



Installation Operation Maintenance

Jupiter Close Control Units

Direct expansion units

JDAC / JUAC / JDAV / JUAU / JDWC / JUWC / JDWV / JUWV

Sizes: 0115 - 0125 - 0133 - 0135 - 0150 - 0160

Chilled water units

JDCC / JUCC / JDCV / JUCV

Sizes: 0020 - 0025 - 0030 - 0040 - 0060



PKG-SVX24B-E4



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GENERAL INSTRUCTIONS

Information contained in the manual

The present manual describes the Jupiter conditioning units. It supplies general information and safety instructions, unit transportation and installation information, as well as necessary information about how to use the units.

It is an integral part of the air conditioning unit.

The descriptions and illustrations in this manual are unbinding; "TRANE" reserves the right to make any alterations it sees fit in order to improve the product without having to update this document.

The illustrations and images in this manual are examples only and may differ from practical situations.

Symbols

The following graphic and linguistic symbols have been used in this manual:



WARNING! This message may appear before certain procedures. Failure to observe this message may cause damage to equipment.



WARNING! This message may appear before certain procedures. Failure to observe this message may cause injury to the operators and damage the equipment.

Storage

The following conditions must be respected should the air conditioner require storing for a given period of time:

The packing must be kept intact.

The place of storage must be dry (<85% R.H.) and protected against the sun (temperature <50°C).

Storage after use

The air conditioner must be packaged when stored for a long time.

Disposal

The air conditioner is mainly made of recyclable materials which should be separated from the rest of the unit before it is disposed. When disposing of the gas and oil inside the refrigerating circuit, consult a specialist company.

Disposal of the machine

The following instructions deal with the disposal of TRANE machines. The procedures described below are guidelines only, provided to make the machine disassembling easier. The purpose of these operations is to achieve homogeneous material quantities for disposal or recycling.

These instructions are followed by a list of the possible typical CER 2002 codes to allow an easier disposal of the machine parts.



WARNING! Observe the safety precautions at work wearing the suitable individual protection devices (IPD) and using the appropriate equipments.



WARNING! Maintenance and service operations (disassembling included) must be performed by qualified and expert personnel, aware of the essential precautions.

PRELIMINARY OPERATIONS

Power supply and data processing system:

- Turn the machine off and unplug it from the power supply and from the communication system.



WARNING! The circuits can be pressurised; any maintenance and service operation must only be carried out by expert and qualified personnel, aware of the essential safety precautions.



WARNING! The machine can contain hot water: adopt all of the essential safety cautions.

Hydraulic circuit:

- Drain the hydraulic circuit and disconnect the hydraulic line.

Refrigerating circuit:

- Purge the refrigeration system with suitable recovery equipments to avoid gas leakage in the environment.

DISASSEMBLING THE MACHINE

The following paragraphs describe the main macrocomponents to facilitate the disassembling, disposal and recycling of materials with appropriate features.

To disassemble the machine properly, follow the guidelines provided below.

ELECTRICAL PANEL

Remove the electrical panel and dispose its parts following the procedures provided by the relevant standards. The models equipped with a "clock board" in the electrical panel have a service battery which must be disposed separately.

- Materials: electronic parts, electrical cables, metal and plastic supports, batteries.

COVER PANELS

Remove the metal cover and protection panels of the machine.

The panels can be made of polypaired materials, that is insulating material together with metal. In this case, separate the different elements.

- Materials: galvanized sheet, aluminium, soundproof panels: expanded polyurethane, thermoinsulating panels: mineral wool.

- **AIR FILTERS**
Remove the air filters.
- Materials: metallic net, synthetic fibre.
- **FINNED COIL**
Remove the finned coils from the machine.
- Materials: copper, aluminium, steel.
- **HUMIDIFIER**
If a humidifier is installed, remove it.
- Materials: polypropylene, iron materials.
- **ELECTRO-MECHANICAL PARTS**
Find and remove valves, electro-mechanical and electronic parts (three-way valves, sensors, etc.) from the machine.
- **RESISTANCES**
Remove the resistances if they are installed.
- Materials: aluminium, inseparable copper + magnesium oxide.
- **PIPES AND PARTS OF THE REFRIGERATING CIRCUIT**
Find the connection pipes installed in the machine and separate them from the other elements.
Pipes can be caulked: in this case, before recovery, separate the insulating material from the metal pipe.
Even the elements of the refrigerating circuit are considered as pipes: joints or valves.
- Materials: copper, brass, cast iron, steel and plastic.
- **PUMP**
Remove the pump from the machine.
- Materials: pump.
- **CONDENSER**
Remove the condenser, if installed.
The condenser contains the elements of a machine, equipped with a small electrical panel, fans and a thermal exchange battery, usually characterized by aluminium structure and feet made of varnished steel.
- Materials: electrical elements, aluminium, steel (varnished).
- **BRAZED PLATE EXCHANGER**
If installed, remove the brazed plate exchanger.
- Materials: INOX AISI braze welding, with an alloy containing a large amount of silver.
- **FANS**
Remove the fans. Disassemble the metal frame and proceed with the recycling of the metal alloy.
- Materials: electro-mechanical elements, iron wrecks.



WARNING! The fans of some machine models are integral part of the carrying structure. Removing the fans can compromise the stability of the frame. We recommend to pay attention during disassembling operations.

- **COMPRESSORS AND LIQUID SEPARATORS**



WARNING! Pay attention to oil contained in the compressors. Avoid any loss of oil during operations. If possible, dispose of oil and compressors separately.

Finally remove the liquid separators and the compressors from the machine base.

- Materials: liquid separators and compressors

- **METAL BASE**

Proceed with the recycling of the metal base.

- Materials: galvanised sheet.



WARNING! Waste deriving from machine disassembly must be disposed of and classified according to CER codes only consulting authorised and specialist companies.

The following chart contains a partial list of the typical CER codes applied to waste deriving from disassembling, so it must be considered just as an indication.

ELEMENTS	CER 2002 CODES
Electrical cables	17 04 11
Plastic materials	16 01 19
Metal supports	16 01 17
Galvanised sheet	17 04 07
Aluminium	17 04 02
Metallic net	17 04 05
Synthetic fibre	15 02 03
Copper	17 04 01
Brass	17 04 01
Cast iron	17 04 05
Steel	17 04 07
Refrigerating gas	14 06 01
Battery	16 06 04
Pumps, electro-mechanical elements, compressors	17 09 04

SAFETY

General Instructions



WARNING! Removal of, or tampering with, safety devices is a violation of EUROPEAN SAFETY STANDARDS.



WARNING! During installation authorised personnel must wear individual safety devices.

TRANE will only consider itself responsible for the safety, reliability and performance of the machine if:

- repair work has only been carried out by authorised personnel;
- the electric installation conforms to the standards currently in force;
- the devices are used in conformity with the relative instructions.

Carefully read this instruction manual before carrying out any kind of use or maintenance work on units.

Installation, maintenance and use must be carried out respecting all of the work safety standards.

The operator responsible for the above mentioned services must be suitably specialised and possess expert knowledge of the devices.

TRANE refuses all responsibility for damage to people or objects due to the inobservance of the safety standards.

Warning for lifting and transportation

Lifting and transportation of the units must be carried out by specialised personnel as described in the relative paragraphs.

The load must always be solidly anchored to the bearing element of the lifting equipment and means of transport. No-one must remain near the suspended load, nor in the working area of the crane, forklift truck or any other lifting equipment or means of transport. Adopt all of the cautions provided by the relevant safety standards, in order to prevent any possible damage to people or objects.

Warnings for installation

Any type of work on the electrical installation must only be carried out by specialised technicians who are experts in this field.

Specialised technical personnel must use appropriate equipment when checking the grounding of devices.

Installation may only take place in locations where there is NO public access.

Intended use

Jupiter air conditioning units have been designed and produced to carry out air conditioning, within the limits and methods described in the present manual. The air conditioners must be used exclusively in internal environments.

No modifications may be made to the units or their parts without explicit written consent from TRANE.

Warnings for use

Only use the machinery for the purpose for which it was designed and manufactured.

Environmental limits for use

The environmental conditions for the use of Jupiter air conditioners are fall within the following values:

- T_{min}=18°C
- T_{max}=30°C
- %rH_{min}=30%
- %rH_{max}=70%

Safety during maintenance work

All repair work must be carried out by professionally qualified personnel authorised by TRANE.

Unplug the machine from the power supply before starting any maintenance work.

While drawing up this manual, we have considered all of the operations which are part of normal maintenance operations.

N.B. Do not carry out any work which has not been specified in this manual.

INTRODUCTION

Presentation of the system

The JUPITER precision air conditioning units are designed for civil use and for all environments characterized by the presence of equipment with a high technological content: telephone and internet exchanges, data processing centres, meteorological rooms, laboratories and climate controlled warehouses.

The Jupiter series consists of 2 types of conditioners:

- Direct expansion units
- Chilled water units

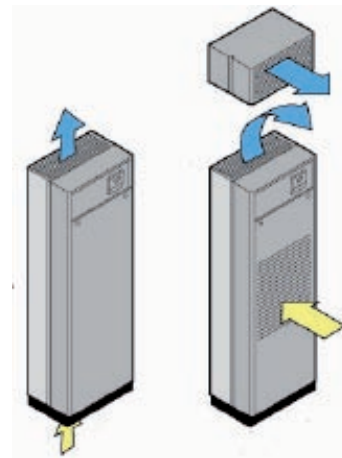
AIR FLOW

In the Jupiter conditioners, the air can flow upwards or downwards (UPFLOW / DOWNFLOW)

UPFLOW

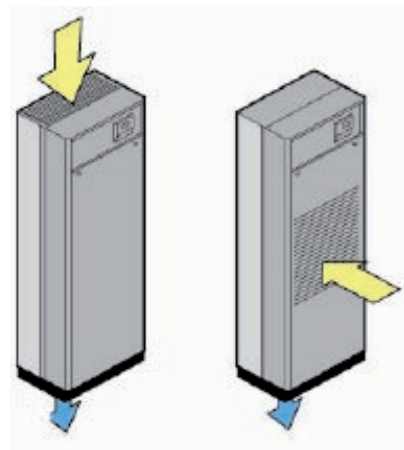
The Upflow air conditioning units (with upwards discharge of the treated air) are designed for distribution of the air directly into the environment with or without a discharge plenum or through a system of ducting or by means of a false ceiling.

The suction of the air is normally from the front side of the air conditioner, however, versions are also available with recovery of the air from the rear of the air conditioner or from the base support of the unit.



DOWNFLOW

Downflow units (with downwards air discharge) handle large volumes of air which are distributed uniformly into the environment by means of a void under a raised access floor. The air is sucked in through the upper section or the front section of the unit directly from the environment, or through a section of conduit connected to the false ceiling or to ducting.



MODELS

The code which distinguishes the models is composed of 4 characters:

J X X X XX XX X

Identifying prefix of the Jupiter family

Air discharge

U = Upflow (upwards discharge)

D = Downflow (downwards discharge)

Operating typology

C = Chilled water units

A = Air cooled direct expansion units

W = Water cooled direct expansion units

Fan typology

V = Radial Electronically Commutated fans

C= Centrifugal fans

Number of compressors

Indicative cooling capacity

Power supply voltage

A = 400 V / 3Ph (+N) / 50 Hz

B = 230 V / 1 Ph / 50 Hz

IDENTIFICATON PLATE




The air conditioner can be identified by the plate which is placed in the electrical panel of the machine. The model and any eventual accessories which are installed are indicated by an "X" in the corresponding box

The plate carries the following data:









- Model and series number of the machine.
- Type of power supply.
- Power absorbed by the unit and the single components.
- Current absorbed by the unit and the single components.
- The set points of the cooling circuit pressostatic valve and safety valve.
- Type of refrigerant.
- Loading or pre-loading of each cooling circuit.

rev.		<input type="checkbox"/> JDAC0160A(H) <input type="checkbox"/> JDWC0160A(H)		SERIAL No.		
<input type="checkbox"/> JUAC0160A(H)		<input type="checkbox"/> JUWC0160A(H)				
TENS.	400V/3Ph+N/50Hz			AUX.	24	VOLT
	NO.	TENS. (V)	OA (A) [1]	FLA (A) [1]	LRA (A) [1]	P (kW) [TOT]
COMPRESSOR	1	400/3	9,5	14,8	87	4,53
FAN	2	230/1	2,9	3,5	4	0,63
HUMIDIFIER	1	230/1	9,4			2,16
<input type="checkbox"/> HEATERS STD	1	230/1	8,7			6
<input type="checkbox"/> ENHANCED HEATERS	1	400/3	13,0			9
<input type="checkbox"/> UNIT (STD HEATERS) (*)			18,1+5,8x1Ph			11,79
<input type="checkbox"/> UNIT (ENHANCED HEATERS) (*)			22,5+5,8x1Ph			14,79
<input type="checkbox"/> UNIT (STD HEATERS+CAP max) (*)			18,1+5,8x1Ph			12,26
<input type="checkbox"/> UNIT (ENH. HEATERS+CAP max) (*)			22,5+5,8x1Ph			15,26
Icu=15kA (CEI EN 60947-2) / (*) in operating conditions at 400V						
TSR	STOP:	310 °C				MAN. RESET
TSRA	STOP:	328 °C				MAN. RESET
AP	STOP:	38,7 bar				MAN. RESET
<input type="checkbox"/> BP	STOP:	4,6 bar		DIFF:	2 bar	
CHARGE:	<input type="checkbox"/> R410A	kg/circ.				
PRECHARGE:	<input type="checkbox"/> DRY NITROGEN N2					

SYMBOLS APPLIED TO THE MACHINES

SYMBOL	MEANING
	High voltage
	Sharp edges
	Moving parts

SYMBOLS APPLIED TO THE PACKAGES

SYMBOL	MEANING
	FRAGILE: handle with care
	DO NOT STORE IN DAMP CONDITIONS: the packaged unit must be stored in a dry place
	CENTRE OF GRAVITY: shows the centre of gravity of the packaged unit
	KEEP AWAY FROM HEAT: the unit must be stored away from heat sources
	THIS SIDE UP: indicates the correct position of the packaged unit
	TEMPERATURE LIMITS: the packaged unit must be stored in a place within the indicated temperature limits
	DO NOT USE HOOKS: do not lift the packaged units using hooks
	DO NOT STACK: the packaged units must not be stacked

DIRECT EXPANSION UNIT – AIR COOLED CENTRIFUGAL FANS

Technical characteristics

JDAC/JUAC									
Model	0115B	0115A	0125B	0125A	0133A	0135A	0150A	0160A	
Height	mm	1740	1740	1740	1740	1740	1740	1740	1740
Width	mm	550	550	550	550	850	850	1200	1200
Depth	mm	450	450	450	450	450	450	450	450
Weight ¹	kg	140	140	140	140	180	180	220	220
Number of refrigerant circuits	-	1	1	1	1	1	1	1	1
Number of compressors	-	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL
Refrigerant	-	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Air flow	m ³ /h	1626	1626	1731	1731	2977	3301	4482	4482
E.S.P Maximum ²	Pa	116	116	78	78	132	78	20	20
Minimum air flow ⁴	m ³ /h	1040	1040	1040	1040	1950	1950	3020	3020
Power supply voltage	V/ph/Hz	230/1N/50	400/3N/50	230/1N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50

- 1) Unit in complete version (including packaging)
- 2) Nominal air flow – Maximum fan power supply
- 4) Minimum air flow only allowed for unit without electrical resistances

DIRECT EXPANSION UNIT - WATER COOLED CENTRIFUGAL FANS

Technical characteristics

JDWC/JUWC									
Model	0115B	0115A	0125B	0125A	0133A	0135A	0150A	0160A	
Height	mm	1740	1740	1740	1740	1740	1740	1740	1740
Depth	mm	450	450	450	450	450	450	450	450
Width	mm	550	550	550	550	850	850	1200	1200
Weight ¹	kg	145	145	145	145	185	185	230	230
Number of refrigerant circuits	-	1	1	1	1	1	1	1	1
Number of compressors	-	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL
Refrigerant	-	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Air flow	m ³ /h	1626	1626	1731	1731	2977	3301	4482	4482
E.S.P Maximum ²	Pa	116	116	78	78	132	78	20	20
Nominal water flow ³	l/h	1355	1350	1740	1705	2152	2746	3586	3912
Minimum air flow ⁴	m ³ /h	1040	1040	1040	1040	1950	1950	3020	3020
Power supply voltage	V/ph/Hz	230/1N/50	400/3N/50	230/1N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50

- 1) Unit in complete version (including packaging)
- 2) Nominal air flow – Maximum fan power supply
- 3) Data refer to $T_{b.s.}=24^{\circ}\text{C}$ - R.H.=50% $T_{IN MIX}=30^{\circ}\text{C}$ $T_{OUT MIX}=35^{\circ}\text{C}$
- 4) Minimum air flow only allowed for unit without electrical resistances

DIRECT EXPANSION UNIT – AIR COOLED RADIAL FANS WITH E.C. TECHNOLOGY

Technical characteristics

JDAV/JUAV									
Model	0115B	0115A	0125B	0125A	0133A	0135A	0150A	0160A	
Height	mm	1740	1740	1740	1740	1740	1740	1740	1740
Width	mm	550	550	550	550	850	850	1200	1200
Depth	mm	450	450	450	450	450	450	450	450
Weight ¹	kg	132	132	132	132	185	185	260	
Number of refrigerant circuits	-	1	1	1	1	1	1	1	1
Number of compressors	-	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL
Refrigerant type	-	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Nominal air flow	m ³ /h	1644	1644	1722	1722	3204	3439	4499	5202
Max. E.S.P ²	Pa	193	193	155	155	178	123	153	40
Minimum air flow ⁴	m ³ /h	1040	1040	1040	1040	1950	1950	3020	3020
Power supply voltage	V/ph/Hz	230/1N/50	400/3N/50	230/1N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50

1) Unit in complete version (including packaging)

2) Nominal air flow – Maximum fan power supply

4) Unit without electrical heaters

DIRECT EXPANSION UNIT - WATER COOLED RADIAL FANS WITH E.C. TECHNOLOGY

Technical characteristics

JDWV/JUWV									
Model	0115B	0115A	0125B	0125A	0133A	0135A	0150A	0160A	
Height	mm	1740	1740	1740	1740	1740	1740	1740	1740
Width	mm	550	550	550	550	850	850	1200	1200
Depth	mm	450	450	450	450	450	450	450	450
Weight ¹	kg	132	132	132	132	185	185	260	
Number of refrigerant circuits	-	1	1	1	1	1	1	1	1
Number of compressors	-	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL	1 -SCROLL
Refrigerant	-	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Air flow	m ³ /h	1644	1644	1722	1722	3204	3439	4499	5202
E.S.P Maximum ²	Pa	193	193	155	155	178	123	153	40
Nominal water flow ³		1357	1354	1739	1704	2183	2764	3590	4015
Minimum air flow ⁴	m ³ /h	1040	1040	1040	1040	1950	1950	3020	3020
Power supply voltage	V/ph/Hz	230/1N/50	400/3N/50	230/1N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50

1) Unit in complete version (including packaging)

2) Nominal air flow – Maximum fan power supply

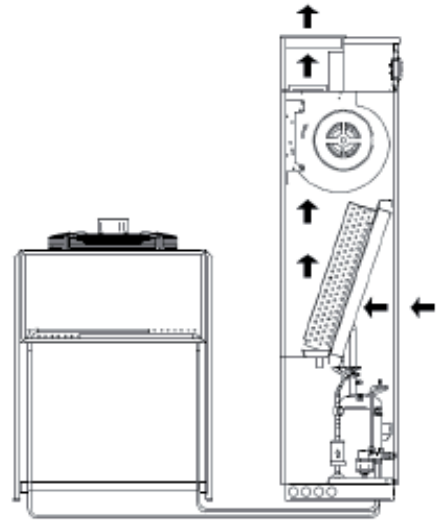
3) Data refer to $T_{b.s.} = 24^{\circ}\text{C}$ - R.H.=50% $T_{IN MIX} = 30^{\circ}\text{C}$ $T_{OUT MIX} = 35^{\circ}\text{C}$

4) Minimum air flow only allowed for unit without electrical resistances

Operating description

AIR COOLED DIRECT EXPANSION UNITS (DXA)

The air cooled DX units extract heat from the room and transfer it to the outside using air cooled refrigerant heat exchangers (condensers). The room unit and external condenser form an autonomous sealed circuit once installed. The TRANE remote condensers used with JUPITER units include a precise electronic system to regulate the fan speed to ensure trouble-free operation throughout the year under a wide range of external air temperatures. Special attention has been paid to the acoustic design of the condensers to minimise noise levels. A wide range of combinations is available to meet different site requirements.



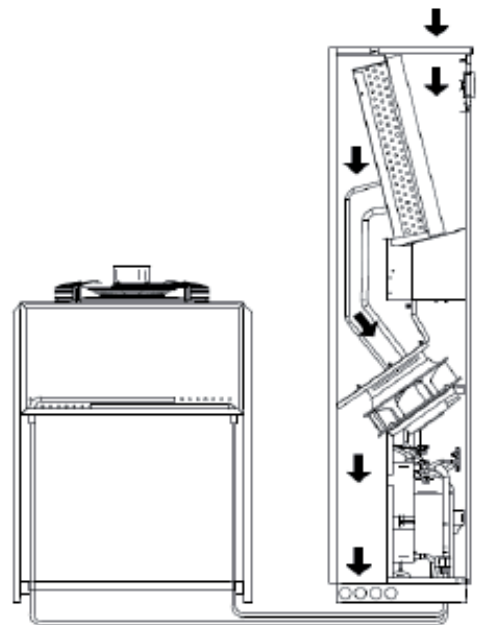
WATER COOLED DIRECT EXPANSION UNITS (DXW)

In the DX water cooled units, the heat extracted from the room is transferred to water via a stainless steel brazed plate exchanger within the unit.

The cooling water may be fed from the mains supply or a well (open circuit), or recycled in a closed loop cooled by external coolers.

In the latter case, an anti-freeze mixture of water and ethylene glycol is normally used.

The water cooled units have the advantage that the refrigerant circuits are charged and sealed in the factory. This makes installation extremely simple, eliminating the need for any site-installed refrigerant pipework.



Name and description of the principle components

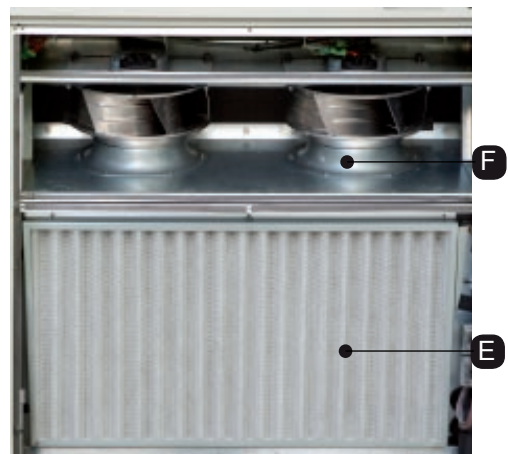
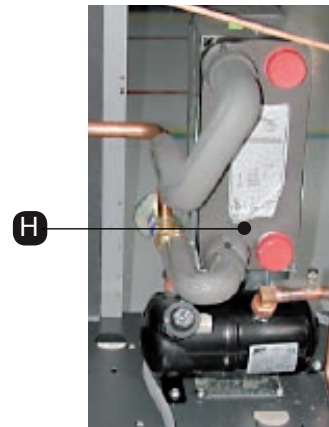
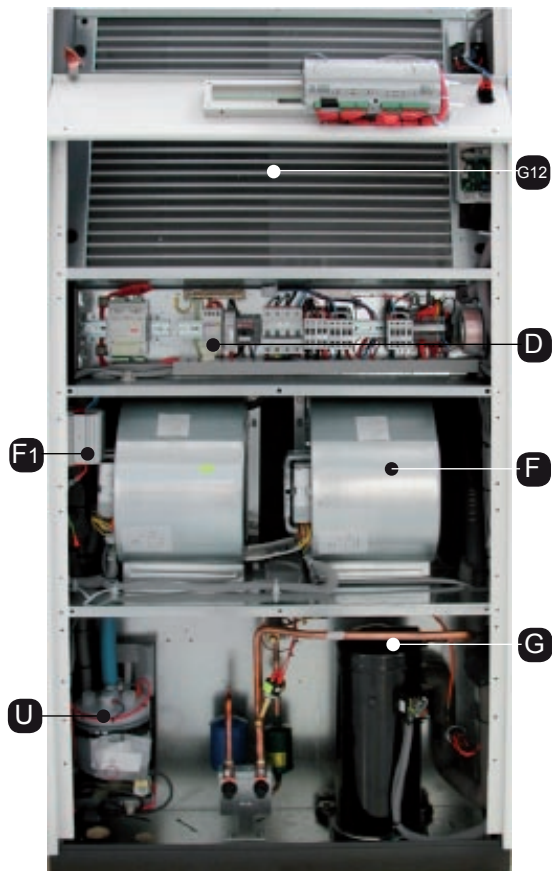
Model JDA*/JDW*

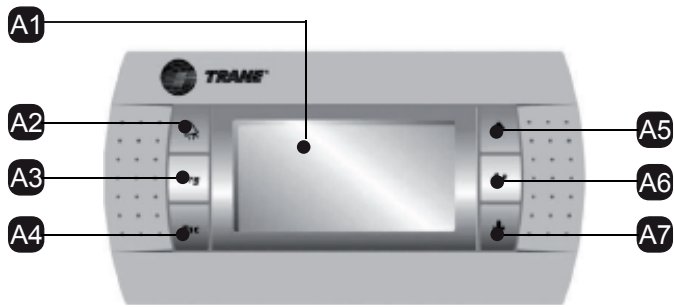


Model JUA*/JUW*



- A User terminal
- B Electrical panel door
- C Cover panel
- D Electrical panel
- E Air Filter
- F Fans
- G Cooling circuit
- H Brazed plate heat exchanger (present in chilled water models)

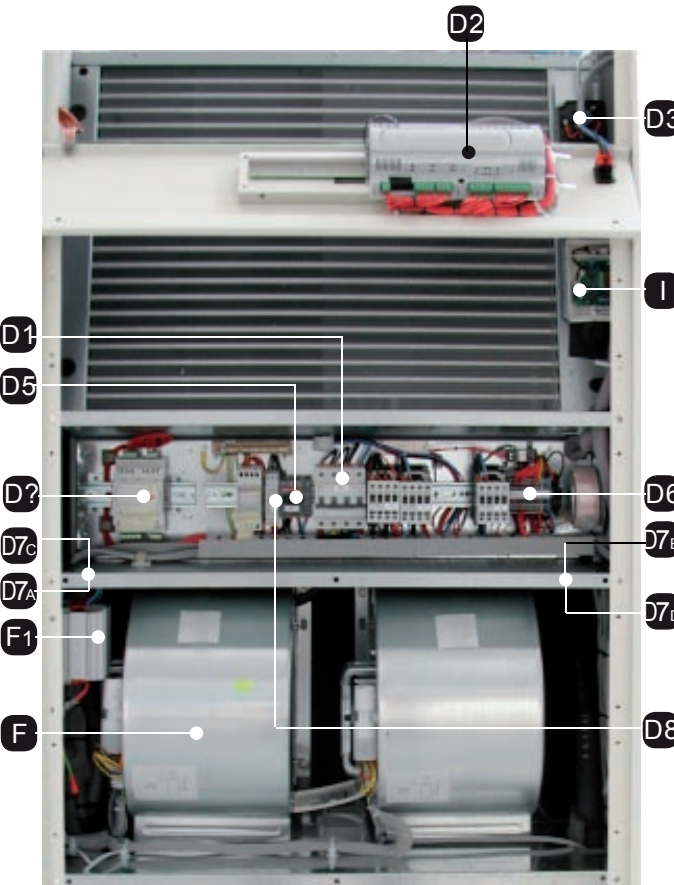




Description of the components

A - User terminal
 Allows the unit to be turned on or off and the configuration and visualization of the condition of the machine.

- A1 LCD Display
- A2 **ALARM** key: visualization and reset of alarms; when the alarm is activated, it flashes red
- A3 **PRG** key: access to the configuration menu
- A4 **ESC** key : exit from the screens
- A5 **UP** key : scroll through the menu
- A6 **ENTER** key : confirm
- A7 **DOWN** key: scroll through the menu



B - Electrical panel door

Allows access to the electrical panel of the machine.

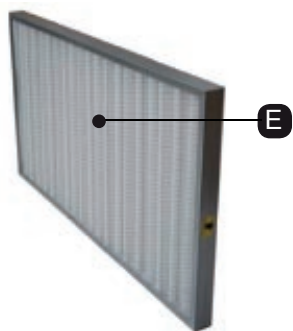
C - Cover panel

Allow access to the internal components of the machine.

D - Electrical panel

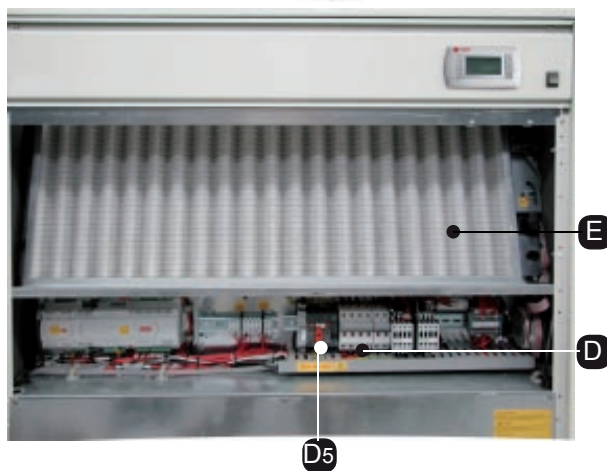
- D1 Magnetohermic - auxiliary
- heater (optional)
- humidifier (optional)
- fans
- compressors
- D2 Interface board
- D3 Dirty filter sensor
- D4 Air flow sensor
- D5 Main switch
- D6 Terminal board
- D7A Input/output electrical supply cables
- D7B Input/output electrical auxiliary cables
- D7C Input/output condensing unit supply (optional) - Only on units with air cooling
- D7D Entrance/exit signal cables (RS485 and/or LAN)
- D8 Phase sequence relay

E - Air Filter



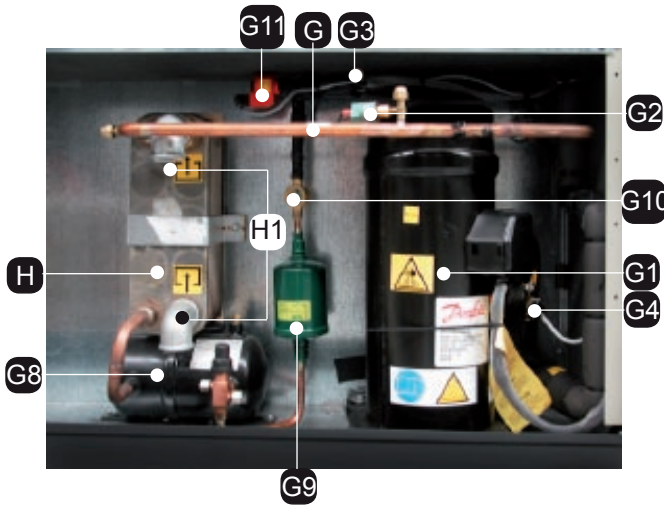
Filter the air released into the environment

F - Fans

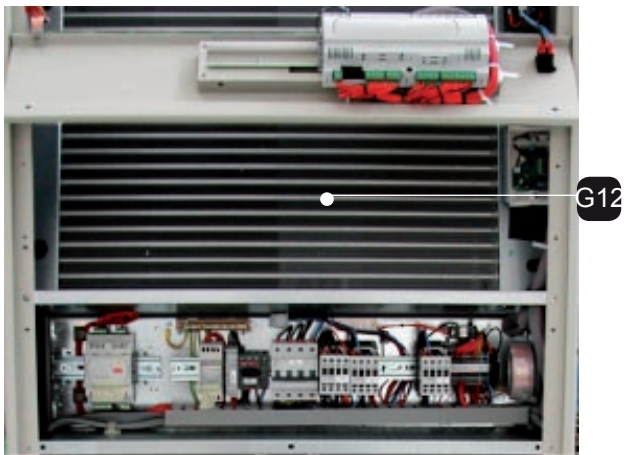


F1 Fan speed regulator

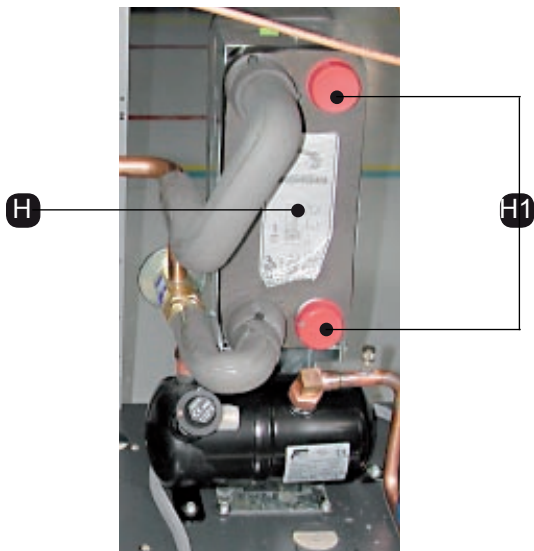
G - Cooling circuit



- G1 Compressor
- G2 High pressure switch
- G3 Schrader Valve
- G4 Low pressure transducer
- G5 Shut -off valve
- G6 Circuit Exit
- G7 Circuit entrance
- G8 Liquid receiver
- G9 Dehydration filter
- G10 Flow sight glass
- G11 Electronic thermostatic valve
- G12 Evaporating coil



G12



H - Brazed plate heat exchanger (present on water cooled units)

- H1 Input/output hydraulic circuit



I - Room temperature and humidity sensor

Checks to be made on delivery

WARNING! Dispose of the packaging in appropriate collection points.

The Jupiter unit comes packaged in a wooden case or fixed on a pallet and wrapped in transparent film.

Check that the delivery is complete and inform the carrier of any damage to the unit which may be attributed too careless or inappropriate transportation.

Lifting and moving the unit must be carried out by a mechanical lifter, supplied with a sling made up of textile belts, which, fixed under the machine, limits excessive stress on the upper edges.

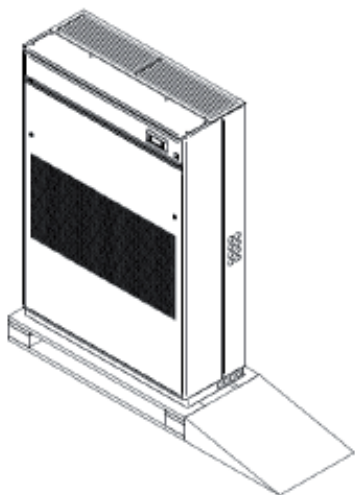
The following must be contained within the packaging:

- The Jupiter unit;
- Jupiter Use and Installation Manual;
- Jupiter unit electrical diagrams;
- Jupiter unit cooling circuit diagrams;
- Jupiter unit installation diagrams;
- List of spare parts;
- CE declaration with a list of the European standards to which the machine must conform;
- guarantee conditions

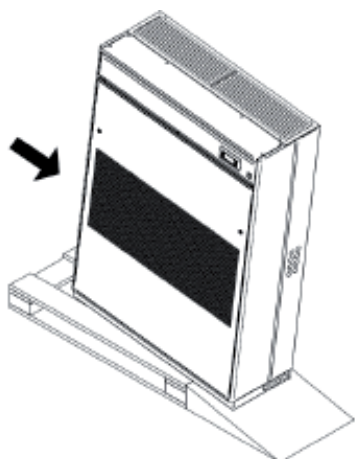
Unloading the unit

To unload the unit from the pallet, carry out the following procedure:

- move the pallet as near as possible to where the unit is to be installed;
- not tilt or turn the unit upsidedown;use a ramp to avoid any damage to the unit during unloading;



- remove the blocking screws which fix the unit to the pallet;
- carefully push the unit along the ramp until it reaches the floor.



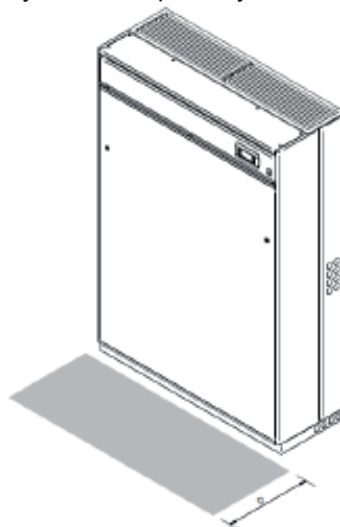
Characteristics of the installation area

WARNING! The unit must be installed internally and protected from adverse conditions.

The unit is predisposed for installation on raised access flooring using mounting frames or appropriate floor stands supplied on request from TRANE. However, the upflow units (upwards air flow) with air intake through the rear or front can also be installed on floors which are not raised.

The area of installation must have the following characteristics:

- to facilitate maintenance, leave a clearance (distance D) of at least 700mm free in front of the unit. Check that the air intake and discharge connections are not blocked in any way, not even partially;



- a horizontal and even floor;
- the electrical energy distribution system has been produced in respect of CEI standards, suitable for the characteristics of the unit;
- a cold water distribution implant (if a humidifier is to be installed);
- implant for connection to the condensing unit;
- external air outlet (if a fresh air intake is to be installed);
- if or the refrigerating gas drain see paragraph "Connection to gas drain";
- condensing drain circuit and/or humidifier.

WARNING! The preparation of the installation area must be carried out as indicated in the installation drawing attached to the machine documentation.

Positioning of the unit

WARNING! If the surface where the unit is placed is not even and horizontal, there is a risk of an overflow from the condensation tray. A maximum height difference of 5mm between the ends of the unit is allowed.

Installation on raised access flooring

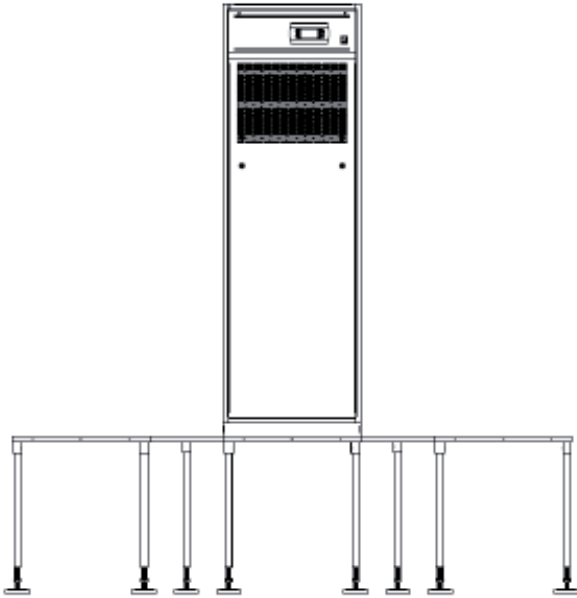
Installation on raised access flooring occurs by means of a mounting frame. The frame enables the installation of the unit before the raised floor is installed, increased absorption of noise and vibrations and the facilitation of connecting pipes and cables.

The upflow models (upwards air flow) with rear or frontal air intake may be installed without using the mounting frame.

Installation of the mounting frame

To install the unit on raised flooring using the mounting frame, carry out the following procedures:

- a flexible seal at least 5 mm thick should be fitted between the raised floor panels and the mounting frame which should also be isolated from the metallic floor structure;
- position the unit of the mounting frame and fix it using the M8 screw inserts found on the base of the unit.



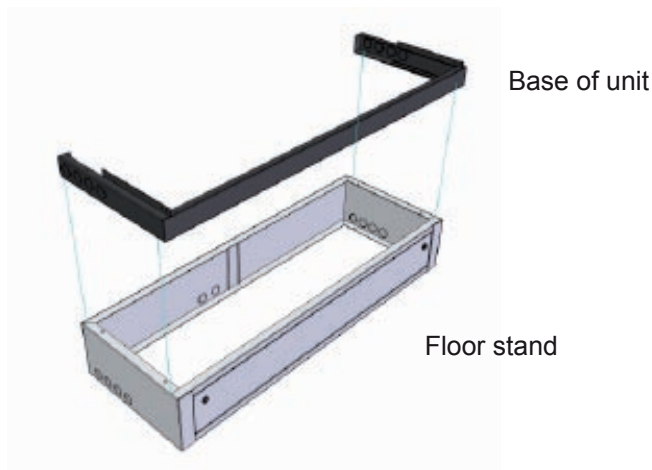
Installation on flooring which is not raised

Installation on flooring which is not raised can occur without using bases, but only on upflow models (upwards air flow) with rear or frontal air intake. Installation on this type of floor does not require any additional operation besides that of normal positioning.

Installation of the floor stand

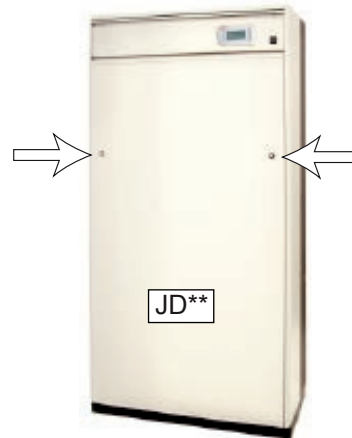
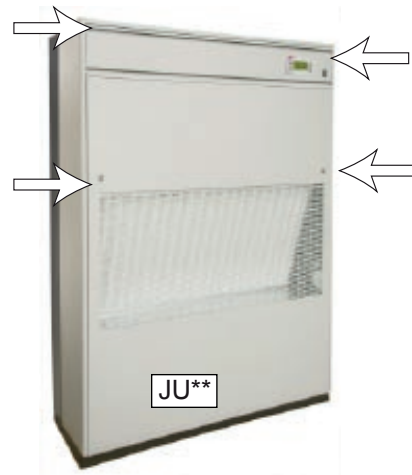
To install the unit on the floor stand, carry out the following procedures:

- position the unit on the floor stand;
- fix the unit to the floor stand using the M8 screw inserts found on the base of the unit.



Opening and removal of the front panel

To open and remove the front panel proceed as follows:

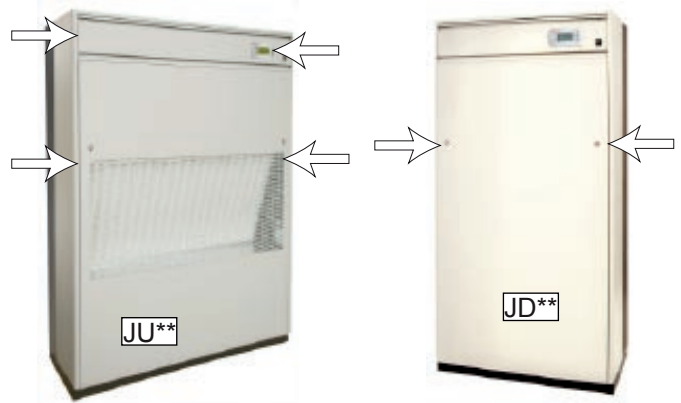
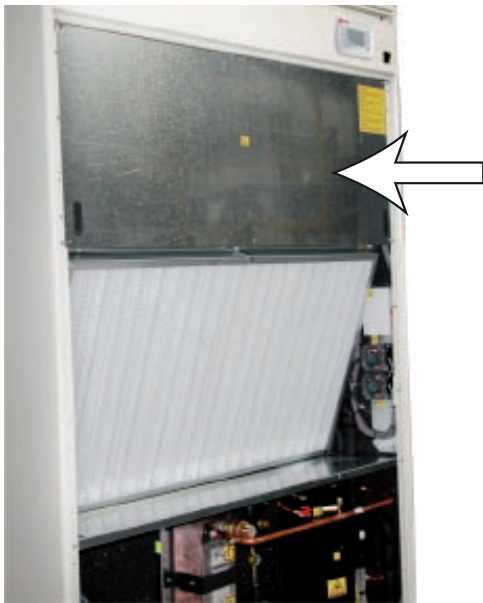


- rotate the closing blocks, as indicated by the arrows, by one quarter of a turn;
- firmly grip the panel;
- lift and tilt away from the unit until complete extraction.



Internal protection panels

The fan compartment and electrical heaters are protected by a sheet metal covering for safety reasons and to allow the opening of the external panels without interfering with the safety devices on the unit.



- pass the cables inside using the power supply cable inlet D7A ;



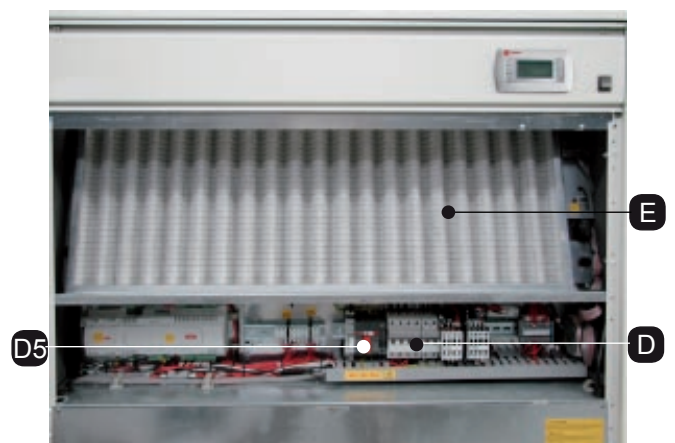
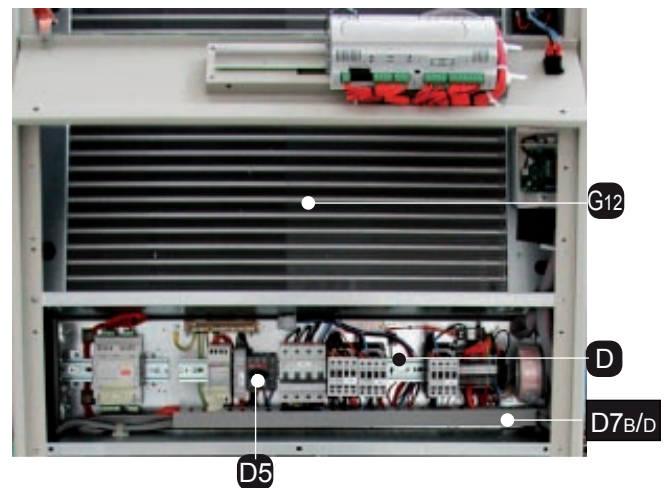
- refer to the wiring diagram and connect the cable to the main switch D5.

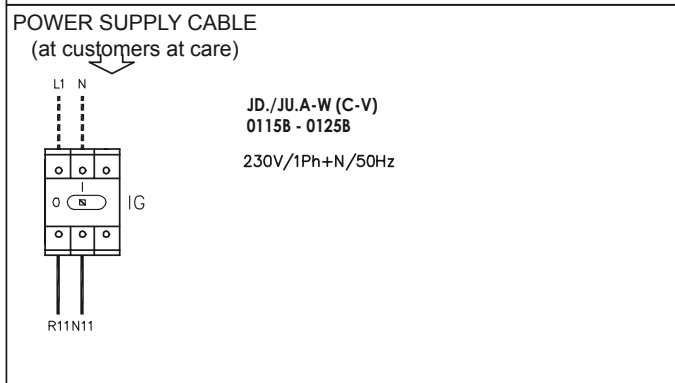
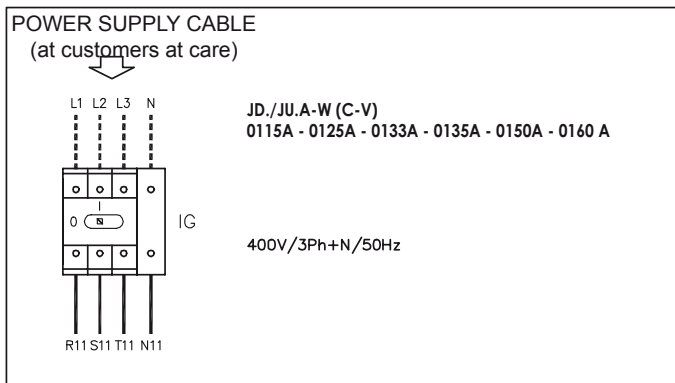
Electrical connections

- ⚠ **WARNING!** Electrical connection of the machine to the power supply must **ONLY** be carried out by a qualified electrician.
- ⚠ **WARNING!** Electrical lines must be established in full respect of CEI standards.
- ⚠ **WARNING!** Before establishing the electrical connection, make sure that the power supply is off. Also ensure that it is not possible to reconnect the power during the operation.
- ⚠ **WARNING!** The power supply voltage must be $\pm 10\%$

To carry out the electrical connections of the machine to the power supply, carry out the following procedures:

- use suitable equipment to check the efficiency of the grounding system;
- check that the voltage and network frequency correspond to those of the machine (see identification label);
- to access the electrical panel it is necessary to remove the front panel of the unit by rotating the closing blocks, indicated by the arrows, by one quarter of a turn (in the JU** models the electrical panel is situated in the upper part of the unit);





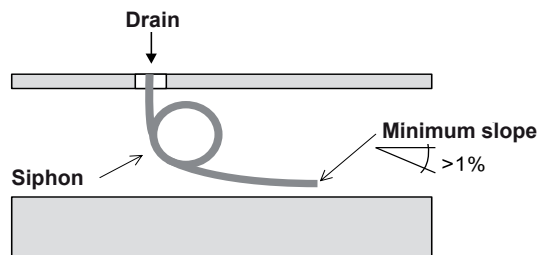
Connection to the drains

The condensed water drains from the tray through a siphoned flexible tube fitted in the unit. If the conditioner is fitted with a humidifier, the condensate drain tray and the humidifier drain connection must be connected to the drains of the building.

Direct connection to the drains of the building

Connect the drainage tube of the unit to the drains of the building using a rubber or plastic tube with an internal diameter of 25 mm.

The external drainage tube must be siphoned in order to avoid unpleasant odours. Maintain a minimum slope of 1% downstream of the siphon.



Once the connections have been made, pour water into the condensate drain until the siphon inside the unit is full.

Connection to the humidifier (optional) and to the drains of the building

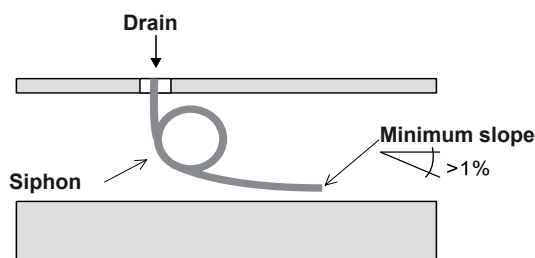
WARNING! The water discharged from the humidifier is at a very high temperature. The drainage tube has to withstand high temperatures (at least 100°C) and must be kept away from electrical cables.

Connect the drainage tube of the unit to the collection tray (U4) of the humidifier.

Connect the drainage tube of the humidifier (U7) to the drains of the building using a rubber or plastic tube, which is resistant to high temperatures (minimum 100 °C) with an internal diameter of 22 mm.



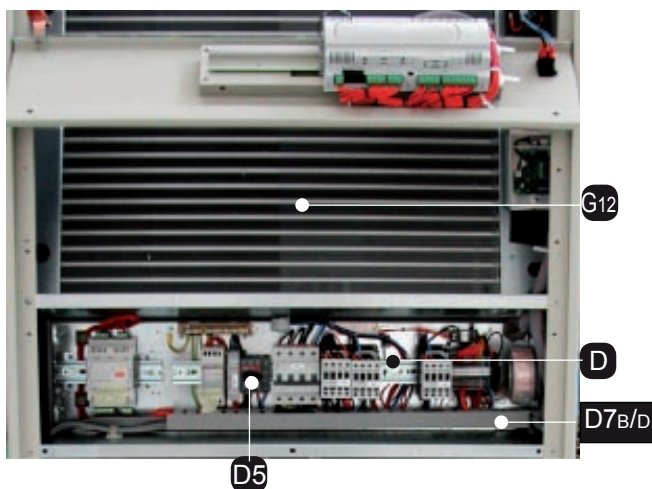
The external drainage tube must be siphoned to avoid unpleasant odours and an overflow of the water from the tray of the humidifier. Maintain a minimum slope of 1% downstream of the siphon.



Once the connections have been made, pour water into the condensate collection tray of the Jupiter unit and in the condensate collection tray of the humidifier until both siphons are full.

To connect the auxiliary connections to the terminal board, carry out the following procedures:

- pass the cables through the power supply cable inlet D7B;



- refer to the wiring diagram and carry out the connection to the terminal board.

DIGITAL CONFIGURABLE INPUTS

Terminal board 51-20

- User
- ON - OFF Remote
- Flooding sensor (SAS)
- Tools (ATA-BTA-AUA-BUA)

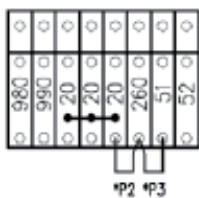
Terminal board 52-20

- User
- ON-OFF Remote
- Fire-smoke (SFF)

Remote signalling

Terminal board 980 - 990

- Signalling of the state of the unit (CV)



*P2: REMOVE WHEN "SAS" IS INSTALLED

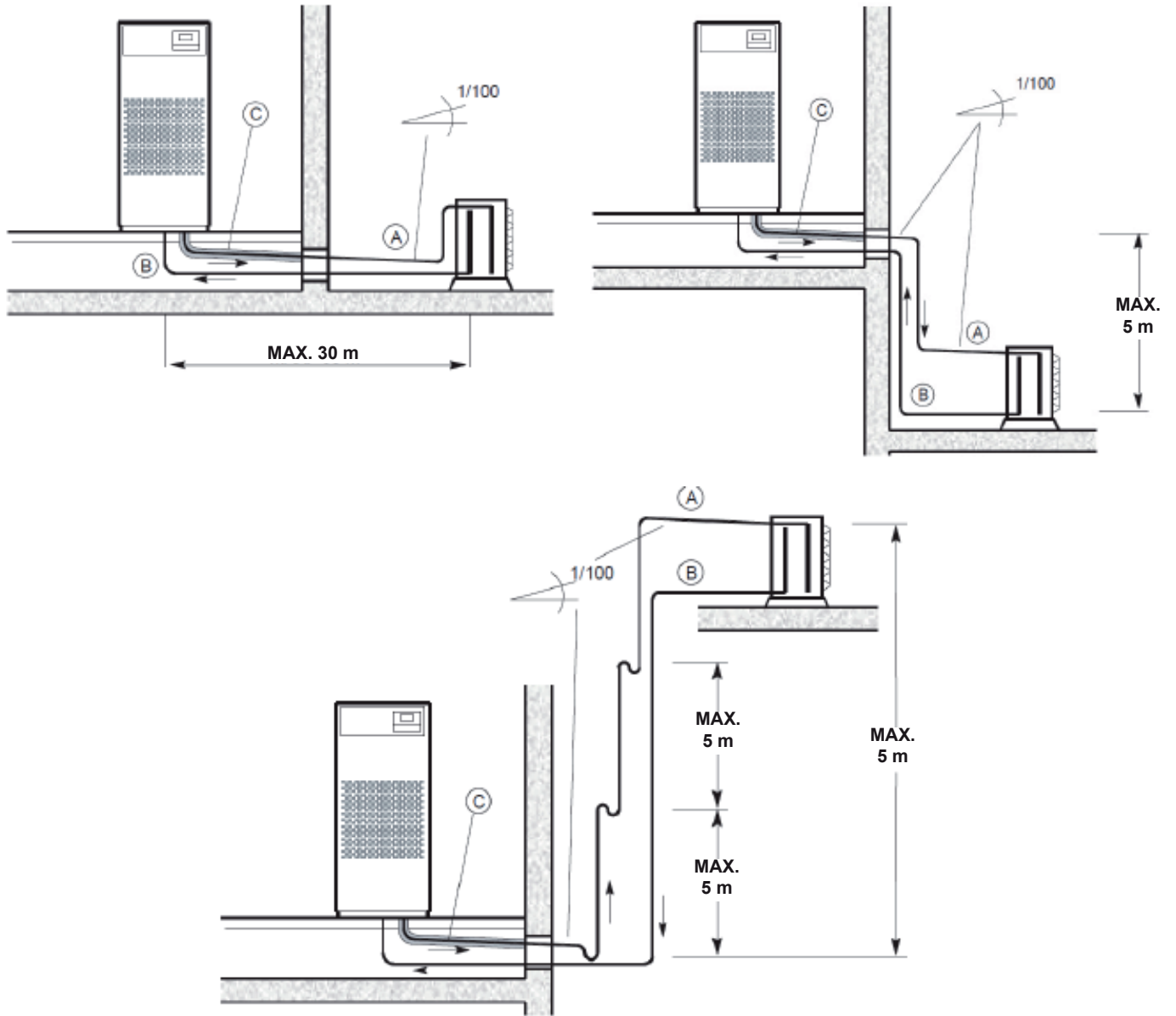
*P3: REMOVE WHEN "ATA-BTA-AUA-BUA" ARE INSTALLED

Refrigerant connections on air cooled units

Installation guide



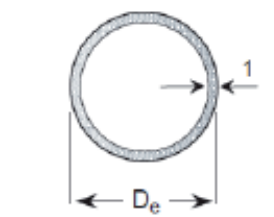
WARNING! The pipes must always be protected from the sun.



- A: Discharge line
- B: Liquid line
- C: Thermal insulation

Recommended connections

	JUA*0115 JDA*0115	JUA*0125 JDA*0125	JUA*0133 JDA*0133	JUA*0135 JDA*0135	JUA*0150 JDA*0150	JUA*0160 JDA*0160
	De	De	De	De	De	De
A	12mm	12mm	14mm	16mm	18mm	18mm
B	12mm	12mm	12mm	14mm	14mm	16mm



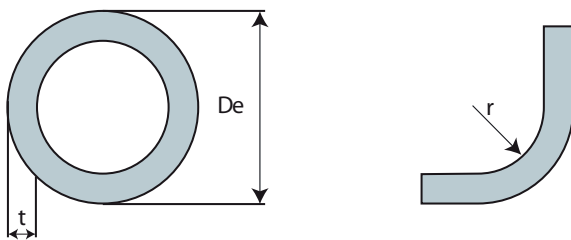
Installation

WARNING! The laying of the lines and the refrigerant connections must be carried out by a qualified refrigerant circuit technician.

The refrigeration circuit must be connected to the condensing unit with copper pipes. The diameter of the pipes must be chosen according to the length of the refrigerant line itself (preferably less than 30 m) therefore it is possible that the internal diameter of the valves supplied by TRANE will not coincide with the diameter of the pipes.

Conforming to the Standards EN 14276-1 and EN 14276-2 the minimum recommended thickness for the gas supply pipe where bends are made for the air cooled units with R410A refrigerant, must be equal to the values present in the attached table below. The value 'R' refers to the minimum allowed radius of the bend.

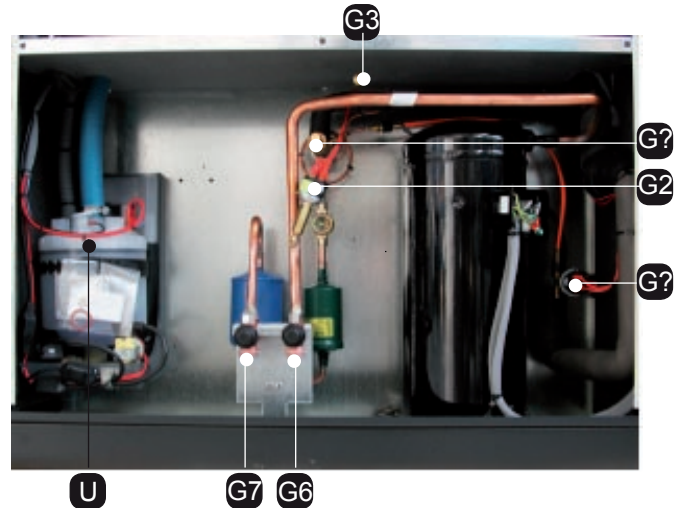
External diameter	Radius of the bend	Thickness
De (mm)	r [mm]	t [mm]
28	100	1,2
22	66	1
18	27	1
16	26	1
12	20	1



During the installation of the cooling unit, a solenoid valve should be fitted on the liquid line between the inner unit and the external condenser, to avoid malfunctioning and to protect the compressor from unwanted liquid migration during start-up.

To connect the refrigerating circuit to the condensing unit proceed as follows:

- check that the diameter of the connections corresponds to the diameter of the pipes to be connected. If necessary use suitable copper reductions;
- weld the piping coming from the condensing unit to the connections of the air conditioner respecting the inlet and outlet directions of the refrigerant.



NOTE: with external temperatures of less than -10°C the use of condensers for low temperatures is recommended: cap LT optional.

Remote air cooled condensers

		J*AC - J*AV					
		0151	0251	0331	0351	0501	0601
Recommended minimum size							
Model		CAP0251	CAP0251	CAP0331	CAP0361	CAP0511	CAP0661
Max external air temperature	C°	46	42.5	44.2	43.2	44.5	44.2

Remote Dry coolers

		J*WC -J*WV					
		0151	0251	0331	0351	0501	0601
Recommended minimum size							
Model		RAL0360	RAL0360	RAL0360	RAL0510	RAL0700	RAL0700
Max external air temperature	C°	45	45	43	43	45	43

Evacuation of the refrigeration circuit and charging of refrigerant

WARNING! The charging and maintenance of the refrigeration circuit must only be carried out by a qualified hydraulic technician.

The refrigeration circuit is pre-charged with nitrogen. To load the refrigerant, carry out the following procedure:

R410A

- open any shut-off valves present in the machine to ensure that all of the components will be evacuated;
- connect a pump to empty the schrader connections efficiently, or to the 1/4" SAE connections present on the intake and delivery sides of the compressors;
- connect the refrigerant cylinder to the loading connections;
- create a vacuum within the lines whilst maintaining the pressure below 10 Pa absolute (0,07 mm Hg) for a long time in order to evacuate the air as well as any trace of humidity. It is preferable that the vacuum is reached slowly and maintained for a long period of time;
- wait for a build up period of 100 seconds and check that the pressure has not exceeded 200 Pa absolute. Generally, in the case of suspicion of strong hydration of the circuit or an extremely extensive system, it will be necessary to break the vacuum with anhydrous nitrogen and then repeat the evacuation procedure as described;
- break the vacuum by performing a preload in liquid phase from the R410A coolant cylinder;
- after having started the compressor, slowly complete the loading phase until the pressure within the lines has been stabilised and the gaseous bubbles have disappeared from the flow sight glass;
- the loading process must be controlled in environmental conditions with a delivery pressure of approximately 18 bar (equivalent to a dew temperature of 48 °C and a bubble temperature of 43 °C). It is wise to check that the sub-cooling of the liquid at the entry of the thermostatic valve is between 3 and 5 °C below the condensation temperature read on the scale of the pressure gauge and that the overheating of the vapour at the exit of the evaporator is equal to approximately 5-8 °C.

Type of oil recommended with COPELAND compressors

R410A (POE)	COPELAND 3MA (32cSt) ICI Emkarate RL 32 CF Mobil EAL Arctic 22CC
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Type of oil recommended with DANFOSS-MANEUROP compressors

R410A (PVE)	DAPHNE PVE FVC68D
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Connection for water cooled units

WARNING! The laying of the lines and hydraulic connections must only be carried out by a qualified plumber.

WARNING! The chilled water must contain a percentage of ethylene glycol (of the passive type, which is therefore not corrosive) according to the minimal external temperature predicted (see the table below).

Percentage of ethylene glycol	10%	20%	30%	40%	50%
Freezing temperature	-4°C	-10°C	-17°C	-25°C	-37°C

If the temperature of the chilled water is not checked it may fall to under 25°C, therefore it is necessary to use a pressostatic valve (available as an optional) for each condenser; in this case the pressure of the supply must not be less than 200 kPa (2 bar).

WARNING! Do not use chilled water with an evaporating tower because the condensers will quickly become encrusted with limescale.

The condenser must be connected to the chilled water distribution network, paying attention to the direction of the water inlet and outlet.

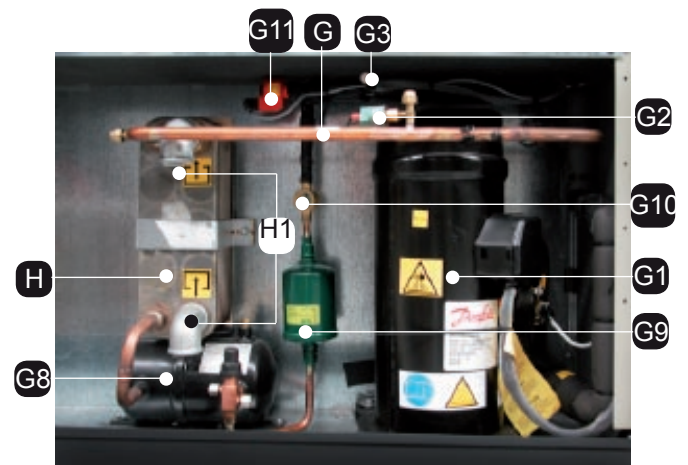
The condensers are supplied by water pumped in a closed circuit and chilled by external refrigerators; check that the section of piping and the characteristics of the circulation pump are suitable: an insufficient flow of water can have a negative effect on the capacity of the conditioner.

If the water temperature falls to below the dew point of the air conditioner, isolate the piping with closed cell material (e.g.: Armaflex or equivalent) to avoid condensation; the isolation must allow the accessibility of the valves and the three piece joints. Seal the piping holes through the base of the conditioner to avoid a bypass of air.

WARNING! The water cooled pressure must not be above 6 bar.

Table of condenser fitting dimensions

JDW* - JUW*	0115 - 0125	0133- 0135- 0150 - 0160
Condenser water inlet	1/2"	1"
Condenser water outlet	1/2"	1"



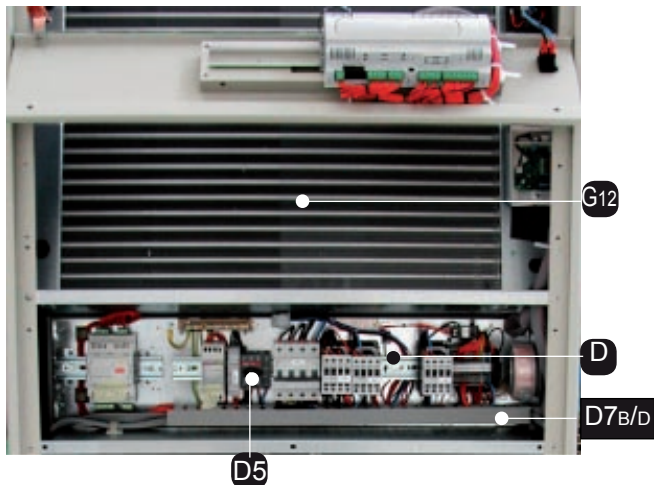
Once the connections have been made to the hydraulic circuit, the system can be filled.

MANUAL START UP AND SHUT DOWN OF THE UNIT

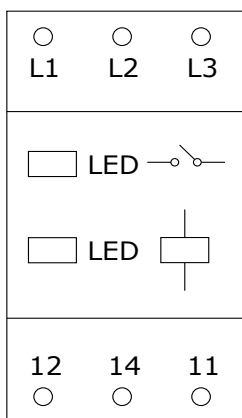
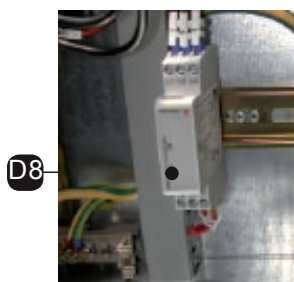
WARNING! Check that the refrigerant circuit has been filled.

To start the unit proceed as follows:

- access the electrical panel;
- position the automatic switch of the auxiliary circuits to “I” (on);
- position the automatic switches to “I” (on);
- supply power to the unit by positioning the isolator switch D5 to “I”;

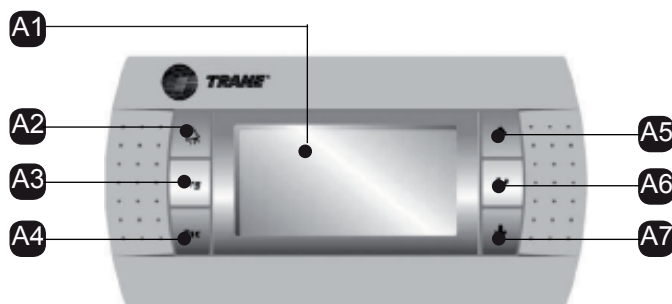
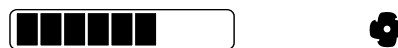


- In units with a mains voltage of 400V/3N/50Hz, check that both the LED phase sequences RSF (D8) are switched on; the green LED indicates the presence of voltage, the yellow LED indicates that the phase sequence is correct, in the event of phase sequence error invert 2 of the 3 supply voltages following the instructions indicated in the paragraph “Electrical connections” and resume the start-up procedure;



WARNING! During prolonged breaks a spontaneous migration of the refrigerant may occur in the casing of the compressor, which may cause foaming of the oil and consequent damage by the lack of lubrication. It is recommended that the main switch is not turned off during weekly breaks.

- wait at least 12 hours before start up so that the oil in the compressors warms up sufficiently;
- open the shut off valves of the refrigerating circuits;
- check that the remote condensers are powered (on air cooled models);
- check that the external dry coolers are powered and check the presence of the water flow for condensation (on water cooled models);
- check that the tracts of siphoned corrugated pipe, both internal and external to the conditioner, have been filled with water in the installation phase;
- close the front panel;
- wait for the oil in the compressors to heat (12 hours for compressors equipped with heaters);
- press the ENTER key (A6) of the user terminal; a sliding bar and a ventilator icon will appear on the display;

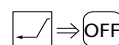


- if an alarm is indicated, consult the user interface manual mP40;

To shut down the unit carry out the following procedure:

WARNING! During prolonged breaks a spontaneous migration of the refrigerant may occur in the casing of the compressor, which may cause foaming of the oil and consequent damage because of the lack of lubrication. It is recommended that the main switch is not turned off during weekly breaks.

- on the first screen of the user terminal, press keys A5 or A7 until the **SWITCH OFF UNIT** screen appears;
- press the ENTER key to confirm;
- the following icons will appear



press the ENTER to confirm.

SETTING AND ADJUSTMENT

Selecting the power supply of the fans

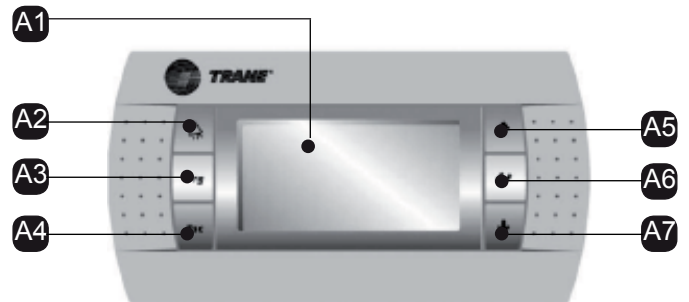
WARNING! Before establishing the electrical connection, make sure that the power supply is off. Also ensure that it is not possible to reconnect the power during the operation.

WARNING! In the case of a unit with ducts, the load loss from the exhaust duct must be less than 100 Pa.

To reach the head required by the system for conditioners with fans carrying a CE marking, the input voltage percentage can be adjusted from the user terminal (A).

To select the voltage percentage to be applied, carry out the following procedures:

- on the user terminal press the PRG button;
- using the UP or DOWN key select SERVICE MENU and confirm using the ENTER key;
- enter the password (see the envelope attached to the manual);
- using the UP or DOWN key select HARDWARE SETTING and confirm using the ENTER key;
- using the UP or DOWN key select EVAPORATING FAN and confirm using the ENTER key;
- set the amount and confirm using the ENTER key.



In the following table the maximum pressure available (expressed in Pa) for each voltage level of the transformer is indicated. The values are given for the maximum air flow (expressed in m³/h).

UNITS WITH CENTRIFUGAL FANS

Nominal fan regulation (to have the nominal airflow with ESP=20Pa)

Model	UNIT WITHOUT ELECTRICAL HEATERS				UNIT WITH ELECTRICAL HEATERS			
	Nominal speed @20Pa		Minimum speed @20Pa		Nominal speed @20Pa		Minimum speed @20Pa	
	EU4 [%]	Eu4 +Post [%]	EU4 [%]	Eu4 +Post [%]	EU4 [%]	Eu4 +Post [%]	EU4 [%]	Eu4 +Post [%]
JDAC - JDWC								
0115	75	75	48	48	75	75	48	48
0125	82	82	48	48	83	83	48	48
0133	69	69	46	46	70	70	50	50
0135	80	80	46	46	80	80	50	50
0150	100	100	62	62	100	100	65	65
0160								
JUAC - JUWC								
0115	75	75	48	48	75	75	48	48
0125	82	82	48	48	83	83	48	48
0133	69	69	46	46	70	70	50	50
0135	80	80	46	46	80	80	50	50
0150	99	99	62	62	100	100	65	65
0160								

Maximum available pressure depending on the fan speed regulation:

J*AC J*WC 0115 - 0125					
Air Flow [m³/h]	1040	1300	1400	1500	1626
Fan Speed	Discharge static pressure				
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]
48	14	-	-	-	-
60	194	47	-	-	-
70	239	157	110	50	-
75	242	180	144	97	20
100	292	209	182	155	116

J*AC J*WC 0133 - 0135					
Air Flow [m³/h]	1940	2200	2500	2700	2977
Fan Speed	Discharge static pressure				
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]
48	55	-	-	-	-
60	209	151	63	-	-
70	241	209	158	113	32
85	236	212	182	159	117
100	308	254	204	174	132

J*AC J*WC 0150 - 0160					
Air Flow [m³/h]	3000	3200	3700	4400	4482
Fan Speed	Discharge static pressure				
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]
53	-	-	-	-	-
70	134	100	-	-	-
80	182	167	101	-	-
85	183	173	125	-	-
100	190	178	135	36	20

UNITS WITH E.C. FANS

Nominal fan regulation (to have the nominal airflow with ESP=20Pa)

Model	UNIT WITHOUT ELECTRICAL HEATERS				UNIT WITH ELECTRICAL HEATERS			
	Nominal speed @20Pa		Minimum speed @20Pa		Nominal speed @20Pa		Minimum speed @20Pa	
	EU4	Eu4 +Post	EU4	Eu4 +Post	EU4	Eu4 +Post	EU4	Eu4 +Post
	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
JDAV - JDWV								
0115	68	68	47	47	68	68	47	47
0125	71	71	47	47	72	72	47	47
0133	70	70	46	46	70	70	50	50
0135	75	75	46	46	75	75	50	50
0150	84	84	54	54	86	86	57	57
0160	84	84	54	54	86	86	57	57
JUAV - JUWV								
0115	75	75	48	48	75	75	48	48
0125	82	82	48	48	83	83	48	48
0133	69	69	46	46	70	70	50	50
0135	80	80	46	46	80	80	50	50
0150	99	99	62	62	100	100	65	65
0160	99	99	62	62	100	100	65	65

Maximum available pressure depending on the fan speed regulation:

J*AV - J*WV 0115 - 0125					
Air Flow [m³/h]	1040	1300	1400	1500	1626
Fan Speed	Discharge static pressure				
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]
49	34	-	-	-	-
60	137	57	22	-	-
70	245	164	129	91	40
80	354	274	239	201	150
85	406	325	290	252	201

J*AV - J*WV 0133 - 0135					
Air Flow [m³/h]	1940	2200	3205	3205	3440
Fan Speed	Discharge static pressure				
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]
47	22	-	-	-	-
55	93	53	-	-	-
70	249	210	18	18	-
75	305	265	73	73	18
85	410	370	178	178	123

J*AV J*WV 0150 - 0160					
Air Flow [m³/h]	3020	3200	4500	5200	5320
Fan Speed	Discharge static pressure				
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]
55	23	4	-	-	-
65	114	95	-	-	-
80	252	233	69	-	-
90	317	299	135	22	0
100	335	317	153	40	19

Setting the regulation and safety devices

After starting up the unit, set the following set points (see the microprocessor control manual):

- Room temperature (cooling and heating set point);
- Relative room humidity (humidification and dehumidification set point);
- Dirty filter differential pressure switch: see paragraph "Setting the dirty filter sensor".

The settings of the safety devices must not be modified.

R410A

Code	Description	Opening	Differential	Re-set
AP	High pressure switch	40,5 bar (opening)	-	Manual Reset
TSR	First emergency safety thermostat	310 °C (opening)	-	Manual Reset
TSRA	Second emergency safety thermostat	328 °C (opening)	-	Manual Reset

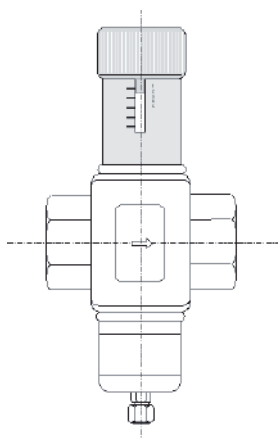
Maximum and minimum water temperatures

The maximum and minimum water temperatures for chilled water circuits and for hot water re-heat circuits are: 5°C ÷ 90°C.

The accepted maximum amount of ethylene glycol is 0%.

Setting the pressostatic valve (optional on chilled water cooled models only)

The pressostatic valve, by controlling the water flow, prevents the condensing pressure falling too low and at the same time minimises water consumption. When necessary, set the pressostatic valve by turning the regulation knob (the pressure increases when turning it clockwise) until the condensation pressure stabilizes to recommended* checking the pressure with a gauge fitted to the pressure tapping of the compressor discharge valve.



* R410A :pressure 26 bar = temperature 45°C

Setting the air flow sensor

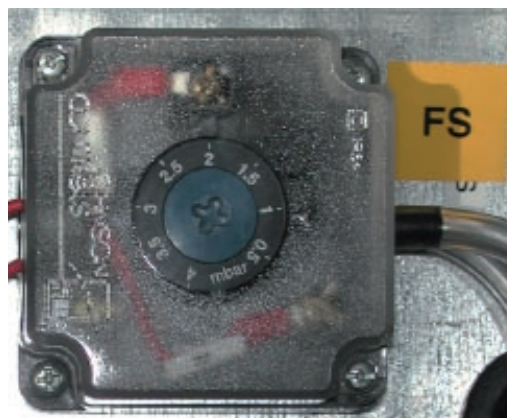
The **FS** differential pressure switch intervenes if the fan (or one of the fans) stops working.

The factory set point of the FS differential pressure switch is at 0.5 mbar (= 50Pa).

As the difference in pressure between the suction and discharge of the fans depends on the air flow, it may be necessary to calibrate the instruments after installation, checking that the contact closes when the fans are in operation.

To set the FS pressure switch, carry out the following procedure:

- simulate a fan fault by stopping a fan; check that the pressure switch intervenes;
- if the pressure switch does not intervene, gradually increase the setting until the pressure switch switches off:
 - using an adjustment screw, set the differential pressure switch on a scale (from 0.5 to 4.0 mbar - from 50 to 400 Pa).



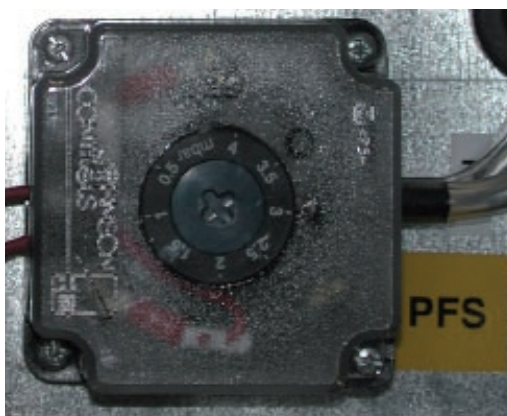
Setting the dirty filter sensors

The **PFS** differential pressure switch is set according to the loss of load dependent on the dirt inside the filters and the air flow.

The PFS differential pressure switch must be set at 3 mbar (=300 Pa).

To set the PFS pressure switch, carry out the following procedure:

- gradually cover the surface of the air filter and check that the pressure switch intervenes when the filter is about 50-60 % covered;
- if the pressure switch does not intervene, gradually lower the setting, if it cuts in too soon, increase the setting:
 - using a star screw driver turn the regulation screws of the pressure switch to the desired value.



MAINTENANCE

Checks every 3 months

Carry out the following checks every three months:

- check the power supply;
- check the alarm status;
- check the working pressures and temperatures;
- check the correct operation of the local/remote controls;
- check the air filters, cleaning and replacing them if necessary;
- check the efficiency of the condensing drain;
- check the steam cylinder is clean, replacing it if necessary;
- check and clean if necessary the condensing coil.

Checks every 6 months

Carry out the following checks every six months:

- repeat these checks every 3 months.
- check and clean if necessary the cooling coil;
- check the operation of the humidifier, if present (see section "Accessories humidifier").

Annual checks

Carry out the following checks every year:

- repeat these checks every 6 months.
- check the varnish and the nuts and bolts;
- check the hinges, rabbets and gaskets;
- check the cables and wiring;
- tighten the terminal blocks;
- check and reset if necessary the safety device settings (pressure switches, thermostats, protection devices);
- check the operation of the post heating electrical heaters
- check the fittings, operation and absorption of the evaporating fan/s;
- check the fittings, operation and absorption of the compressor/s;
- check and if necessary replace the seal of the refrigerant circuit/s and tighten the joints and connections of the unit;
- check and top up if necessary the refrigerant gas and/or oil;
- check and if necessary reset the regulation devices setting;
- check and if necessary replace the seal of the hydraulic circuits/s and tighten the unit couplings;
- check the fittings and operation of the condensing fan/s;
- check and reset if necessary the condensing speed setting.

Checks to be performed every sixty months

- Check and if necessary replace the gas filters;
- check and if necessary replace the compressor oil.



WARNING! Before removing the internal protection panels, disconnect the power supply by turning the main isolating switch D5 to position "O", then wait until the fans stop and the electrical heaters cool down.

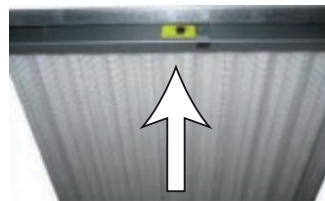
Cleaning and replacing the filter

To clean or change the filter proceed as follows:

- rotate the closing blocks of the front panel by one quarter of a turn and remove the panel to access the air filter



- memorize the direction of the arrow shown on the frame of the filter, as indicated by the arrow, and remove;



- clean the air filter using a jet of compressed air or replace it;
- reposition the air filter on the unit checking the direction of the airflow as previously noted.



Troubleshooting

Troubleshooting is made easier by the indications on the control panel display: when an alarm signal is displayed, consult the control panel instruction manual. If necessary, call the nearest Service Centre describing the nature of the fault and its possible cause displayed on the control.

PROBLEM	POSSIBLE CAUSE	CHECK/CORRECTIVE ACTION
THE UNIT DOES NOT START	A) No power supply to the unit's electrical panel.	Check that the power is on and the unit main switch on the electrical panel is closed.
	B) No power to the auxiliary circuits.	1) Check that the IM automatic circuit breaker on the AUX circuit is set.
		2) Check the fuse on the main board.
C) The control panel does not start the unit.	Check that the control panel connectors are correctly located in their sockets.	

TEMPERATURE CONTROL

PROBLEM	POSSIBLE CAUSE	CHECK/CORRECTIVE ACTION
THE ROOM TEMPERATURE IS TOO HIGH	A) The parameter settings on the control panel are not correct.	See control panel instruction manual
	B) The air flow is low or absent.	See "LACK OF / ABSENT AIR FLOW".
	C) The temperature sensor is not working.	Check the electrical connections and the control configuration.
	D) The thermal load is higher than expected.	Check the room's thermal load.
	E) The compressor not working despite control call	See "THE COMPRESSOR DOESN'T WORK".
ROOM TEMPERATURE TOO LOW	A) The parameter settings on the control are not correct	See the microprocessor control manual.
	B) There is insufficient power supply to the electric heaters or the heaters are not working	1) Check that the IM of the heating element is armed.
		2) Check the electric feeding circuit of the heaters.
		3) If there is a heater alarm, remove the cause and re-set the safety thermostat.
	C) The hot water coil is not working.	1) Check the hot water capacity and temperature.
		2) Check the function of the regulation valve (see valve and servomotor).
	D) The hot gas coil is not working during dehumidification with re-heat.	1) Check the hot gas 3 way valve function.
2) Check the function of the compressor serving the re-heat. See "THE COMPRESSOR(S) DOESN'T / DON'T WORK".		

HUMIDITY CONTROL

PROBLEM	POSSIBLE CAUSE	CHECK/CORRECTIVE ACTION
ROOM HUMIDITY TOO HIGH	A) The parameter settings on the control panel are not correct.	See control panel instruction manual.
	B) The latent load is higher than expected.	Check the latent load, fresh air conditions and volume; external air infiltration.
	C) The compressor does not function during dehumidification.	See "THE COMPRESSOR DOESN'T WORK".
ROOM HUMIDITY TOO LOW	A) The parameter settings on the control panel are not correct.	Check the room humidity settings (see control panel instruction manual).
	B) The latent load is lower than expected.	Check the quantity of latent heat.
	C) The humidifier doesn't work.	1) Check the water supply pressure.
		2) Check the function of the manual control system and of the steam production group (see panel instruction manual).
D) The control system does not work.	See the control panel instruction manual; check that the control panel and/or sensors work properly.	

FANS

PROBLEM	POSSIBLE CAUSE	CHECK/CORRECTIVE ACTION
ABSENT OR LOW AIR FLOW	A) There is no power to the fans.	Check the power supply to the fans
	B) The air filters are clogged (dirty filter alarm enabled).	1) Shake the dust out of the cartridge and clean with a vacuum cleaner. Replace the filter if it is completely blocked.
		2) Check the correct setting of the dirty filter pressure switch PFS.
	C) The air flow is obstructed.	Check that the air flow is not obstructed, not even partially.
	D) The fans' thermal protection intervenes.	Check the resistance of the fan motor windings. Re-set then measure the voltage and absorption.
	E) The power supply to the fans is insufficient.	Change the power supply voltage to the fans. (See paragraph. 'Setting and adjustment').
F) The air distribution output pressure is too high.	Check the air pressure distribution (ducts, ceiling or floor plenum, grilles).	

ELECTRIC HEATER

PROBLEM	POSSIBLE CAUSE	CHECK/CORRECTIVE ACTION
INTERVENTION OF ONE OR BOTH OF THE ELECTRICAL HEATERS' SAFETY THERMOSTATS	A) There is insufficient air flow.	See "LACK OF / ABSENT AIR FLOW".
	B) The thermostat connection wire is interrupted	Check the continuity of the connection of the safety thermostats and the control system
	C) One or both of the thermostats are broken	Replace one or both of the electrical heaters' safety thermostats

REFRIGERANT CIRCUIT

PROBLEM	POSSIBLE CAUSE	CHECK/CORRECTIVE ACTION
HIGH COMPRESSOR DISCHARGE PRESSURE	A) There is non-condensable air or gas in the refrigerant circuit, with bubbles in the flow sight glass; excessive sub-cooling.	Evacuate the refrigerant circuit and recharge.
	B) The air flow to the remote heat exchanger is insufficient or too warm.	1) Check the fan operation and rotation direction in the remote heat exchanger.
		2) Check to see if the exchanger is dirty and if necessary remove any obstructing material (leaves, paper, seeds, dust, etc.) with a blast of compressed air or a brush;
		3) In the external unit check for obstructions in the air flow and in the recirculation of the cooling air.
	4) Check that the temperature of the cooling air is within the planned limits.	
C) The water flow to the condenser is insufficient or too warm.	1) Check the condenser water flow, pressure and temperature in the closed circuit water system.	
2) Check the setting and function of the pressostatic regulation valve.		
D) There is too much refrigerant in the circuit; the condenser is partially flooded. The refrigerant subcooling is too high at the condenser outlet	Remove some refrigerant from the circuit.	
E) The discharge valves are partially closed	Check the opening of the valves.	
AP HIGH PRESSURE SWITCH INTERVENES (high compressor discharge pressure)	A) The condensing pressure control system is not functioning efficiently.	1) Check the fan function of the condenser and of the relative protection; re-set or replace the faulty fans.
		2) Check the setting and function of the fan speed regulator of the remote condenser.
B) The system discharge pressure is too high	See "HIGH COMPRESSOR DISCHARGE PRESSURE".	
LOW COMPRESSOR DISCHARGE PRESSURE	A) The condensing pressure control system is not functioning efficiently.	Check the setting and function of the condenser fan pressure switch or speed regulator.
	B) The water flow to the condenser is too high or too cold.	1) Check the condenser water flow and temperature;
		2) Check the setting and function of the pressure regulating valve (if fitted).
3) Fit a pressure regulating valve to control the water pressure according to the condensing pressure.		
C) The suction pressure is too low.	See "LOW COMPRESSOR SUCTION PRESSURE".	
HIGH COMPRESSOR SUCTION PRESSURE	A) The thermal load is too high.	Check the room's thermal load; check in case of over dehumidification, check the air flow and conditions of external air, check the external air infiltration.
	B) The discharge pressure is too high.	See "HIGH COMPRESSOR DISCHARGE PRESSURE".
	C) There is an overcharge of refrigerant in the circuit.	Remove some refrigerant from the circuit.
	D) There is a return of liquid refrigerant to the compressor intake	Check that the super heat setting of the thermostatic valve is correct.

PROBLEM	POSSIBLE CAUSE	CHECK/CORRECTIVE ACTION
LOW COMPRESSOR SUCTION PRESSURE (and possible freezing of the coil)	A) The room temperature is too low.	See "ROOM TEMPERATURE TOO LOW".
	B) The air flow is too low or is absent.	See "LOW AIR FLOW".
	C) The liquid line solenoid valve is not completely open.	Check the valve opening.
	D) The refrigerant filter is obstructed.	Check the refrigerant filter.
	E) The thermostatic valve is incorrectly calibrated or defective.	Check the super heat setting of the thermostatic valve; check that the sensor bulb has not lost its charge and is well positioned, fixed and insulated.
	F) There is an insufficient refrigerant charge.	Check the sub-cooling of the refrigerant liquid at the condenser outlet; check to see if there are any leaks and re-charge the unit.

COMPRESSORS

PROBLEM	POSSIBLE CAUSE	CHECK/CORRECTIVE ACTION
THE COMPRESSOR DOESN'T WORK	A) The short circuit protection has intervened.	Re-set the automatic switch and check the cause of the short circuit. Before re-starting the compressor, check the resistance and continuity of the compressor motor windings.
	B) The contactor is not working.	Check the contacts and the contactor coil.
THE COMPRESSOR'S INTERNAL PROTECTION INTERVENES	A) A phase is missing.	Check the resistance of the compressor motor windings. After re-setting, measure the voltage and current absorption of the three phases.
	B) The motor is overloaded.	Check that the operating pressure of the unit is within the predicted limits
	C) The power supply voltage is too high or too low.	Check that the voltage is within -10% and +10% of the nominal value.
	D) The rotor is blocked.	Replace the compressor.
THE COMPRESSOR IS NOISY	A) The compressor is damaged.	Call the nearest Service Centre in order to replace the compressor.
	B) There is liquid return to the compressor.	Check the setting and function of the thermostatic valve.

CHILLED WATER UNIT – CENTRIFUGAL FANS

Technical characteristics

Model		0020B	0025B	0030B	0040B	0060B2
Height	mm	1740	1740	1740	1740	1740
Width	mm	550	550	550	550	850
Depth	mm	450	450	450	450	450
Weight1	kg	120	145	145	170	225
Air Flow	m ³ /h	1610	2280	2305	3265	4490
E.S.P Maximum 3	Pa	106	53	34	63	20
Minimum air flow	m ³ /h	10404	11504	19404	19404	3020
Power supply voltage	V/ph/Hz	230/1N/50	230/1N/50	230/1N/50	230/1N/50	230/1N/50

- 1) Unit in complete version (including packaging)
- 2) 0060B units available only in versions without electrical heaters
- 3) Nominal air flow – Maximum fan power supply
- 4) Minimum air flow only allowed for unit without electrical resistances

Model		0020A	0025A	0030A	0040A	0060A2
Height	mm	1740	1740	1740	1740	1740
Width	mm	550	550	550	550	850
Depth	mm	450	450	450	450	450
Weight 1	kg	120	145	145	170	225
Air Flow	m ³ /h	1610	2280	2305	3265	4490
E.S.P Maximum 3	Pa	106	53	34	63	20
Minimum air flow	m ³ /h	10404	21504	21504	21504	3200
Power supply voltage	V/ph/Hz	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50

- 1) Unit in complete version (including packaging)
- 2) 0060A units available only in versions with standard or improved electrical heaters
- 3) Nominal air flow – Maximum fan power supply
- 4) Minimum air flow only allowed for unit with electrical resistances

CHILLED WATER UNIT - RADIAL FANS WITH E.C. TECHNOLOGY

Technical characteristics

Model		0020B	0025B	0030B	0040B	0060B2
Height	mm	1740	1740	1740	1740	1740
Width	mm	550	550	550	550	850
Depth	mm	450	450	450	450	450
Weight1	kg	120	145	145	170	225
Air Flow	m ³ /h	1610	2280	2305	3265	4490
E.S.P Maximum 3	Pa	106	53	34	63	20
Minimum air flow	m ³ /h	10404	11504	19404	19404	3020
Power supply voltage	V/ph/Hz	230/1N/50	230/1N/50	230/1N/50	230/1N/50	230/1N/50

- 1) Unit in complete version (including packaging)
- 2) 0060B units available only in versions without electrical heaters
- 3) Nominal air flow – Maximum fan power supply
- 4) Minimum air flow only allowed for unit without electrical resistances

Model		0020A	0025A	0030A	0040A	0060A2
Height	mm	1740	1740	1740	1740	1740
Width	mm	550	550	550	550	850
Depth	mm	450	450	450	450	450
Weight 1	kg	120	145	145	170	225
Air Flow	m ³ /h	1610	2280	2305	3265	4490
E.S.P Maximum 3	Pa	106	53	34	63	20
Minimum air flow	m ³ /h	10404	21504	21504	21504	3200
Power supply voltage	V/ph/Hz	400/3N/50	400/3N/50	400/3N/50	400/3N/50	400/3N/50

- 1) Unit in complete version (including packaging)
- 2) 0060A units available only in versions with standard or improved electrical heaters
- 3) Nominal air flow – Maximum fan power supply
- 4) Minimum air flow only allowed for unit with electrical resistances

Operating description

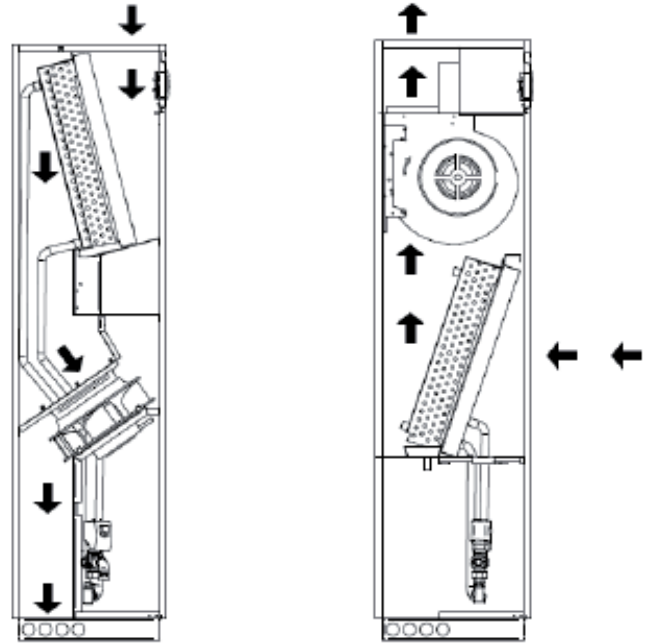
CHILLED WATER UNITS (CW)

The CW uses the availability of chilled water to control the room conditions.

This version of JUPITER has a relatively simple construction and gives outstanding reliability.

The microprocessor controls the modulating action of the 3 way (or optional 2 way) chilled water valve to give accurate control.

Careful sizing of the heat exchanger coils allows a high sensible to total cooling ratio under most operating conditions.



Name and description of the main components

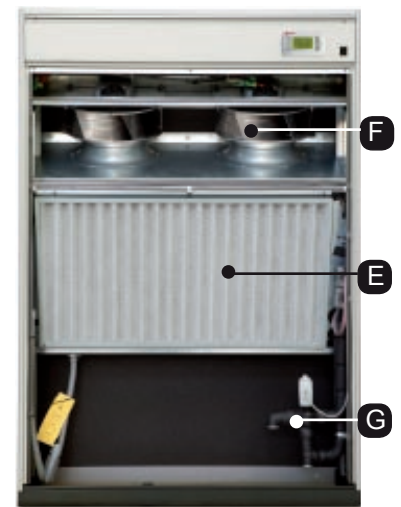
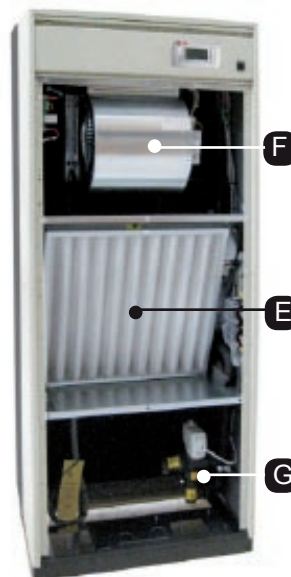
Model JUC*



Model JDC*



- A User terminal
- B Electrical panel door
- C Cover panels
- D Electrical panel
- E Air Filter
- F Fans
- G Chilled water valve



Description of the components

A - User terminal

Allows the unit to be turned on or off and the configuration

and visualization of the condition of the machine.

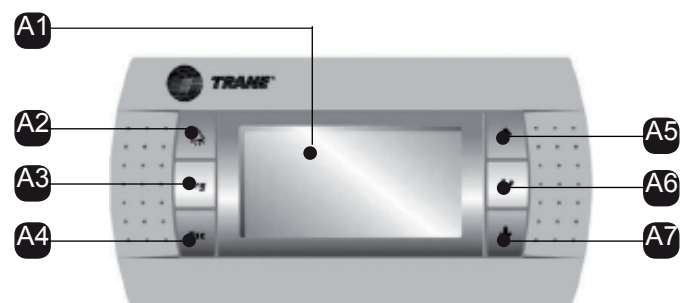
- A1 LCD Display
- A2 **ALARM** key: visualisation and re-set of alarms; when the alarm is activated, it flashes red
- A3 **PRG** key : access to the configuration menu
- A4 **ESC** key : exit from the screens
- A5 **UP** key : scroll through the menu
- A6 **ENTER** key : confirm
- A7 **DOWN** key: scroll through the menu

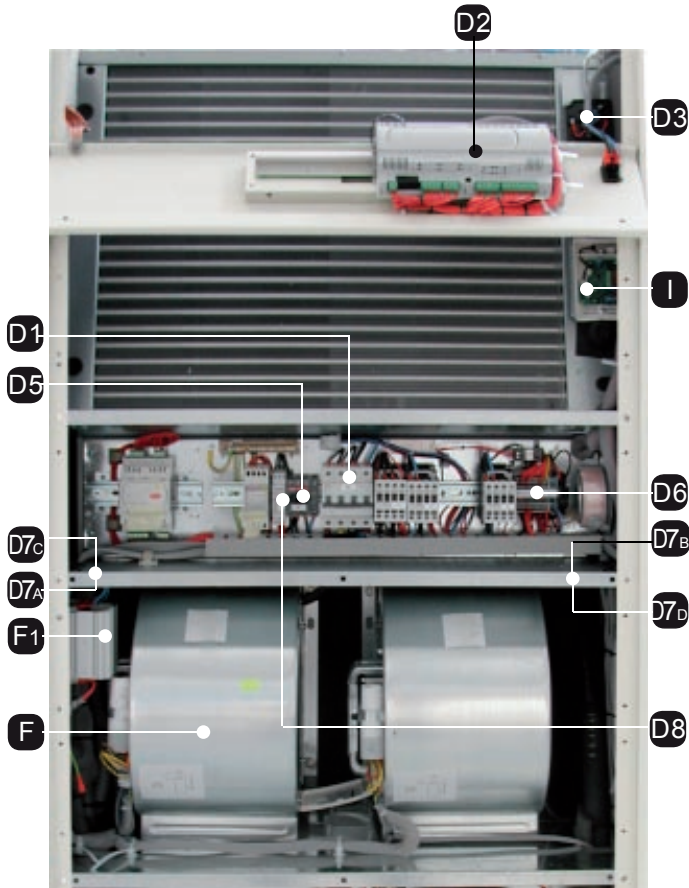
B - Electrical panel door

Allows access to the electrical panel of the machine

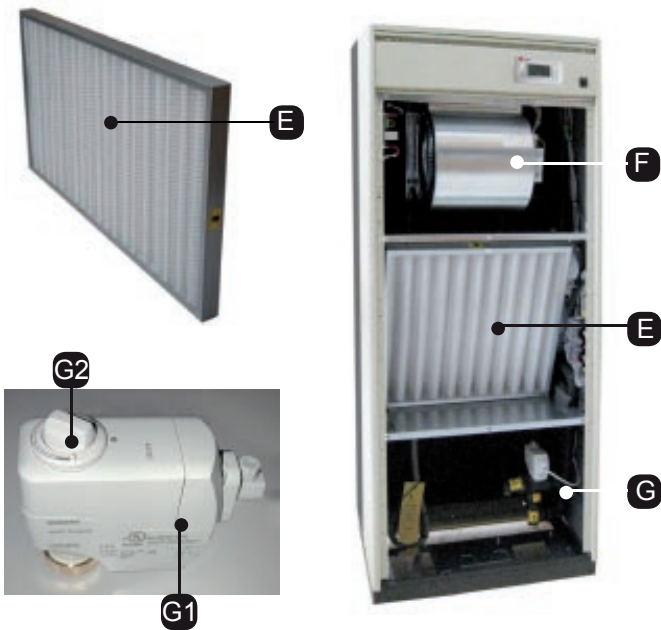
C - Cover panels

Allow access to the internal components of the machine.





- D - Electric panel
- D1 Magneto-thermic
 - auxiliary
 - heater (optional)
 - humidifier (optional)
 - fans
 - D2 Interface board
 - D3 Dirty filter sensor
 - D4 Air flow sensor
 - D5 Main switch
 - D6 Terminal board
 - D7A Input/output electrical supply cables
 - D7B Input/output electrical auxiliary cables
 - D7c Input/output signal cables (RS485 and/or LAN)



E - Air Filter
Filter the air released into the environment

F - Fans
Allow the diffusion of air into the room

- F1 Fan speed regulator

G - Chilled water valve

- G1 Servomotor
- G2 Manual control knob



H1: cold water inlet valve
H2: cold water outlet valve

Checks to be made on delivery

WARNING! Dispose of the packaging in appropriate collection points.

The Jupiter unit comes packaged in a wooden case or fixed on a pallet and wrapped in transparent film.

Check that the delivery is complete and inform the carrier of any damage to the unit which may be attributed too careless or inappropriate transportation. Check, in particular, any eventual damage to the panel in which the user terminal is mounted.

Lifting and moving the unit must be carried out by a mechanical lifter.

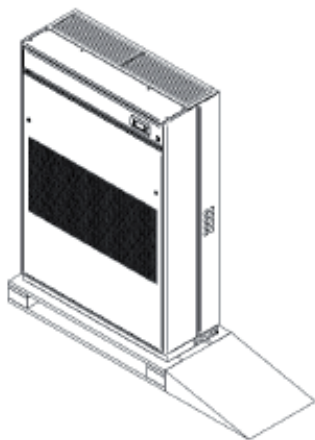
The following must be container within the packaging:

- The Jupiter unit;
- JupiterUse and Installation Manual;
- Jupiter unit electrical diagrams;
- Jupiter unit cooling circuit diagrams;
- Jupiter unit installation diagrams;
- List of spare parts;
- CE declaration with a list of the European standards to which the machine must conform;
- guarantee conditions.

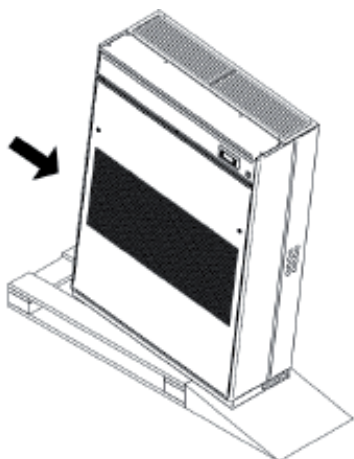
Unloading the unit

To unload the unit from the pallet, carry out the following procedure:

- move the pallet as near as possible to where the unit is to be installed;
- use a ramp to avoid any damage to the unit during unloading;



- remove the blocking screws which fix the unit to the pallet;
- carefully push the unit along the ramp until it reaches the floor.

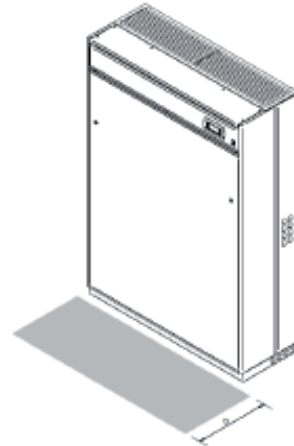


Characteristics of the installation area

WARNING! The unit must be installed internally and protected from adverse conditions.

The unit is predisposed to be installed on raised access flooring using mounting frames or appropriate floor stands supplied on request from TRANE. However, the upflow units (upwards air flow) with air intake through the rear or front can be installed also on floors which are not raised.

The area of installation must have the following characteristics:



- make sure to leave a 700mm clearance (distance D) in front of the unit once it has been fitted. Check that air intake and discharge connections are not blocked in any way, not even partially;
- a horizontal and even floor;
- the electrical energy distribution system has been produced in respect of CEI standards, suitable for the characteristics of the unit;
- a cold water distribution implant (if a humidifier is to be installed);
- implant for connection to the condensing unit;
- external air outlet (if a fresh air intake is to be installed);
- for the refrigerating gas drain see paragraph "Connection to gas drain";
- condensing drain circuit and/or humidifier.

WARNING! The preparation of the installation area must be carried out as indicated in the installation drawing attached to the machine documentation.

Positioning of the unit

WARNING! If the surface where the unit is placed is not even and horizontal there, is a risk of an overflow from the condensation tray.

Installation on raised access flooring

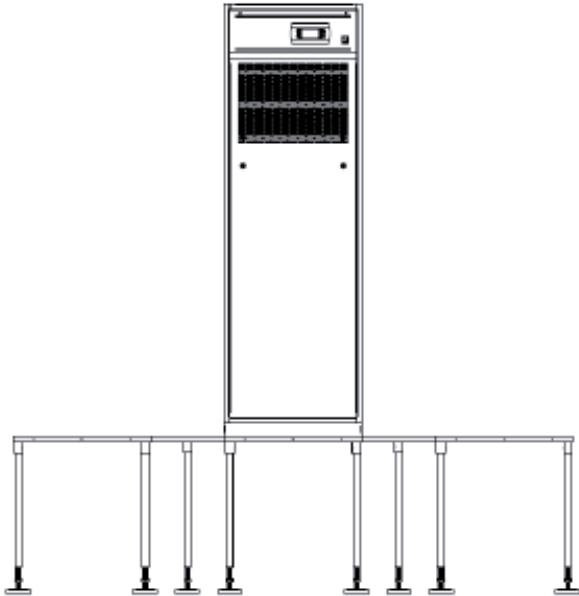
Installation on raised access flooring occurs by means of a mounting frame. The frame enables the installation of the unit before the raised floor is installed, increased absorption of noise and vibrations and the facilitation of connecting pipes and cables.

The up flow models (upwards air flow) with rear or frontal air intake may be installed without using the mounting frame.

Installation of the mounting frame

To install the unit on raised flooring using the mounting frame, carry out the following procedures:

- a flexible seal at least 5 mm thick should be fitted between the raised floor panels and the mounting frame which should also be isolated from the metallic floor structure;
- position the unit of the mounting frame and fix it using the M8 screw inserts found on the base of the unit.



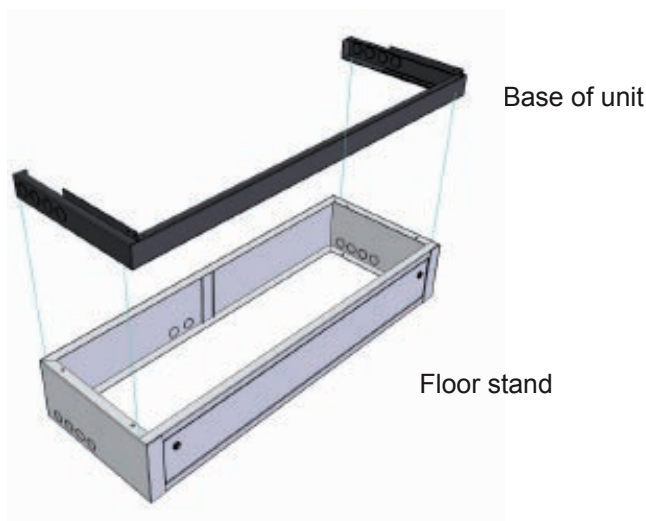
Installation on flooring which is not raised

Installation on flooring which is not raised can occur without using bases, but only on upflow models (upwards air flow) with rear or frontal air intake. Installation on this type of floor does not require any additional operation besides that of normal positioning.

Installation of the floor stand

To install the unit on the floor stand carry out the following procedures:

- position the Jupiter unit on the floor stand;
- fix the unit to the floor stand using the M8 screw inserts found on the base of the unit.

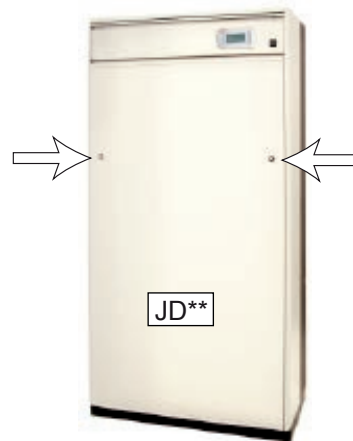
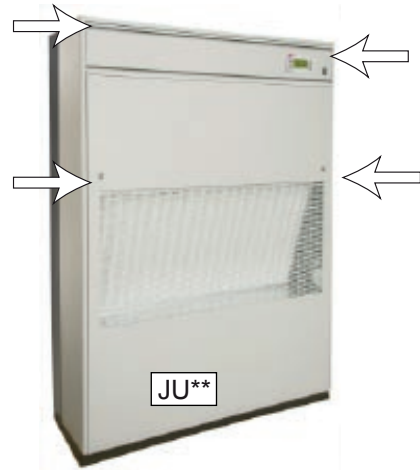


Installation of discharge temperature limit probe (STM) - optional -

To install the discharge temperature limit probe, refer to the chapter entitled "Accessories".

Opening and removal of the front panel

To open and remove the front panel proceed as follows:

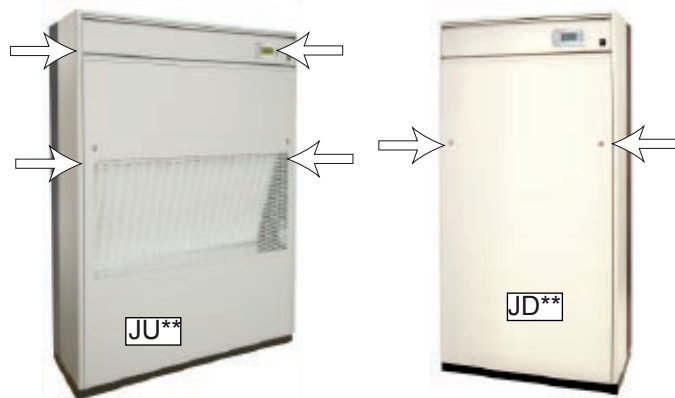
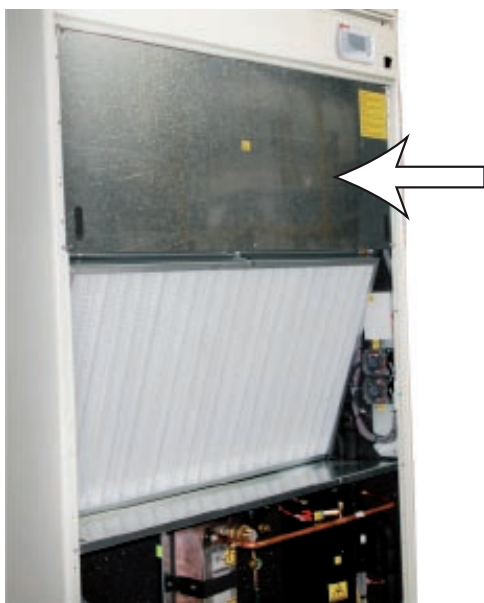


- rotate the closing blocks, as indicated by the arrows, by one quarter of a turn;
- firmly grip the panel;
- lift and incline the panel outwards until it is completely removed.



Internal protection panels

The fan compartment and electrical heaters are protected by a sheet metal covering for safety reasons and to allow the opening of the external panels without interfering with the safety devices on the unit.



- pass the cables inside using the power supply cable inlet D7A ;



- refer to the wiring diagram and connect the cable to the main switch D5.

Electrical connections

WARNING! Electrical connection of the machine to the power supply must **ONLY** be carried out by a qualified electrician.

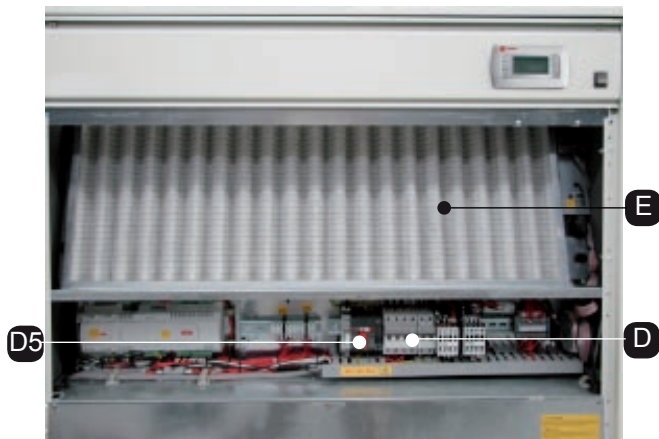
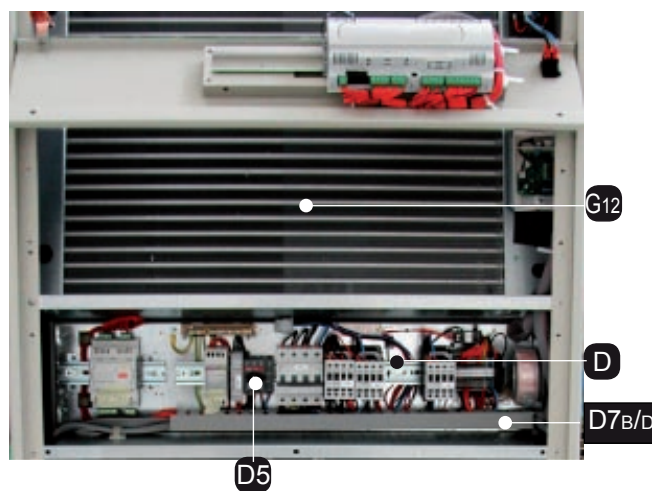
WARNING! Electrical lines must be established in full respect of CEI standards.

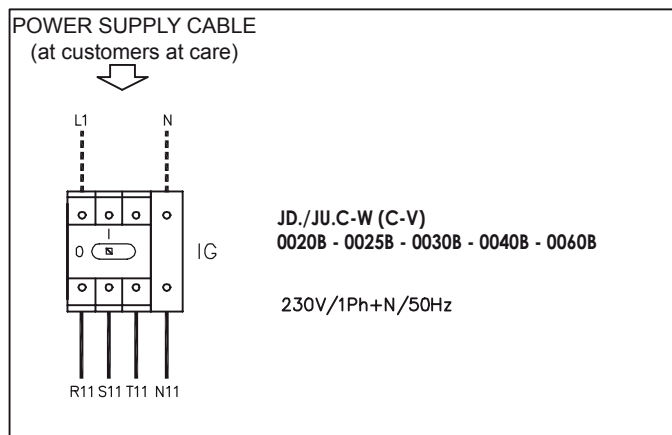
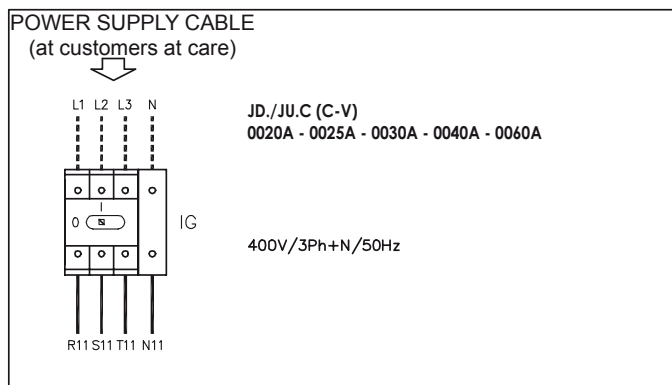
WARNING! Before establishing the electrical connection, make sure that the power supply is off. Also ensure that it is not possible to reconnect the power during the operation.

WARNING! The power supply voltage must be $\pm 10\%$

To carry out the electrical connections of the machine to the power supply, carry out the following procedures:

- use suitable equipment to check the efficiency of the grounding system;
- check that the voltage and network frequency correspond to those of the machine (see identification label);
- to access the electrical panel it is necessary to remove the front panel of the unit by rotating the closing blocks, indicated by the arrows, by one quarter of a turn (in the JU** models the electrical panel is situated in the upper part of the unit);





DIGITAL CONFIGURABLE INPUTS

Terminal board 51-20

- User
- ON - OFF Remote
- Flooding sensor (SAS)

Terminal board 52-20

- User
- ON-OFF Remote
- Fire-smoke (SFF)

Terminal board 50-20

- User
- ON-OFF Remote
- Tools (ATA-BTA-AUA-BUA)

Terminal board 60-20

- Summer-Winter remote
- Water flow meter

REMOTE SIGNALLING

Terminal board 980-990

- Signalling of the state of the unit (CV)

Connection to the water drain

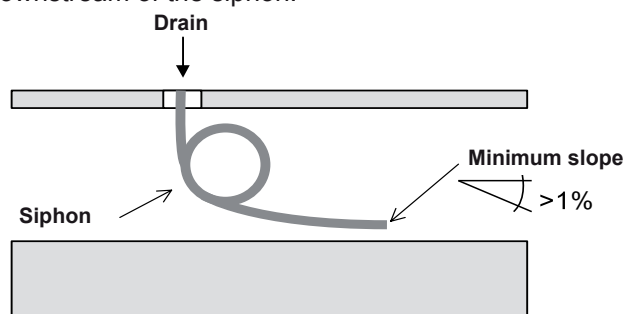
Condensation water drains from the tray by means of a flexible siphoned tube, which is fitted in the unit.

If the unit is fitted with a humidifier, the condensate drain tray and the humidifier drain connection must be connected to the drains of the building.

Direct connection to the drains of the building

Connect the drainage tube of the unit to the drains of the building using a rubber or plastic tube with an internal diameter of 25 mm.

The external drainage tube must be siphoned in order to avoid unpleasant odours. Maintain a minimum slope of 1% downstream of the siphon.



Once the connections have been made, pour water into the condensate collection tray until the siphons have been filled.

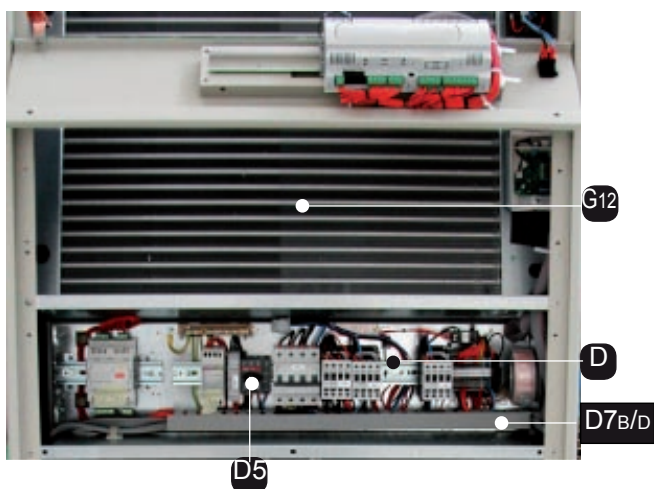
Connection of the humidifier (additional fitting) and to the storm sewer system



WARNING! The water discharged from the humidifier is at a very high temperature. The drainage tube has to withstand high temperatures (at least 100°C) and must be kept away from electrical cables.

To connect the auxiliary connections to the terminal board carry out the following procedures:

- pass the cables through the power supply cable inlet D7B;

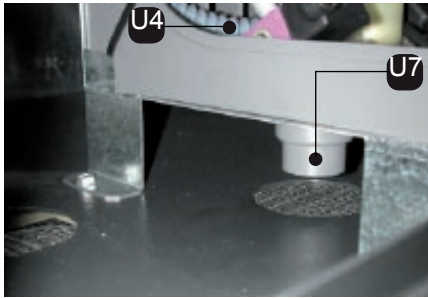


- refer to the wiring diagram and carry out the connection to the terminal board.

○	○	○	○	○	○	○	○	○	○
980	990	20	20	20	50	51	52	60	○
○	○	○	○	○	○	○	○	○	○

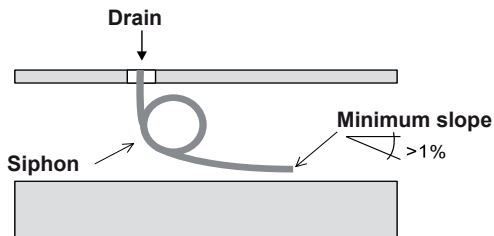
Connect the drainage tube of the unit to the collection tray (U4) of the humidifier.

Connect the drainage tube of the humidifier (U7) to the drains of the building using a rubber or plastic tube, which is resistant to high temperatures (minimum 100 °C) with an internal diameter of 22 mm.



The external drainage tube must be siphoned to avoid unpleasant odours and an overflow of the water from the tray of the humidifier.

Maintain a minimum slope of 1% downstream of the siphon.



Maintain a minimum slope of 1% downstream of the siphon.

Once the connections have been made, pour water into the condensate collection tray of the Jupiter unit and in the condensate collection tray of the humidifier until both siphons are full.

Hydraulic connections

For all hydraulic connections (except for the condensate drain) it is recommended to use the following:

- flexible hoses to avoid the transmission of vibrations and to allow the unit to be moved;
- three piece joints near the connections;
- shut off valves to isolate the unit from the water circuit: if possible, use full sphere valves to minimise the pressure drop.

Check that the chilled water pipe sizes and the circulating pump characteristics are adequate: an insufficient water flow affects the performance of the unit.

Check that the water flow directions are respected.

Insulate all of the chilled water pipes with closed cell insulating material (e.g.: Armaflex or equivalent) to avoid condensation; the insulation must allow accessibility to the valves and three piece joints.

Check that the hydraulic circuits (both chilled and hot water) are fed with a maximum water pressure of 6 bar: to this purpose the installer must install a safety valve in the hydraulic with a set point of not more than 6 bar.

The minimum and maximum water temperatures inside the unit (for the chilled water circuit and the post- heating with hot water) are: 5°C ÷ 90°C.

The maximum amount of ethylene glycol is 50%.

Filling the hydraulic circuit

WARNING! The water used to fill the hydraulic circuit must be filtered.

WARNING! Filling the hydraulic circuit must only be carried out exclusively by a qualified hydraulic technician.

WARNING! Before carrying out any type of intervention, disconnect the power supply.

Filling the primary circuit

WARNING! The primary circuits must be equipped with mechanical filters.

WARNING! Check that all of the shut off valves are closed.

Open the drain valve of the primary circuit and regulate the pressure switch to 5 bar;

bleed the air from the circuits;

turn on the primary circulation pumps;

clean the circuits leaving the pumps on; check for any loss from the primary circuits.

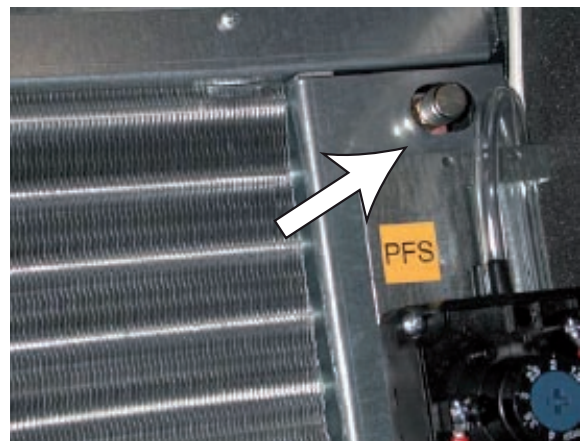
Filling the hydraulic circuits of the conditioners

WARNING! Clean the primary circuits before filling the conditioners.

WARNING! Check that all of the bleeding valves on the conditioners are closed.

Open the shut off valves of the conditioner;

Open the bleeding valve (on the upper part of the cooling coil) and wait for the water to come out.

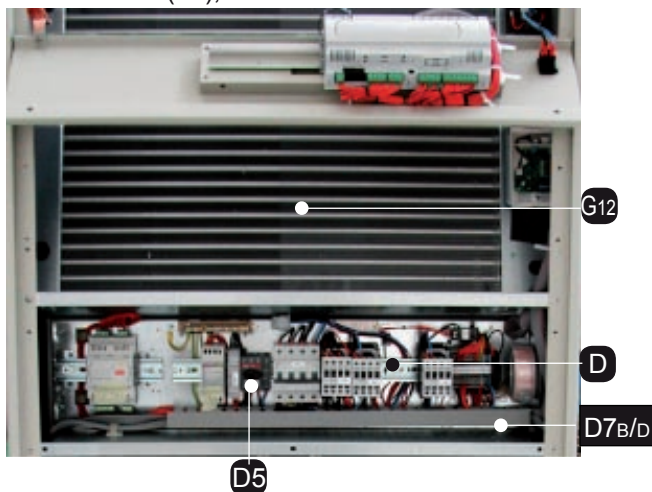


MANUAL START UP AND SHUT DOWN OF THE UNIT

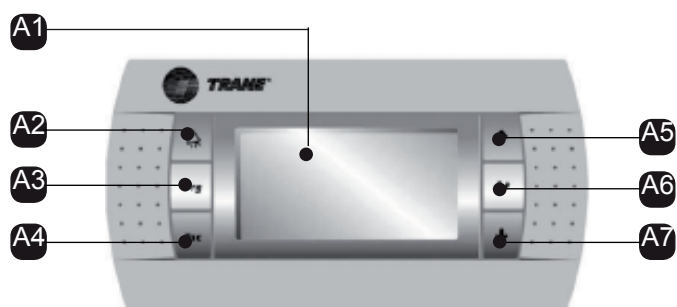
! WARNING! Check that the refrigerant circuit has been filled

To start up the unit carry out the following procedure:

- access the electrical panel;
- position the automatic switch of the auxiliary circuit to “I” (on);
- position all of the automatic switches on the electrical board to “I” (on);



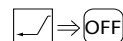
- fuel the unit by positioning the main switch D5 to “I” (on);
- check that the tracts of corrugated pipe with siphon, both internal and external to the conditioner, have been filled with water in the installation phase;
- replace the front panel;
- press the **ENTER** key (A6) of the user terminal; a sliding bar and a ventilator icon will appear on the display;



- if an alarm is indicated, consult the user interface manual mP40.

To turn the unit off, carry out the following procedure:

- on the first screen of the user terminal, press the A5 or A7 buttons until the **SWITCH OFF UNIT** screen appears;
- press the ENTER button to confirm;
- the following icons will appear



Press the ENTER button to confirm.

SETTING AND ADJUSTMENT

Selecting the power supply of the fans

! WARNING! Before establishing the electrical connection, make sure that the power supply is off. Also ensure that it is not possible to reconnect the power during the operation.

! WARNING! In the case of a unit with ducts, the load loss from the exhaust duct must be less than 100 Pa.

To reach the head required by the system for conditioners with fans carrying a CE marking, the input voltage percentage can be adjusted from the user terminal (A).

To select the voltage, carry out the following procedure:

- on the user terminal press the PRG button;
- using the UP or DOWN key select SERVICE MENU and confirm using the ENTER key;
- enter the password (see the envelope attached to the manual);
- using the UP or DOWN key select HARDWARE SETTING and confirm using the ENTER key;
- using the UP or DOWN key select EVAPORATING FAN and confirm using the ENTER key;
- set the amount and confirm using the ENTER key.

In the following table the maximum pressure available (expressed in Pa) for each voltage level of the transformer is indicated. The values are given for the maximum air flow (expressed in m³/h).

CENTRIFUGAL FANS

Nominal fan regulation (to have the nominal airflow with ESP=20Pa)

Model	UNIT WITHOUT ELECTRICAL HEATERS				UNIT WITH ELECTRICAL HEATERS			
	Nominal speed @20Pa		Minimum speed @20Pa		Nominal speed @20Pa		Minimum speed @20Pa	
	EU4	Eu4 +Post	EU4	Eu4 +Post	EU4	Eu4 +Post	EU4	Eu4 +Post
	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
JDCC								
0020	76	77	49	49	76	77	49	49
0025	88	92	53	53	89	90	81	82
0030	92	100	53	53	93	97	82	83
0040	82	96	47	47	83	87	51	51
0060	97	100	62	63	100	100	65	65
JUCC								
0020	76	77	49	49	76	77	49	49
0025	88	92	53	53	89	90	81	82
0030	92	100	53	53	93	97	82	83
0040	82	96	47	47	83	87	51	51
0060	97	100	62	63	100	100	65	65

Maximum available pressure depending on the fan speed regulation:

		J*CC0020*				
Air Flow [m³/h]		1040	1320	1520	1610	1816
Fan Speed	Discharge static pressure					
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]	
48	6	-	-	-	-	
60	186	21	-	-	-	
70	231	137	21	-	-	
75	234	162	71	14	-	
100	284	192	134	105	20	

		J*CC0025*				
Air Flow [m³/h]		1150	1500	1800	2300	2362
Fan Speed	Discharge static pressure					
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]	
52	6	-	-	-	-	
60	149	-	-	-	-	
70	212	157	38	-	-	
90	191	202	175	20	-	
100	231	212	177	45	20	

J*CC0030*					
Air Flow [m³/h]	1150	1500	2000	2300	2339
Fan Speed	Discharge static pressure				
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]
53	27	-	-	-	-
60	146	-	-	-	-
80	203	200	71	-	-
90	188	198	124	11	-
100	228	208	130	36	20

J*CC0040*					
Air Flow [m³/h]	1940	2500	3000	3360	3470
Fan Speed	Discharge static pressure				
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]
47	26	-	-	-	-
60	200	49	-	-	-
70	232	145	5	-	-
90	235	168	100	27	-
100	299	190	111	44	20

J*CC0060*					
Air Flow [m³/h]	3020	3500	4000	4200	4488
Fan Speed	Discharge static pressure				
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]
62	14	-	-	-	-
70	131	33	-	-	-
80	181	133	41	-	-
90	179	153	94	60	-
100	189	155	100	71	20

RADIAL FANS WITH E.C. TECHNOLOGY

Nominal fan regulation (to have the nominal airflow with ESP=20Pa)

Model	UNIT WITHOUT ELECTRICAL HEATERS				UNIT WITH ELECTRICAL HEATERS			
	Nominal speed @20Pa		Minimum speed @20Pa		Nominal speed @20Pa		Minimum speed @20Pa	
	EU4 [%]	Eu4 +Post [%]	EU4 [%]	Eu4 +Post [%]	EU4 [%]	Eu4 +Post [%]	EU4 [%]	Eu4 +Post [%]
JDCV								
0020	69	70	48	49	69	70	48	49
0025	81	82	42	43	81	82	75	76
0030	83	84	43	43	83	84	76	77
0040	73	75	47	48	74	75	51	52
0060	83	85	53	54	84	87	56	57
JUCV								
0020	68	70	48	49	69	70	48	49
0025	81	81	42	43	81	82	75	76
0030	82	83	43	43	83	84	76	77
0040	73	74	47	48	73	75	51	52
0060	100	100	56	57	100	100	60	60

Maximum available pressure depending on the fan speed regulation:

J*CCV0020*					
Air Flow [m³/h]	1040	1370	1520	1610	1956
Fan Speed	Discharge static pressure				
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]
49	26	-	-	-	-
60	129	20	-	-	-
69	226	116	57	19	-
80	346	237	178	140	-
85	398	288	229	191	20

J*CV0025*					
Air Flow [m³/h]	1150	1500	1607	2000	2358
Fan Speed	Discharge static pressure				
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]
43	20	-	-	-	-
60	171	86	55	-	-
70	279	194	163	23	-
80	389	304	273	133	-
85	440	355	324	184	20

J*CV0030*					
Air Flow [m³/h]	1150	1500	1800	2000	2340
Fan Speed	Discharge static pressure				
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]
44	25	-	-	-	-
60	168	82	-	-	-
70	276	189	93	16	-
80	386	299	203	126	-
85	437	350	254	177	20

J*CV0040*					
Air Flow [m³/h]	1940	2500	3300	3600	3738
Fan Speed	Discharge static pressure				
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]
48	22	-	-	-	-
60	133	38	-	-	-
75	296	201	30	-	-
80	351	255	84	7	-
85	402	307	135	58	20

J*CV0060*					
Air Flow [m³/h]	3020	3700	4800	5030	5400
Fan Speed	Discharge static pressure				
[%]	[Pa]	[Pa]	[Pa]	[Pa]	[Pa]
54	21	-	-	-	-
70	168	95	-	-	-
82	274	202	51	14	-
90	324	252	102	65	1
100	342	270	120	83	20

Setting the regulation and safety devices

After starting up the conditioner, set the following set points (see Microprocessor Control Manual):

- Room temperature (cooling and heating set point);
- Relative room humidity (humidification and dehumidification set point);
- Dirty filter differential pressure switch: see paragraph "Setting the dirty filter sensor".

Code	Description	Opening	Differential	Re-set
TSR	Safety thermostat (T and H versions)	310 °C (opening)	-	Manual reset
TSRA	Safety thermostat (T and H versions)	328 °C (opening)	-	Manual reset

The settings of the safety devices must not be modified.

Setting the air flow sensor

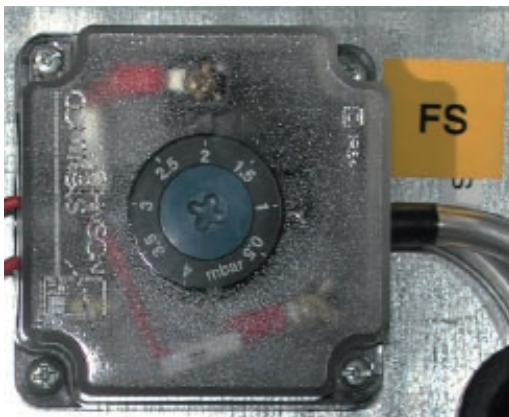
The **FS** differential pressure switch intervenes if the fan (or one of the fans) stops working.

The factory set point of the FS differential pressure switch is at 0.5 mbar (= 50Pa).

As the difference in pressure between the suction and discharge of the fans depends on the air flow, it may be necessary to set the instruments after installation, checking that the contact closes when the fans are in operation.

To set the FS pressure switch, carry out the following procedure:

- simulate a fan fault by stopping a fan; check that the pressure switch intervenes;
- if the pressure switch does not intervene, gradually increase the setting until the pressure switch switches off:
 - using an adjustment screw, set the differential pressure switch on a scale from 0.5 to 4.0 mbar (from 50 to 400 Pa).



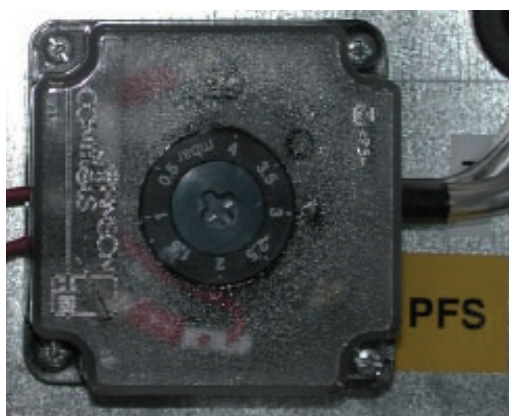
Setting the dirty filter sensors

The **PFS** differential pressure switch is set according to the loss of load dependent on the dirt inside the filters and the air flow.

The PFS differential pressure switch must be set at 3 mbar (=300 Pa).

To set the PFS pressure switch, carry out the following procedure:

- gradually cover the surface of the air filter and check that the pressure switch intervenes when the filter is about 50-60 % covered;
- if the pressure switch does not intervene, gradually lower the setting, if it cuts in too soon, increase the setting:
 - using a star screw driver, turn the regulation screws of the pressure switch to the desired value.



MAINTENANCE

Checks every 3 months

Carry out the following checks every three months:

- check the power supply;
- check the alarm status;
- check the working temperatures;
- check the correct operation of the local/remote controls;
- check air filters, eventual cleaning or replacement;
- check the efficiency of the condensing drain;
- check the steam cylinder is clean, replacing it if necessary.

Checks every 6 months

Carry out the following checks every six months:

- repeat these checks on a three-monthly basis;
- check and clean if necessary the cooling coil;
- check the operation of the humidifier (if present: see...)

Annual checks

Carry out the following checks annually:

- repeat these checks every 6 months
- check the varnish and the nuts and bolts
- check the hinges, rabbets and gaskets
- check the cables and wiring
- tighten the terminal blocks
- check and reset if necessary the safety device settings (pressure switches, thermostats, protection devices);
- check the operation of the post heating electrical heaters;
- check the fittings, operation and absorption of the fan/s motor;
- check and if necessary reset the regulation devices setting;
- check and if necessary replace the seal of the hydraulic circuits/s and tighten the unit couplings;
- check and reset if necessary the water regulation valve/valves setting.
- repeat six-month checks.



WARNING! Before removing the internal protection panels, disconnect the power supply by turning the main isolating switch D5 to position "O", then wait until the fans stop and the electrical heaters cool down.

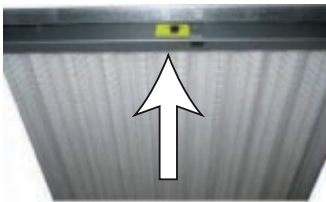
Cleaning and replacing the filters

To clean and replace the filters carry out the following procedures:

- rotate the closing blocks of the front panel by one quarter of a turn and remove the panel to access the air filter;



- memorize the direction of the airflow shown on the frame of the filter, as indicated by the arrow, and remove;



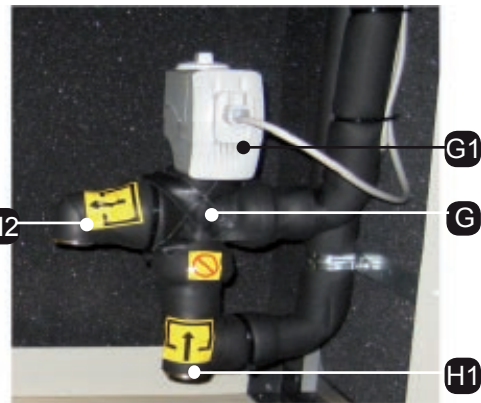
- clean the air filter using a jet of compressed air or replace it;
- reposition the air filter on the unit checking the direction of the airflow as previously noted.



Servomotor and chilled water valve

If necessary (in the event of a fault in the servomotor or the control system) manually move the valve:

- rotate the knob G2 clockwise to open the valve and anticlockwise to close it.



- G - Chilled water valve
- G1 Servomotor
- G2 Manual control knob

H1: cold water inlet valve
H2: cold water outlet valve

Servomotor and hot water valve

To manually move the valve by turning the control knob clockwise to open and anti-clockwise to close.



Troubleshooting

Troubleshooting is made easier by the indications on the control panel display: when an alarm signal is displayed, consult the control panel instruction manual. If necessary, call the nearest Service Centre describing the nature of the fault and its possible cause displayed on the control.

PROBLEM	POSSIBLE CAUSE	CHECK/CORRECTIVE ACTION
THE UNIT DOES NOT START	A) No power supply to the unit's electrical panel.	Check that the power is on and the unit main switch on the electrical panel is closed.
	B) No power to the auxiliary circuits.	1) Check that the IM automatic circuit breaker on the AUX circuit is set.
		2) Check the fuse on the main board.
C) The control panel does not start the unit.	Check that the control panel connectors are correctly located in their sockets.	

TEMPERATURE CONTROL

PROBLEM	POSSIBLE CAUSE	CHECK/CORRECTIVE ACTION
THE ROOM TEMPERATURE IS TOO HIGH	A) The parameter settings on the control panel are not correct.	See control panel instruction manual
	B) The air flow is low or absent.	See "LACK OF / ABSENT AIR FLOW".
	C) The temperature sensor is not working.	Check the electrical connections and the control configuration.
	D) The thermal load is higher than expected.	Check the room's thermal load.
	E) The three-way valve is not working.	Check the electrical connections of the servomotor valve.
		Open the valve by means of the manual control knob.
		Check the chilled water supply; check that the shut-off valves are open.
F) There is an insufficient chilled water flow.	Check the chilled water function.	
G) The chilled water temperature is too high.	See "THE COMPRESSOR(S) DOESN'T / DON'T WORK".	

ROOM TEMPERATURE TOO LOW	A) The parameter settings on the control are not correct	See the microprocessor control manual.
	B) There is insufficient power supply to the electric heaters or the heaters are not working	1) Check that the IM of the heating element is armed.
		2) Check the electric feeding circuit of the heaters.
		3) If there is a heater alarm, remove the cause and re-set the safety thermostat.
	C) The hot water coil is not working.	1) Check the hot water capacity and temperature.
		2) Check the function of the regulation valve (see valve and servomotor).
D) The hot gas coil is not working during dehumidification with re-heat.	1) Check the hot gas 3 way valve function.	
	2) Check the function of the compressor serving the re-heat. See "THE COMPRESSOR(S) DOESN'T / DON'T WORK".	
E) The three way valve of the chilled water circuit is blocked open.	Close the valve using the manual control knob and replace the servomotor.	

HUMIDITY CONTROL

PROBLEM	POSSIBLE CAUSE	CHECK/CORRECTIVE ACTION
ROOM HUMIDITY TOO HIGH	A) The parameter settings on the control panel are not correct.	See control panel instruction manual.
	B) The latent load is higher than expected.	Check the latent load, fresh air conditions and volume; external air infiltration.
	C) Control system not working.	See: Control system user instruction manual; check the panel and/or the probe are working properly.
	D) The chilled water is not sufficiently cold for the dehumidification function (in energy saving and twin cool units).	Lower the chilled water temperature until condensate is present on the surface of the coil.
ROOM HUMIDITY TOO LOW	A) The parameter settings on the control panel are not correct.	Check the room humidity settings (see control panel instruction manual).
	B) The latent load is lower than expected.	Check the latent load, fresh air conditions and volume; external air infiltration.
	C) The humidifier doesn't work.	1) Check the water supply pressure. 2) Check the function of the manual control system and of the steam production group (see panel instruction manual).
	D) The control system does not work.	See the control panel instruction manual; check that the control panel and/or sensors work properly.

FANS

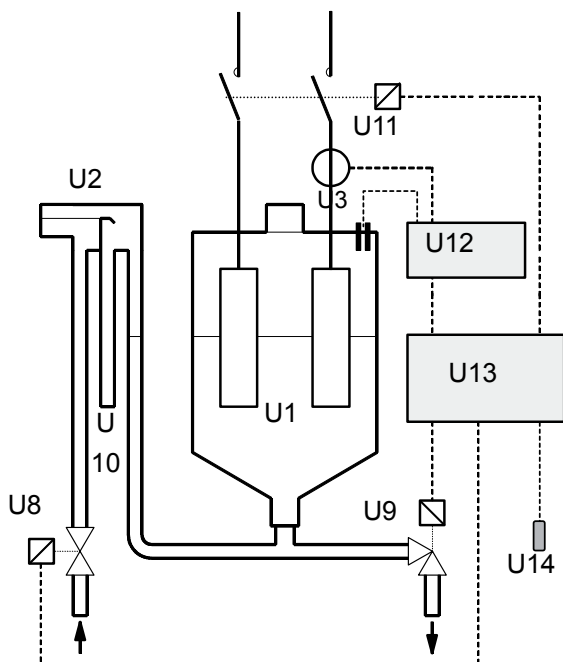
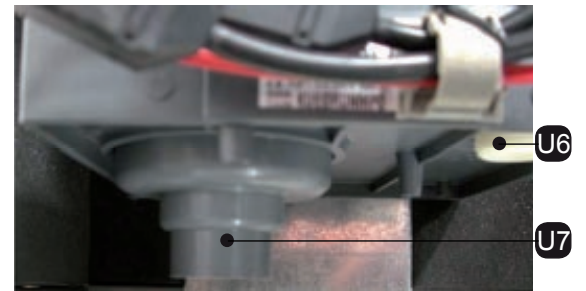
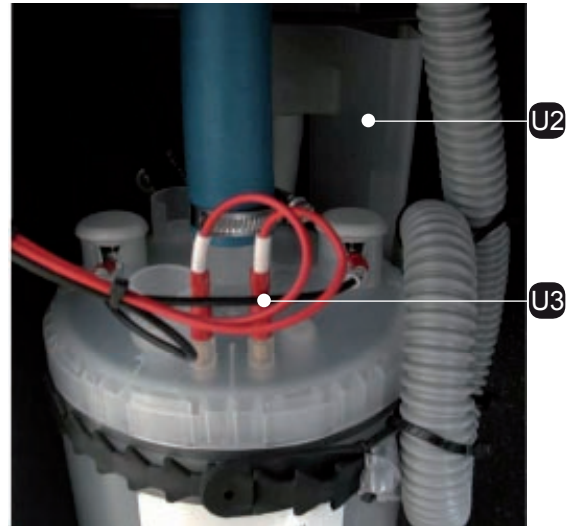
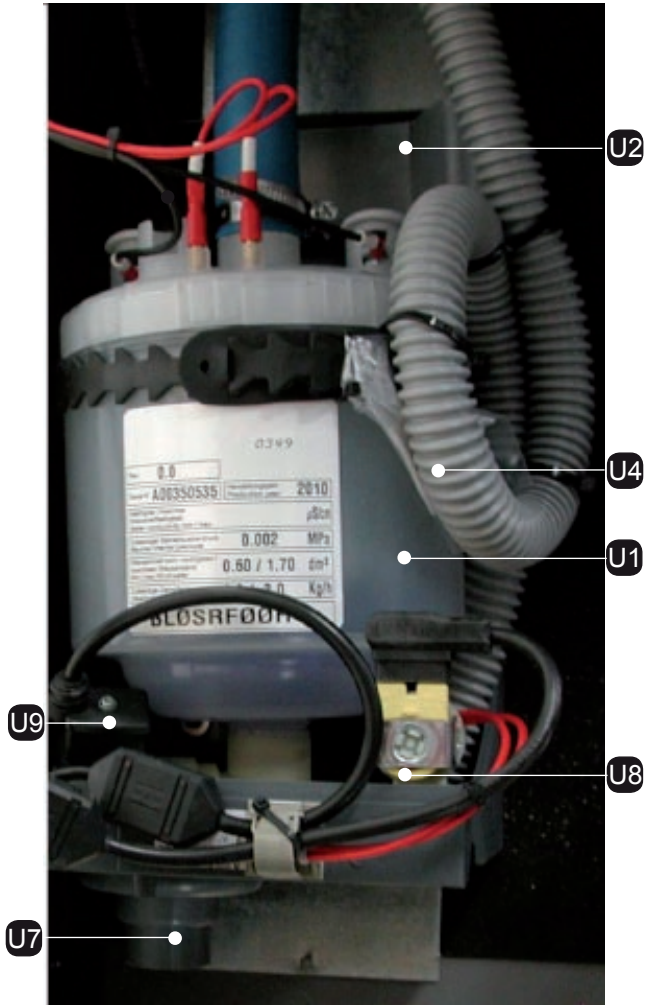
PROBLEM	POSSIBLE CAUSE	CHECK/CORRECTIVE ACTION
ABSENT OR LOW AIR FLOW	A) There is no power to the fans.	Check the power supply to the fans
	B) The filter is blocked (possible intervention of the dirty filters alarm).	1) Shake the dust out of the cartridge and clean with a vacuum cleaner. Replace the filter if it is completely blocked.
		2) Check the correct setting of the dirty filter pressure switch PFS.
	C) Fans rotating in the wrong direction.	Reverse input phases and check if fans are rotating in the correct direction
	D) The air flow is obstructed.	Check paragraph "AIR DISTRIBUTION"
	E) The fans' thermal protection intervenes.	Check the resistance of the fan motor windings. Re-set then measure the voltage and absorption.
	F) Fan speed regulator not set correctly.	See paragraph FAN SPEED ADJUSTMENT AND SPEED REGULATOR SETTING.
G) Excessive head loss in the air distribution system.	1) Check the dimensioning of the air distribution system, as well as all its parts (ducts, suspended ceilings, floor plenum, air grilles)	
	2) (For TDCR and TUCR models - having fans with backward curved blades) change the power supply voltage of the fans, in order to increase the fan rotation speed.	

ELECTRIC HEATERS

PROBLEM	POSSIBLE CAUSE	CHECK/CORRECTIVE ACTION
INTERVENTION OF ONE OR BOTH OF THE ELECTRICAL HEATERS' SAFETY THERMOSTATS	A) There is insufficient air flow.	See "LACK OF / ABSENT AIR FLOW".
	B) The thermostat connection wire is interrupted	Check the continuity of the connection of the safety thermostats to the control system.
	C) One or both of the thermostats are broken	Replace one or both of the electrical heaters' safety thermostats

ACCESSORIES

Humidifier



- U1 Boiler cylinder
- U2 Water supply tray
- U3 High water level detector electrodes in the boiler cylinder
- U4 Condenser drain
- U5 Collector charge/discharge
- U6 Water input
- U7 Drain
- U8 Feed water solenoid valve
- U9 Boiler cylinder electric drainage valve
- U10 Overflow pipe (behind the cylinder)
- U11 Amperometric transformer for measuring the current (within the electrical panel)
- U12 Humidifier interface board (inside the electrical panel)
- U13 Microprocessor control board
- U14 Temperature and humidity probe

Operating principle

In the electrode boiler humidifier, the current flowing between the electrodes in the water in the cylinder generates the heat necessary to boil the water.

By controlling the water level and the concentration of salt measured in the steam cylinder (U1) using the feed water solenoid valve (U8) and the boiler cylinder electric drainage valve (U9), the electric current is regulated by means of an amperometric transformer (U11).

When steam is needed, the humidifier contact is closed (see the electrical diagram) which provides power to the immersed electrodes. When the current falls below the value required as a result of the fall in the water level, the feed water solenoid valve is opened (U8).

The boiler cylinder electric drainage valve (U9) is opened at intervals depending on the characteristics of the feed water supply in order to maintain the optimum concentration of dissolved salts in the water in the cylinder (U1).

Feed water

Values for the feed water for medium-high level of conductivity of a humidifier with immersed electrodes.

				LIMITS	
				Min.	Max.
Hydrogen ion activity	pH	-		7	8.5
Specific conductivity at 20 °C	, 20 °C	-	μS/cm	300	1250
Total dissolved solids	TDS	-	mg/l	(¹)	(¹)
Residual fixed at 180 °C	R180	-	mg/l	(¹)	(¹)
Total hardness	TH	-	mg/l CaCO ₃	100(²)	400
Temporary hardness		-	mg/l CaCO ₃	60(³)	300
Iron + Manganese		-	mg/l Fe + Mn	0	0.2
Chlorides		-	ppm Cl	0	30
Silica		-	mg/l SiO ₂	0	20
Residual chloride		-	mg/l Cl ⁻	0	0.2
Calcium sulphate		-	mg/l CaSO ₄	0	100
Metallic impurities		-	mg/l	0	0
Solvents, diluents, soaps, lubricants		-	mg/l	0	0

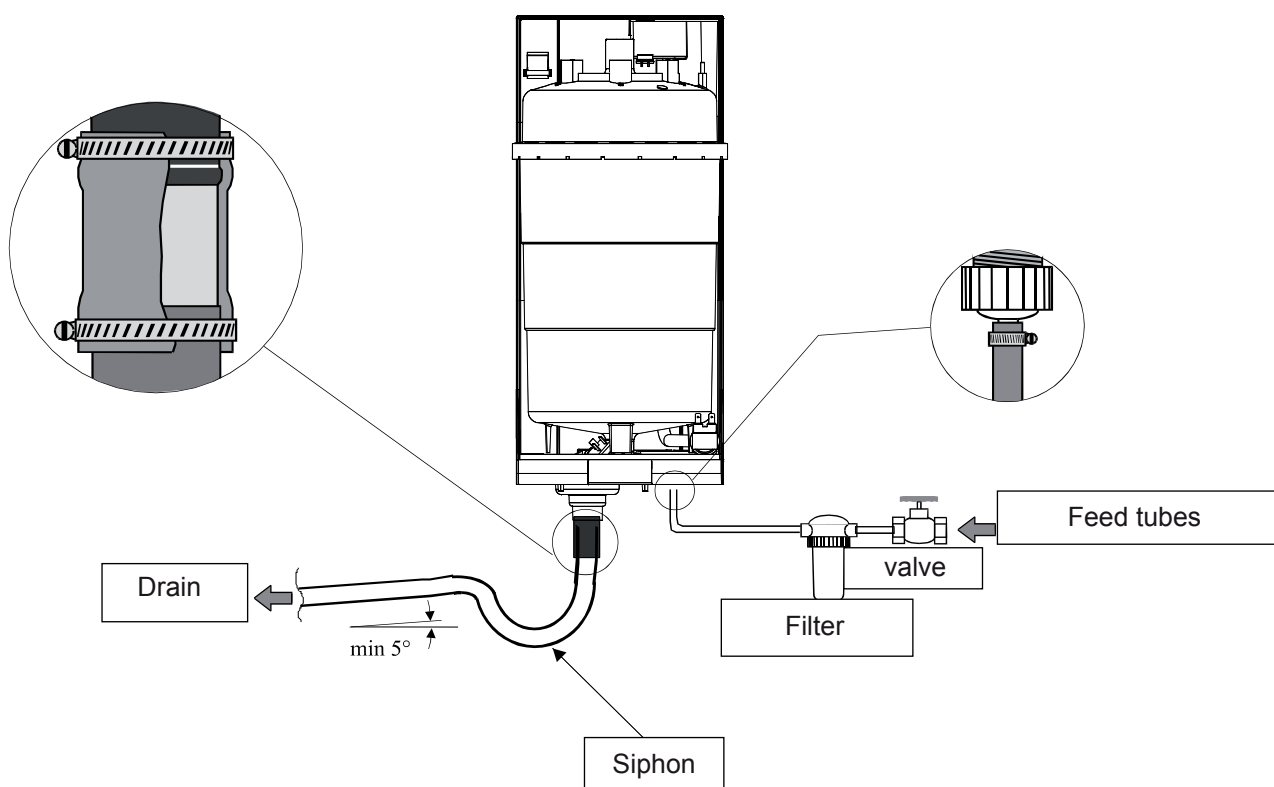
(1) Values dependent on the specific conductivity; in general: TDS @ $0,93 * s20$; R180 @ $0,65 * s20$

(2) not lower than 200% of the Chloride content in mg/l di Cl⁻

(3) not lower than 300% of the Chloride content in mg/l di Cl⁻

Connections

The installation of the humidifier requires connection to the feed tubes of the water drain.



Maintenance

The only maintenance required is periodic inspection and cleaning of the steam boiler components. This should be carried out at least every six months, preferably before the summer holiday shutdown.

BOILER CYLINDER

Limescale deposits must be cleaned periodically from the electrodes and particles of limescale must be removed from the filter at the base of the cylinder.

To dismantle the cylinder:

- - completely drain the water from the cylinder:
 - using the user terminal, press the UP or DOWN key until the INPUT/OUTPUT screen appears;
 - confirm by using the ENTER key;
 - press the UP or DOWN key until DO6 HUMIDIFIER DRAIN is selected;
 - confirm by using the ENTER key;
- disconnect the power supply by opening the main isolator on the electrical panel;
- disconnect the steam distributor hose from the top of the cylinder;
- disconnect the power connections to the electrodes by unscrewing the terminal connectors and pull off the connectors of the electrodes;
- unclip the cylinder fixing strap;
- pull the cylinder upwards.

The steam cylinder can be used several times: however, limescale deposits into the cylinder obstruct the proper passage of current, you must replace it.

The spare part consists of only the cylinder itself (with the filter inside).

FEED AND DRAIN CONNECTIONS

Periodic inspections of the feed and drain connections are advisable in order to guarantee trouble-free operation of the humidifier.

Proceed as follows:

- - completely drain the water from the cylinder:
 - using the user terminal, press the UP or DOWN key until the INPUT/OUTPUT screen appears;
 - confirm by using the ENTER key;
 - press the UP or DOWN key until DO6 HUMIDIFIER DRAIN is selected;
 - confirm by using the ENTER key;
- disconnect the power supply by opening the main isolator on the electrical panel;
- disconnect the feed line at the $\frac{3}{4}$ GAS connection to the inlet solenoid valve connection (U8);
- extract, clean and replace the filter located inside the solenoid valve connection;
- remove the drain solenoid valve, clean out the water pathways and remove any particles of limescale from the drain siphon.



Electric heaters

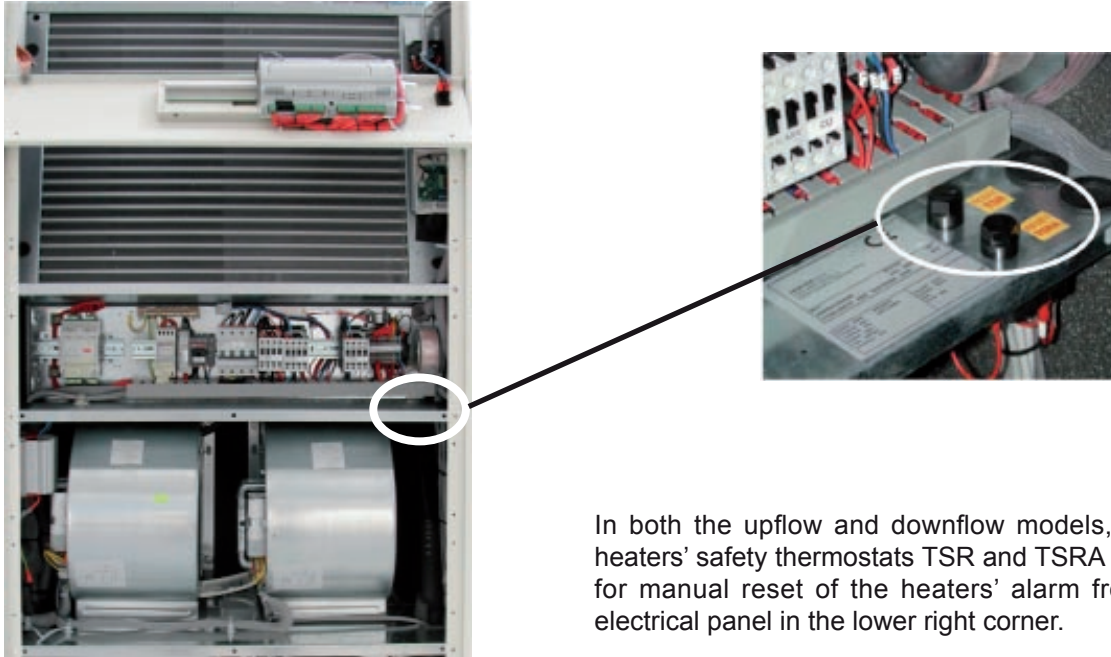
Jupiter units can be equipped with electric heaters. For each model there are two levels available: standard and improved.

The finned elements are characterised by maintaining low power density of the surfaces in a highly efficient way, therefore limiting overheating of the elements and consequently increasing their lifespan.

Thanks to the low surface temperature of the heating elements, the ionisation effect on the air is limited. This heating system has two functions:

- heating the air to arrive at the set point conditions;
- post-heating during the phase of dehumidification, in such a way as to retain the air temperature at set point.

Therefore, the heating power installed is able to maintain the dry bulb temperature in the room during the dehumidification process.



In both the upflow and downflow models, the electrical heaters' safety thermostats TSR and TSRA are accessible for manual reset of the heaters' alarm from inside the electrical panel in the lower right corner.

Replacing the electrical heaters

⚠ WARNING! Before replacing the electrical heaters, disconnect the power supply from the unit. Make sure that it is not possible for the power to be turned on again while they are being replaced.

⚠ WARNING! The heaters must only be replaced by a qualified electrician.

The total capacity of the electrical heaters is subdivided into more elements, each with a capacity equal to 2 or 3 kW based on the size of the unit.

The significance of the colours of the wires present on each element is as follows:

- BLACK wire = element with the lowest power (0,7 or 1kW based on the size of the unit);
- WHITE wire = element with the highest power (1,3 or 2kW based on the size of the unit);
- RED wire = standard.

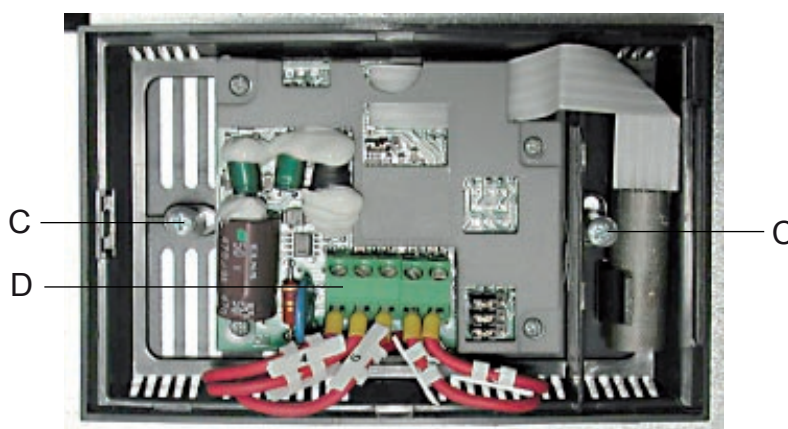
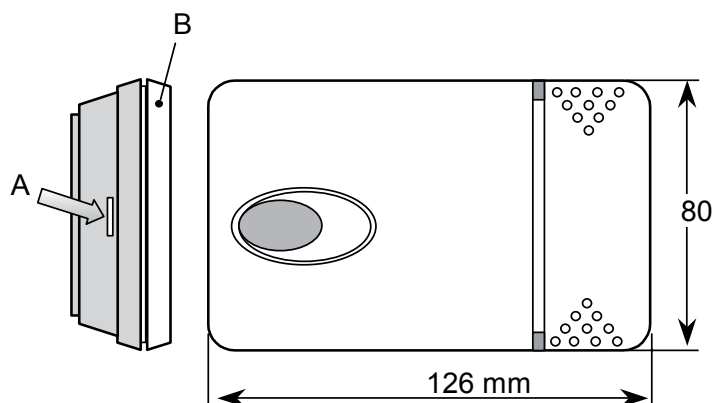
The wires of each element are connected to the CR1 and CR2 connectors on the electrical panel in such a way as to balance the load across the phases and create three stages of heating (refer to the electric diagram on the side of the machine).



Temperature and humidity sensor

The diagram shows an optional temperature and humidity sensor. When replacing the sensor, release the white plastic lid by pressing on point (A) with a screwdriver or a pointed tool; lifting the lid (B) to gain access to the fixing screws (C) and the terminals (D).

A screened cable is used for the electrical connections to the sensor; the connections to the terminals are shown on the electrical diagram.



Connection to fresh air intake

The unit can be made ready for the intake of fresh air through an optional filter.

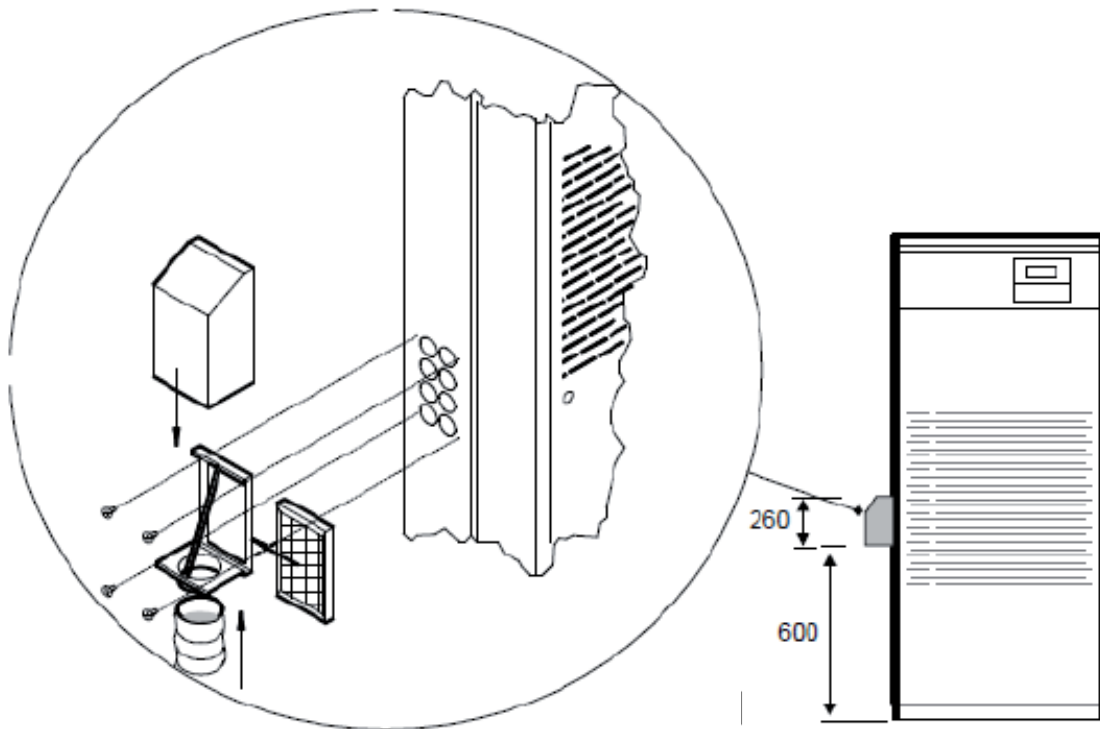
The optional module for the fresh air intake, containing the filter cartridge, must be applied on the left side of the unit during the installation phase and correspond to the holes which introduce the air into the fan compartment.

During the installation phase connect a flexible circular duct, with a diameter equal to 80mm, to the nozzle which introduces the air into the fan compartment and secure the duct to the nozzle with a fixing clamp.

The length of ducting between the air conditioner and the external air intake must be as short and straight as possible. If the length of ducting is more than 6-8 metres, the use of an optional module for forced ventilation to be mounted in line is recommended.

To replace the fresh air filter:

- 1- slide the protection cover of the fresh air module upwards.
- 2- remove the filter cartridge.
- 3- insert the new cartridge and reposition the protection cover.



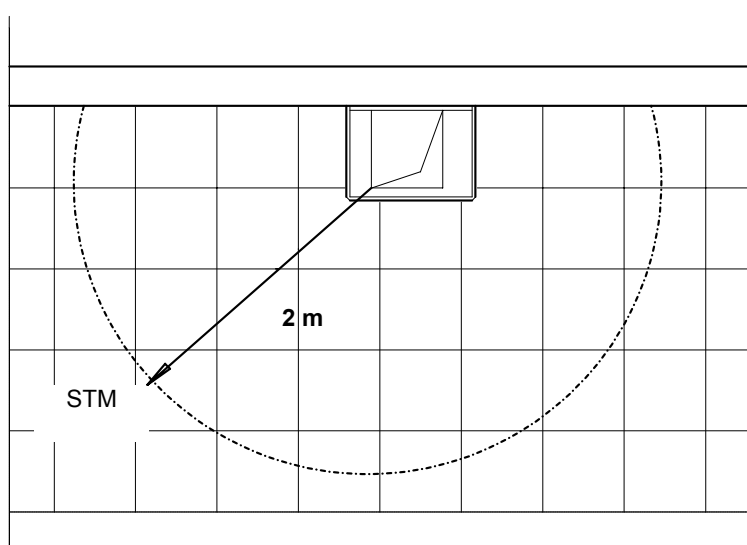
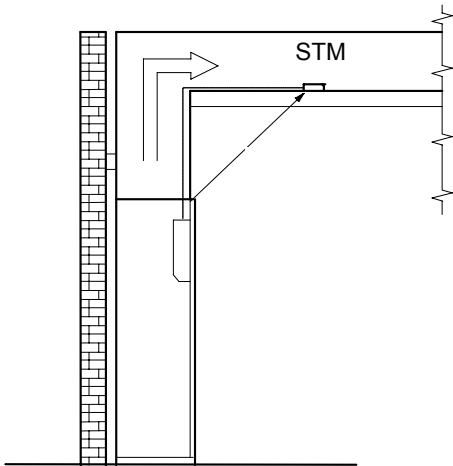
Maintenance

Clean, using a blast of compressed air, or replace the fresh air intake filters periodically.

Discharge temperature threshold sensor (only on CHILLED WATER models)

An NTC temperature sensor is an optional accessory which maintains the supply air temperature of the unit above a threshold value. The sensor is connected to the microprocessor control system as described in the electrical diagram of the unit.

The sensor has a temperature range of -50°C and $+50^{\circ}\text{C}$ and a protection level of IP67; it can be installed outside the unit by means of a cable which is 3 metres long. A minimum distance of 2 metres is advisable from the unit discharge, as shown in the diagram for upflow units.



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