Installation, operation and maintenance manual

CLIMMA FAN COIL

Rev. 210520

CLIMMA®
MARINE AIR CONDITIONING

Table of contents

1. Introduction

1.1. General information

Thank you for having chosen our Fan coil unit.

1.2. Product characteristics

The Climma Fan Coil units have the following features:

The Climma Fan coil is made with a stainless steel structure and components suitable for the installation on boats and is designed to condition a cabin of the boat taking the air from the same ambient, cooling (in cool mode) or heating it (in heat mode). Cooling or heating is obtained by means of an efficient air/water heat exchanger made in aluminium/copper. The water circuit of the heat exchanger is connected to the chiller system The Climma Fan Coil is equipped with a very efficient air filter on the air intake and with a very quiet and powerful blower.

In the Cool mode the air cooling means the dehumidification of the air which means the production of condensate water. The water produced flows in a condensate pan which has threaded ports to be connected to a drain system.

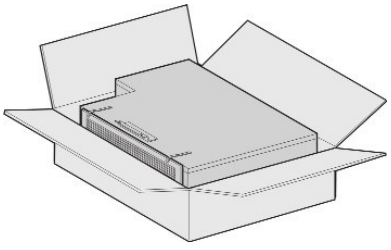
1.3. Installation

The Climma Fan Coil Climma must be installed following the instructions and specifications given in this manual.

1.4. Transport and handling

When loading or unloading the unit, use a forklift equipped with forks at least 2/3 the length of the shipping base.
Use an overhead lift if the unit is equipped with lifting eyebolts.
Select lifting equipment suited to the weight and overall dimensions of the packaged unit or components.
Take every precaution to prevent damage, when handling the unit or components keeping in compliance with the information given on the packaging material.

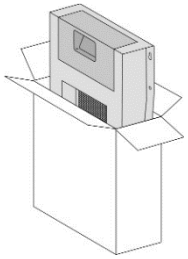
1.5. Unpacking



When loading or unloading the unit, use a forklift equipped with forks at least 2/3 the length of the
shipping base.
Use an overhead lift if the unit is equipped with lifting eyebolts.
Select lifting equipment suited to the weight and overall dimensions of the packaged unit or
components.
Take every precaution to prevent damage, when handling the unit or components keeping in
compliance with the information given on the packaging material.

Caution: Wear protective gloves when handling any packing materials and the wood base. Dispose of all packaging materials appropriately in accordance with local codes.

The CLIMMA fan-coils are carefully packed in a strong carton box.



Pay attention while opening and taking the fan-coil out of the box. Don’t raise it getting hold of fans and pipes, that can suffer damage.

On the unit there is a label that describes its technical specifications

WARNING!

Check that the technical specifications, the electrical supply, etc.... on the label meet to the technical
specifications of the yacht electrical system.

1.6. Directives

Climma Fan Coil respect the following directives.

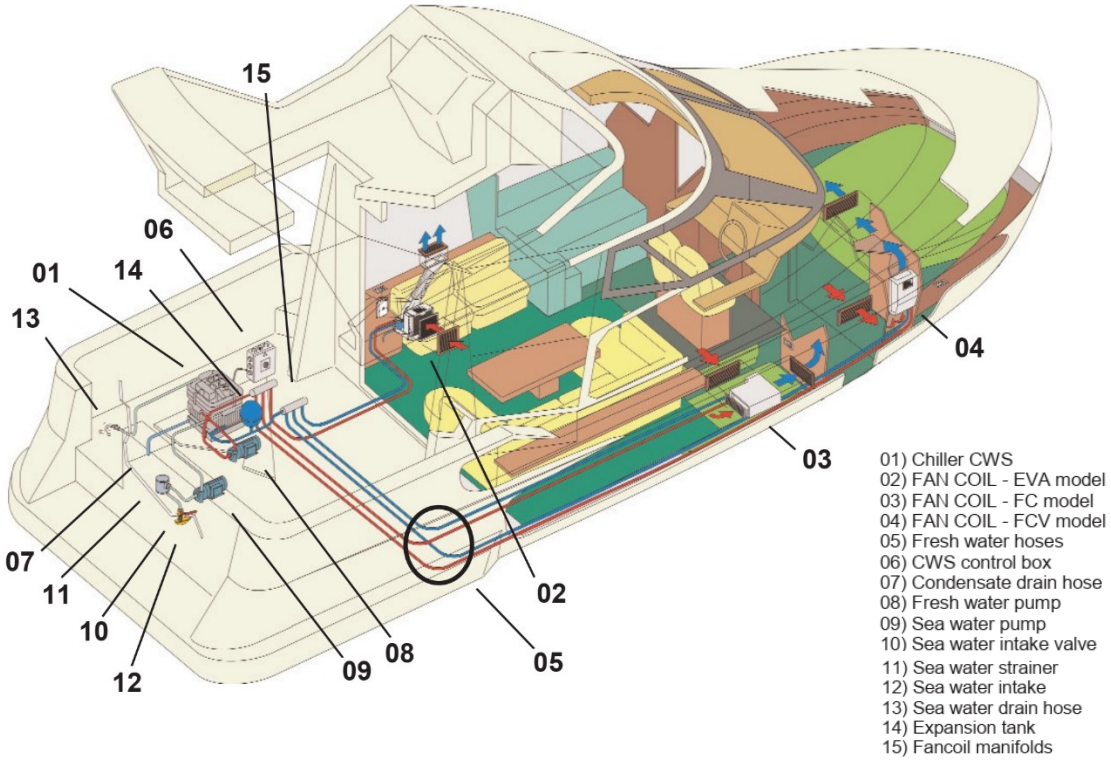
- CE
- Low voltage: 2006/95/EC
- Electromagnetic Compatibility: 2004/108/EC
- Machinery Directive: 2006/42/CE
- Manufacturing quality Standards UNI EN ISO 9001:2008

1.7. General safety

Injuries or accidents caused by failure to comply with the recommendations of this manual are solely the responsibility of the unit operator.
Basic Rules for Safe Operation:

- do not touch the unit with moist or wet hands or feet;
- never operate the unit while barefoot;
- before installation and maintenance operations, disconnect the unit from the power supply. failure to comply may result in injury or death;
- installation and maintenance of this system can be hazardous due to system working pressure and electrical components. Only a Climma certified service center should install and maintain the system;
- to minimize the hazard of electrical shock and personal injury, this component must be effectively grounded;
- during installation and maintenance follow safety codes, wear safety glasses and work gloves.

2. INSTALLATION



2.1. Technical details of the Climma Fan Coil

During the cooling cycle, the FAN-COIL cools the ambient giving the heat to the water of the fresh water circuit. Instead during the heat mode, the heat is taken from the fresh water circuit and given to the air of the ambient in order to rise its temperature. The use of the chiller is not recommended if the sea water temperature drops below 10°C.
It is possible to select the desired temperature and the fan speed from a remote control panel that can be installed in the air-conditioned space.
For detailed information about the control panel, please refer directly to the remote control panel manual.

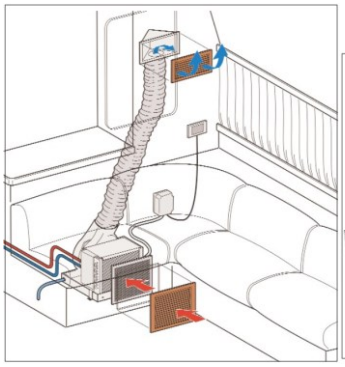
2.2. Positioning

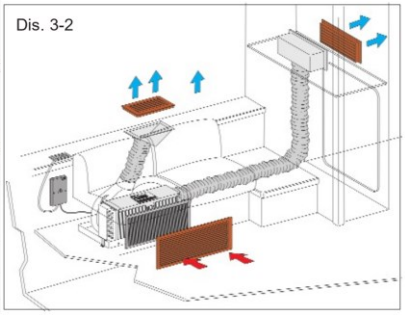
While choosing the unit position, it is important to consider the following points:
1 - the access to the air filter for the maintenance
2 - the necessary space to fasten the fixing brackets
3 - the connection for the condensate drains
4 - the air outlet orientation. Choose the best for connecting the air ducts (EV models only)
5 - the connection of the electrical wires and the access to the electrical box
Place the jubilee clamps of the water circuit so that once the unit is installed, it is still possible to tighten them.
We suggest to use all stainless steel components.

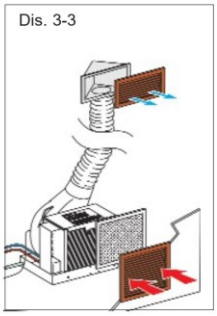
2.2.1. Positioning of the Fan Coil mod. EV

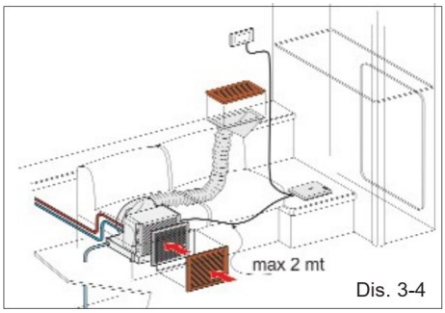
The FAN-COIL is designed to treat the ambient air directly, therefore it must be installed in the space that has to be conditioned.

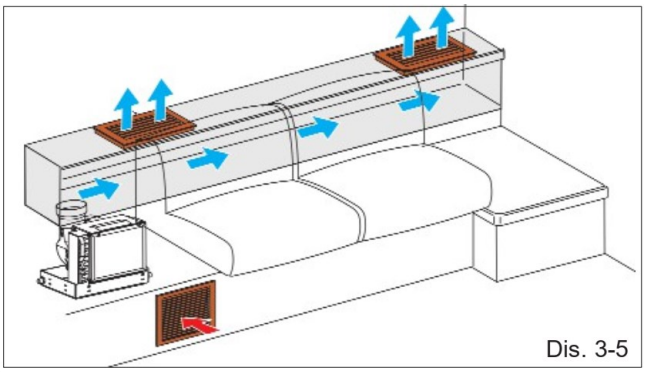
The conditioned air (from the fan) must be ducted to one or more grills through flexible insulated ducts of suitable section. Prestate attenzione a non far cadere oggetti o minuterie all'interno della bocca di uscita aria, eventualmente chiudete temporaneamente la bocca di uscita.



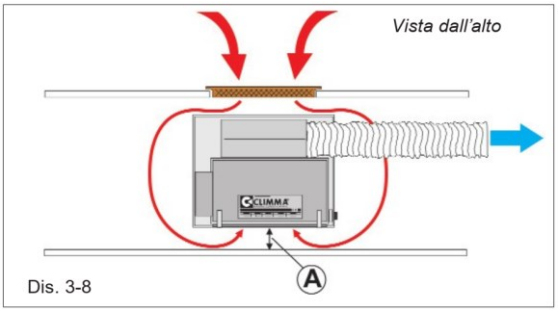


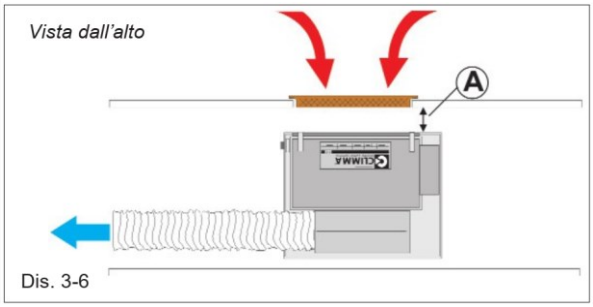




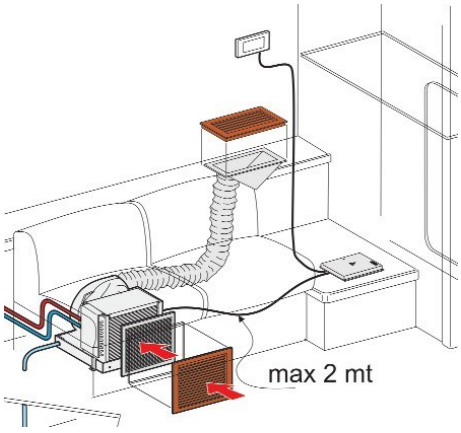


The FAN -COIL treats the ambient air. The air intake side is the side where it is fixed the air filter. The intake grill doesn't need to be in front of the FAN-COIL intake, but it gives a better sound isolation with the configuration shown in 3-8.
The important thing is the air delivery which needs to have the shortest and most straight path.

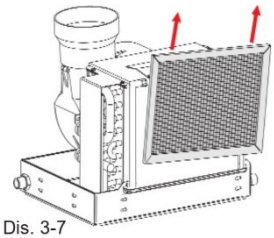




The FAN-COIL has a connecting cable of 3 m. This cable must be connected to the fan coil control box

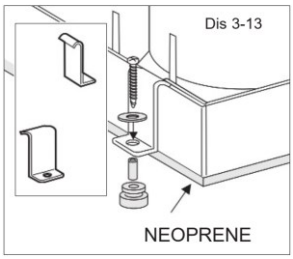


Leave sufficient space for the air filter maintenance (A)


Dis. 3-7

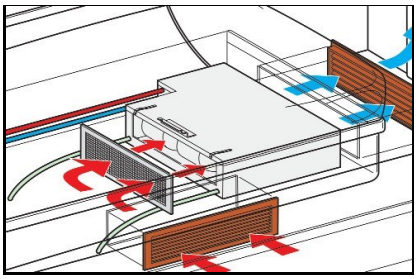
2.2.2. Fixing the Fan Coil mod. EV

The fixing has to be done using the brackets and rubber mounts supplied with the fancoil.



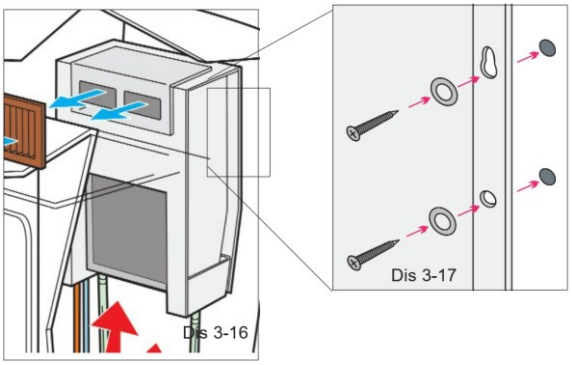
2.2.3. Fixing the Fan Coil mod. FC

Fancoil FC model has to be fixed on the floor



2.2.4. Fixing the Fan Coil mod. FCV

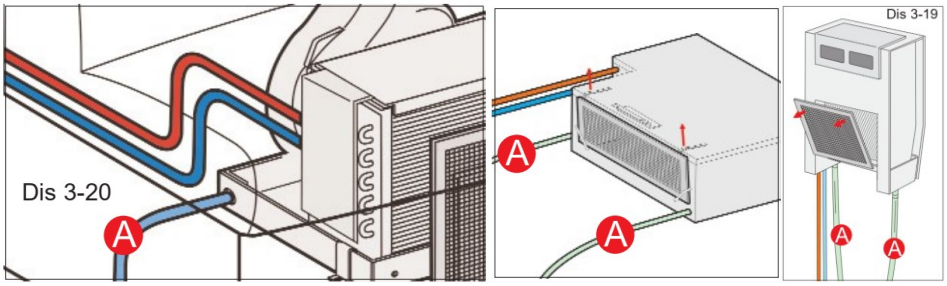
Fixing can be done using the holes in the fan-coil structure (see picture 3.16 – 3.17).



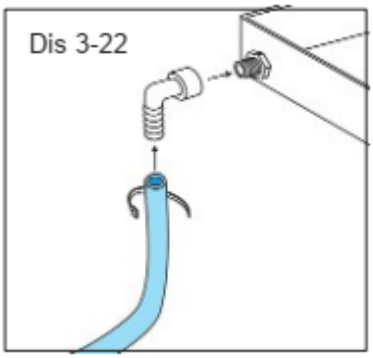
2.3. Condensate drain

The air-conditioning generates condensate water due to the humidity of the conditioned air. This condensate water must be carefully collected and discharged, better in a special tank and then in the sea.
The discharge to the bilge should not be considered as it might generate bad smells.

Each unit is equipped with two condensate water drains, highly suggested to use both of them. The condensate drain hose must be connected to the hose barbs 19 mm supplied with the condensate pans.



If the condensate discharge hose must run horizontally, it is recommended to make immediately a vertical run using the hose elbow supplied Dis 3-22. After a vertical run of 8- 10 cm you can continue horizontally.
It must be avoided a configuration like Dis 3-23 as the condensate water can come back to the pan with the boat natural movement



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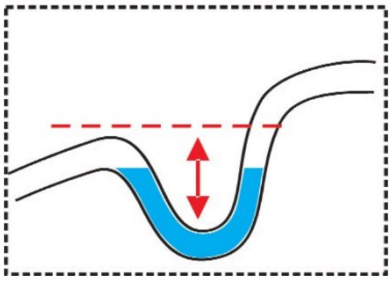
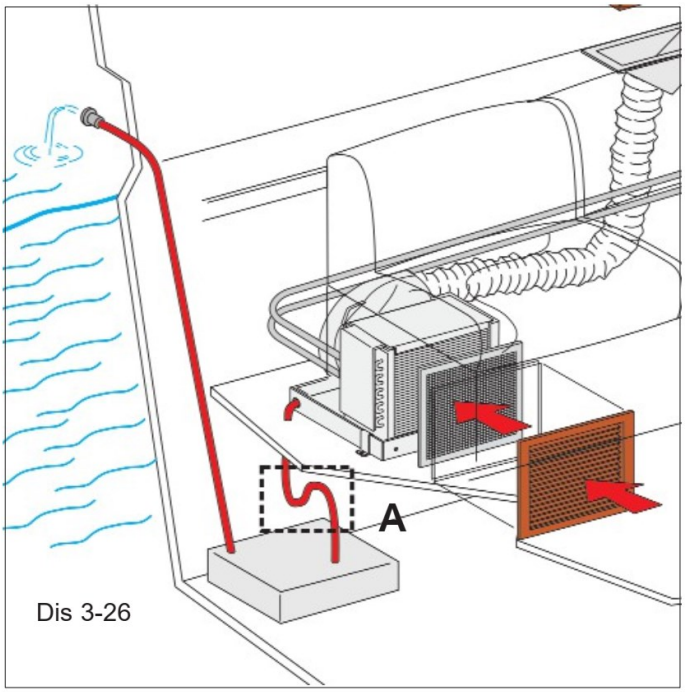


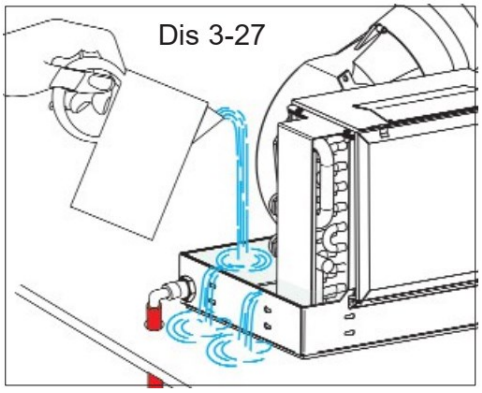
While the fan-coil is working, it causes a light vacuum in the ambient. The condensate hose could draw bad smells.
To avoid this, make a siphon on the discharge hose as shown in the picture 3.25 to stop the air.

The direct discharge outboard must be avoided, as it can draw unpleasant or worse, dangerous exhaust gasses.
Please refer to the safety regulations of the different countries.



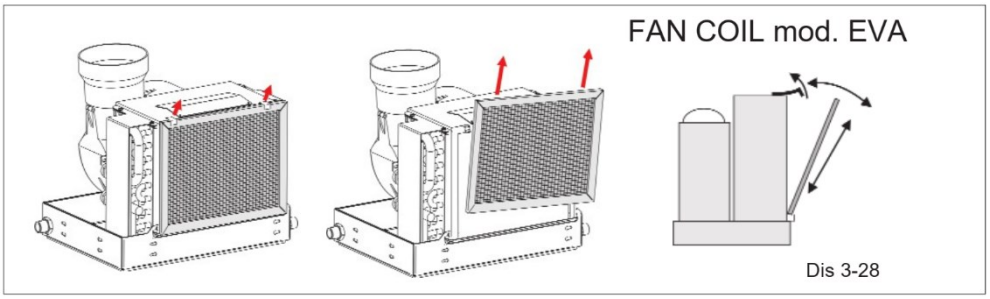
Dis 3-26

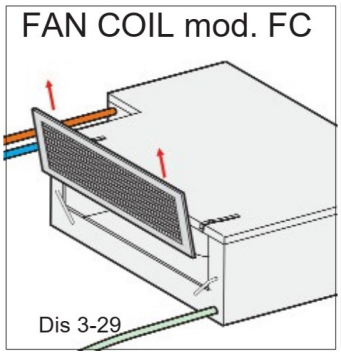
To check the actual efficiency of the condensate drain system, pour some water in the pan. Only a minimal quantity of residual water should remain inside the fancoil pan

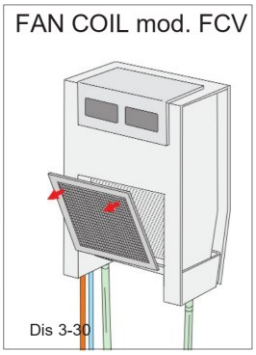

Dis 3-27

2.4. Air filter

The FAN-COIL treats a quantity of the ambient air which passes through the finned air exchanger. These fins, if left without a screen would soon become obstructed by powder.
For this reason each fan-coil is equipped with an air filter which must be directly mounted as shown. As already outlined, the air filter must be easily accessible for inspection and maintenance.



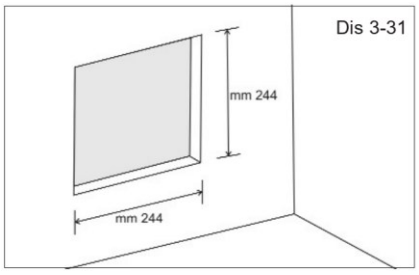


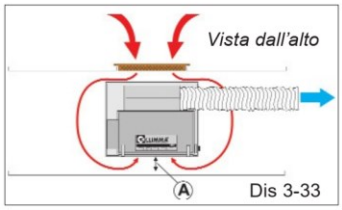


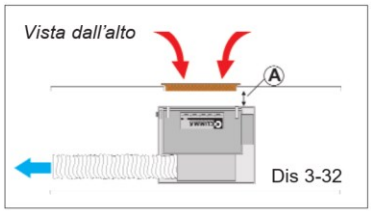
2.5. Air distribution system

2.5.1. Air intake

The FAN-COIL must be able to take the air from the ambient without obstructions. As an indication, the table 3-39 shows the suggested size of the intake grill. (To duct the return air, call our customer service department).

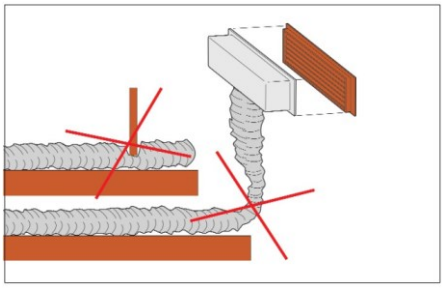






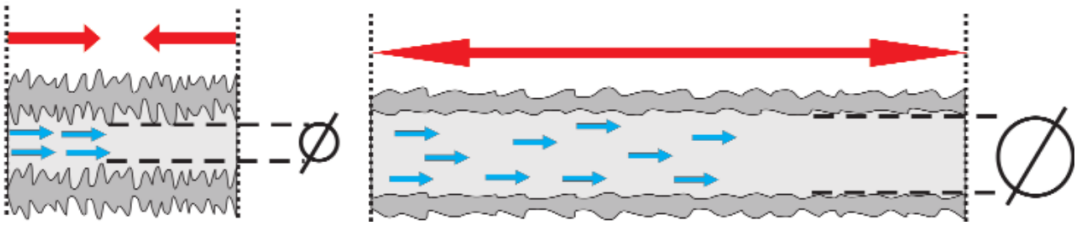
2.5.2. Air delivery

The efficiency of the system depends on the air flow.
This is why it is important to avoid narrow passages in the air distribution system, keeping the specified duct diameter and using the minimum possible length.



2.5.3. Air ducts

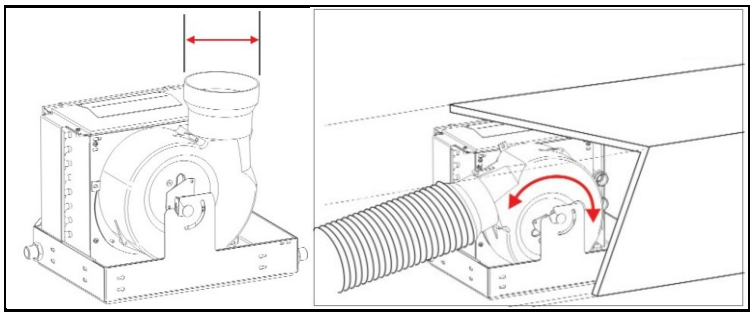
The insulated ducts must be straightened to keep the nominal diameter so that the air can circulate freely. Cut out the unused length.



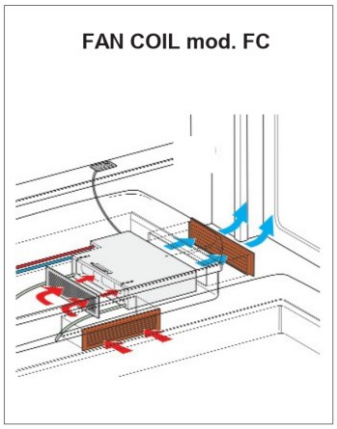
2.5.4. Air delivery Fan Coil mod. EV

The fan must be connected to the air distribution circuit using an insulated duct. The duct diameter must correspond to the diameter of fan coil blower duct adaptor.

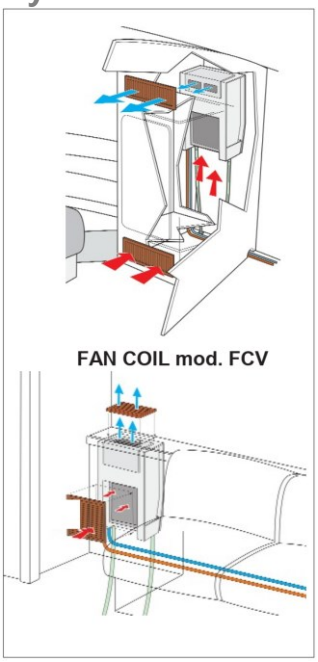
The fan outlet can be turned in order to make the simplest run of the delivery air duct.



2.5.5. Air intake and delivery of the Fan Coil mod. FC



2.5.6. Air intake and delivery of the Fan Coil mod. FCV



2.6. Electrical connection

2.6.1. Safety

AVOID THE RISK OF THE ELECTROCUTION !!!

Only qualified staff can execute the troubleshooting and the repair. Keep isolated from the ground during the execution of the electrical operations, wearing dry clothes, rubber shoes, rubber carpets, etc.... Do not check wires under voltage if none can bring help.

IMPORTANT NOTE

To avoid possible electrical shocks, that can cause harm or death to people, execute the grounding of the air conditioning system, as indicated:

1- Use a suitable electrical cable with ground wire section and isolation to give the charge from the switch on the control board of the boat to the electrical box of the system. The ground wire must be correctly connected to the ground terminal of the panel.

2- Check that the ground connection between the electrical box and the air-conditioner has not suffer any damage during the transport.

3- Check that the connection of the water pump to the suitable terminal of the electrical box includes also the ground connection.

4- Check the ground continuity before switching on the air-conditioner.

2.6.2. Electrical supply

Check that the available supply corresponds to the label on the unit.

2.6.3. Fan coil without water valve

The Fan coil harness has a simple supply cable of 3 m with 3 wires with phase (brown), neutral (blue) and ground (yellow/green).

2.6.4. Fan coil with water valve

In addition of the Fan coil cable, there is the cable for the water valve supply.

2.6.5. Fan coil with water valve and electrical heater (Strip Heater).

For this version there is the Fan coil cable, the water valve cable and a third cable for the electrical heater.

2.6.6. Electrical box and control panel

There are several types of electrical boxes and control panels that are used to control the fan coil.
For instructions and schematic please refer to the documentation supplied with the controls.

3. Operation

For the operating instructions please refer to the manual or instruction supplied with the control box and panel to which the fan coil is connected.
In order to identify the model of control panel and control box see the following details.

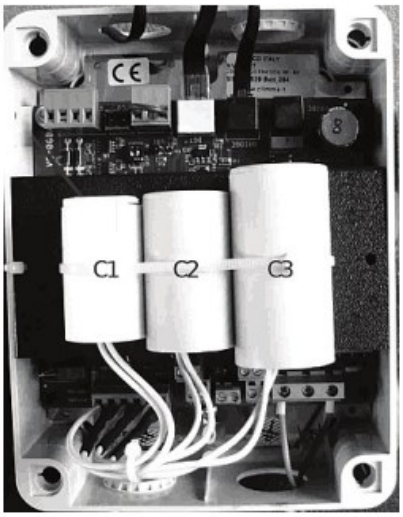
3.1. Identification of the Fan coil control system

Mechanical control panel compatible with control box MSCA

Control box MSCA

Digital control panel Vega MK2 compatible with contol box MV8

Digital control panel C-Touch compatible with contol box MV8



Control box MV8

4. Maintenance

To get the best performances from your fan coil, it is important to do the suggested maintenance described below. Periods
can vary based on the installation area of the boat, based on pollution and based on the system usage.

- Clean the air filter monthly
- Clean the condensate drain pipe every 4 months
- Clean the condensate pan every year
- Replace the remote control battery every year

4.1. Condensate water and drains

While working, every fan-coil produces condensate water, especially when humidity is high. It has to be checked periodically that there are no leaks on the condensate water drains and that the condensate water drains regularly. For this check, put some water in the condensate drain and check that it gets drained quickly.
If the condensate water is drained in the bilge, it is advised to drain it in a specific separate area, since it can generate bad smells.

4.2. Air filter

The system requires to clean and periodically change the air filter. This filter is required to clean the air before it goes into the heat exchanger of the fan coil.
There is no specific rule for the system maintenance; it depends on the running hours of the system and from the air pollution. We advise to clean the air filter every 30 days maximum.
If the air filter is not completely clean system can stop working or loose efficiency. In cool mode (CO) the system efficiency can decrease significantly, while in the reverse cycle mode (RC), it can cause a high pressure lock and the system will stop working. In the electrical heater models (EH) the system will stop working due to a security sensor

4.3. Icing

If the boat faces sub-zero temperatures, it is important to check that the fresh water circuit has inside enough percentage of antifreeze liquid to prevent icing.

5. TROUBLESHOOTING

Before contacting our Support Centre, please follow below suggestions that are meant to solve the most common problems. If the problem continues, please contact the closest Veco Customer Service. Please refer to our web site www.climma.it | www.veco.net to get the closest one or call the Veco Customer Service at +39.0362.35321

5.1. Product identification

Each product is uniquely identified by a label. Please refer to the product description, code, serial number every time you discuss with our Customer Service.

5.2. Fan coil doesn't work

Check if the circuit breaker has tripped. Reset it on the yacht panel. Check that the power supply voltage is not too low. Check the voltage value.

5.3. The blower doesn't work

Check if the air conditioning system is on. Turn on the air conditioning unit using the control panel. Make the suggested checks listed in the manual of the control box

5.4. Cooling is not enough

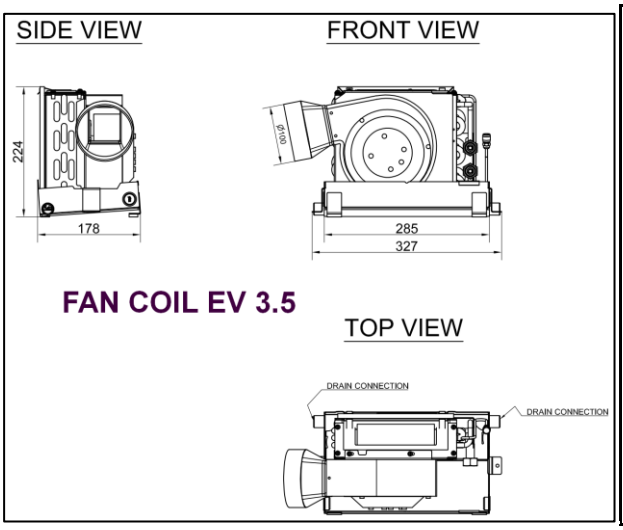
Check that the correct mode has been set. Select on the panel the correct option: cooling (COOL) or AUTO.
Check that the thermostat is set correctly. Set the temperature on a lower value.
Check that the fan speed is not too low. Increase the fan speed or select AUTO mode.
Check that the air circulation is enough. Check that there are no blocks on the air grills (inlet and outlet) and that the air filter is clean.
If the air filter is not clean, clean or replace it.

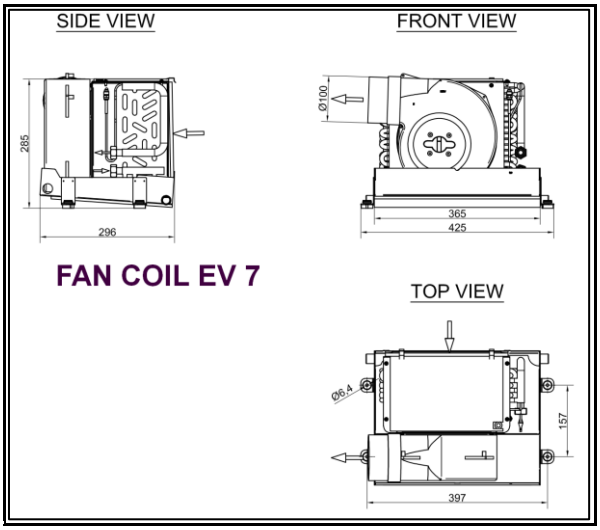
5.5. Heating is not enough

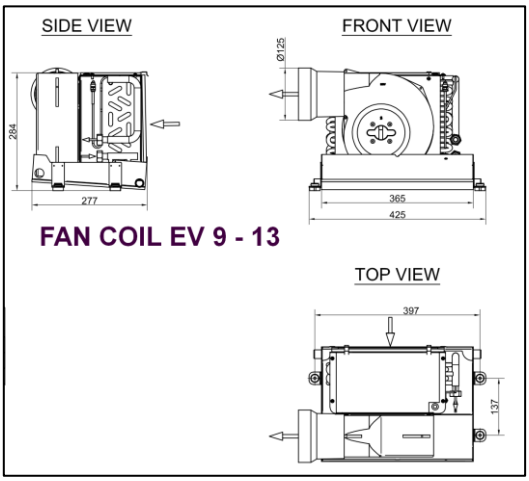
Check that the correct mode has been set. Select on the panel the correct option: heating mode (HEAT) or AUTO.
Check that the thermostat is set correctly. Set the temperature on a higher value.
Check that the fan speed is not too low. Increase the fan speed or select AUTO mode.
Check that the air circulation is enough. Check that there are no blocks on the air grills (inlet and outlet) and that the air filter is clean.
If the air filter is not clean, clean or replace it.

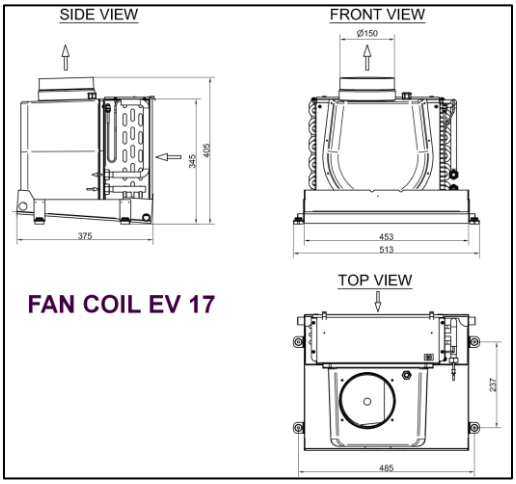
6. TECHNICAL CHARACTERISTICS

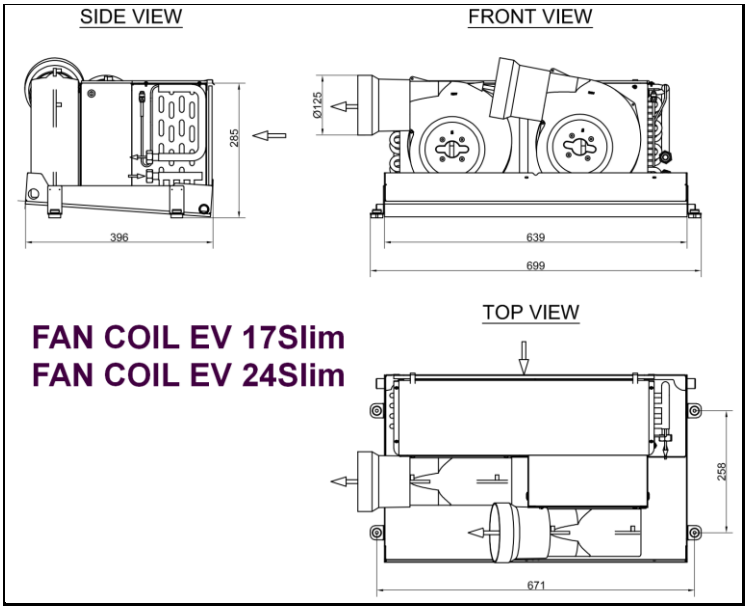
6.1. Fan coil mod.EV



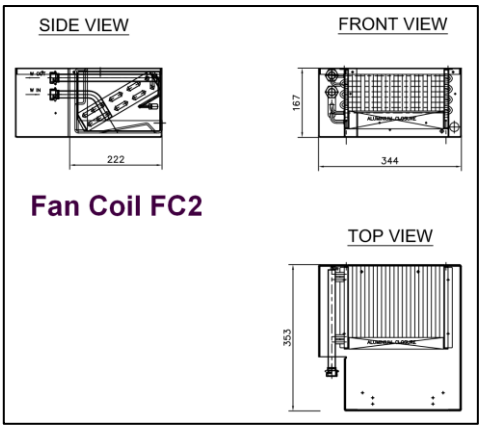


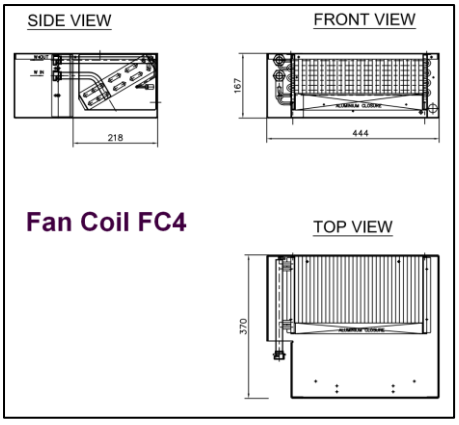


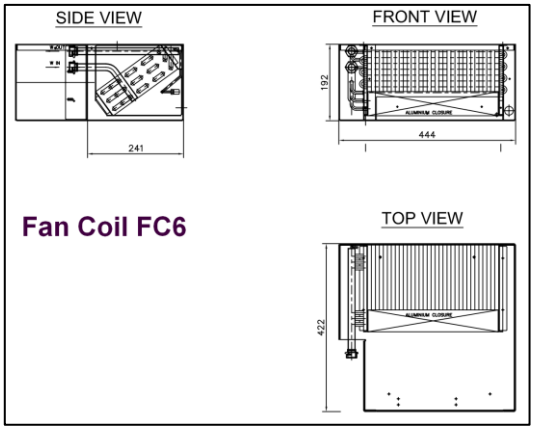


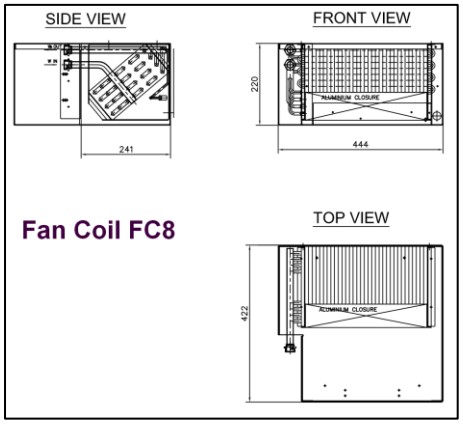


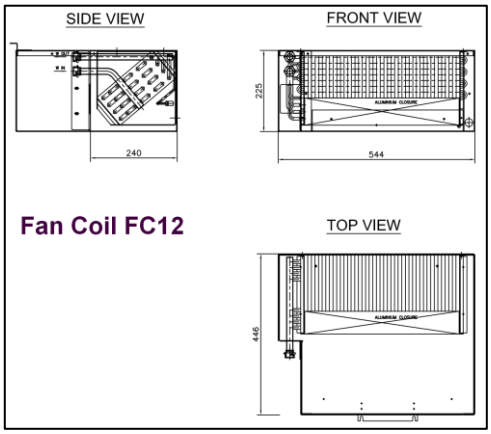
6.2. Fan coil mod.FC

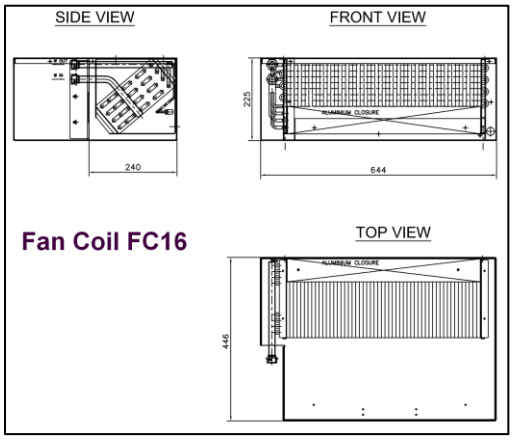


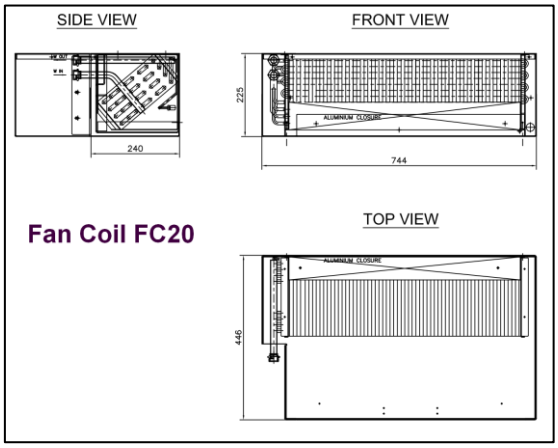












6.3. Fan Coil mod. FCV