

Installation and user manual
(Translation of original
instructions)

EN



UFLEX

N420881A - Rev. 00 - 11/2022

VELAIR

Self-contained unit
i10 VSD SMART
i16 VSD SMART

First of all, we would like to thank you for having chosen a device of our production.

We are sure you will be satisfied because it represents the best technology of boat air conditioning.

By following the suggestions contained in this manual, the product you have purchased will operate without problems giving you optimum room temperatures with minimum energy costs.

UFLEX S.r.l.

Conformity

This unit complies with the European directives:

- European Directive 2004/108/EC (EMC) on Electromagnetic Compatibility
- Low Voltage Directive 2014/35/UE
- EMC Directive 2014/30/EU on Electromagnetic Compatibility
And subsequent amendments.

Markings



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GENERAL INFORMATION

1.1 About the manual

This manual was written to provide all the explanations for the correct management of the appliance.

- ⚠ This instruction manual forms an integral part of the device and therefore must be carefully preserved and must ALWAYS travel with it, even if you transfer the device to another owner or relocate it to other premises. If the manual gets damaged or lost, download a copy from the website.
- ⚠ Read this manual carefully before proceeding with any operation and follow the instructions in the individual chapters.
- ⚠ The manufacturer is not responsible for damages to persons or property caused by failure to follow the instructions in this manual.
- ⚠ This document is restricted in use to the terms of the law and may not be copied or transferred to third parties without the express authorization of the manufacturer.

1.1.1 Editorial pictograms

The pictograms in the next chapter provide the necessary information for correct, safe use of the machine in a rapid, unmistakable way.

Related to security

- ⚠ **High risk warning (bold text)**
 - The operation described above presents a risk of serious physical injury, fatality, major damage to the appliance and/or to the environment if not carried out in compliance with safety regulations.
- ⚠ Low risk warning (plain text)
 - The operation described above presents a risk of minor physical injury or minor damage to the appliance and/or to the environment if not carried out in compliance with safety regulations.
- ⊘ Prohibition (plain text)
 - Refers to prohibited actions.
- ⓘ **Important information (bold text)**
 - This indicates important information that must be taken into account during the operations.

In the texts

Purpose of the actions:

- Actions required
- Expected responses following an action*
- Lists

In the figures

- 1 The numbers indicate the individual components.
- A The capital letters indicate component assemblies.

- ① The white numbers in black marks indicate a series of actions to be carried out in sequence.
- Ⓐ The black letter in white identifies an image when there are several images in the same figure.

1.1.2 Pictograms on the product

Symbols are used in some parts of the appliance:

Related to security

- ⚠ **Caution: electrical danger**
 - The concerned personnel is informed to the presence of electricity and the risk of suffering an electric shock.

1.1.3 Recipients

User

Non-expert person capable of operating the product in safe conditions for people, for the product itself and the environment, interpreting an elementary diagnostic of faults and abnormal operating conditions, carrying out simple adjustment, checking and maintenance operations.

Installer

Expert person qualified to position and connect (hydraulically, electrically, etc.) the unit to the plant; this person is responsible for handling and correct installation according to the instructions provided in this manual and the national standards currently in force.

To work on the refrigeration circuit, the installer must comply with the provisions of Regulation 303/2008/EC which defines, in accordance with Directive 842/2006/EC, the requirements for companies and personnel with regard to fixed refrigeration, air conditioning and heat pump equipment containing certain fluorinated greenhouse gases (F-gas licence).

Technical Service Centre

Expert and qualified person authorised directly by the manufacturer to carry out all routine and supplementary maintenance operations, as well as every adjustment, check, repair and replacement of parts necessary during the life of the unit itself.

Service personnel must comply with the provisions of Regulation 303/2008/EC which defines, in accordance with Directive 842/2006/EC, the requirements for companies and personnel with regard to fixed refrigeration, air conditioning and heat pump equipment containing certain fluorinated greenhouse gases (F-gas licence).

1.1.4 Manual organisation

The manual is divided into sections each dedicated to one or more target groups.

General information

It addresses all recipients.

It contains general information and important warnings that should be known before installing and using the appliance.

Product presentation

It addresses all recipients.

It contains the information to identify the product, its components, compatible accessories and destination of use.

Installation

It is addressed exclusively to the installer.

It contains specific warnings and all the information necessary for positioning, mounting and connecting the appliance.

Commissioning, maintenance and troubleshooting

They are addressed exclusively to the Technical Assistance Centre.

It contains specific warnings useful information for the most common commissioning and routine maintenance.

Technical information

It addresses all recipients.

It contains detailed technical information about the appliance.

1.2 General warnings

- ⚠ Specific warnings are given in each chapter of the document and must be read before starting operations.
- ⚠ All personnel involved must be aware of the operations and dangers that may arise when beginning all unit installation operations.
- ⚠ Installation performed outside the warnings provided in this manual and use of the appliance outside the prescribed temperature limits will invalidate the warranty.
- ⚠ The installation and maintenance of climate control equipment could be dangerous because there is pressurised refrigerant gas and live electrical components inside the appliances. The installation, initial start-up and subsequent maintenance phases must be carried out exclusively by authorised and qualified personnel.
- ⚠ Any contractual or extra-contractual liability for damage caused to persons, animals or property, due to installation, adjustment and maintenance errors or improper use is excluded. All uses not expressly indicated in this manual are not permitted.
- ⚠ Only qualified installer companies are authorised to install the device. After having completed installation, the installer will issue a declaration of conformity to the plant manager, as required by the applicable standards and the guidelines provided by contractor's instruction manual supplied with the device.
- ⚠ First start-up and repair or maintenance operations must be carried out by the Technical Assistance Centre or by qualified personnel following the provisions of this manual.
- ⚠ Do not modify or tamper with the appliance as this can lead to dangerous situations.
- ⚠ Use suitable accident-prevention clothing and equipment during installation and/or maintenance operations. The manufacturer is not liable for the non-observance of the current safety and accident prevention regulations.
- ⚠ In the event of liquid or oil leaks, disconnect the power supply to the unit and the seawater pump and close the water taps. Call the authorised Technical Assistance Centre or professionally qualified personnel as soon as possible and do not work on the appliance yourself.
- ⚠ In case of replacement of parts, use only original parts.

- ⚠ During the cold period, if the unit is not in use, empty all hydraulic circuits and the seawater condenser to prevent freezing.
- ⚠ The manufacturer reserves the right to make changes to its models at any time to improve its product, without prejudice to the essential characteristics described in this manual. The manufacturer is not obliged to add such modifications to machines previously manufactured, already delivered or under construction.

1.2.1 Specific warnings for R32

- ⓘ **This document contains only some of the warnings related to the refrigerant R32. For more comprehensive information, carefully read the safety data sheet available from the dealer.**
- ⚠ All precautions concerning the treatment of the refrigerant must be observed following the regulations in force.
- ⚠ The unit uses environmentally friendly R32 refrigerant gas, with a Global Warming Potential (GWP) = 675. Do not release R32 gas into the atmosphere.
- ⚠ R32 refrigerant gas is slightly flammable and odourless.
- ⚠ If refrigerant gas escapes, aerate the room abundantly and leave. Call the Technical Assistance Service or professionally qualified personnel as soon as possible and do not intervene on the appliance yourself.
- ⚠ When refilling the system after any leakage of R32 refrigerant gas, make sure that no foreign substances enter the circuit. The presence of air or other foreign substances inside the refrigerant circuit can cause the system to increase pressure or rupture and cause injuries to persons.
- ⚠ Avoid proximity to sources of ignition in continuous operation (open flames, gas appliances, electric stoves, lighted cigarettes, etc.).
- ⚠ This unit contains fluorinated greenhouse gases covered by the Kyoto Protocol. Maintenance and disposal operations must be carried out by qualified personnel only.

1.3 Basic rules of security

Please keep in mind that the use of products powered by electricity and water call for operators to comply with certain essential safety rules:

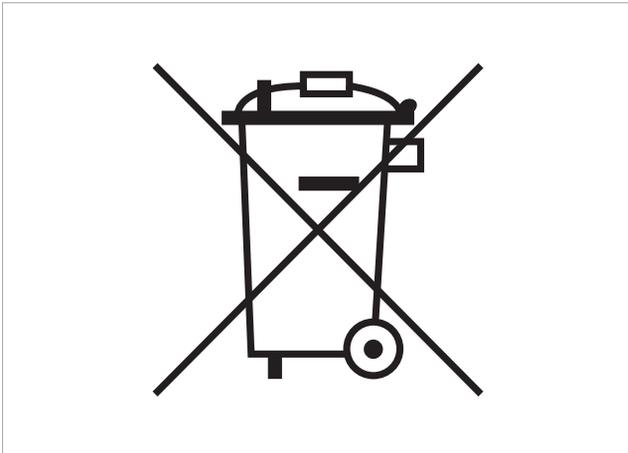
- ⊖ The use of the appliance to children and unassisted disabled persons is prohibited.
- ⊖ It is forbidden to touch the device with wet or damp body parts.
- ⊖ It is forbidden to carry out any operation before disconnecting the appliance from the power supply by setting the plant master switch to "off".
- ⊖ It is forbidden to modify the safety or adjustment devices or adjust without authorization and indications of the manufacturer.
- ⊖ It is forbidden to pull, unplug or twist the device's electric cables, even if it is disconnected from the mains.
- ⊖ It is forbidden to introduce objects and substances through the air inlet and outlet grilles.

- ⊖ It is forbidden to open the access doors of the device's internal parts without first having set main switch of the system to "off".
- ⊖ It is forbidden to dispose of, or leave in the reach of children, the packaging materials which could become a source of danger.

1.3.1 Specific safety rules for R32

- i** This document contains only some of the warnings related to the refrigerant R32. For more comprehensive information, carefully read the safety data sheet available from the dealer.
- ⊖ It is forbidden the use of gas and water pipes for grounding the appliance.
- ⊖ Smoking in the vicinity of the appliance is prohibited.
- ⊖ Using a mobile phone near the appliance is prohibited.
- ⊖ Using leak detectors with halogen lamps is prohibited.

1.4 Disposal



The symbol on the product or its packaging indicates that the product must not be treated as normal household waste, but must be taken to the appropriate collection point for the recycling of electrical and electronic equipment.

Proper disposal of this product avoids harm to humans and the environment and promotes the reuse of valuable raw materials.

For more detailed information about the recycling of this product, contact your local city office, your household waste disposal service or the shop where you purchased the product.

Illegal disposal of the product by the user involves the application of the administrative sanctions provided for by the regulations in force.

This provision is only valid in the EU Member States.

- ⚠** Avoid disassembling the unit yourself.
- ⚠** This unit contains fluorinated greenhouse gases covered by the Kyoto Protocol. Maintenance and disposal operations must be carried out by qualified personnel only.

⚠ Contact an authorised Technical Assistance Centre to disassemble the appliance.

PRODUCT PRESENTATION

2.1 Identification

The appliance can be identified by the rating plate:

		UFLEX srl Via Milite Ignoto, 8 16012 Busalla (GE)			
Type:			MOD:		
Serial number		Max cooling/ heating capacity			
Voltage		Max input power		Max current	
Max sea water flow		Min sea water flow		Refrigerant	

Contains fluorinated greenhouse gases covered by the Kyoto protocol

Technical rating plate

This shows the technical and performance specifications of the appliance.

 According to EU Regulation No. 517/2014 concerning certain fluorinated greenhouse gases, it is mandatory to indicate the total amount of refrigerant present in the installed system. This information can be found on the rating plate of the unit.

 Tampering with, removal of, or lack of identification plates will not allow for the safe identification of the product by its serial number and therefore invalidates the warranty.

2.2 Destination of use

These appliances have been designed for conditioning and/or heating boats and they must be destined for this

purpose, in accordance with their performance characteristics.

2.3 Description of the appliance

The Self-contained air conditioning units in the **Velair** range are designed for installation on boats.

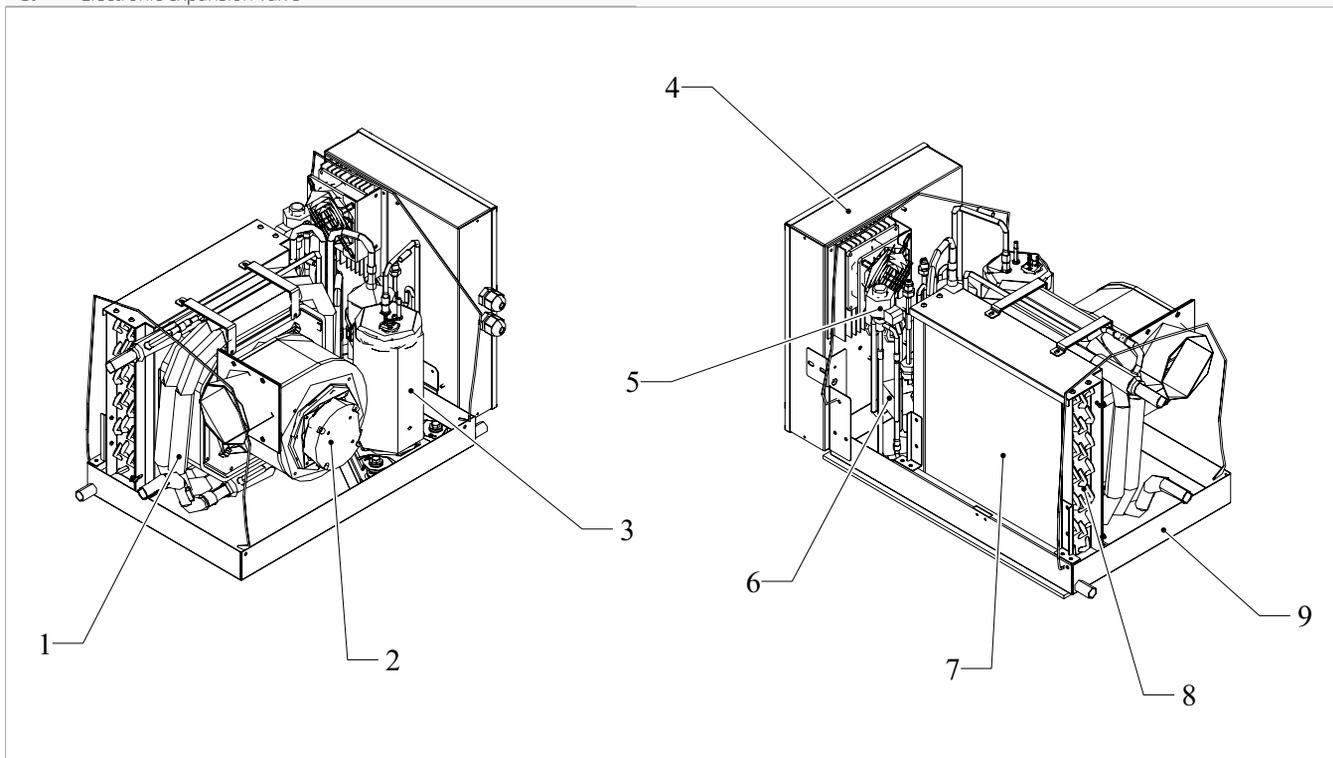
The **Velair** range related to this manual is manufactured in two different sizes according to performance:

i10 VSD SMART
i16 VSD SMART

2.4 List of components

- 1. Sea-side heat exchanger
- 2. Fan
- 3. Inverter driven rotary compressor
- 4. Electrical panel
- 5. Electronic expansion valve

- 6. 4-way valve
- 7. Air filter
- 8. Room-side heat exchanger
- 9. Condensate collection tray



2.5 Compatible accessories

The choice and installation of accessories must be established by the system designer or other qualified professional and must take into account both technical requirements and any local laws in force.

INSTALLATION

3.1 Preliminary warnings

- ⚠ **This section is dedicated to the Installer. The features of the installer are described in the "Recipients" p. 6 chapter.**
- ⚠ The installation must be carried out by the installer. There is a risk of water leakage, electric shock or fire if the installation is not performed correctly.
- ⚠ During the installation, it is necessary to observe the precautions mentioned in this manual, and on the labels placed inside the equipment, as well as to adopt any precaution suggested by common sense and by the Safety Regulations in force in the place of installation.
- ⚠ Be sure to use the supplied or specified installation parts. Use of other parts may cause the unit to come to lose, water leakage, electrical shock, or fire.
- ⚠ Failure to apply the indicated rules may cause malfunctions of the appliances and relieves the manufacturer from any warranty and from any damage caused to persons, animals or property.

3.2 Reception

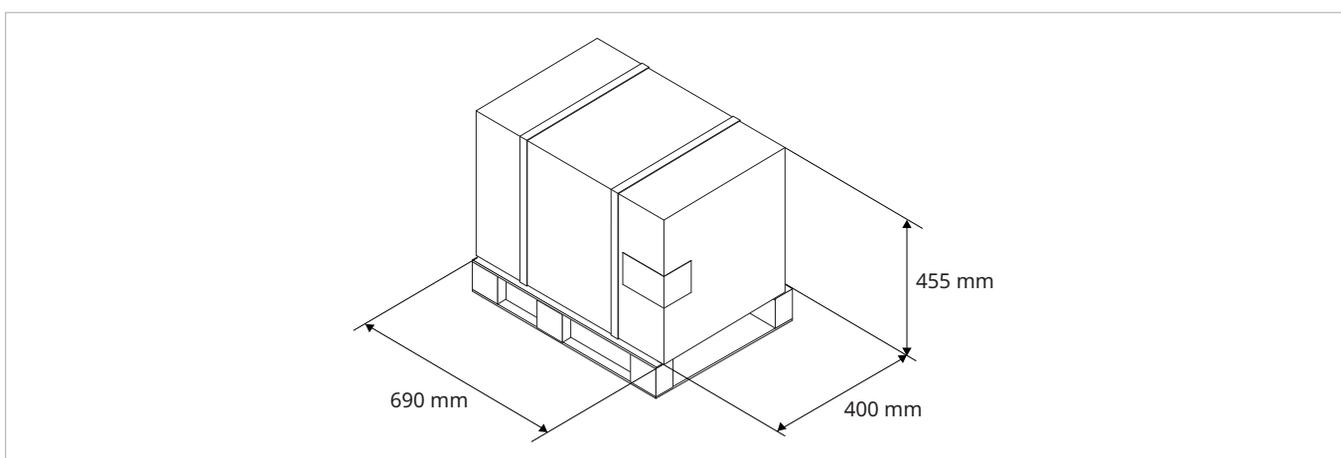
3.2.1 Preliminary warnings

- ⚠ Upon receipt of the package check that it is not damaged, otherwise accept the goods with reserve, producing photographic evidence of any damage.
- ⚠ The package must be transported in a horizontal position; otherwise, notify the carrier immediately.

3.2.2 Package description

The packaging is made of suitable material and carried out by experienced personnel.
The appliance is shipped in standard packaging consisting of a cardboard sleeve and a set of expanded polystyrene protectors.
There is a pallet underneath the packaging of the unit to facilitate transport and moving.
Units are delivered complete and in perfect condition.

3.3 Dimensions and weights with packaging

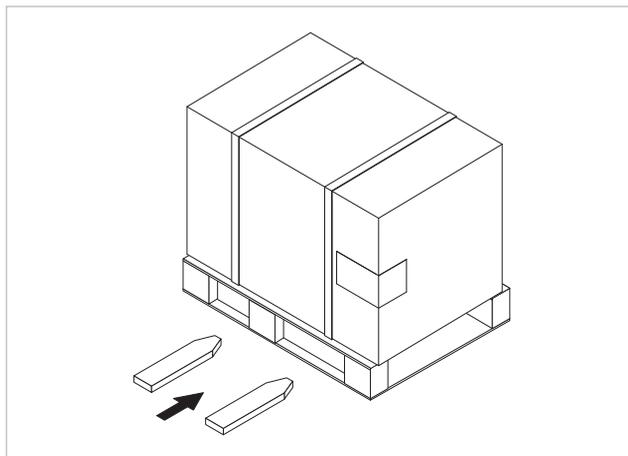


3.4 Handling with packaging

3.4.1 Preliminary warnings

- ⚠ The appliance must be handled only by qualified personnel, adequately equipped and with equipment suitable for the weight and dimensions of the appliance.
- ⚠ Before moving the unit, check the lifting capacity of the machinery used following the instructions on the packaging.
- ⚠ Move the unit to a horizontal position.
- ⚠ Stay clear of the area below and around it when the load is lifted off the ground.
- ⚠ If a forklift truck is used, put the base in the appropriate openings.
- ⚠ Avoid dangerous situations when using a hoist to lift the appliance.

3.4.2 Movement methods



- The product can be handled as follows:
- using a fork lift or a transpallet which can bear its weight

3.5 Storage

3.5.1 Preliminary warnings

- ⚠ Stored in accordance with the applicable national regulations.
- ⚠ Do not turn the packaging upside down.
- ⚠ Do not stack the appliances.
- ⚠ Only place the appliance in a horizontal position.

3.5.2 Appliance with packaging

Store the package:

- in a dry and clean place
- in a closed environment protected from atmospheric elements
- insulated from the ground by crossbars or pallets

3.5.3 Appliance without packaging

The following procedures are recommended in the case of medium to long term storage:

- check that no water is present in the hydraulic systems
- do not remove the protection of the heat exchanger
- do not remove plastic protective films

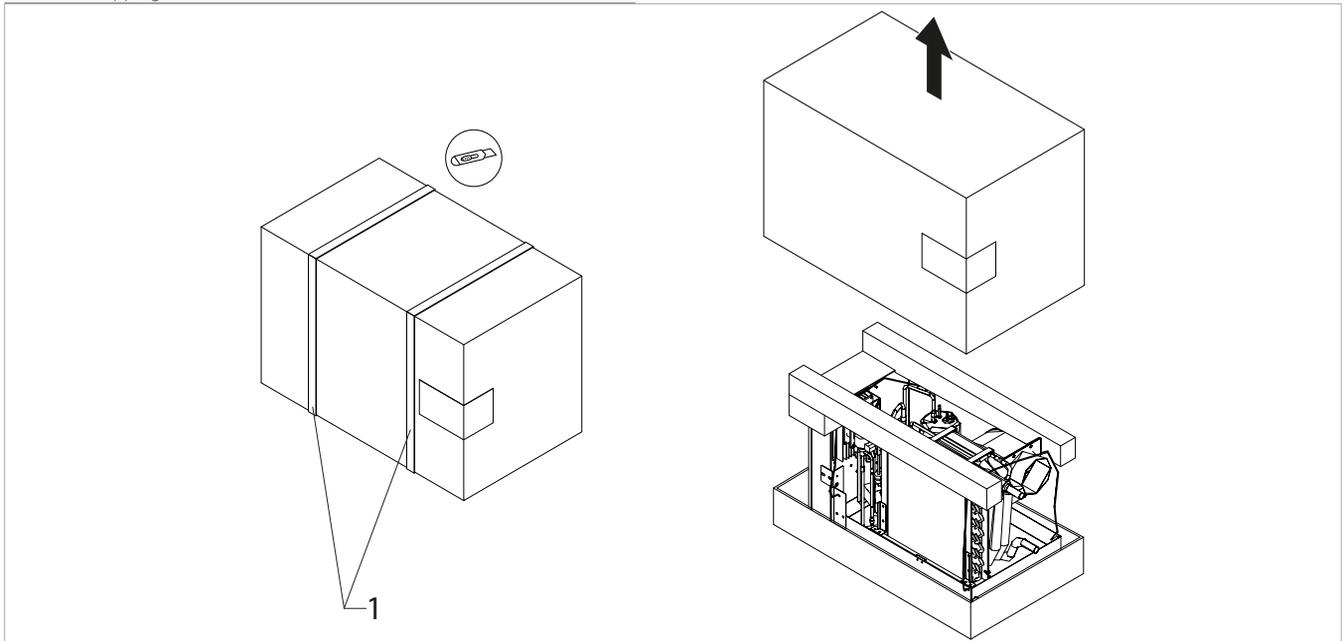
3.6 Unpacking

3.6.1 Preliminary warnings

- ⚠ Check that no components were damaged during transport.
- ⚠ Dispose of the packaging components following the applicable waste disposal regulations. Check for disposal arrangements with your municipality.
- ⊖ The packing material (cardboard, staples, plastic bags, etc.) must not be dispersed or abandoned in the surrounding environment and must be kept out of children reach, as it can be dangerous.

3.7 Remove the package

1. Strapping



Remove the packing:

- cut the strapping
- remove the packing
- remove the polystyrene elements

3.7.1 Accompanying material

They are included with the appliance, inside the packaging:

- 4 unit fixing brackets

⚠ Check the presence of the individual components.

3.8 Handling without packaging

3.8.1 Preliminary warnings

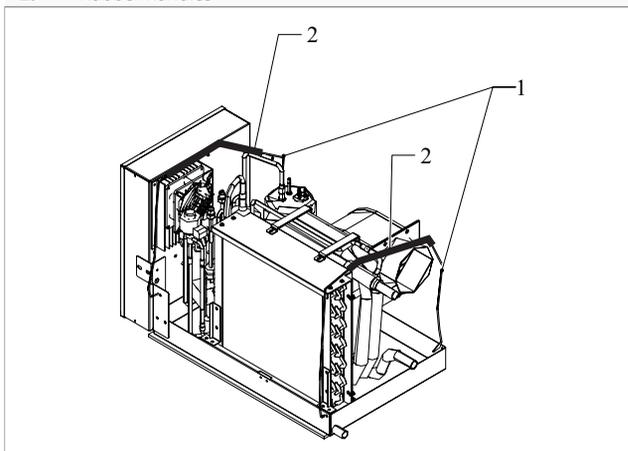
- ⚠ The appliance must be handled only by qualified personnel, adequately equipped and with equipment suitable for the weight and dimensions of the appliance.
- ⚠ Move the unit to a horizontal position.
- ⚠ Stay clear of the area below and around it when the load is lifted off the ground.

To handle:

- lift the unit using the rubber handles on the lifting straps
- ⚠ Do not lift the unit by holding sensitive parts such as pipes or air adapters.
- ⚠ Damage to the circuit piping caused by incorrect handling of the unit voids its warranty.

3.8.2 Movement methods

1. Lifting straps
2. Rubber handles



3.9 Installation site

The location of the appliance must be determined by the plant engineer or a competent person and must take into account both purely technical requirements and any national/local legislation in force.

The appliance is intended to be installed inside boats.

3.9.1 Preliminary warnings

- ⚠ Avoid installing the unit near:
 - obstacles or barriers that cause recirculation of the exhaust air
 - narrow places where the sound level of the appliance can be enhanced by reverberations or resonances
 - positioning in corners where dust and anything else that may reduce the efficiency of the appliance by obstructing the air passage is usual
 - environments with the presence of flammable or explosive gases
 - heat sources
- ⚠ Avoid placing the unit within 1 metre of radio and video equipment.

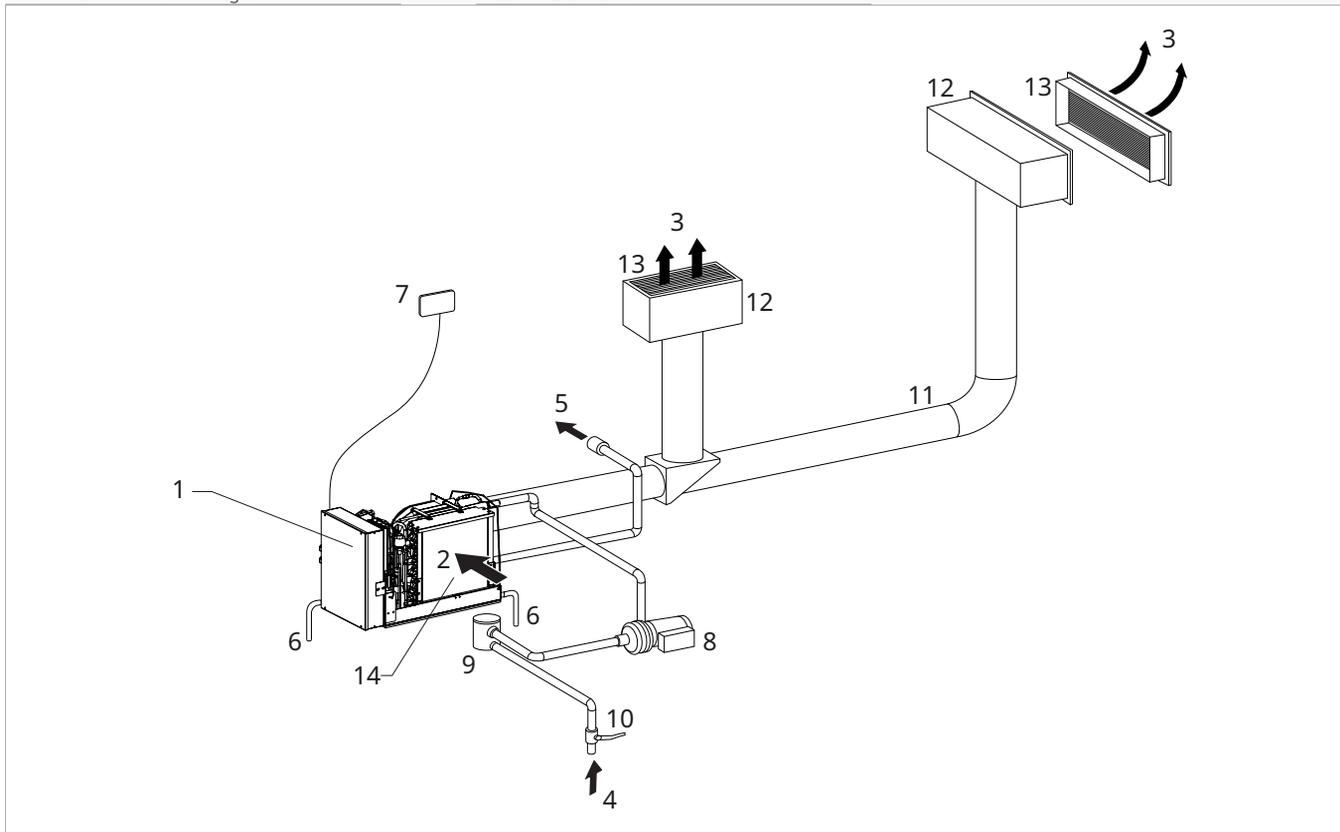
- ⚠ Make sure that:
 - the installation site of the unit must be chosen with the utmost care to guarantee adequate protection from shocks and consequent damage
 - the supporting surface can bear the weight of the appliance
 - the appliance must be installed in a position where it can be easily serviced
 - the place where the unit is to be installed is well-ventilated
- ⚠ Some parts of the appliance produce heat during operation. The room installation must ensure adequate ventilation and proper heat dissipation.
- ⚠ If the appliance is installed incompletely or on an inappropriate base, it could cause damage to persons or property if it should detach from its base.
- ⚠ Provide the following:
 - a drain and a water supply nearby
 - a compliant power supply nearby
 - fixing elements suitable for the type of support

3.10 General installation diagram

1.	Unit
2.	Air inlet
3.	Air delivery
4.	Sea water inlet
5.	Sea water discharge

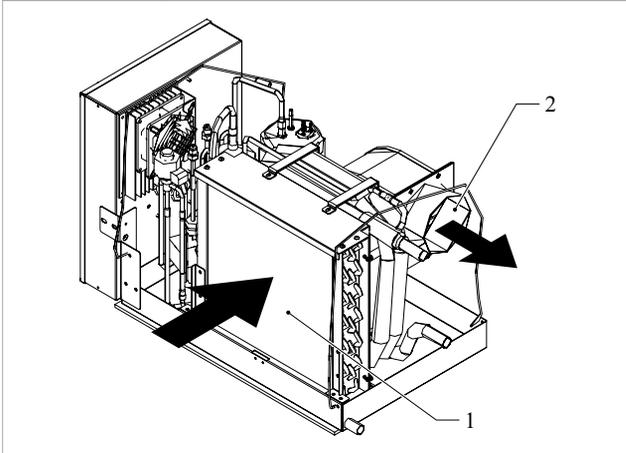
6.	Condensate drain
7.	Control Panel
8.	Pump
9.	Sea-side filter
10.	Ball valve

11.	Distribution channel
12.	Air distribution plenum
13.	Grids
14.	Air-side filter



3.11 Installation minimum distances

1. Air intake
2. Air delivery



The clearance zones are necessary to avoid barriers to air-flow and to allow normal cleaning and maintenance.

⚠ Make sure that there is sufficient space to allow for routine and supplementary maintenance operations.

3.12 Positioning

3.12.1 Preliminary warnings

⚠ The unit must be fixed to the supporting surface.

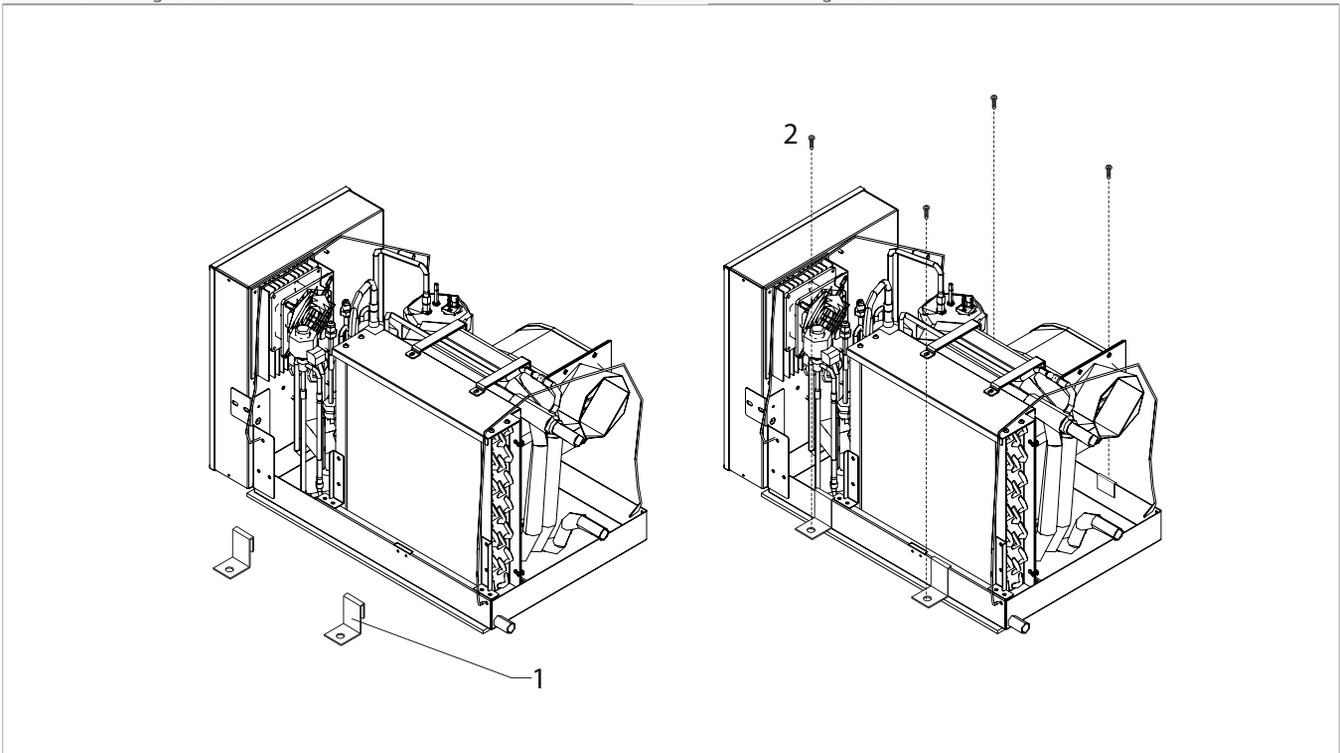
⚠ Make sure that:

- the supporting surface supports the weight of the appliance

3.12.2 Positioning

1. Unit fixing bracket

2. Fixing screws



- place the unit on a perfectly level surface
- fix the brackets to the supporting surface

Make sure that:

- it is levelled
- easy access is allowed to facilitate maintenance

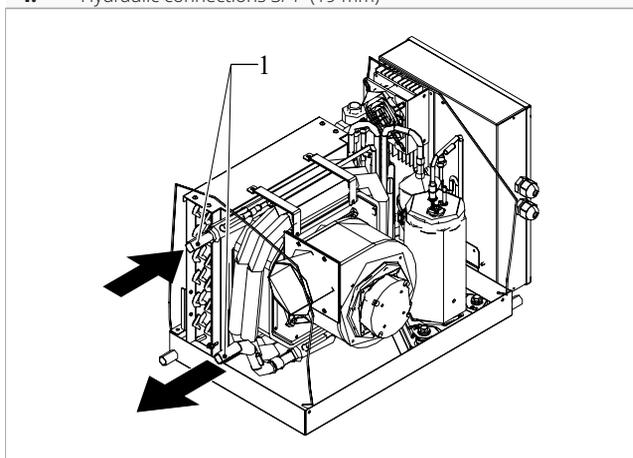
3.13 Hydraulic connections

3.13.1 Preliminary warnings

- ⚠ The engineer is responsible for choosing the right water lines and their size, in accordance with good installation practices and the applicable law.
- ⚠ The hydraulic system is made by the installer and must be carried out with reference to the diagrams in this manual or on the website.
- ⚠ The hydraulic pipes connecting to the appliance must be suitably sized for the actual water flow rate required by the plant during operation. The water flow rate to the heat exchanger must always be constant.

3.13.2 Position and dimensions

1. Hydraulic connections 3/4" (19 mm)



Hydraulic connection diagram

- ⚠ Seawater circuit must be installed with a slope upwards.
- ⚠ The unit overboard discharge must be installed as close as possible to the waterline to reduce noise and to be able to check visually the flow / output of the water circuit running.
- ⚠ The sea water electric-pump is needed to circulate the amount of water required in the heat exchanger.
- ⚠ The pump should be installed in a sound insulated environment.
- ⚠ The pump must be mounted so that it is always at least 20 cm below the waterline
- ⚠ Fix the pump on elastic supports.

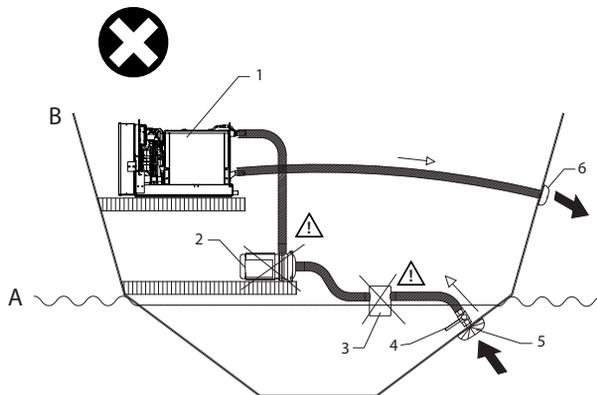
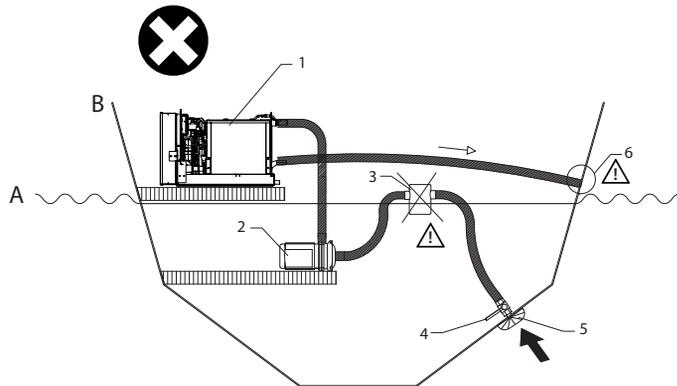
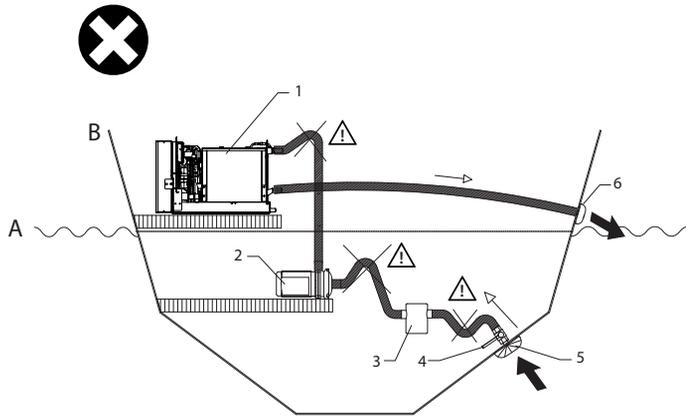
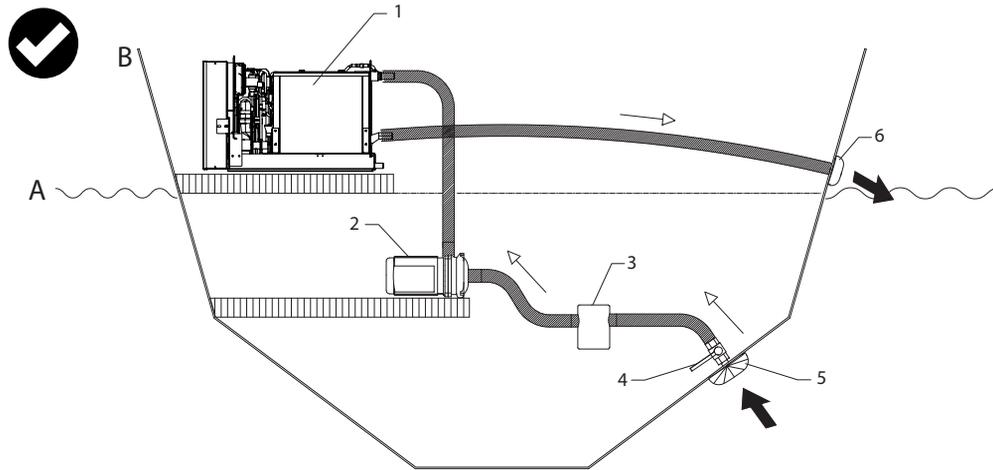
3.13.3 Connection to the system

Preliminary warnings

- ⚠ To allow maintenance or repair operations, each hydraulic connection must be equipped with the respective manual shut-off valves.
- ⚠ Before connecting the piping, make sure that it do not contain stones, sand, rust or foreign matter that could damage the plant.
- ⚠ **The minimum nominal diameter of the connecting pipes must be 3/4" (19 mm). Keep in mind that undersized piping determines malfunctions and/or loss of heating and cooling performance.**
- ⚠ The connection piping must be suitably supported so as not to bear on the appliance with its weight.
- ⚠ Flush the plant thoroughly before connecting the unit. This cleaning process removes any residue, such as welding drops, slag, rust or other fouling from the pipes. These substances may otherwise settle inside and cause the appliance to malfunction.
- ⚠ **It is necessary to install a filtration system at the inlet of the appliance in an area accessible for maintenance, in order to protect the appliance from impurities in the water.**
- ⊖ Operating the unit without the water filter installed and clean is forbidden.

- A** Water line
- B** Boat
- 1.** Unit
- 2.** Seawater pump

- 3.** Filter
- 4.** Ball valve
- 5.** Inlet flow uphill
- 6.** Output flow



Connection

To make the connections:

- hydraulic lines positioning
- connect to unit couplings with hose clamps
- check for leaks

The hydraulic connections must be completed by installing:

- seawater pump

- filtering system
- ball valve

3.13.4 Filtration system

⚠ It is necessary to install a filtration system at the inlet of the appliance in an area accessible for maintenance, in order to protect the appliance from impurities in the water.

3.14 Condensation drain preparation

This appliance is complete with a tray for collecting the condensation produced during operation, which must be channelled to a suitable place for drainage.

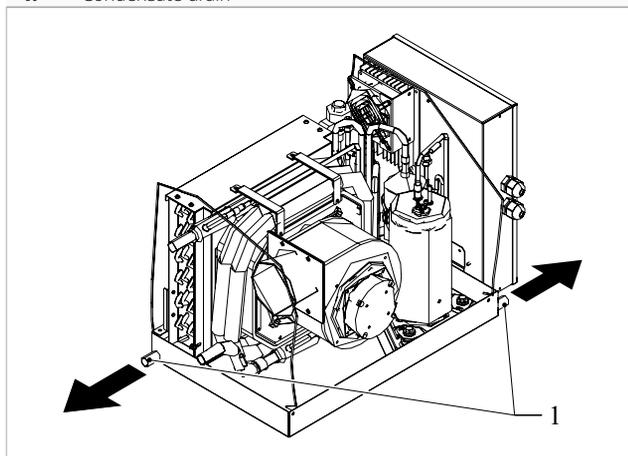
The size and positioning of the drainage tube are shown below.

3.14.1 Preliminary warnings

- ⚠** The condensate must be discharged in the bilge or in a special tank.
- ⚠** If the line flows into a container (e.g. a tank), do not close the container hermetically and avoid immersing the draining pipe into the water.
- ⚠** Since while operating the air conditioner sucks and then creates a slight vacuum in the environment, the drain pipe that goes directly or in the bilge or in a tank, it could suck it up and bring unpleasant smells into the cabin. To avoid this, it is appropriate to make a trap for blocking the air.
- ⚠** When connecting the condensation drain, be careful not to squeeze the rubber duct.
- ⚠** The direct discharge at side is not recommended because of sucking bad smells from the outside caused by the exhaust gas of its own or other engines.
- ⊖** Do not discharge directly to the side.

3.14.2 Positioning

1. Condensate drain



	i10 VSD SMART	i16 VSD SMART
Diameter of fittings	16 mm	14 mm

The unit is equipped with two drainage outlets. Use both outlets for faster drainage.

- ⚠** Use plastic drainage pipes.
- ⚠** Avoid pipes made of metallic material.
- ⚠** Make sure all joints are sealed to prevent leakage of water.

If using a tank for collecting the condensation:

- ⚠** Avoid the hermetic closure of the container.
- ⚠** Prevent the end of the drainage tube from falling below the water level.

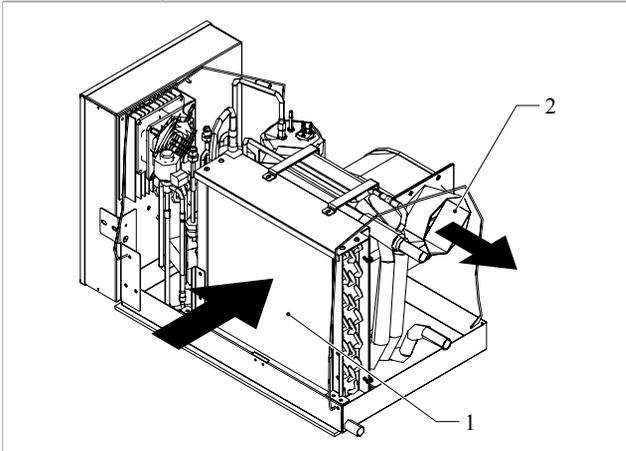
3.15 Aeraulic connections

3.15.1 Preliminary warnings

- ⚠** The engineer is responsible for choosing the right aeraulic connections and their size, in accordance with good installation practices and the applicable law.
- ⚠** The aeraulic system is made by the installer and must be carried out with reference to the diagrams in this manual or on the website.
- ⚠** The air ducts connecting to the appliance must be suitably sized for the actual air flow rate required by the plant during operation.

3.15.2 Position and dimensions

- 1. Air intake
- 2. Air delivery

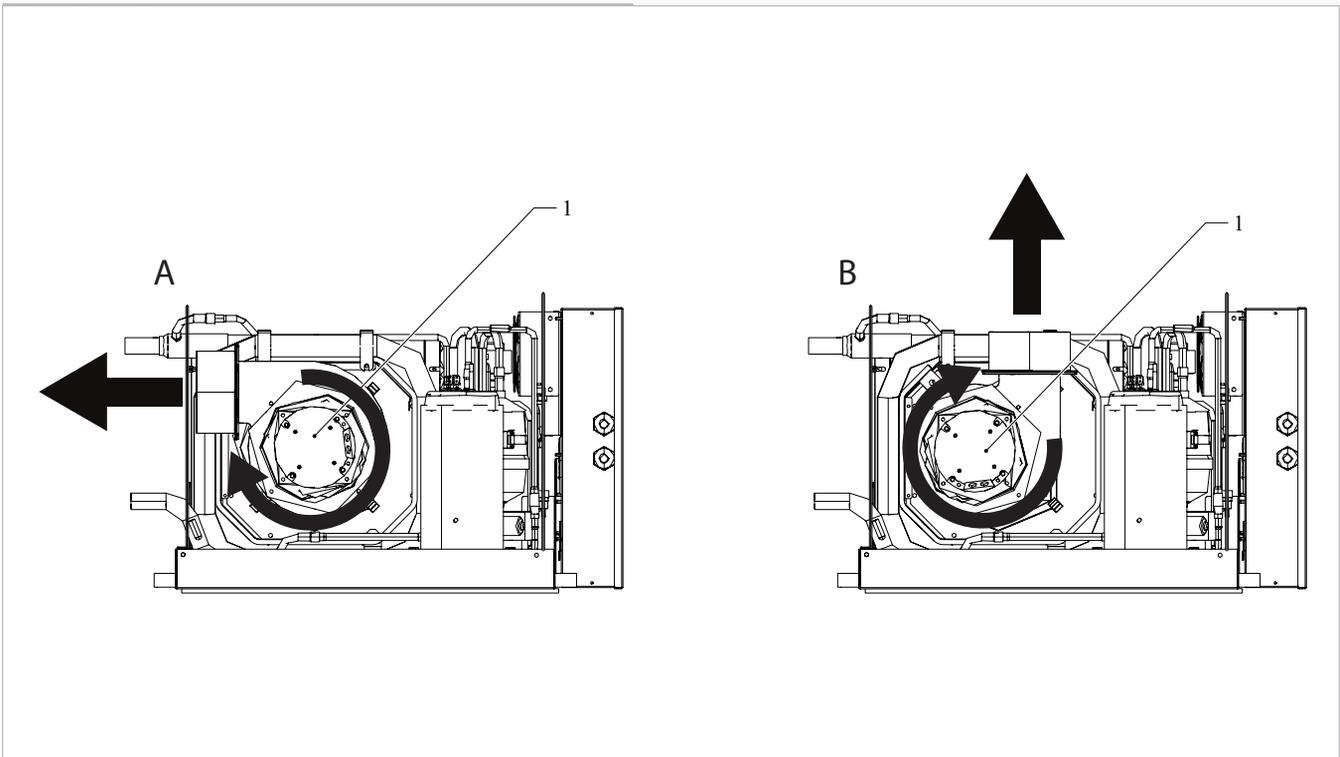


	i10 VSD SMART	i16 VSD SMART
Diameter of fittings	100 mm	120 mm

3.15.3 Air outlet orientation

- A Default position
- B Rotation

- 1. Fan



3.15.4 Connection to the system

Preliminary warnings

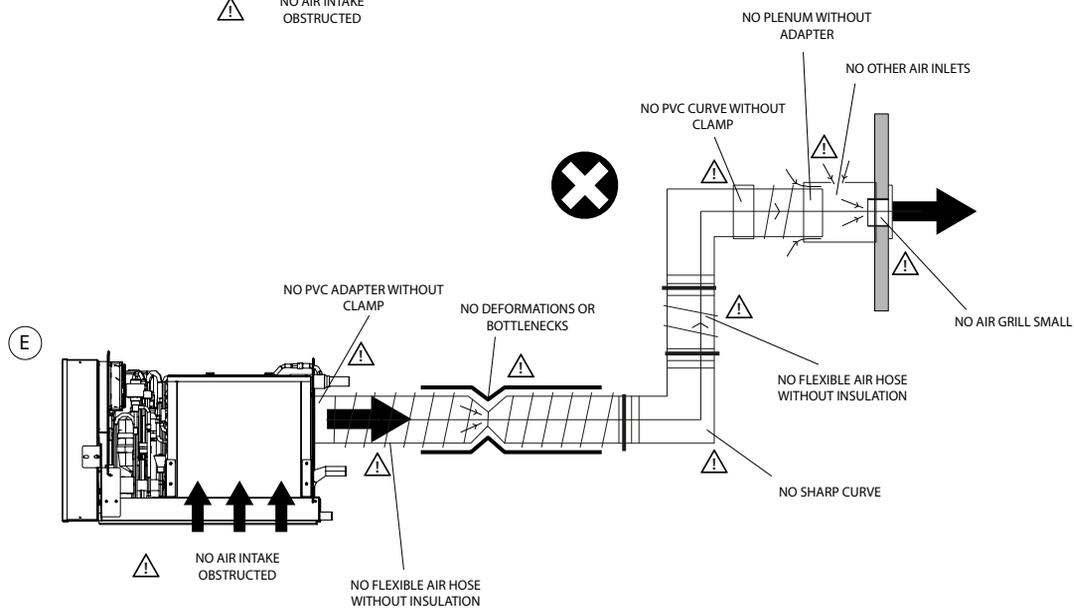
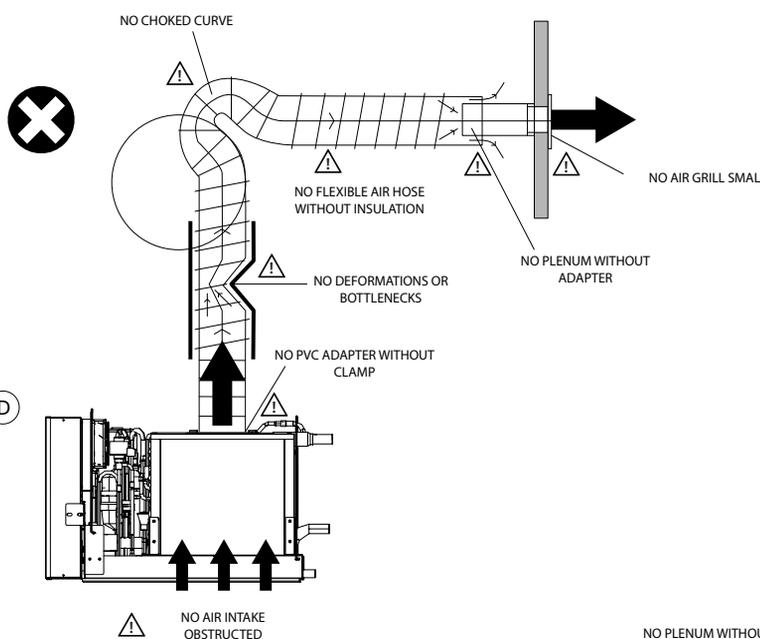
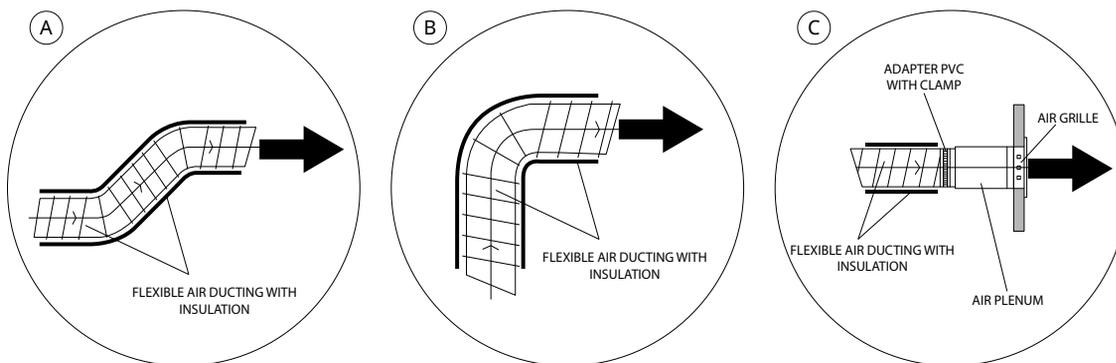
- ⚠ Before connecting the piping, make sure that it do not contain stones, sand, rust or foreign matter that could damage the plant.
- ⚠ The connection piping must be suitably supported so as not to bear on the appliance with its weight.
- ⚠ The air ducts must be insulated and well stretched to allow good air flow.
- ⚠ Avoid partial insulation of the pipes.

- ⚠ Avoid installing the unit near heat sources.
- ⚠ The system needs a correct air flow in order to work efficiently. It is therefore important to get the correct distribution without bottlenecks, by maintaining the original nozzle diameter and not exceeding the recommended length of pipes.

Connection diagram

- A** Corrected curves
- B** 90° curves corrected
- C** Correct air outlet

- D** Installation with vertical air flow direction
- E** Installation with horizontal air flow direction



3.16 Electric connections

The unit leaves the factory fully wired and only needs to be connected to the power supply and control panel.

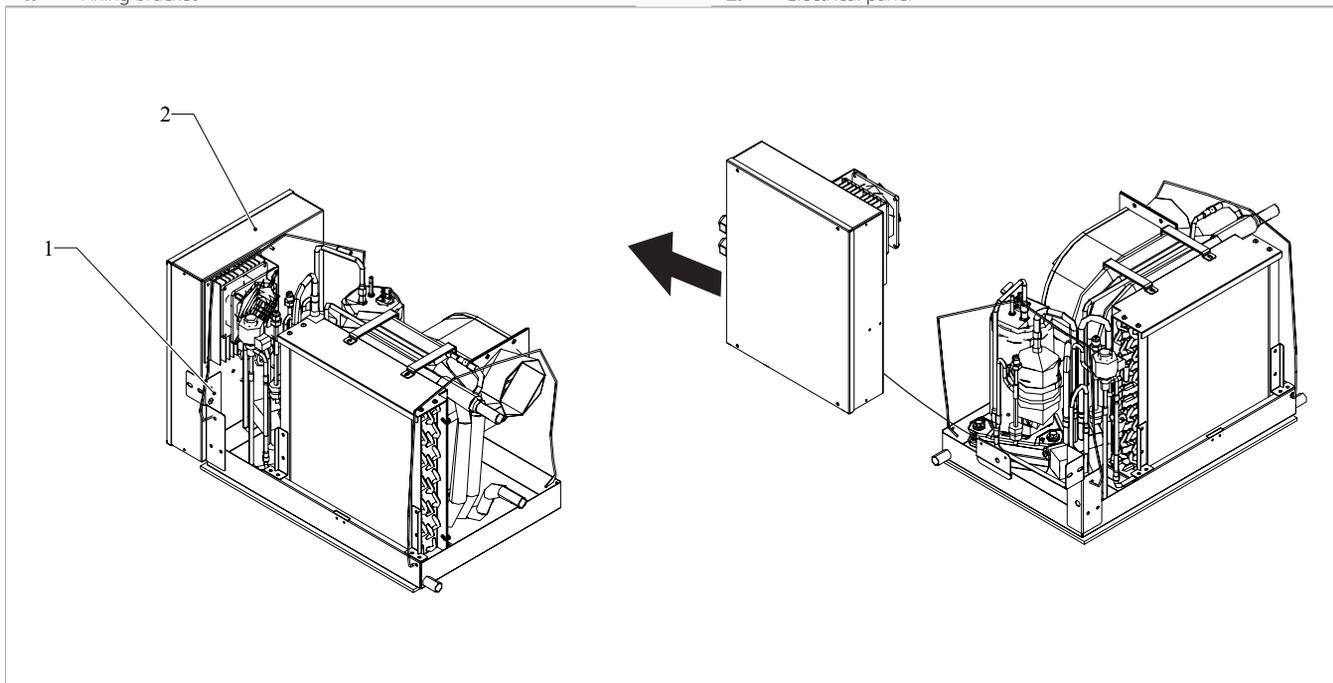
3.16.1 Preliminary warnings

- ⚠ All operations of an electrical nature must be carried out by qualified personnel having the necessary legal requirements, trained and informed about the risks related to such operations.
- ⚠ All connections must be made following the regulations in force in the country of installation.
- ⚠ Before carrying out any work, make sure that the power supply is switched off.
- ⚠ The unit must only be powered after all plumbing and electrical work has been completed.
- ⚠ References:
 - refer to the wiring diagrams in this manual for the electrical connections, especially the part concerning the power supply terminal block
 - refer to the technical rating plate located on the appliance for the power supply voltage
- ⚠ Make sure that:
 - the characteristics of the electric network are adapted to the absorption of the apparatus, considering also any other devices in parallel operation
 - the power supply voltage and system frequency match to the values indicated on the device's plate data
 - the cables must be appropriate for the type of installation in accordance with the applicable standards
 - the cable terminals are provided with pin terminals of a cross-section proportionate to the connecting cables before inserting them into the terminal block
 - the power supply is provide with protection against overload and/or short-circuit
- ⚠ It is required:
 - connect the device an efficient ground connection
- ⚠ Momentary high-voltage surges caused by lightning or other causes could damage the appliance.
- ⚠ It is recommended to install a residual-current device. Failure to install this device may result in electric shock.
- ⚠ Electrical connections must be made following the instructions in this manual and with the standards or practices governing the connection of electrical equipment throughout the country. Insufficient capacity or incomplete electrical connections may result in electric shock or fire.
- ⚠ The power supply line must be adequately sized to avoid voltage drops or overheating of cables or other devices placed on the line itself.
- ⚠ Use a dedicated power circuit. Never use a power supply to which another appliance is also connected because of the risk of overheating, electric shock or fire.
- ⚠ For the electrical connection, use a cable that is long enough to cover the entire distance without any connection. Do not use extension cables. Do not apply other loads on the power supply.
- ⚠ After connecting the interconnection and power cables, make sure that the cables are routed so that they do not apply excessive forces on the covers or electrical panels. Incomplete connection of the covers may result in overheating of the terminals, electric shock or fire.
- ⚠ If you need to replace the power cable, contact only qualified staff and in compliance with the applicable national laws.
- ⚠ The manufacturer is not liable for any damage caused by the lack of earthing or failure to comply with the specifications in the respective diagrams.

3.16.2 Electrical panel

1. Fixing bracket

2. Electrical panel



The electrical panel is supplied as standard installed on the unit.
 In the case of limited installation space, the electrical cabinet can be detached during installation.

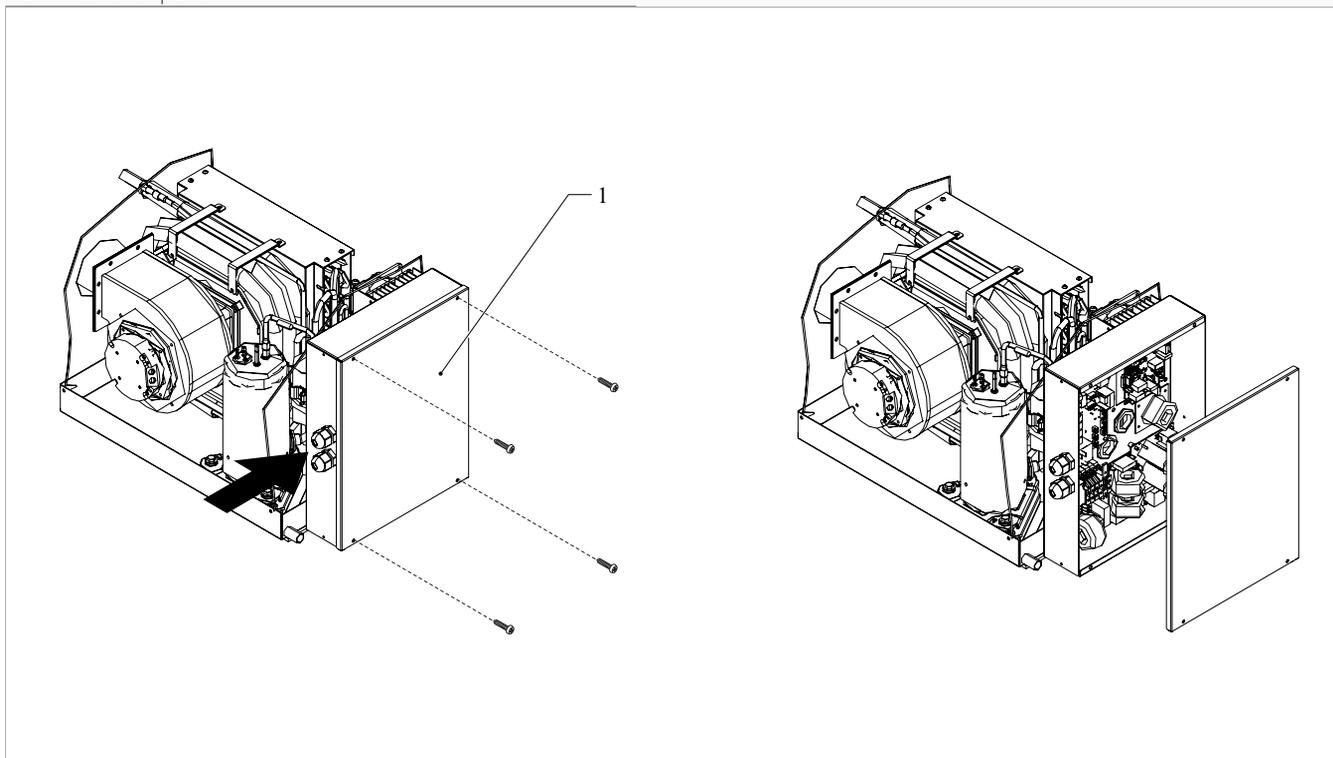
- unscrew the 3 fixing screw
- remove the control panel
- fix the electric panel in another area

To move the electric panel:

⚠ Maximum distance of 60 cm in a suitably ventilated space.

3.16.3 Access to the electrical panel

1. Electrical panel



⚠ Access to the electrical panel is only permitted to qualified personnel.

⚠ Before doing any work, make sure that the supply power is disconnect.

To access the connections:

- undo the screws of the closing panel of the electric panel
- remove the panel

3.16.4 Connection

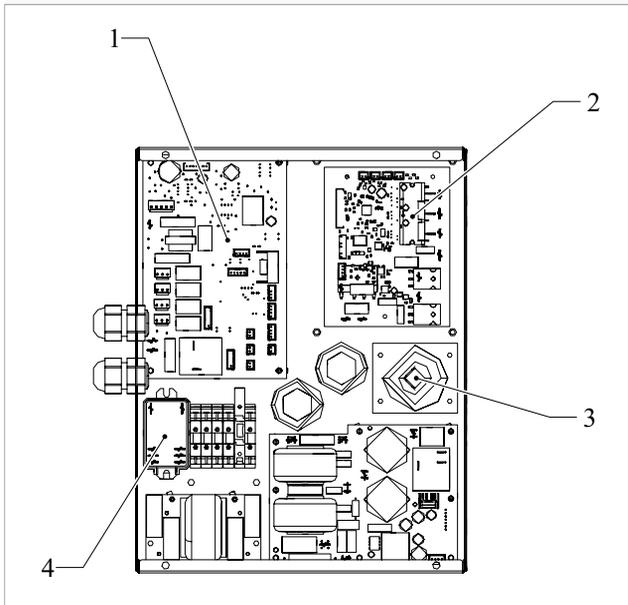
Before connecting the unit to the mains power supply, make sure that the disconnecter is open. The power supply of the unit must be connected to the appropriate terminals, subject to the action of the disconnecter.

- ⚠ Use properly sized cables to avoid voltage drops or overheating.
- ⚠ Before connecting to the terminals, read this manual carefully.

Electrical panel aboard the unit

Connection terminal blocks

1. Main MCU
2. Power module SSPM
3. Inductance EMC
4. Terminal board



To make the connection:

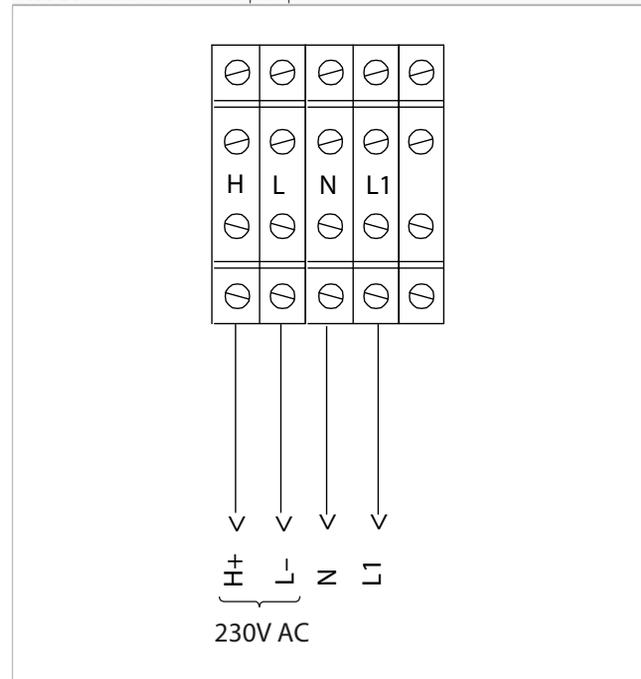
- insert the cables through the rubber seal
- bring the power cord to the terminal block
- making the connections
- refer to the information in the wiring diagram of the unit you are installing

After the connection:

- fix the cables
- close the electrical panel again

Single-phase unit terminal block

H+ L- Line supply voltage 230V AC / 1 ph / 50-60 Hz
N1 L1 Power to seawater pump



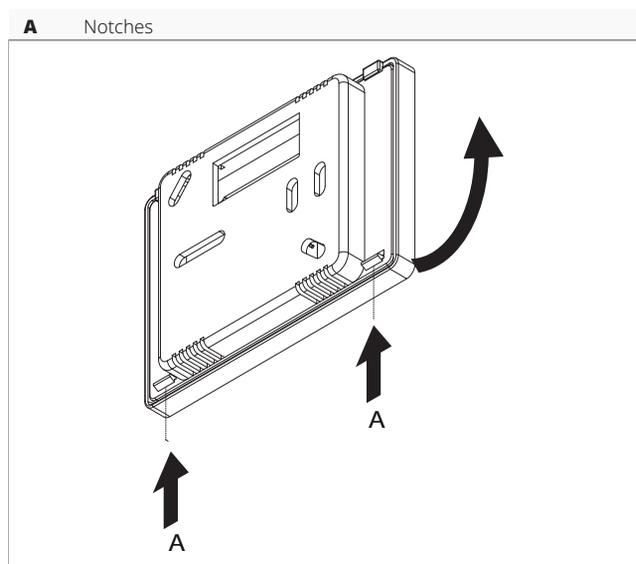
3.17 Control Panel

3.17.1 Mounting

The wall-mounted remote control must be installed:

- on internal walls
- at a height of about 1,5 m from the floor
- away from doors or windows
- away from heat sources (heaters, convectors, stoves, direct sunlight)

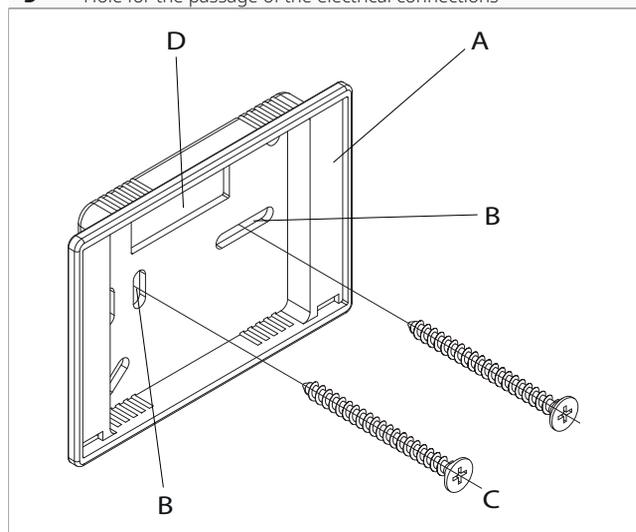
- ⚠ The wall-mounted remote control is provided inside the package already assembled.



Before wall installation:

- Unhook the protruding notches on the back side of the control.
- separate the base from the control
- use the base of the control to trace the fixing point on the wall

A	Base of the control
B	Holes for the wall mounting
C	Screws
D	Hole for the passage of the electrical connections



For the remote control wall mounting:

- drill holes in the wall
- pull the electric wires through the hole provided
- fix the base of the control to the wall using suitable screw and plugs
- connect the electrics
- close the control

⚠ Pay attention not to crush the conductors when you close the control.

CONTROL PANEL

4.1 Interface

4.1.1 Description

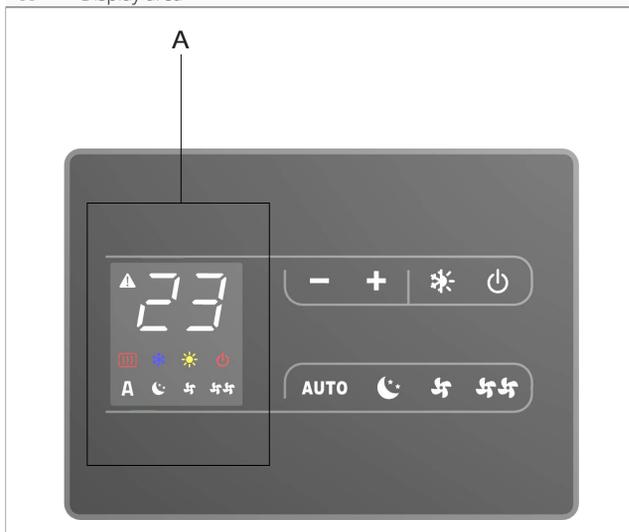
The wall-mounted remote control is an electronic thermostat equipped with:

- integrated WiFi module
- internal memory with data saving even in case of shut-down or power outage

- ⚠ The room temperature probe ensures an antifreeze safety even when the control is in stand-by
- ⚠ After 20 seconds after the last action the panel brightness is reduced, only the room temperature is seen on the display. The maximum brightness is restored to the pressure of any key.

4.1.2 Display

A Display area



Statuses and active alarms on display.

- ⚠ Switched on for alarm indication
- ❄ Cooling function on
- ☀ Heating function on
- 🔌 Remote control indication off
- A** Automatic function
- 🌙 Minimum speed ventilation function
- 🌀 Medium speed ventilation function
- 🌀🌀 Maximum speed ventilation function

4.1.3 Keys functions

A Keys area



Keys and functions related.

	Down key
	Up key
	Allows switching between heating and cooling functions
	Allows activating or putting the device in stand-by
AUTO	The ventilation speed will be adjusted automatically between a minimum and a maximum value
	The ventilation speed will be reduced and the set temperature will be changed automatically
	The ventilation speed will be limited to a maximum contained value
	Allows setting the maximum ventilation speed

4.1.4 General start-up

Before the activation:

-  Make sure that the remote control is connected to the mains.
-  In case of a master switch on the power supply line, switch on the system by inserting the switch.

To activate the device

- press the  key
The symbol  lights up.

4.2 Main functions

4.2.1 Operating mode set-up

to switch the operating mode

- press the  key for about 2 seconds
The symbol  on indicates the Heating function enable
The symbol  on indicate the Cooling function enable

-  In heating function the symbols is alight with setpoint higher than the room temperature.
-  In cooling function the symbols is alight with setpoint lower than the room temperature.

4.2.2 Put in stand-by the control

To put in stand-by the control

- press the  key for about 2 seconds
The control goes out.

4.2.3 Set room temperature

To set-up the temperature

- operate the   keys to decrease or increase the desired value
The displayed value change.

-  The room temperature set-point can range between 16 and 31 °C.

4.2.4 Automatic operation

To select the Automatic function

- press the **AUTO** key for about 2 seconds
The symbol  on indicates the Automatic function enable.

-  The ventilation speed is automatically adjusted between a minimum value and a maximum value based on an algorithm type PI, according to the actual distance from the room temperature set-point.

4.2.5 Medium speed ventilation function

To select the Silent operation

- press the  key for about 2 seconds
The symbol  on indicates the Medium speed function enable

-  The ventilation speed is limited at a more reduced medium value.

4.2.6 Minimum speed ventilation function

To select the Night function

- press the  key for about 2 seconds
The symbol  on indicates the Minimum speed function enable

-  The ventilation speed is limited at a very low value.

4.2.7 Maximum speed ventilation function

To select the operation at the maximum ventilation speed

- press the  key for about 2 seconds
The symbol  on indicates the Maximum speed function enable

-  Maximum power output is immediately obtained both in heating and cooling.

4.2.8 Set the key lock

To set-up the key locking

- press both   keys for 2 seconds
The text  appearing on the display.

-  All settings are inhibited by the user.
-  Repeat the sequence to unlock the control.

4.2.9 Brightness reduction

To reduce the display brightness

- press the **+** key for 5 seconds
The text  appearing on the display.
- press the **-** key to decrease the value, wait 20 seconds

⚠ After 20 seconds from the last action the panel brightness will be reduced to increase the comfort during night use. On the display will appear only the room temperature.

4.2.10 Deactivation

To deactivate the display

- press the key  for about 2 seconds
All the light signals go off.

4.2.11 Room temperature probe offset adjustment

To adjust the room temperature probe offset

- from display off, press the **-** key for about 5 seconds
Access to the variation menu of the AIR probe offset displayed on the display.
- operate the **- +** keys to decrease or increase the desired value
The displayed value change.

⚠ Use this adjustment carefully.

⚠ This adjustment must be carried out only after having found actual deviations from the room temperature using a reliable tool.

⚠ Adjust to correct room temperature in steps of 0,5 °C.

⚠ After 20 seconds from the last action the control goes out and the settings is memorized.

4.3 Warnings

Long period shut-down

For seasonal shutdowns or for long periods:

- disable the device
- set the main system switch to Off

MAINTENANCE

Routine maintenance is essential to keep the device always efficient, safe and reliable over time.

5.1 Preliminary warnings

Before each cleaning and maintenance intervention:

- disconnect the device from the power mains by turning the system master switch to "OFF"
- wait for the components to cool down in order to avoid any burns

⊖ Carrying out any technical or cleaning work before disconnecting the unit from the power supply is forbidden.

⚠ Make sure that there is no voltage before operating.

⚠ After completing the maintenance work, must be restored the original condition.

5.2 Once-a-year operations

The once-a-year maintenance plan includes the following operations and checks and must be carried out by the Technical Service Centre or by qualified personnel.

5.2.1 Air intake filter cleaning

Cleaning the filter must be carried out:

- after prolonged operation, considered the concentration of impurities in the air
- when you plan to restart the system after prolonged disuse

Filter extraction

To extract the filter:

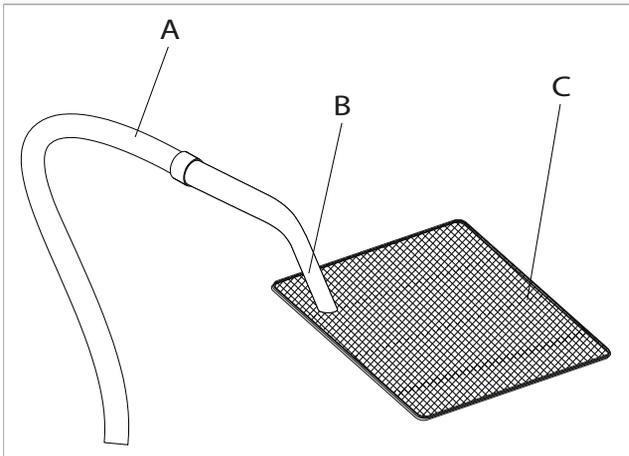
- remove the filter from its housing

Cleaning

To clean the filters:

- use a vacuum cleaner
- aspirate dust

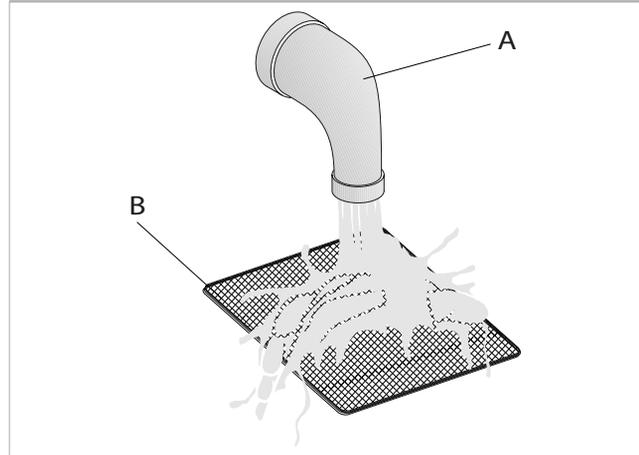
- | | |
|----------|----------------|
| A | Vacuum cleaner |
| B | Long nozzle |
| C | Filter |



- wash the filter with running water
- allow it dry

⚠ Do not use detergents or solvents to clean the filter.

- | | |
|----------|---------------|
| A | Running water |
| B | Filter |



Inserting the filter

Remount the filter paying particular attention to introduce the lower flap in its housing.

⚠ Do not use the device without its mesh filter.

⊖ It is forbidden to use the device without its mesh filter.

TROUBLESHOOTING

6.1 Troubleshooting table

If the conditioner blocks because of an alarm (see following table), please communicate to the assistance centre the code on the display to facilitate interventions.

Alarm	Alarm displayed on App	Description	
E1 	E1	Faulty room temperature probe	Switch off and restart the unit. If the problem persists, call the Technical Service Centre.
E2 	E2	Lack of communication between controller and main PCB	
E3 	E3	Seawater inlet temperature probe failure	
E4 	E4	Condenser temperature probe failure	
F2 	OF	Low water temperature on source side	The alarm can be caused by: <ul style="list-style-type: none"> • poor seawater circulation • a too low water temperature (< 5 °C) If the problem persists, call the Technical Service Centre.
F3 	E7	High-pressure switch alarm	In Cooling operation, the alarm may be caused by obstructions in the seawater circuit or a malfunction of the seawater pump: <ul style="list-style-type: none"> • check visually the seawater discharge over-board • if the flow is weak, check and clean all parts involved In Heating operation, the alarm may be caused by an air outlet flow that is too low: <ul style="list-style-type: none"> • check that all ducts are not clogged • check the air intake filter • clean the filter before restarting the unit
F4 	E7	Low-pressure switch alarm	The alarm is due to a refrigerant leak. Please check the refrigeration circuit for leaks. If the problem persists, call the Technical Service Centre.
F5 	E5	Faulty fan motor	Switch off and restart the unit.
F6 	E6	Lack of communication between main PCB and inverter driver	If the problem persists, call the Technical Service Centre.

LIMITED WARRANTY

Uflex's warranty policy is also extended to Velair marine air conditioning systems manufactured and supplied by Uflex s.r.l.

Uflex warrants that products are free from defects in material or workmanship for their normal use for a period of two (2) years from UFLEX original shipment to customer.

This warranty must be handled and serviced by an authorised Uflex dealer/service in accordance with Uflex warranty policy.

As alternative, the defective product should be returned freight prepaid to Uflex facility and must be accompanied by an Uflex issued Return Goods Authorization number.

Upon receipt, the product will be examined to determine the cause of defect.

If the product is determined to have a defect in workmanship or material, it will be repaired or replaced at the Uflex discretion. And then shipped back ex works.

This guarantee does not cover any labour costs such as assembly, disassembly, installation/uninstallation time.

All parts repaired or replaced under warranty condition are guaranteed to be free from defects for 90 days after repair/replace or the remainder of the original warranty, whichever is longer.

To locate the nearest Uflex Authorized Dealer/Service please call:

Europe:

Uflex +39-010-9620.239 /244

USA:

Uflex USA +01(941) 351-2628

Rest of the World:

Uflex +39-010-9620.239 /244

Or visit our website: www.uflex.it and www.uflexusa.com

7.1 Installation / Validation & Commissioning

The Uflex Marine Air Conditioning Products must be installed by authorized installers or the installation must be checked and approved by an authorised installer.

All installation/application releases should be commissioned, validated and documented. In case of OEM installa-

tions this applies only for the first released representative application.

For commissioning and validating procedure, please write to the Uflex Team (service@ultraflexgroup.it) or refer to your Uflex service/dealer. They will get in touch with Uflex Team.

7.2 Limitations and Exclusions

This warranty is limited to repair & replacement only.

It does not cover:

- claims for direct or indirect damages
- failure of the Uflex equipment due to normal wear, accident, misuse, abuse, lack of reasonable and necessary maintenance, unauthorized installation or repair by the end-customer
- transportation damages. This should be claimed directly with the forwarding company

- repair costs due to failure of Uflex equipment due to negligence, improper installation or non-respecting the installation guidelines (installer fault) will not be refunded
- limited warranty is extended only to the original application and is not transferable
- any intervention by a third part not specifically and previously authorized by Uflex to repair, will void the Uflex warranty and it will not be reimbursed

7.3 Owners responsibilities

The responsibility of the owner of the unit includes:

1. operate the unit according to the manufacturer's instructions
2. carry out regular maintenance
3. provide easy accessibility for service
4. check and reset circuit breakers and fuses before calling for service
5. keep the unit clean and free of dirt
6. keep the condenser coil free of sediment and scale
7. keep clean the air filter on heat exchanger
8. always keep proof of unit purchase
9. ask the installer of your Uflex air conditioning system or your Uflex dealer for a copy of the Validation Report



UFLEX

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