devoir de vérifier tous les ans.

Formation et certification

1. L'exploitant veille à ce que le personnel concerné ait obtenu la **certification nécessaire**, qui implique une connaissance appropriée des règlements et des normes applicables ainsi que la compétence nécessaire en termes de prévention d'émission, de récupération des gaz à effet de serre fluorés, de manipulation sans danger pour les contrôles d'étanchéité de l'équipement.

Tenue de registres

1. Les exploitants d'équipements qui doivent faire l'objet d'un contrôle d'étanchéité établissent et tiennent à jour, pour chaque pièce de ces équipements, des registres dans lesquels ils consignent les informations suivantes :
 - a) La quantité et le type de gaz à effet de serre fluorés installées,
 - b) Les quantités de gaz ajoutées pendant l'installation, la maintenance ou l'entretien ou à cause d'une fuite,
 - c) La quantité de gaz installés qui a été éventuellement recyclée ou régénérée, y compris le nom et l'adresse de l'installation de recyclage ou de régénération et, le cas échéant, le numéro de certificat,
 - d) La quantité de gaz récupérée,
 - e) L'identité de l'entreprise qui a assuré l'installation, l'entretien, la maintenance et, le cas échéant, la réparation ou la mise hors service de l'équipement, y compris, le cas échéant, le numéro de son certificat,
 - f) Les dates et les résultats des contrôles effectués,
 - g) Si l'équipement a été mis hors service, les mesures prises pour récupérer et éliminer les gaz.
2. Les exploitants conservent les registres visés audit paragraphe pendant au moins cinq ans, les entreprises exécutant les activités pour le compte des exploitants conservent des copies des registres visés au paragraphe 1 pendant au moins cinq ans.

Verordnung (EU) Nr. 517/2014 vom 16/04/14 über fluorierte Treibhausgase und die Verordnung (EG) zur Aufhebung Nr. 842/2006

Dichtheitsprüfung

1. Die Betreiber von den Geräte, die die fluorierte Treibhausgase in Mengen von 5 Tonnen CO₂-Äquivalent oder mehr enthalten und nicht in Schäumen enthalten, müssen sicherstellen, dass das Gerät auf Dichtheit überprüft wird.
2. Für die Geräte, die fluorierte Treibhausgase in Mengen von 5 Tonnen 5 Tonnen CO₂-Äquivalent oder mehr enthalten aber weniger als 50 Tonnen CO₂-Äquivalent enthalten: mindestens alle 12 Monate.

Bild der Gleichwertigkeit CO₂

Belastung und Tonnen von CO ₂	Häufigkeit der Prüfung
Von 7 bei 75 kg Belastung = von 5 bei 50 Tonnen	Jedes Jahr

Lassen Sie keine R32-Kühlflüssigkeit in die Atmosphäre gelangen. Dies ist ein Fluorid-Treibhauseffektgas, das unter das Kyoto-Abkommen fällt, mit einem Potenzial für die globale Erwärmung (GWP) = 675 - (siehe Verordnung der Europäischen Gemeinschaft zu Fluorid-Treibhauseffekt-Verordnung (EU) Nr. 517/2014).

In Bezug auf die Gas R32, 7.40kg in Höhe von 5 Tonnen CO₂, Engagement für die Überprüfung jedes Jahr.

Ausbildung und Zertifizierung

1. Die Betreiber der betreffenden Anwendung sollen dafür Sorge tragen, dass die zuständige Person die erforderliche Zertifizierung erlangt hat, die die angemessene Kenntnisse der geltenden Vorschriften und Normen sowie die notwendige Kompetenz in Bezug auf die Emissionsvermeidung und -verwertung von fluorierten Treibhausgasen und der Handhabungssicherheit der betreffenden Typen und Größe der Ausrüstung beinhaltet.

Aufbewahrung der Aufzeichnungen

1. Die Betreiber von den Geräte, die auf Dichtheit überprüft werden müssen, müssen für jedes Gerät, das die folgenden Angaben enthält, Aufzeichnungen erstellen und verwalten:

- a) Die Menge und Art der installierten fluorierten Treibhausgase;
- b) Die Mengen an fluorierten Treibhausgasen, die während der Installation, Wartung oder Service oder aufgrund von Leckagen hinzugefügt werden;
- c) Ob die Mengen der installierten fluorierten Treibhausgase wiederverwandt oder zurückgefordert wurden, einschließlich der Name und Anschrift der Wiederverwendung oder Rückgewinnungsanlage und gegebenenfalls der Bescheinigungsnummer;
- d) Die Menge der fluorierten Treibhausgase wiederhergestellt wird;
- e) Die Identität des Unternehmens, das die Ausrüstung installiert, gewartet und gegebenenfalls repariert oder außer Betrieb hat, gegebenenfalls einschließlich der Nummer des Zertifikats;
- f) Datum und Ergebnisse der Prüfung durchgeführt werden;
- g) Wenn das Gerät außer Betrieb hat, wurden die Maßnahmen zur Rückgewinnung und Beseitigung der fluorierten Treibhausgase getroffen.

2. Die Betreiber bewahren die Aufzeichnungen für mindestens fünf Jahre lang auf, wobei die Unternehmen, die die Tätigkeiten für die Betreiber ausführen, die Aufzeichnungen für mindestens fünf Jahre lang aufbewahren soll.

Regolamento (EU) n ° 517/2014 del 16/04/14 sui gas serra fluorurati ad effetto serra e che abroga il regolamento (CE) n ° 842/2006

controlli di perdite

1. Gli operatori delle apparecchiature che contengono gas fluorurati ad effetto serra con quantità di 5 tonnellate di CO₂, equivalenti o superiore e non contiene nelle schiume, devono garantire che il materiale sia stato verificato la presenza di perdite.
2. Per le apparecchiature che contengono gas fluorurati ad effetto serra con quantità di 5 tonnellate di CO₂ equivalente o superiore, ma inferiore a 50 tonnellate di CO₂ equivalente: controllare almeno ogni 12 mesi.

Immagine del CO₂ dell'equivalenza

Caricare il totale CO₂ in chili e tonnellate	Frequenza di test
Dal 7 a 75 chili di carico = dal 5 a 50 tonnellate	Annuale

Non permettere che il refrigerante R32 entri nell'atmosfera. Si tratta di un gas fluorurato ad effetto serra coperto dall'accordo di Kyoto, con potenziale di riscaldamento globale (GWP) = 675 - (cfr. Regolamento della Comunità europea sul regolamento sui fluoro in serra (UE) n. 517/2014).

Per quanto riguarda la Gas R32, 7.40 chili pari a 5 tonnellate di CO₂, l'obbligo a controllare ogni anno.

Formazione e certificazione

1. Il gestore della relativa domanda deve assicurare che il personale interessato abbia ottenuto la certificazione necessaria, che implica una conoscenza appropriata dei regolamenti e delle norme vigenti, nonché la necessaria competenza in materia di prevenzione delle emissioni e di recupero dei gas fluorurati ad effetto serra e la sicurezza la gestione dell'apparecchiatura del relativo tipo e dimensioni.

Conservazione di registri

1. Gli operatori di attrezzatura che è necessario per controllare la presenza di perdite, deve stabilire e mantenere i record per ogni pezzo di tali attrezzature specificando le seguenti informazioni:
 - a) La quantità e il tipo di gas fluorurati ad effetto serra installati;
 - b) Le quantità di gas fluorurati ad effetto serra aggiunte durante l'installazione, manutenzione o assistenza o a causa di perdite;
 - c) Se la quantità di gas fluorurati ad effetto serra installate sono state riciclate e rigenerate, insieme al nome e l'indirizzo del centro di riciclaggio o recupero e, se del caso, il numero del certificato;
 - d) la quantità di gas fluorurati ad effetto serra recuperata
 - e) L'identità dell'impresa che ha installato, servito, mantenuto e, se del caso riparato o decommissionato le attrezzature, include, se del caso, il numero del propriocertificato;
 - f) Le date ei risultati dei controlli effettuati;
 - g) Se l'apparecchiatura è stata decommissionata, le misure adottate per recuperare e sistemare i gas fluorurati ad effetto.
2. L'operatore deve conservare i registri per almeno cinque anni, le imprese che svolgono le attività per gli operatori devono tenere copie dei registri per almeno cinque anni.

Reglamento (EU) n ° 517/2014 del 16/04/14 sobre gases fluorados de efecto invernadero y anulación del Reglamento (CE) n ° 842/2006

Inspección de fugas

1. Los propietarios o mantenedores de equipos que contengan gases invernaderos fluorados en cantidades de 5 toneladas de CO₂, equivalentes o más y no contenidas en espumas deberán asegurarse de que el equipo se ha comprobado si tiene fugas.
2. Para equipos que contengan gases fluorados de efecto invernadero en cantidades de 5 toneladas de CO₂ equivalente o más, pero de menos de 50 toneladas de CO₂ equivalente: Revisar al menos cada 12 meses.

Equivalencia de CO₂

1. Carga en kg y toneladas de CO₂.

Carga y toneladas de CO ₂	Frecuencia de la prueba
De 7 a 75 kg carga = de 5 a 50 Toneladas	Cada año

No expulsar R32 a la atmósfera. Este líquido es un gas fluorado de efecto invernadero cubierto por el protocolo de Kyoto, con un potencial de calentamiento global (GWP) = 675 - (consulte la normativa de la Comunidad Europea sobre el Reglamento de gases fluorados de efecto invernadero, (UE - 517/2014).

En cuanto al Gas R32, 7.40kg con un valor de 5 toneladas de CO₂, se compromete a revisarlo cada año.

Mantenedor Certificado

1. El propietario o mantenedor debe garantizar que el personal pertinente haya obtenido la certificación necesaria, lo que implica un conocimiento adecuado de las normas y reglamentaciones aplicables, así como la competencia necesaria en materia de prevención de emisiones y recuperación de gases fluorados tipo y tamaño del equipo.

Mantenimiento de registros

1. El personal de mantenimiento que requiera verificar fugas deberán establecer y mantener registros para cada pieza de dicho equipo, especificando la siguiente información:
 - A) La cantidad y el tipo de gases fluorados de efecto invernadero instalados;
 - B) La cantidad de gases fluorados de efecto invernadero añadidas durante la instalación, el mantenimiento o el servicio o debido a fugas;
 - C) Si se han reciclado o recuperado la cantidad de gases fluorados de efecto invernadero instalados, incluido el nombre y la dirección de la instalación de reciclado o de regeneración y, en su caso, el número del certificado;
 - D) La cantidad de gases fluorados de efecto invernadero recuperados
 - E) La identidad de la empresa instaladora, reparadora, mantenedora y, en su caso, la empresa desmanteladora del equipo, incluido, en su caso, el número de su certificado;
 - F) Las fechas y resultados de los controles efectuados;
 - G) Si el equipo fuera desmantelado, las medidas adoptadas para recuperar y tratar de los gases fluorados de efecto invernadero
2. El operador debe conservar los registros durante al menos cinco años, las empresas que realicen las actividades de los operadores deben conservar las copias de los registros durante al menos cinco años.

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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 °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 follow the instructions of 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 will invalidate the guarantee.

The manufacturer declines any respectability for the damage caused by any third party, object ingress and of the errors due to the installation that do not follow the manual guidelines. Any use that is not as intended by the manufacturer will invalidate the guarantee.



WARNING

- Please always keep the heat pump in a well ventilated place and away from anything which could cause fire.
- Do not braze or weld the pipe if there is refrigerant inside machine. Please do not charge the gas when in a confined space.
- 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.
- 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		ALSAVO 25	ALSAVO 45
Air 28°C, Water 28°C, Humidity 80%			
Heating capacity	kW	2.5	4.2
Power consumption	kW	0.59	1.00
C.O.P.	W/W	4.2	4.2
Air 15°C, Water 26°C, Humidity 70%			
Heating capacity	kW	1.9	3.2
Power consumption	kW	0.56	0.91
C.O.P.	W/W	3.4	3.5
* General data			
Compressor type		Rotary/R32	
Voltage	V	220V/50Hz/1PH	
Rated Current	A	2.6	4.4
Minimum fuse	A	7.5	13
Advised pool volume (with pool cover)	m ³	0-10	5-16
Advised water flux	m ³ /h	2	2
Water Pressure Drop	KPa	15	15
Heat exchanger		Titanium in PVC	
Water connection	mm	32 or 38mm	
No. of Fan		1	
Ventilation type		Horizontal	
Fan Speed	RPM	2500	1100
Noise level(10m)	dB(A)	48	49
Noise level(1m)	dB(A)	57	58
* Dimension/ Weight			
Net Weight	kg	18	27
Gross Weight	kg	22	32
Net Dimension	mm	318*363*411	443*440*501
Packing Dimension	mm	380*450*475	495*520*560

* Above data are subjects to modification without notice.

2. Transport advertising

2.1 Delivery of the packaging



For the transportation, the heat pumps are fixed on the pallet and cover with a cardboard box.

To preserve from any damage, the heat pump must be transferred in its package.

It is the responsibility of the addressee to notify of any damage incurred during delivery within 48 hours. No responsibility can be taken once the unit has been signed for.

2.2 Stock advertising



* The warehouse should be bright, spacious, open, well ventilated, have ventilation equipment and no fire source.

* Heat pump must be stored and transfer in vertical position in its original packaging. If it is not the case, it cannot be operated until a minimum period of 24H has passed before the unit can have the electrical power turned on.

FORBIDDEN



2.3 Transfer to the final position

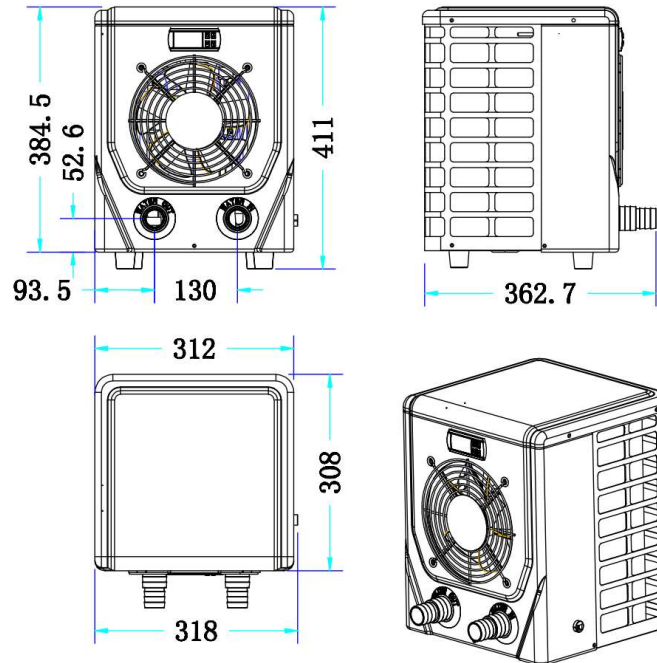
* During the unpacking of the product and the transfer from the pallet to the final place of installation, it is necessary to maintain the heat pump in a vertical position.

* Smoking and the use of flames are prohibited near R32 machine.

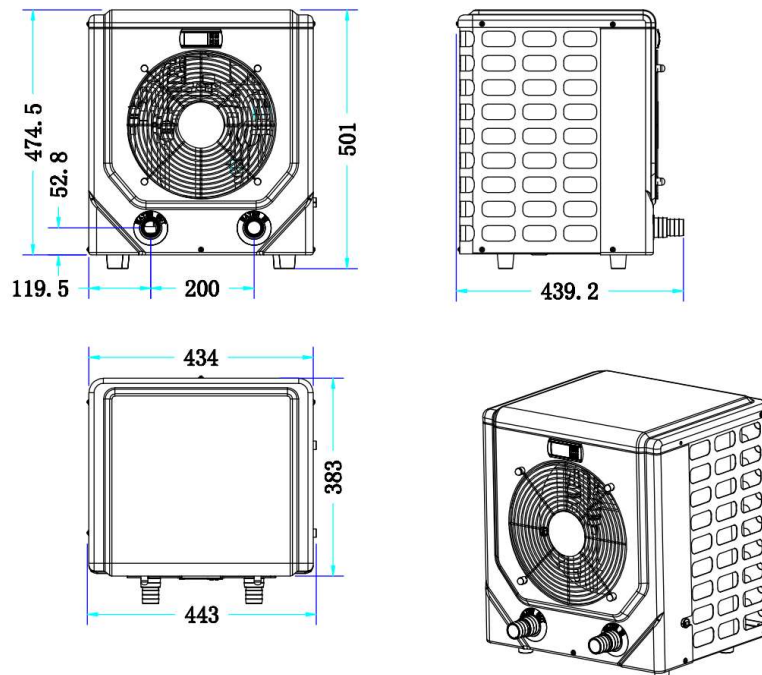
Water connection are not to be used as load bearing handles. The manufacturer would not take the responsibility in case of damage to the water pipes.

3. Dimension

ALSAVO 25



ALSAVO 45



4. Installation and connection

Attention:

Please observe the following rules when installing the heat pump:

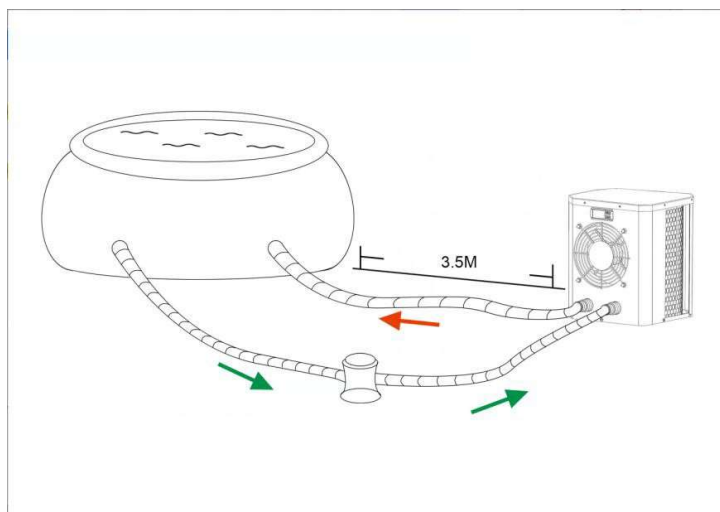
1. Any addition of chemicals must take place in the piping located **downstream** from the heat pump.
2. Always hold the heat pump upright. If the unit has been held at an angle, wait at least 24 hours before applying main power to the heat pump.

4.1 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 **outdoor** 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.



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.

4.2 Initial operation

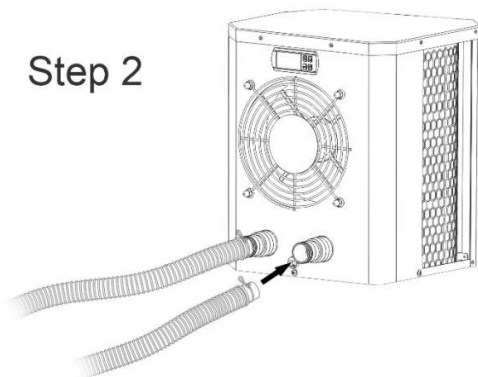
Note: In order to heat the water in the pool (or hot tub), the filter pump must be running so the water is circulating through the heat pump. The heat pump will not start up if the water is not circulating.

4.3 Hose connection

Step 1



Step 2



Note:

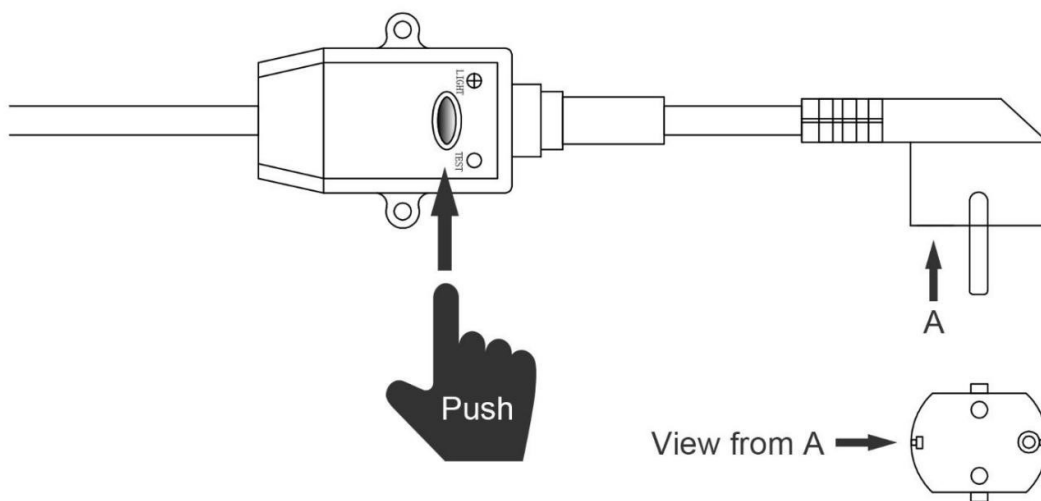
The factory supplies only the heat pump. All other components, including two hoses, must be provided by the user or the installer.

4.4 Electrical connection

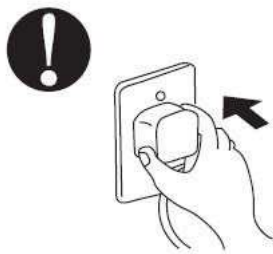
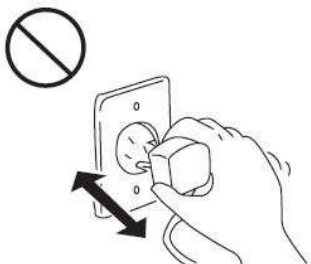
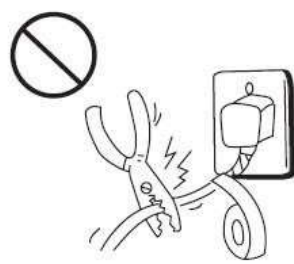
Before connecting the unit, verify that the supply voltage matches the operating voltage of the heat pump.

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

Please note that the RCD is not waterproof and keep it dry all the time. It is recommended to keep the RCD in the electrical box.



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. 
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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 the filter pump is turned off, the unit should also turn off automatically.
5. Allow the heat pump and the filter pump to run 24 hours a day until the desired water temperature is reached. The heat pump will stop running at this point +1°C. After this, it will restart automatically (as long as the filter pump is running) whenever the swimming pool water temperature drops 1 degree below the set temperature (for example, if you set the temperature 28 °C, the heat pump will stop when the temperature at 29°C. While it will restart when the temperature of the water down to 27°C).

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 electrical contactor wear. The unit will restart automatically after this time delay expires. Even a brief power interruption will trigger this time delay and prevent the unit from restarting immediately. Additional power interruptions during this delay period do not affect the 3-minute duration of the delay.

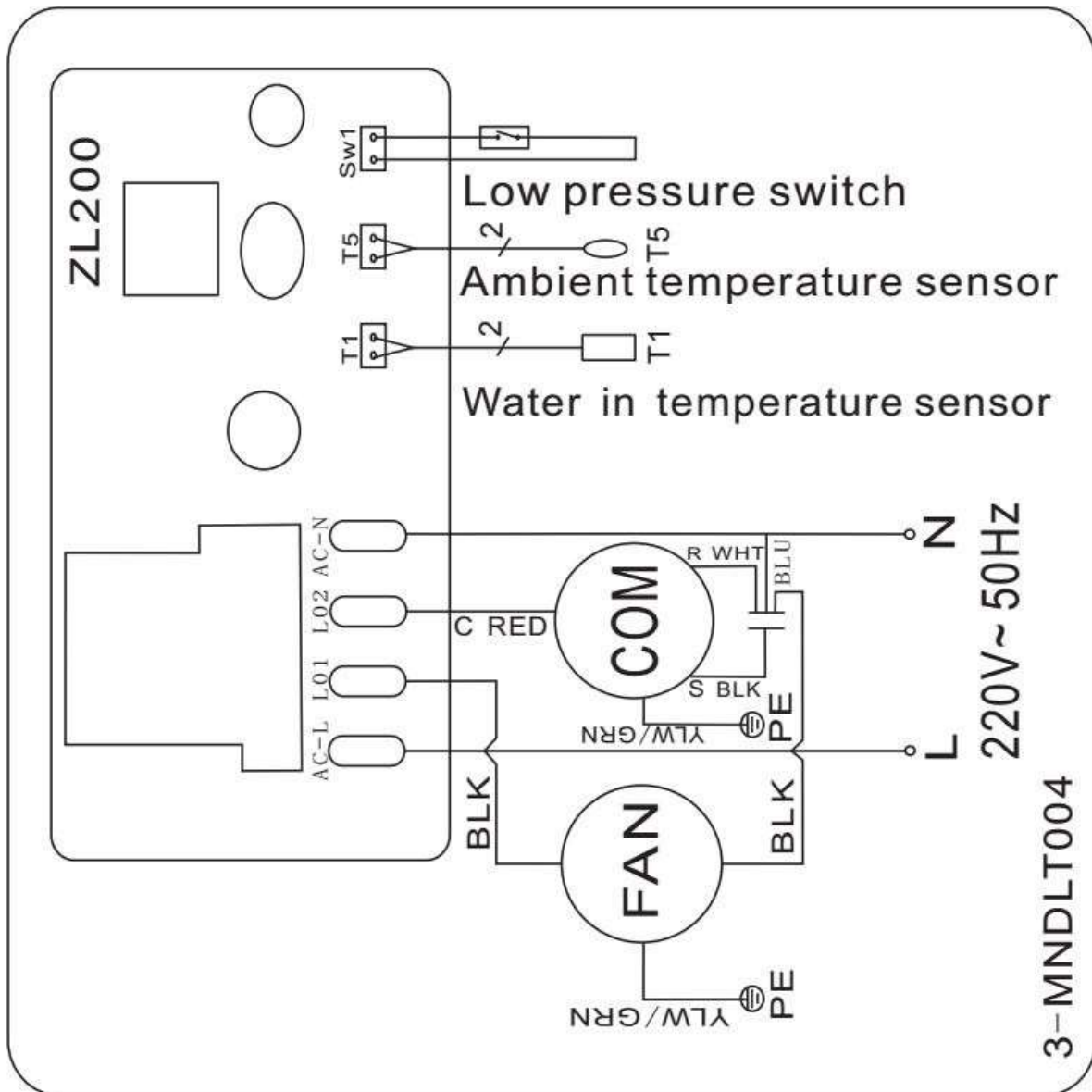
4.5 Condensation

The air drawn into the heat pump is 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 liters per hour at high humidity. The condensate will drain from the bottom of the heat pump. This is sometimes mistakenly regarded as a water leak. .

5. Electrical wiring

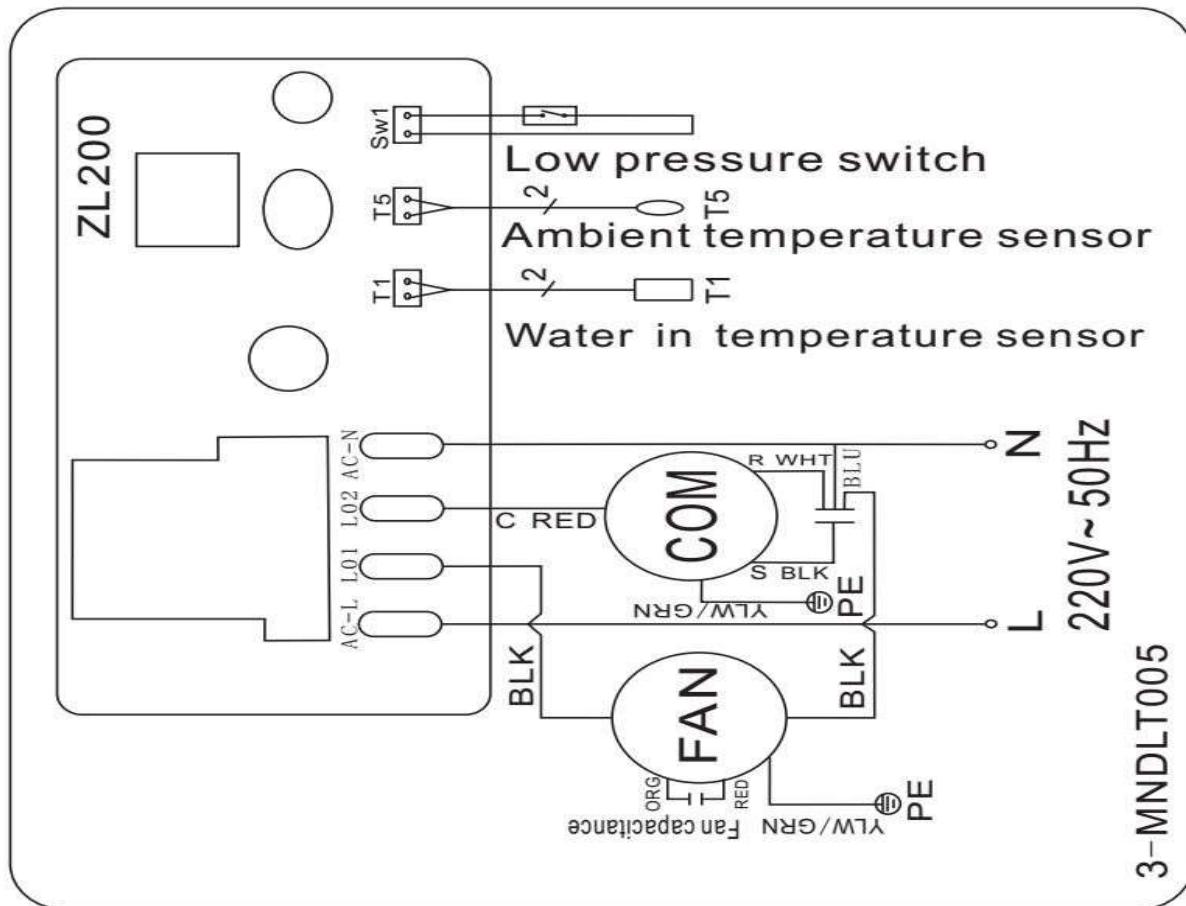
5.1 Swimming pool heat pump wiring diagram

ALSAVO 25



5.2 Swimming pool heat pump wiring diagram

ALSAVO 45



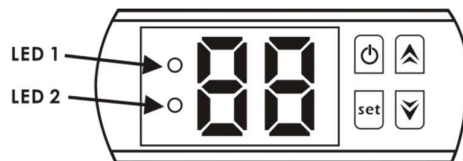
NOTE:

- (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, 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 means to disconnect should be located within sight of and readily accessible from the unit (circuit breaker, fused or un-fused switch). 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.

6. Display controller operation

6.1 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 if the unit is in fault.

6.2 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.

6.3 Set the water temperature

Press  or  directly to adjust water temperature (range:.10—42 °C)

Press  to save the setting then exit.

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

6.4 Parameter checking

Press , 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 temperature

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

7. Trouble shooting

7.1 Error code on the LED controller

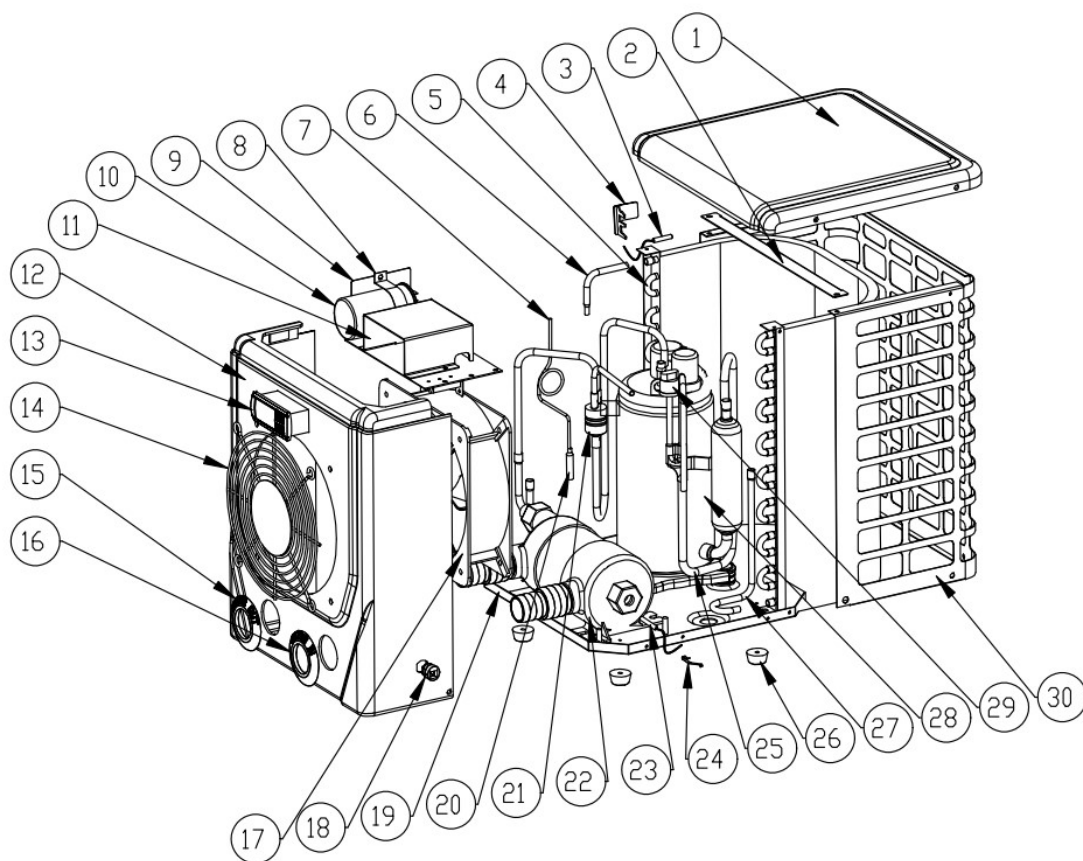
Malfunction	Code	Reason	Solution
Too low or too high ambient temperature protection	P0	1. Ambient temperature is out of operating range: 12°C- 42°C. 2. Controller failure.	1. Wait the ambient temperature to rise to 13°C or to cool down to 40°C and restart. 2. Replace the new controller.
Water temperature 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	1. Low pressure switch disconnected or failure. 2. Gas leakage.	It must be repaired by the professional technicians.

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

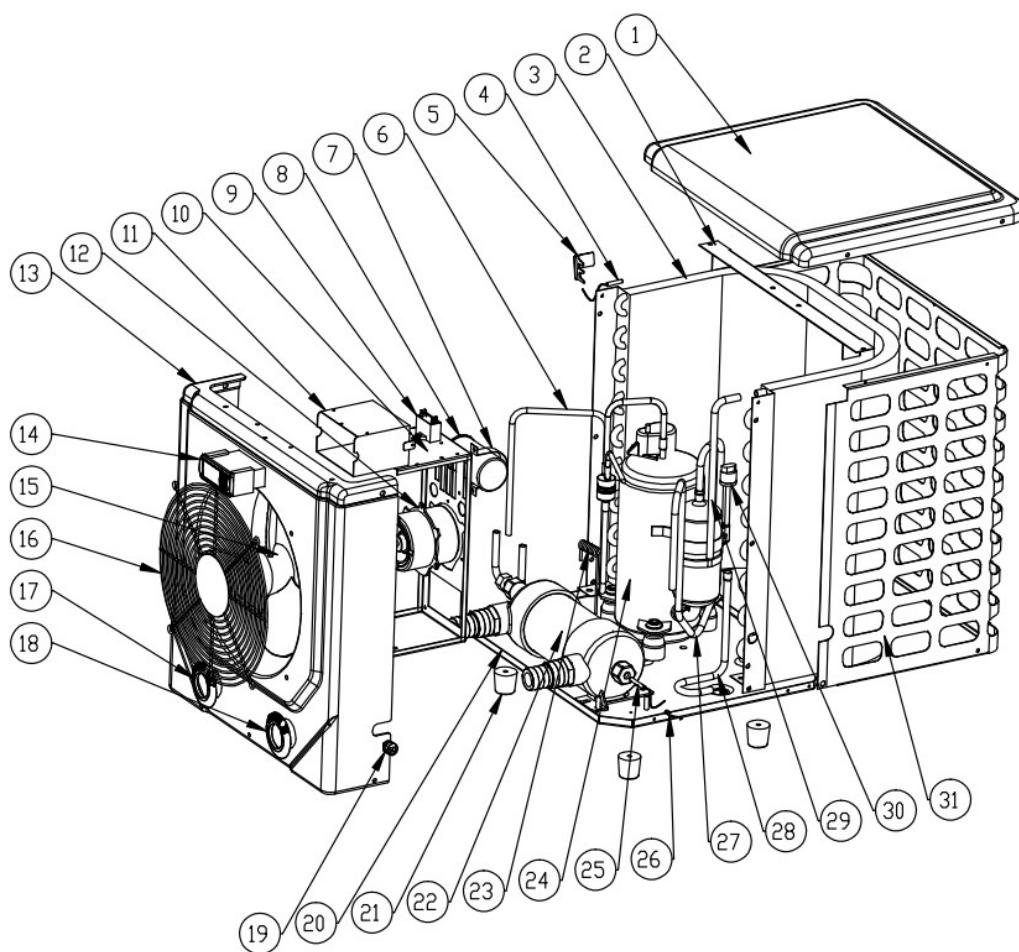
Malfunctions	Observing	Reason	Solution
Heat pump is not running	LED wire controller no display.	No power supply.	Check cable and circuit breaker if it is connected.
	LED wire controller displays the actual water temperature.	1. Water temperature is reaching to setting value, HP under constant temperature status. 2. Heat pump just starts to run.	1. Verify water temperature setting. 2. Startup heat pump after a few minutes.
Short running	LED displays actual water temperature, no error code displays.	1. Fan NOT running. 2. Air ventilation is not enough. 3. Refrigerant is not enough.	1. Check the cable connections between the motor and fan, if necessary, it should be replaced. 2. Check the location of heat pump unit and eliminate all obstacles to make good air ventilation. 3. Replace or repair the heat pump unit. It must be repaired by a professional technician.
Water stains	Water stains on heat pump unit.	1. Concreting. 2. Water leakage.	1. No action. 2. Check the titanium heat exchanger carefully if it is any defect.

8. Exploded diagram

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No	Spare parts	No	Spare parts
1	Top cover	16	Blue rubber ring
2	Evaporator support panel	17	Fan motor
3	Ambient temp. sensor T5-TH1	18	Power cord buckle
4	Ambient temp. sensor clip	19	Base tray
5	Evaporator	20	Tube
6	Tube	21	Discharge pipe
7	Capillary	22	Titanium heat exchanger
8	Capacitor clip	23	Water inlet temp. sensor T1-TH6
9	Fan motor top panel	24	Exchanger temperature sensor clip
10	Compressor capacitance	25	Gas return piping
11	Electric box	26	Rubber feet
12	Front panel	27	Evaporator pipe
13	Controller	28	Compressor
14	Fan grill	29	Low pressure switch
15	Red rubber ring	30	Back grill



No	Spare parts	No.	Spare parts
1	Top cover	17	Red rubber ring
2	Fan motor top panel	18	Blue rubber ring
3	Evaporator	19	Power cord buckle
4	Ambient temp. sensor T5-TH1	20	Base tray
5	Ambient temp. sensor clip	21	Rubber feet
6	Discharge pipe	22	Titanium heat exchanger
7	Capacitor clip	23	Capillary
8	Compressor capacitance	24	Compressor
9	Fan motor capacitance	25	Water inlet temp. sensor T1-TH6
10	Fan motor bracket	26	Exchanger temperature sensor clip
11	Electric box	27	Gas return piping
12	Fan motor	28	Evaporator pipe
13	Front panel	29	Tube
14	Controller	30	Low pressure switch
15	Fan blade	31	Back grill
16	Fan grill		

9. Maintenance

- (1) You should check the water supply system regularly to avoid the air entering the system and creation 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.
- (3) You should drain the water from heat pump if it will stop running for a long time (especially during the winter season).
- (4) Check the water levels before the unit start after a long break in usage.
- (5) When the unit is running, there will be condensate water discharging from the bottom of the unit. This is normal.

10. Accessories

 Draining jet,1 pcs	
 Water drainage pipe, 1 pcs	Draining jet 1. Install the draining jet under the bottom panel. 2. Connect with a water pipe to drain out the water. Note: Lift the heat pump to install the jet. Never overturn the heat pump, it could damage the compressor.