Towelrads



FAN PLUS

INSTALLATION & OPERATING MANUAL

TOWELRADS

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FAN PLUS
FAN COIL HEATER
TOWELRADS

INTRODUCTION

Fan Plus by Towelrads

Congratulations for choosing a Towelrads Fan Plus.

This manual contains important information for the transportation, installation, use and maintenance of units. Failure to follow the instructions given in this manual and/or unprofessional installation may invalidate the warranty. The manufacture cannot be responsible for any direct or indirect damages related to units installed by unskilled or unauthorised persons.

At the time of delivery check that the appliance is in perfect condition, complete in all parts and responding to your order. Any claims must be submitted in writing no later than 8 days after the date of delivery.

The fan-coil units are exclusively built for air heating, filtering, cooling and dehumidification.
They are not suitable for any other purpose.

The fan-coil unit may not be used:
-For outdoor air treatment
- For installation in too much moist rooms
- For installation in explosive atmospheres
- For installation in corrosive atmospheres

Make sure that the environment where the appliance is installed does not contain substances that cause the corrosion of the aluminium fins , and the metal frame.

The appliances are supplied with hot/cold water depending on whether the environment is being heated/cooled.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.
The manufacturer/seller cannot be held liable for any loss or damage caused as a result of incorrect installation, operation or maintenance of the fan coil units or due to any non-compliance with this User Information Manual or any inspection, repair and maintenance requirement.

This booklet must always accompany the appliance, being considered an integral part of such.

Towelrads Fan Plus is CE - LVD -EMC certified by SGS laboratories.
Towelrads Fan Plus is UKCA certified by Intertek laboratories.

OPERATING LIMITS

Operating limits

Power Supply		
Volt	Phase	Hz
230	1	50/60Hz
Room Condition		
Relative humidity range		15-75%
Minimum temperature		+6C
Maximum temperature		+40C
Water Circuit		
Minimum entering water temperature		+5C
Maximum entering water temperature		+60C
Water side maximum pressure		8 bar

Identification of the unit

Fan Plus units feature a data plate located on one side of the appliance, showing:	Manufacturer's Address Model Code Colour Power supply voltage Unit power absorption Cooling capacity Heating capacity Air flow Sound pressure level Net weight Serial number CE Mark

TECHNICAL FEATURES

The unit frame is made of 0,8-1 mm gauge metal sheet.

Class G1 air filters designed for easy removal for trouble-free cleaning and maintenance purposes.

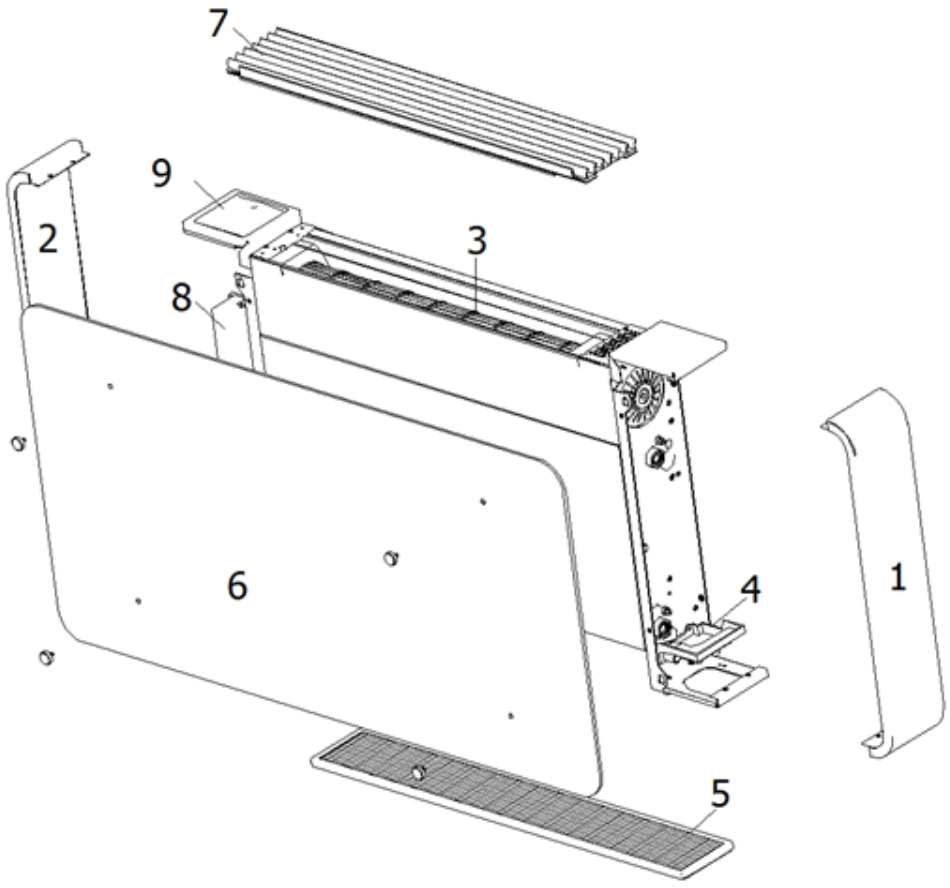
Acoustic and thermal insulation is provided by CL1 – M1 material.

The exchanger coil is composed of copper tubes and brass headers; the tubes are mechanically expanded into corrugated aluminium fin collars. Coil connectors with 1/2" Gas female.

Equipped with a removable galvanised steel condensate drain pan.

Outlet grille and fan blower made in aluminium.

External Parts

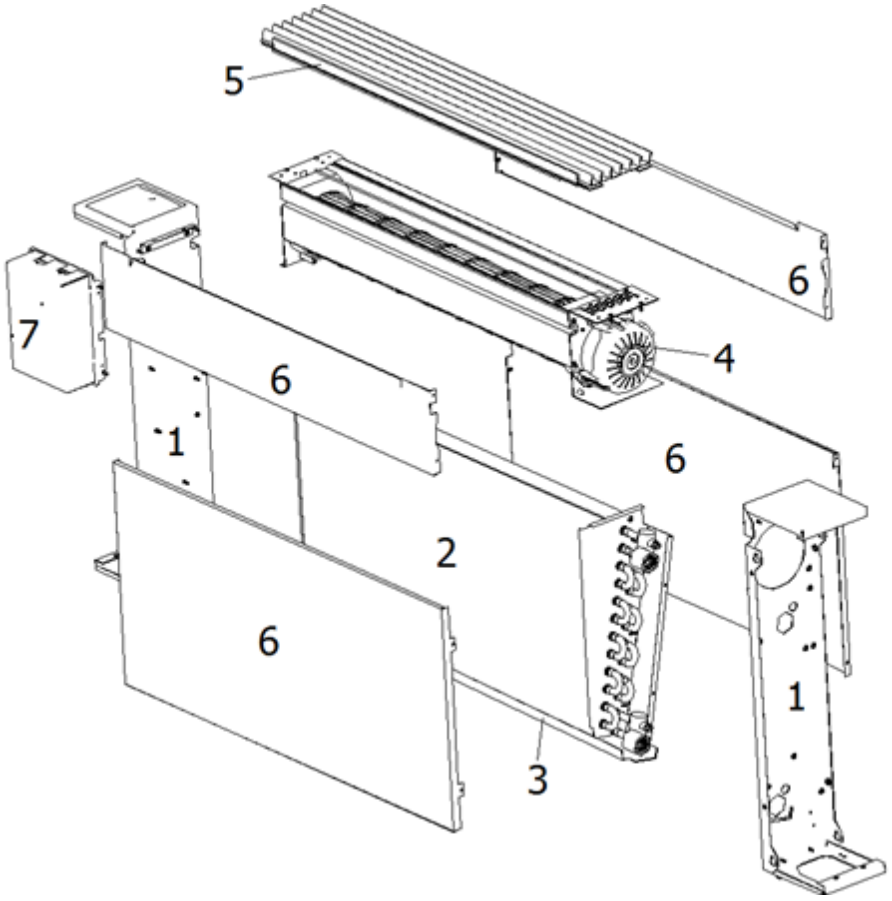


1	Right-hand side flank
2	Left-hand side flank
3	Fan deck
4	Auxiliary drain
5	Filter

6	Front panel
7	Aluminium grill
8	Electric box
9	Built in control

Internal parts

Components for a vertical unit.

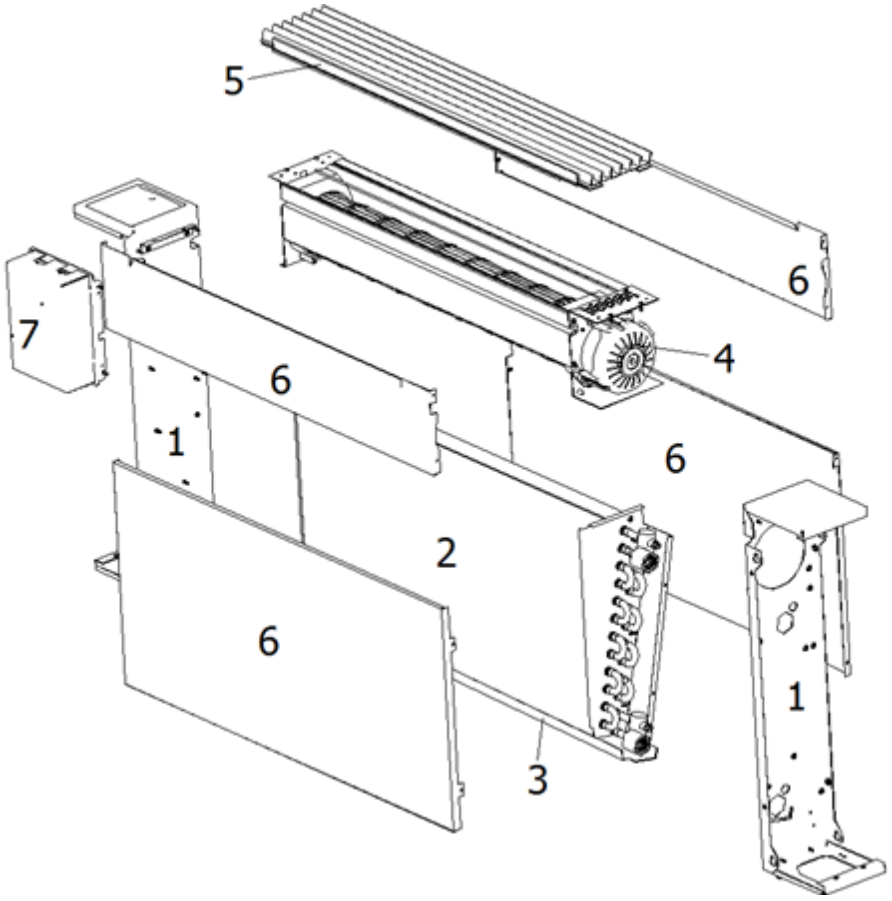


1	Internal flank
2	Main heat exchanger
3	Condensate tray
4	Fan deck

5	Aluminium grill
6	Panels
7	Electric box

Internal parts

Components for a horizontal unit.



1	Internal flank
2	Main heat exchanger
3	Condensate tray
4	Fan deck

5	Aluminium grill
6	Panels
7	Electric box

The condensate drain pump must be installed externally to the unit in case of horizontal installation.

Technical data

2 pipe system COOLING MODE Room:27° C – 47% R.H. Water temp. (In/out):7/12°C						
	Unit	**Speed**	**200**	**400**	**600**	**800**
Air flow rate	m^3/h	Supermax	250	390	510	620
		Max (*)	180	315	450	540
		Med (*)	120	230	350	450
		Min (*)	80	155	240	310
		Static	10	18	25	32
Total cooling capacity	KW	Supermax	1.19	2.12	2.90	3.73
Sensible capacity	KW	Supermax	0.87	1.56	2.16	2.97
Water flow rate	l/h	Supermax	204	364	498	639
Pressure drop	kPa	Supermax	15.1	10.2	20.9	19.9
Total cooling capacity	KW	max	0.88	1.81	2.70	3.38
Sensible capacity	KW	max	0.69	1.35	2.00	2.70
Water flow rate	l/h	max	151	311	463	580
Pressure drop	kPa	max	13.1	8.2	19.0	18.7
Total cooling capacity	KW	med	0.79	1.45	2.20	2.75
Sensible capacity	KW	med	0.60	1.10	1.68	2.30
Water flow rate	l/h	med	136	249	377	472
Pressure drop	kPa	med	7.2	6.0	16.5	13.2
Total cooling capacity	KW	min	0.45	0.98	1.70	2.13
Sensible capacity	KW	min	0.30	0.70	1.25	1.70
Water flow rate	l/h	min	77	168	292	365
Pressure drop	kPa	min	4.1	4.1	13.0	10.0
Total cooling capacity	KW	Static	0.10	0.14	0.20	0.23
Sensible capacity	KW	Static	0.08	0.11	0.16	0.20
Water flow rate	l/h	Static	151	311	463	580
Pressure drop	kPa	Static	13.1	8.2	19.0	18.7

(*) Declared values are relative to standard settings at 1500, 900 and 600 RPM. It is always possible to change the air flow, changing dip switch setting in the PCB.

2 pipe system HEATING MODE Room:20° C. Water temp. In:50. Same water flow conditioning						
	Unit	**Speed**	**200**	**400**	**600**	**800**
Air flow rate	m^3/h	Supermax	250	390	510	620
		Max (*)	180	315	450	540
		Med (*)	120	230	350	450
		Min (*)	80	155	240	310
		Static	10	18	25	32
Main exchanger thermal capacity	KW	Supermax	1.55	2.71	3.71	4.71
Main exchanger water flow rate	l/h	Supermax	204	364	498	639
Main exchanger pressure drop	kPa	Supermax	13.5	8.1	16.8	16.9
Main exchanger thermal capacity	KW	max	1.10	2.40	3.20	4.23
Main exchanger water flow rate	l/h	max	151	311	463	580
Main exchanger pressure drop	kPa	max	12.2	6.8	15.8	15.5
Main exchanger thermal capacity	KW	med	0.90	1.50	2.4	3.40
Main exchanger water flow rate	l/h	med	136	249	377	472
Main exchanger pressure drop	kPa	med	6.9	5.7	14.7	12.1
Main exchanger thermal capacity	KW	min	0.61	1.16	1.75	2.41
Main exchanger water flow rate	l/h	min	77	168	292	365
Main exchanger pressure drop	kPa	min	4.0	3.9	10.0	8.2
Main exchanger thermal capacity	KW	Static	0.22	0.25	0.3	0.38
Main exchanger water flow rate	l/h	Static	151	311	463	580
Main exchanger pressure drop	kPa	Static	12.2	6.8	15.8	15.5

(*) Declared values are relative to standard settings at 1500, 900 and 600 RPM. It is always possible to change the air flow, changing dip switch setting in the PCB.

4 pipe system COOLING MODE Room:27° C – 47% R.H. Water temp. (in/out):7/12°C						
	Unit	**Speed**	**200**	**400**	**600**	**800**
Air flow rate	m^3/h	Supermax	250	390	510	620
		Max (*)	180	315	450	540
		Med (*)	120	230	350	450
		Min (*)	80	155	240	310
		Static	10	18	25	32
Total cooling capacity	KW	Supermax	1.19	2.12	2.90	3.73
Sensible capacity	KW	Supermax	0.87	1.56	2.16	2.97
Water flow rate	l/h	Supermax	204	364	498	639
Pressure drop	kPa	Supermax	15.1	10.2	20.9	19.9
Total cooling capacity	KW	max	0.88	1.81	2.70	3.38
Sensible capacity	KW	max	0.69	1.35	2.00	2.70
Water flow rate	l/h	max	151	311	463	580
Pressure drop	kPa	max	13.1	8.2	19.0	18.7
Total cooling capacity	KW	med	0.79	1.45	2.20	2.75
Sensible capacity	KW	med	0.60	1.10	1.68	2.30
Water flow rate	l/h	med	136	249	377	472
Pressure drop	kPa	med	7.2	6.0	16.5	13.2
Total cooling capacity	KW	min	0.45	0.98	1.70	2.13
Sensible capacity	KW	min	0.30	0.70	1.25	1.70
Water flow rate	l/h	min	77	168	292	365
Pressure drop	kPa	min	4.1	4.1	13.0	10.0
Total cooling capacity	KW	Static	0.10	0.14	0.20	0.23
Sensible capacity	KW	Static	0.08	0.11	0.16	0.20
Water flow rate	l/h	Static	151	311	463	580
Pressure drop	kPa	Static	13.1	8.2	19.0	18.7

(*) Declared values are relative to standard settings at 1500, 900 and 600 RPM. It is always possible to change the air flow, changing dip switch setting in the PCB.

4 pipe system HEATING MODE Room:20° C. Water temp. In:50. Same water flow conditioning						
	Unit	**Speed**	**200**	**400**	**600**	**800**
Air flow rate	m^3/h	Supermax	250	390	510	620
		Max (*)	180	315	450	540
		Med (*)	120	230	350	450
		Min (*)	80	155	240	310
		Static	10	18	25	32
Main exchanger thermal capacity	KW	Supermax	1.55	2.71	3.71	4.71
Main exchanger water flow rate	l/h	Supermax	204	364	498	639
Main exchanger pressure drop	kPa	Supermax	13.5	8.1	16.8	16.9
Main exchanger thermal capacity	KW	max	1.10	2.40	3.20	4.23
Main exchanger water flow rate	l/h	max	151	311	463	580
Main exchanger pressure drop	kPa	max	12.2	6.8	15.8	15.5
Main exchanger thermal capacity	KW	med	0.90	1.50	2.4	3.40
Main exchanger water flow rate	l/h	med	136	249	377	472
Main exchanger pressure drop	kPa	med	6.9	5.7	14.7	12.1
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Main exchanger water flow rate	l/h	min	77	168	292	365
Main exchanger pressure drop	kPa	min	4.0	3.9	10.0	8.2
Main exchanger thermal capacity	KW	Static	0.22	0.25	0.3	0.38
Main exchanger water flow rate	l/h	Static	151	311	463	580
Main exchanger pressure drop	kPa	Static	12.2	6.8	15.8	15.5

(*) Declared values are relative to standard settings at 1500, 900 and 600 RPM. It is always possible to change the air flow, changing dip switch setting in the PCB.

			200	400	600	800
Number of rows of main coil			2	2	2	2
Coil connection			1/2" GF	1/2" GF	1/2" GF	1/2" GF
Water content			0,33 L	0,59 L	0,85 L	1,11 L
Motor input	**Supermax**	**W**	20	22	24	27
		V/H/Ph	230 V - 50 Hz - 1Ph			
	Max	**W**	12			
		V/H/Ph	230 V - 50 Hz - 1Ph			
	Med	**W**	5			
		V/H/Ph	230 V - 50 Hz - 1Ph			
	Min	**W**	3			
		V/H/Ph	230 V - 50 Hz - 1Ph			
	Static	**W**	0			
		V/H/Ph	230 V - 50 Hz - 1Ph			
Electric heater		**W**	50	50	100	100
		A	0.22	0.22	0.45	0.45
		V/H/Ph	230 V - 50 Hz - 1Ph			

(*) Declared values are relative to standard settings at 1500, 900 and 600 RPM. It is always possible to change the air flow, changing dip switch setting in the PCB.

Noise level data

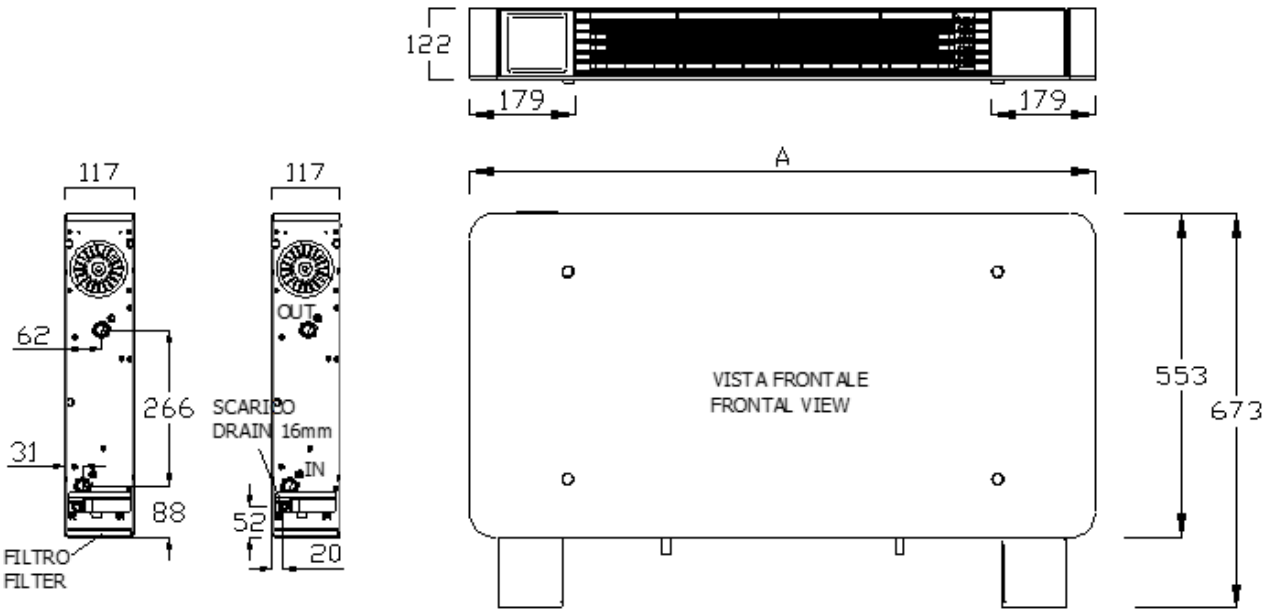
DC SERIES		TOT [dB(A)]
200	Supermax	55.0
	MAX (*)	51.3
	MED (*)	44.6
	MIN (*)	37.5
	Static	0
400	Supermax	56.0
	MAX (*)	52.2
	MED (*)	45.5
	MIN (*)	38.6
	Static	0
600	Supermax	57.1
	MAX (*)	52.4
	MED (*)	46.6
	MIN (*)	40.5
	Static	0
800	Supermax	58.3
	MAX (*)	53.3
	MED (*)	48.6
	MIN (*)	38.7
	Static	0

(1) Sound pressure at 2m.

(*) Declared values are relative to standard settings at 1500, 900 and 600 RPM. It is always possible to change the air flow, changing dip switch setting in the PCB.

DIMENSIONS & WEIGHTS

Vertical models



Unit is predisposed by factory with right hydraulic connections.

Operations for reversing the unit and passing from right to left configuration, as indicated in following section.

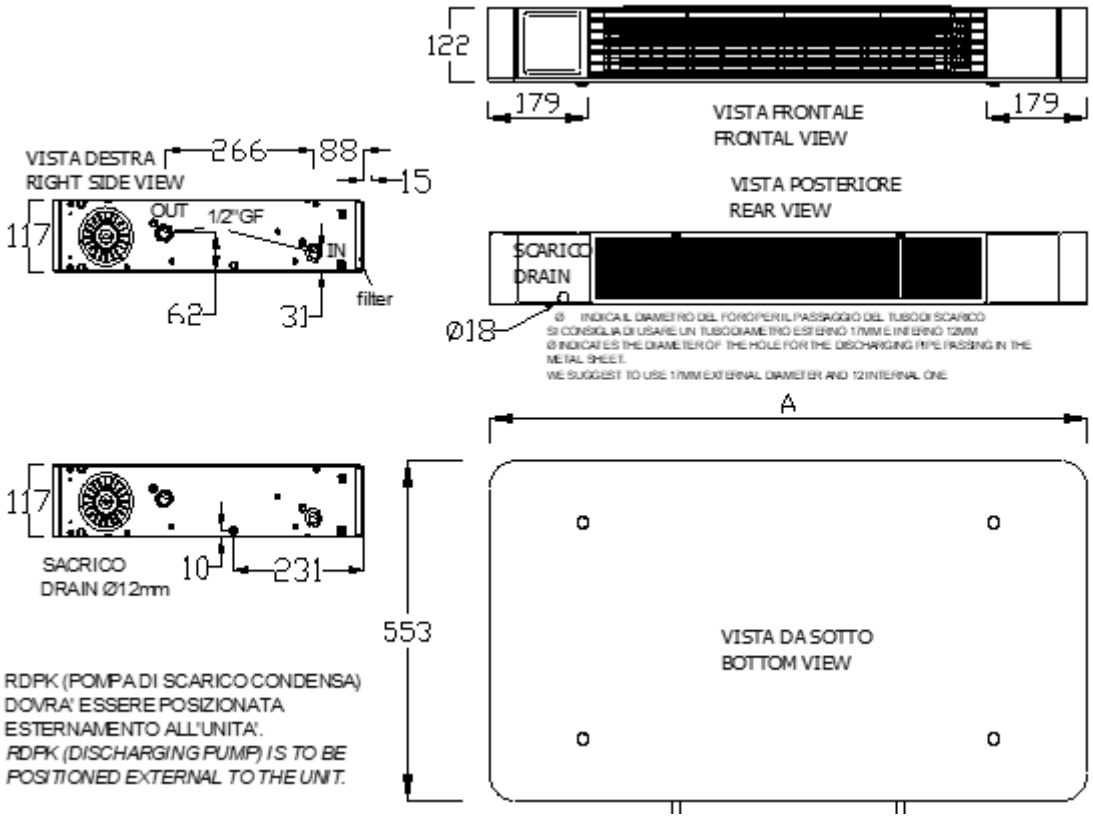
Electric box and build-in thermostat are always in the opposite side.

	200	400	600	800
A (mm)	681	873	1065	1257
KG (net weight)	14	18	21	25
KG (gross weight)	18	21	25	29

Right unit (DX), is a machine that has the water connections on the right side, if you put in front of the outlet of the fan coil fixed to the wall. Similarly for units left (SX).

DIMENSIONS & WEIGHTS

Horizontal models



The unit can have hydraulic connections only on the right side.

The electrical box is on the opposite side. Auxiliary drain pan is not used.

	200	400	600	800
A (mm)	681	873	1065	1257
KG (net weight)	14	18	21	25
KG (gross weight)	18	21	25	29

Right unit (DX), is a machine that has the water connections on the right side, if you put in front of the outlet of the fan coil fixed to the wall. Similarly for units left (SX).

INSTALLATION INSTRUCTIONS

Warnings

Internal installation unit.

When handling the units use appropriate lifting means as specified by directive 2007/30/EEC and subsequent amendments.

The manufacturer declines all liability in the event of failure to observe the safety and precautionary prescriptions set down in this manual, and all liability for damage caused by improper use and/or authorised modifications.

The fan coil unit must be installed by skilled personnel, who must wear suitable safety apparel during the work as specified by directive 93/68/EEC and subsequent amendments.

Comply with statutory laws in the Country in which the appliance is installed concerning the use and disposal of packing materials and the products utilised for cleaning and maintenance purposes.

Before commissioning the unit check that all the parts and the entire installation is in perfect working order. Do not touch moving parts under any circumstances.

Do not proceed with maintenance or cleaning until the electrical power supply has been disconnected.

Spare parts must correspond to the requirements specified by the manufacturer. If the unit is to be scrapped, adhere to the applicable environmental legislation.

The installer and user must take account or and remedy all the other types of risks associated with the use of the unit in the specific plant. Consider, for example, risks deriving from the ingress of foreign objects or conveyance of toxic or inflammable gas into the temperature controlled areas.

Notes: if no motor-driven water shut-off valve is present, and in environmental conditions with a high percentage of humidity and low temperatures of the water in the coil, the fan-coil may form condensate on the metal structure. For this reason, the conditions of use and operation must be checked thoroughly (see psychometric diagram) and ensure that operation without the above valves is feasible.

The company will not be liable under any circumstances for damage caused by the above condensation.

INSTALLATION INSTRUCTIONS

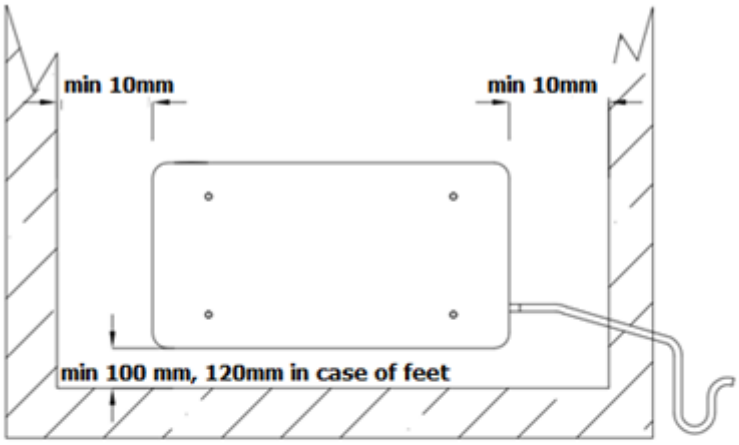
Positioning of the unit

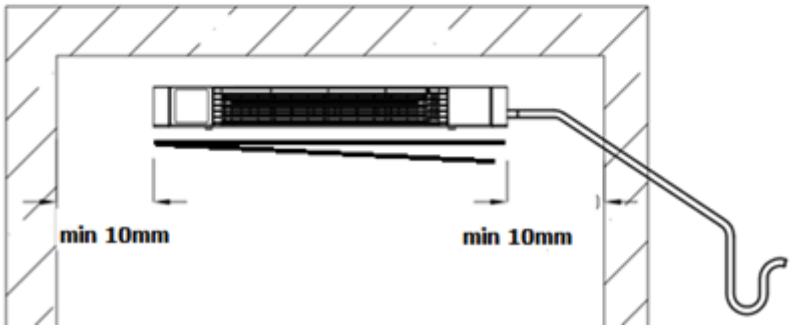
Position the unit on a structure able to support its weight. We recommend the use of anti-vibration systems to prevent the transmission of vibration to the supporting structure.

Observe the minimum clearances shown in the figure to facilitate routine and supplementary maintenance procedures.

Choose a position that facilitates the drainage of condensate.

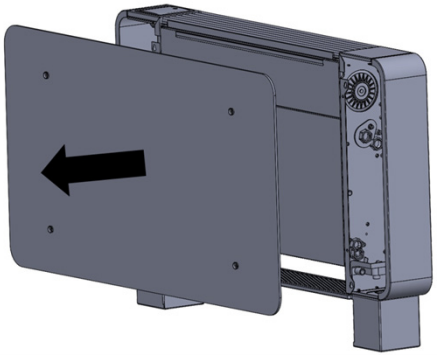
In case of ceiling installation (with horizontal drain pan), please to install the unit with 1° slope, do to warrant the correct discharging of the condense.





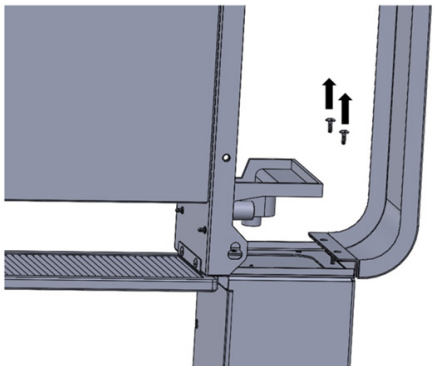
INSTALLATION INSTRUCTIONS

Removal of the front panel

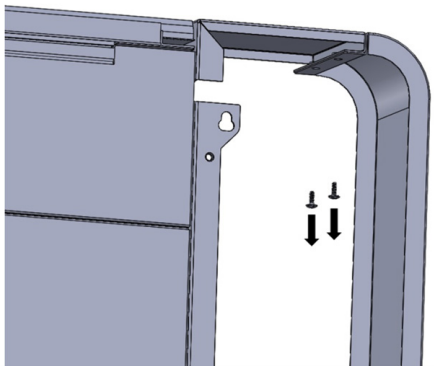


Remove the front panel, taking care not to damage it. Make sure it is stored in a safe and secure place.

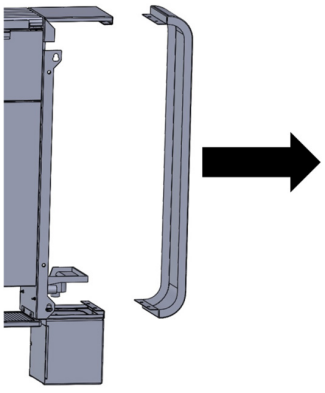
Removal of the metal flanks



Remove the two screws relative to right bracket. The same operation will make for the left flank.

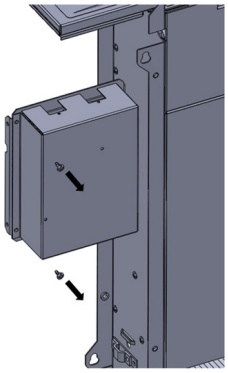


Remove the two screws relative to right bracket. The same operation will make for the left flank.

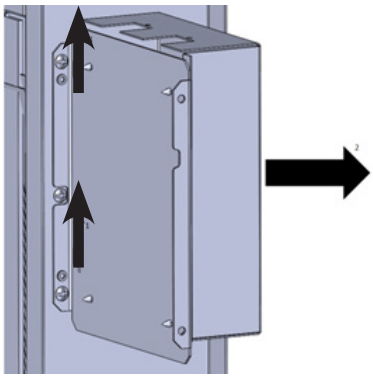


Remove the right and left metal flanks as indicated in the image on the left.

Access to the main electronic board

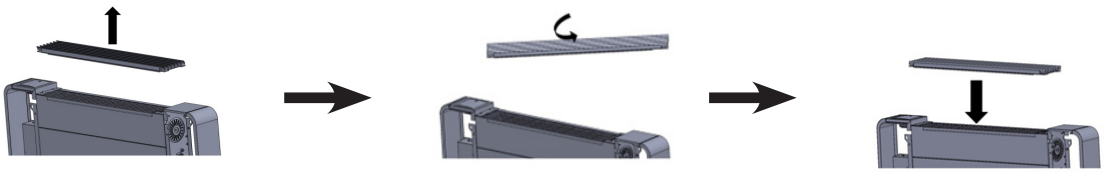


To access to main PCB, remove the two screws shown in the picture on the left

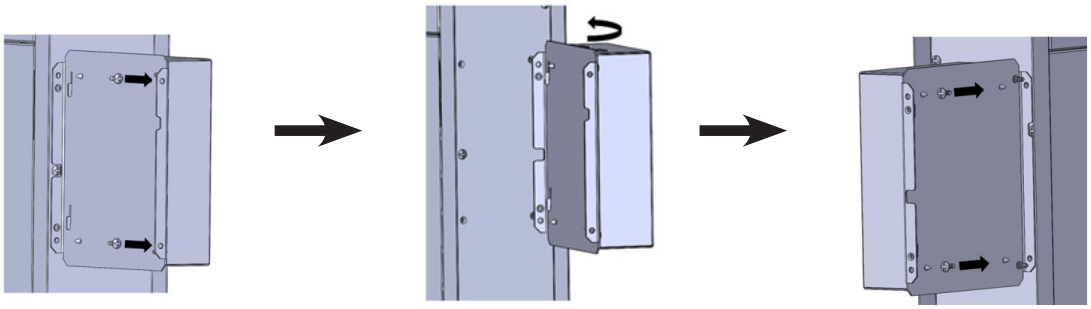


To remove the cover and access to main PCB, move up the same cover as shown in the picture on the left.

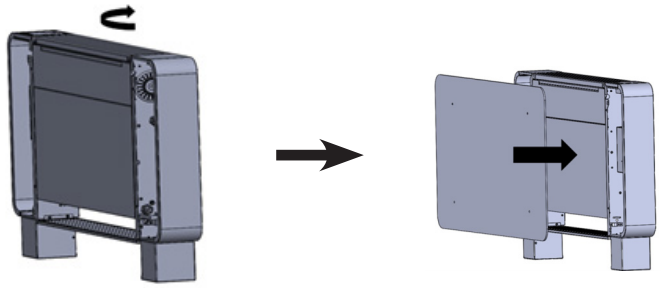
How to pass from right to left hydraulic connections (only vertical model).



Remove the outlet grill on the top, rotate it and position it on the unit.

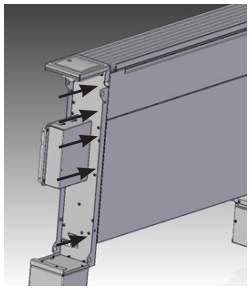


After metal flank removal (only electronic board side) as shown in the previous sections, remove the 2 screws indicated in the first picture on the top and rotate the electric box as shown in the following picture. At the end, fix again the 2 screws.

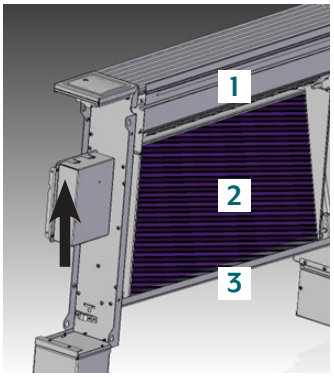


Reposition the metal flank and rotate the unit as indicated in the picture on the left. At the end, reposition the frontal panel on the opposite side that at the beginning.

Access to internal parts (fan blower, coil and main drain pan)



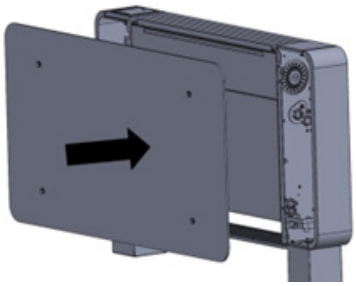
To access to the internal parts, remove the screws on both the sides, as indicated in the picture on the left.



Remove the front panels

1 - Fan motor
2 - Coil
3 - Main drain pan

Repositioning of the front glass panel

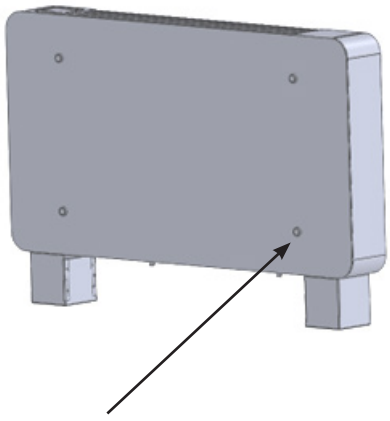


Reposition the panel on the unit.





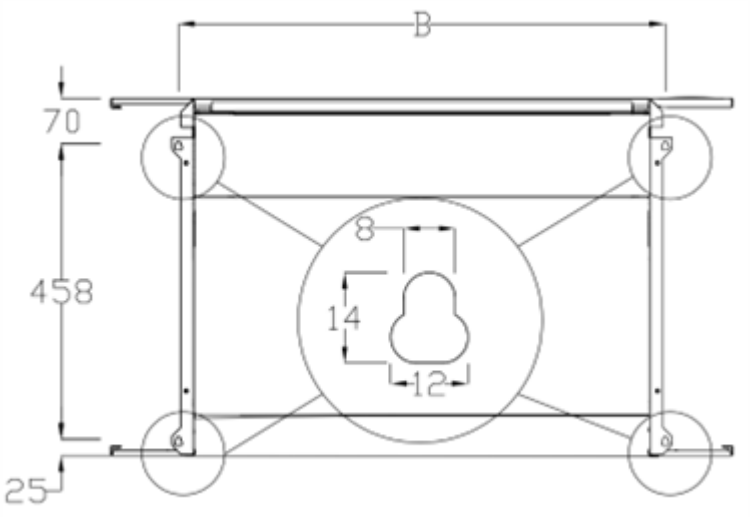
Reposition the screws as in the image on the side. Replace the plastic screw in correspondence with the condensate drain.



Be very careful not to damage the glass panel and be careful not to over tighten the screws when repositioning the same panel. Use a screwdriver and not the screwdriver, better with a torque wrench with a low tightening level.

Plastic screw (opposite side if left unit).

Fixing the unit



	200	400	600	800
B (mm)	372	564	756	948

Drill the fixing holes in accordance with dimensions shown in the above figure.
Secure the four threaded M6 tie rods.

Note: a template with always supplied with the unit. Use it for unit fixing.

To facilitate the drainage of condensate, ensure the appliance is fixed so that it has a 5 mm inclination towards the condensate outlet side.

Hydraulic connections

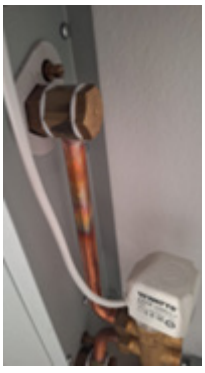
The unit's exchangers are equipped with female threaded gas connectors (1/2" GF). The nominal pressure should not overtake 6 bar.

Observe the indications stuck on the side of the unit giving the coil water inlet and outlet connections.

When connecting units without valves tight the pipes carefully to avoid damage.

When the above operations have been completed carefully check all the junctions and sealing gaskets. Install shut-off valves to isolate the coil from the circuit for supplementary maintenance requirements.

In the case of multiple fan coil connected to the same water pipe, proceed individually to the opening of the corresponding valves to be able to immediately identify and stop any water leaks**.**



In the case of installation in places with particularly cold climates, empty the circuit prior to prolonged system shutdown.

Before start-up the system check the correct drainage of the condensate from the drain pan. If needed give a slight inclination towards the discharge.

It is necessary to use an automatic air vent in the plant and air vent all the fan-coil, using the screw in the main collector of the water coil.

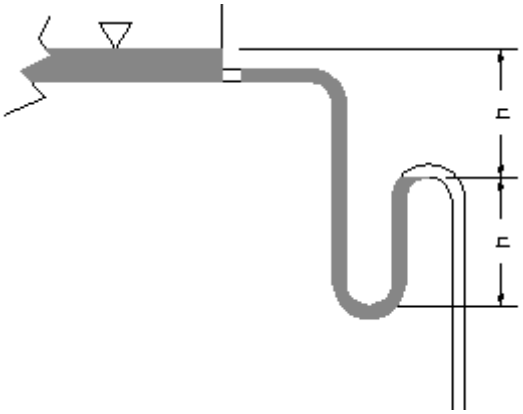
Hydraulic connections pipe

FS	Φ Steel (")	Φ copper (mm)	Φ multilayer pipe (mm)
200	½"	14	16
400	½"	16	18
600	½"	18	20
800	¾"	18	20

Condensate drainage

The condensate tray features a DN 16 mm diameter outlet. The drainage line must follow a downward gradient towards the exterior and must be fitted in such a way that its weight is not supported by the unit's drainage connection.

To prevent the penetration of odours from the outside, we recommend forming a siphon in the line as shown in the figure alongside: h ≥ 30mm.



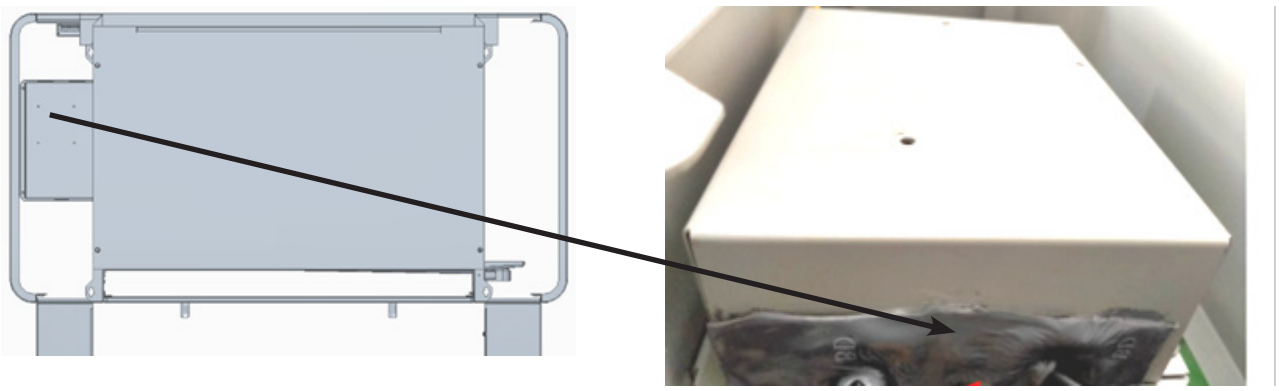
Electrical connections

Before starting any work on the appliance make sure the main electrical power supply line has been disconnected.

Check that the power supply corresponds to the specifications (voltage, number of phases, frequency) shown on the unit.

Preserve the unit with an opportune automatic switch or a switch with fuse.
For all the electrical connections, follow the wiring diagrams inside this manual or the specific ones supplied whit the unit and with the control accessories.

Important note: after making all the wiring connections and repositioning the cover, please to seal all the holes using the soft material supplied with the unit as indicated in the next picture.

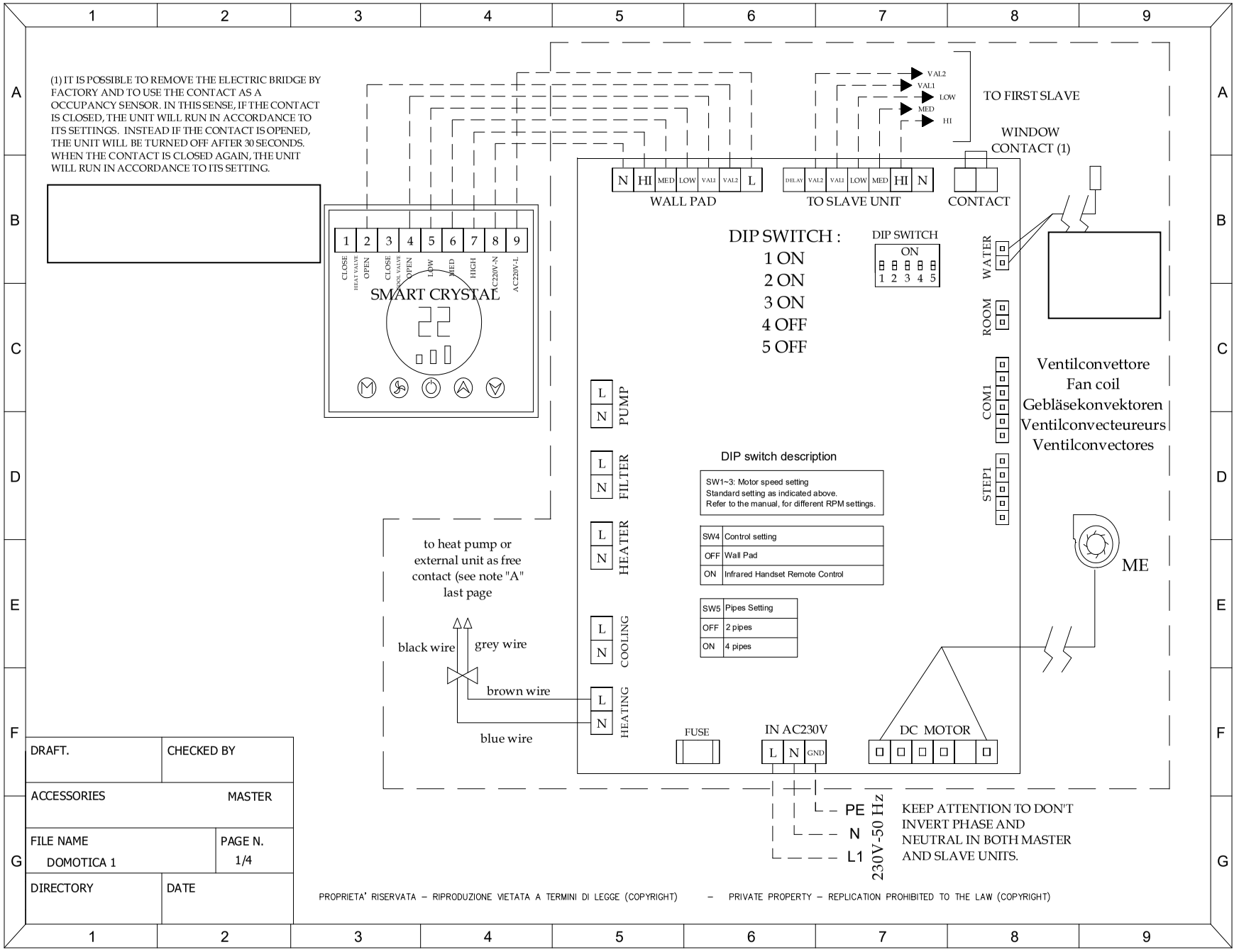


WIRING DIAGRAMS

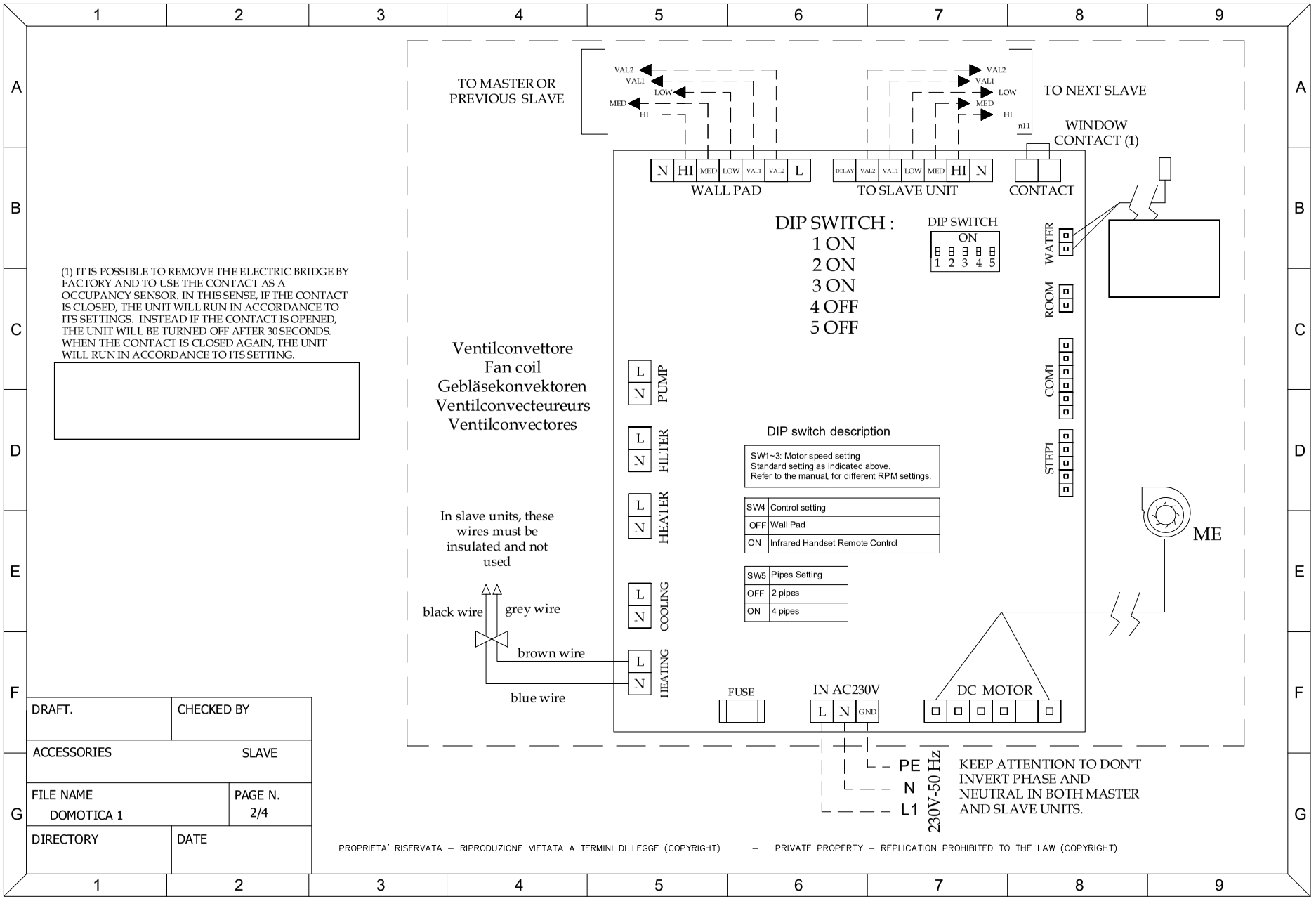
Control

There are two ways to control the unit:

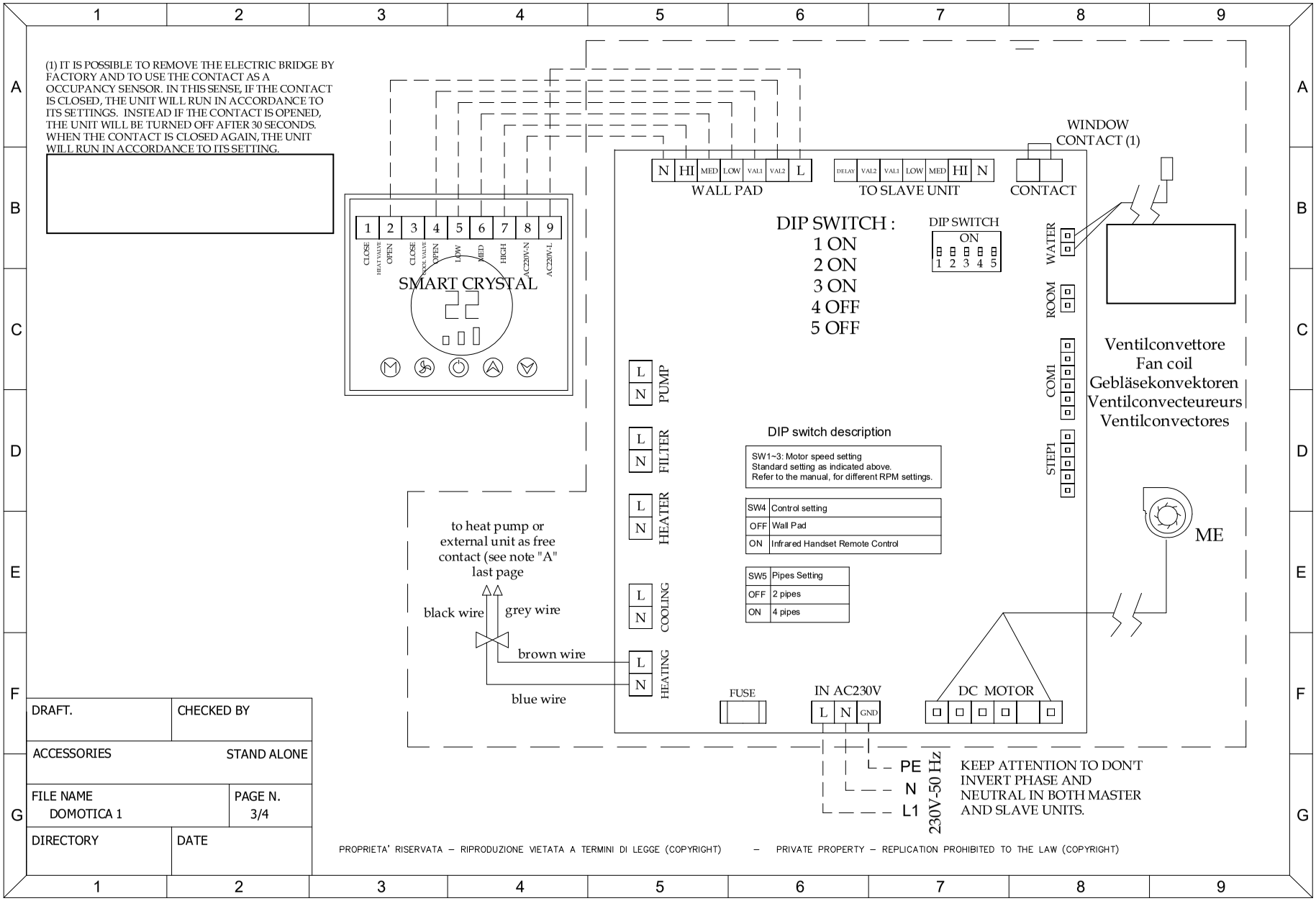
a) Using a remote thermostat to be positioned on the wall, in an opportune place and to about 1.5meter from floor.
b) Using a built-in thermostat.
c) All electric schema indicated in the next section, refer to a 2 pipe system. In case of different configuration, contact the factory.



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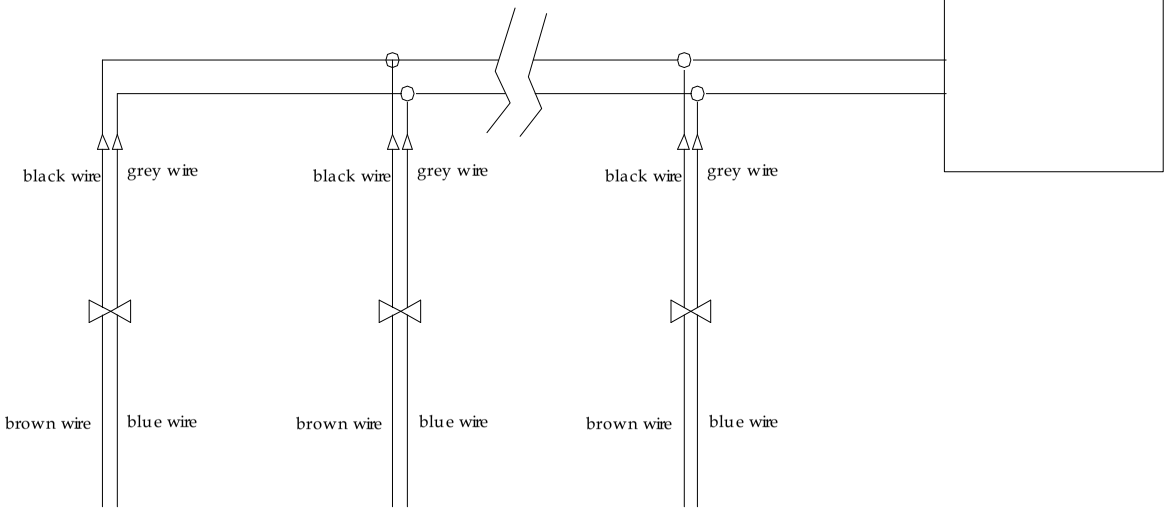


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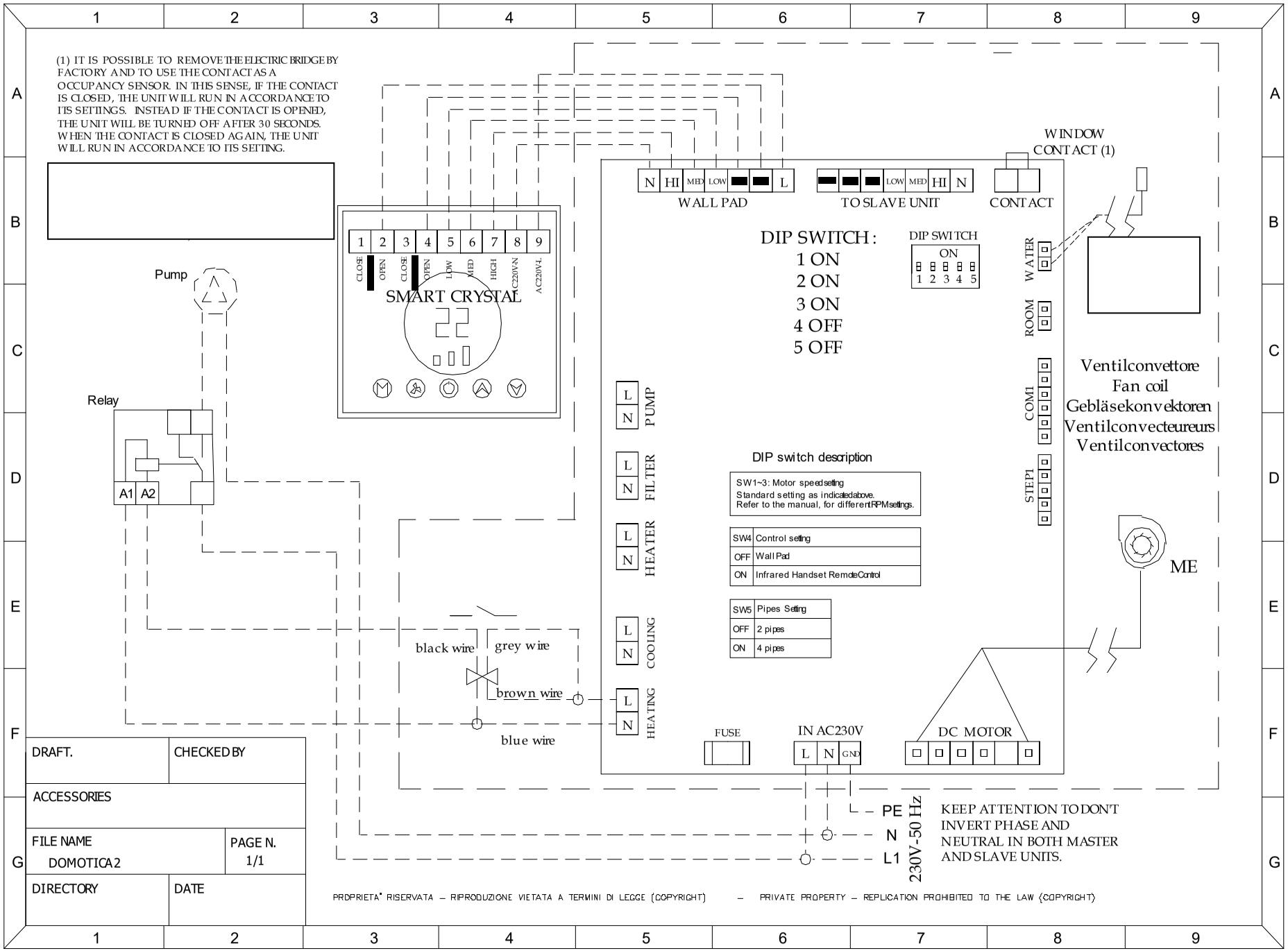
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NOTE "A": ALL THE MICRO ACTUATORS VALVES COMING FROM MASTER OR STAND ALONE UNITS, MUST BE CONNECTED IN PARALLEL AND ONLY TWO WIRES ARE TO BE CONNECTED TO THE EXTERNAL UNIT, IN ACCORDANCE TO FREE CONTACT USING



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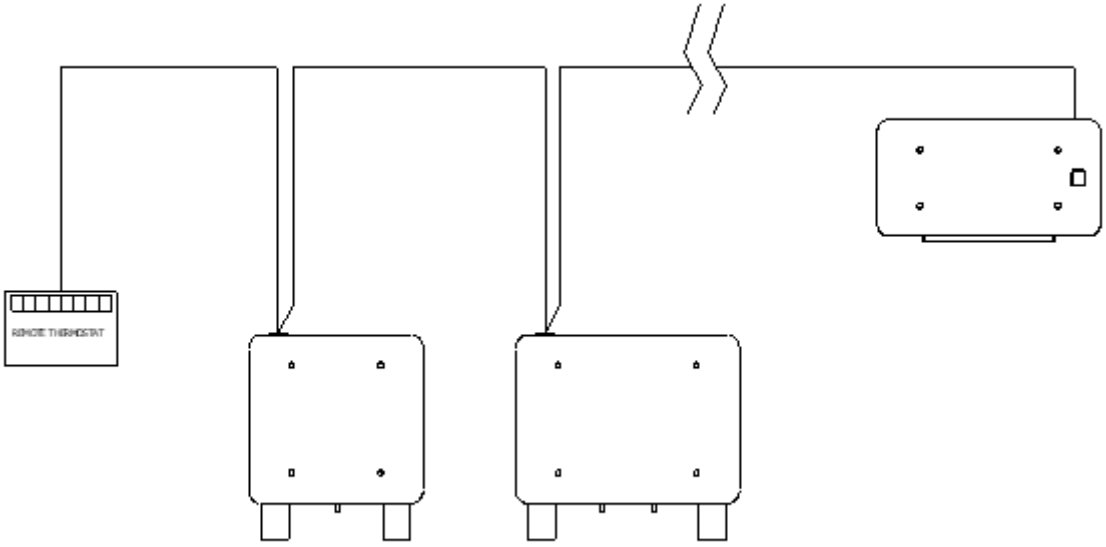
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(1) IT IS POSSIBLE TO REMOVE THE ELECTRIC BRIDGE BY FACTORY AND TO USE THE CONTACT AS A OCCUPANCY SENSOR. IN THIS SENSE, IF THE CONTACT IS CLOSED, THE UNIT WILL RUN IN ACCORDANCE TO ITS SETTINGS. INSTEAD IF THE CONTACT IS OPENED, THE UNIT WILL BE TURNED OFF AFTER 30 SECONDS. WHEN THE CONTACT IS CLOSED AGAIN, THE UNIT WILL RUN IN ACCORDANCE TO ITS SETTING.
WINDOW CONTACT (1)
N HI MED LOW L
WALL PAD
LOW MED HI N
TO SLAVE UNIT
CONTACT
1 2 3 4 5 6 7 8 9
CLOSE OPEN CLOSE OPEN LOW MED HIGH AC220V-N AC220V-L
SMART CRYSTAL
Pump
Relay
A1 A2
DIP SWITCH :
1 ON
2 ON
3 ON
4 OFF
5 OFF
DIP SWITCH
ON
1 2 3 4 5
WATER
ROOM
COM1
STEP1
L N PUMP
L N FILTER
L N HEATER
L N COOLING
L N HEATING
DIP switch description
SW1~3: Motor speed setting
Standard setting as indicated above.
Refer to the manual, for different RPM settings.
SW4 Control setting
OFF Wall Pad
ON Infrared Handset Remote Control
SW5 Pipes Setting
OFF 2 pipes
ON 4 pipes
Ventilconvettore
Fan coil
Gebläsekonvektoren
Ventilconvecteureurs
Ventilconvectores
ME
black wire
grey wire
brown wire
blue wire
FUSE
IN AC230V
L N GND
DC MOTOR
PE
N
L1
230V-50 Hz
KEEP ATTENTION TO DON'T INVERT PHASE AND NEUTRAL IN BOTH MASTER AND SLAVE UNITS.
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Dip switch setting for RPM

DIP Switch B			Fan Speed (RPM)			
1	2	3	Min/Low	Med	Max/ High	
OFF	OFF	OFF	200	400	650	
ON	OFF	OFF	200	500	850	
ON	ON	OFF	400	800	1300	
ON	ON	ON	600	900	1500	Default SET
OFF	ON	ON	600	900	1600	
OFF	OFF	ON	600	900	1800	
OFF	OFF	ON	600	900	1900	
ON	OFF	ON	600	900	2000	

Zone electric drawing



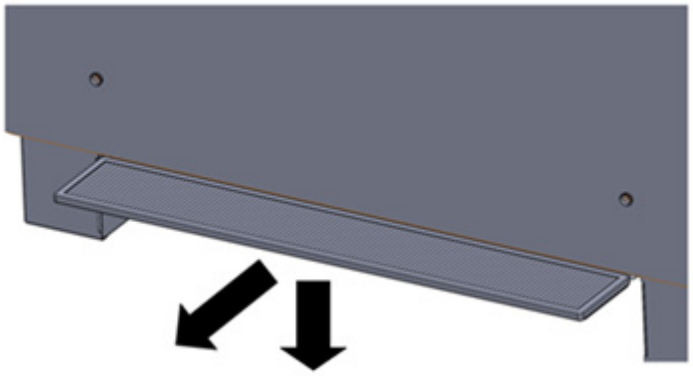
MAINTENANCE & CHECKS

Control

Periodically check that the exchanger coil is clean.

Check the tightness of screws, nuts, hydraulic and electrical connections that could have worked loose due to the effect of vibration induced by operation of the appliance.

If the appliance is to remain idle for prolonged periods, disconnect it from the electrical power supply. Clean periodically the filter for not modifying the unit efficiency and not increasing the unit sound level.



FAULT FINDING

Control

Ensure that the various checks and inspections are performed exclusively by appropriately qualified personnel.

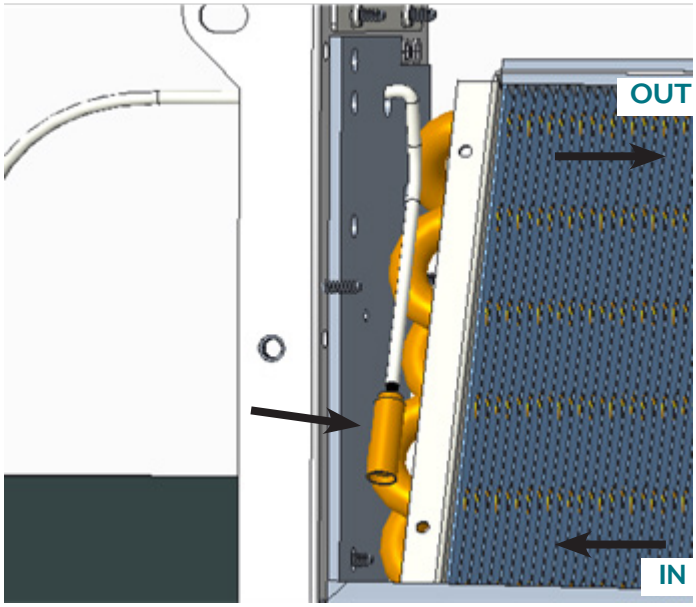
Problem	Probable cause	Solution
The fan does not turn.	Power supply not switched ON	Check that the switches are set to ON
	Thermostat not located in correct operating position	Check the position of the Summer/ Winter button (if present) and the temperature set-point value
	Foreign objects obstructing the fan wheel	Disconnect the electrical power supply and remove obstructions
	Electrical connection terminals have worked loose	Disconnect the electrical supply and tighten the terminals
Significant reduction of performance of the installed units	Fouled filter and/or coil	Clean the filter and/or the coil
	Air pockets in hydraulic circuit	Bleed air from the circuit by means of the dedicated valve
	The ducts or room delivery registers are blocked.	Clean the room delivery registers and check the condition of the duct insulating material
	Water not circulating correctly in the circuit	Check the circulator pump and the valves.

ACCESSORIES INSTRUCTIONS

H2OPR

The water probe is used as minimum and maximum sensor. It must be positioned by the installer in the coil brass cylinder, near the copper pipe in proximity to the Inlet of the same coil. The probe must measure the water temperature sent the external unit. The probe must be connected in the main electronic board as indicated.

All the below pictures are only indicative.





Number	Code	Description
1	R131190156	H2O Probe

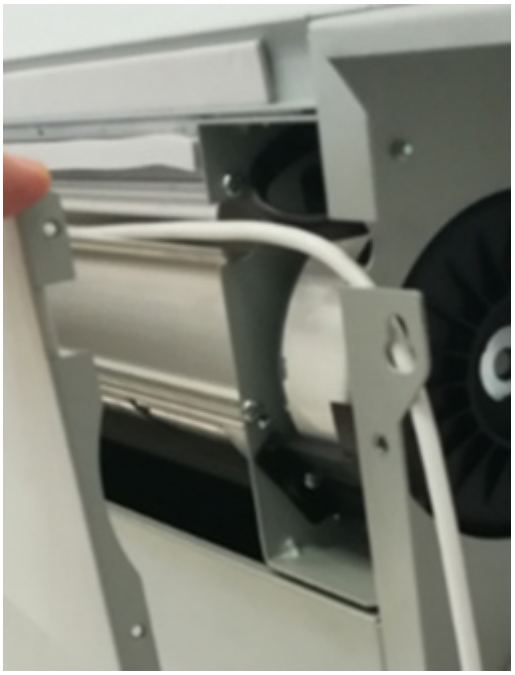
It is possible to use a NTC probe as accessory to be positioned on the coil, in proximity to the inlet of the same coil, to be used as minimum or maximum sensor. In this way, in heating mode, the fan will be turned ON only if the water temperature will be up to 30°C and it will be turned OFF when the same temperature will go below the 25°C. In cooling mode and at the start up, the fan will be always turned ON. It will be turned OFF in case the water temperature will be up to 20°C for more that 30 continuous minutes.

ACCESSORIES INSTRUCTIONS

Note for all the valves

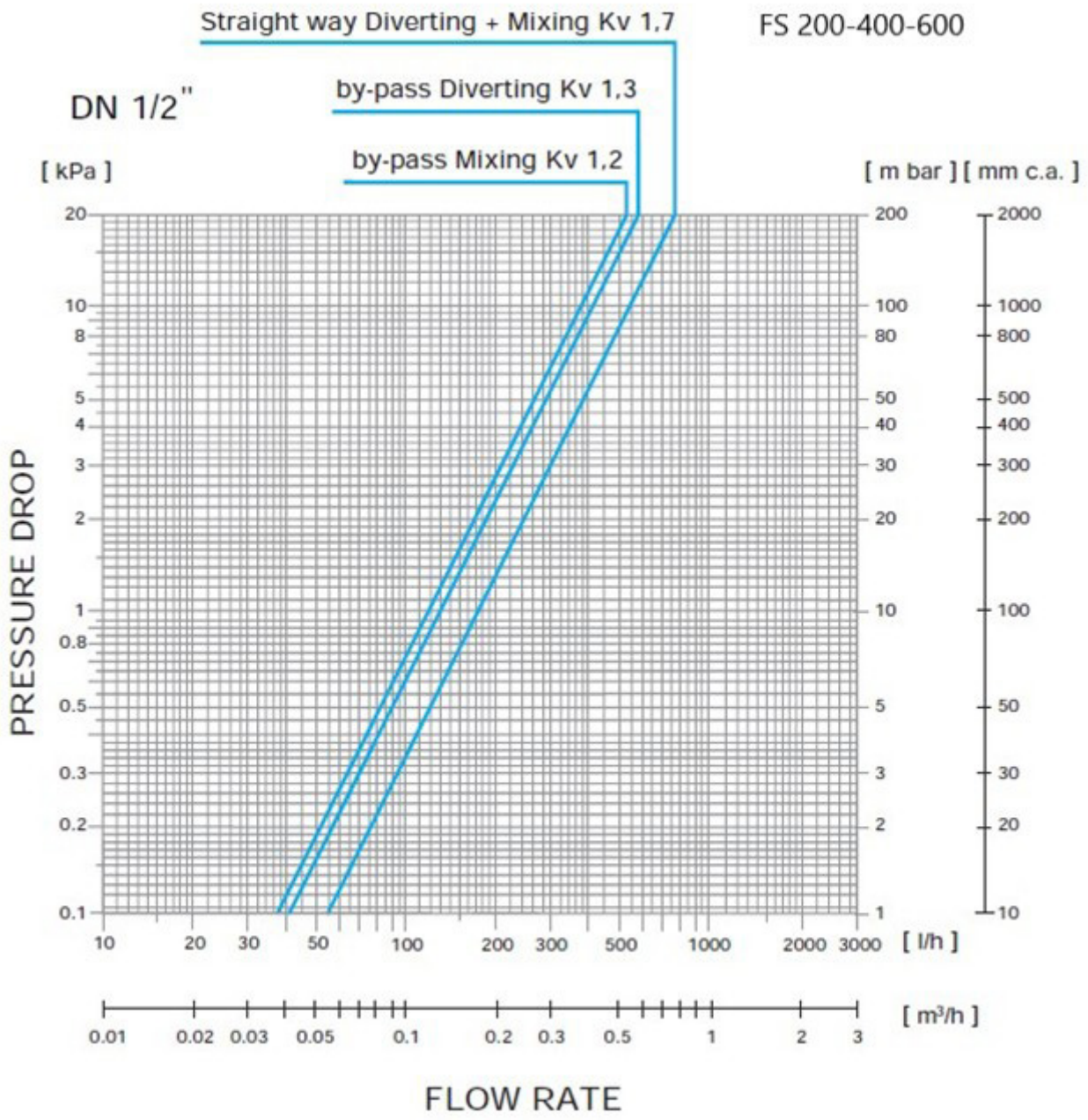
It is recommended to remove the front panel at the fan and to pass the cables of the actuator / s as shown in the photo below.





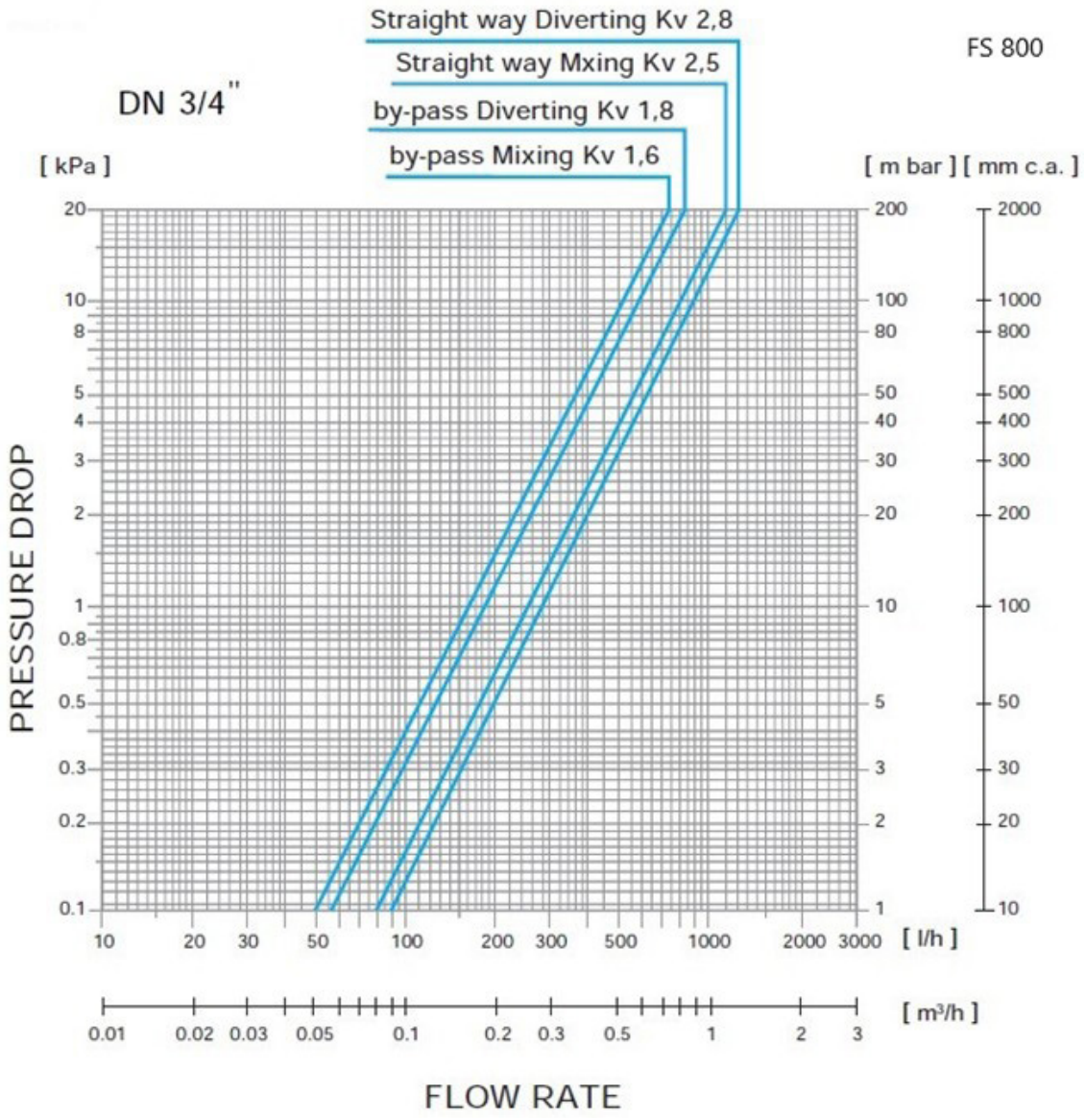
ACCESSORIES INSTRUCTIONS

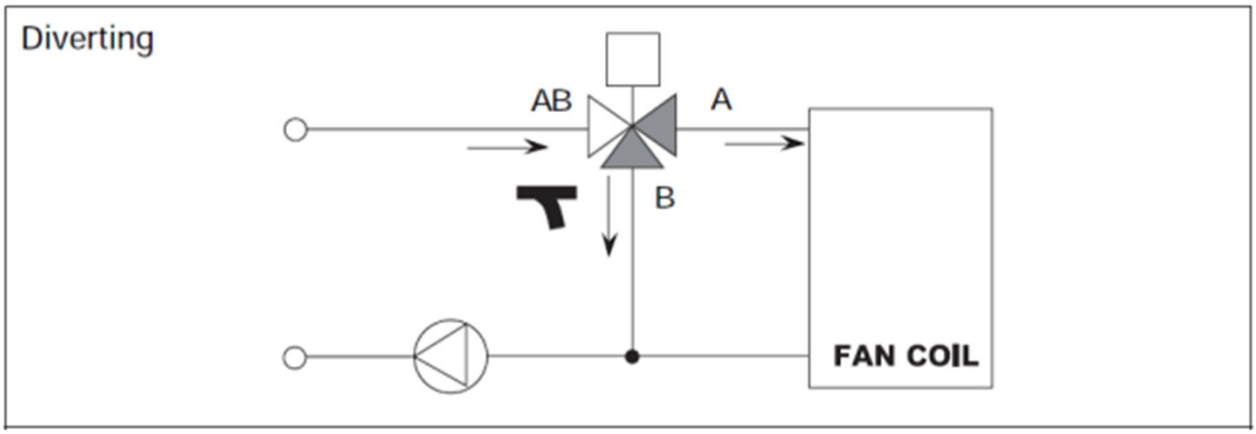
Flow rate/pressure drop charts



ACCESSORIES INSTRUCTIONS

Flow rate/pressure drop charts

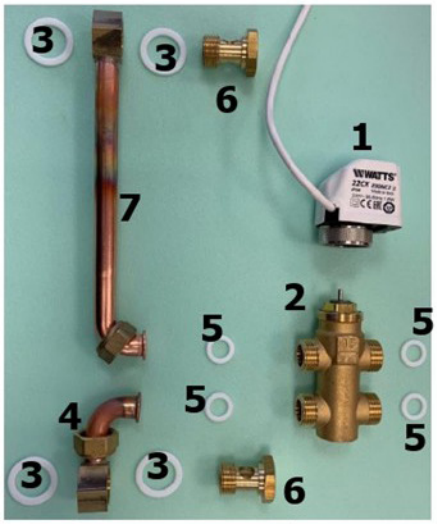


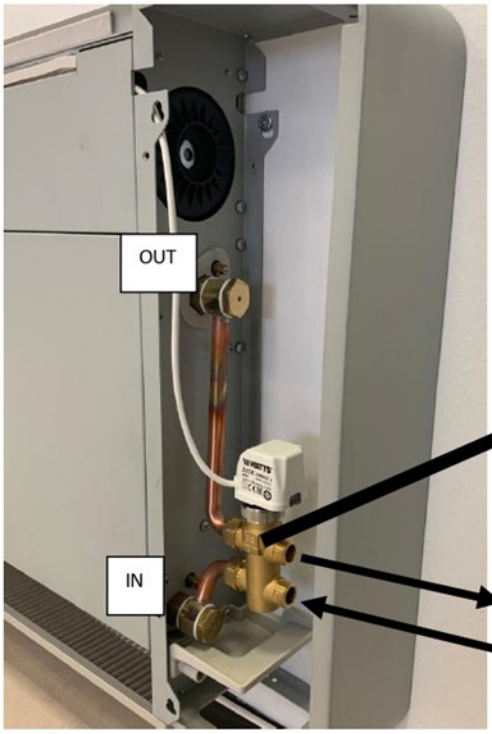


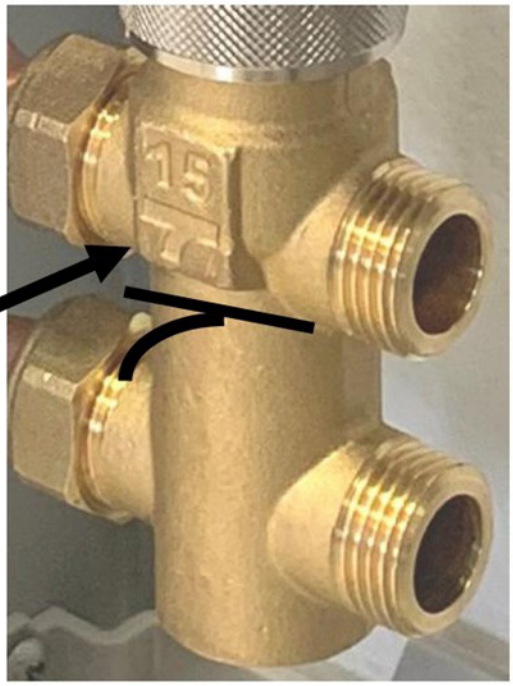
ACCESSORIES INSTRUCTIONS

V23RFSAMK2/6 3 way valve with micro FS200/600

V23RFSAMK2/6 3WAY VALVE WITH MICRO FS200/600





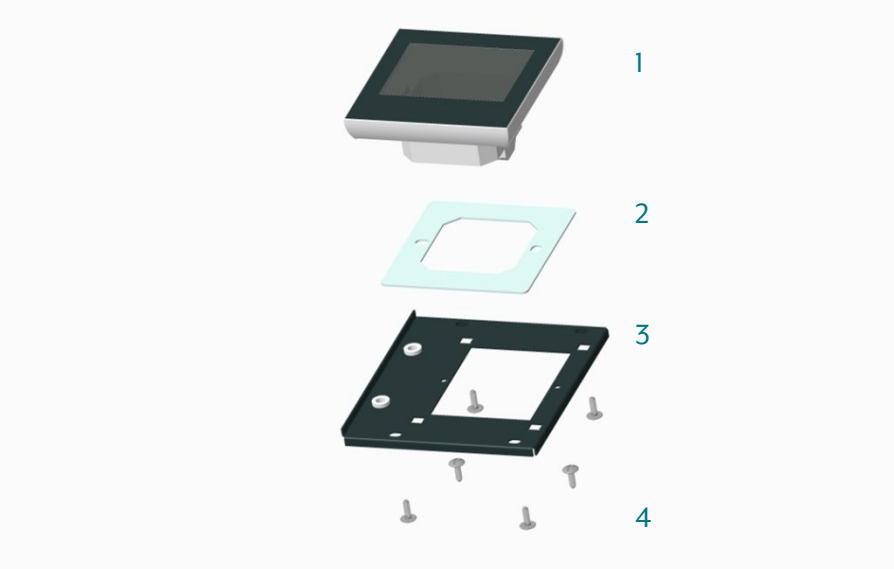


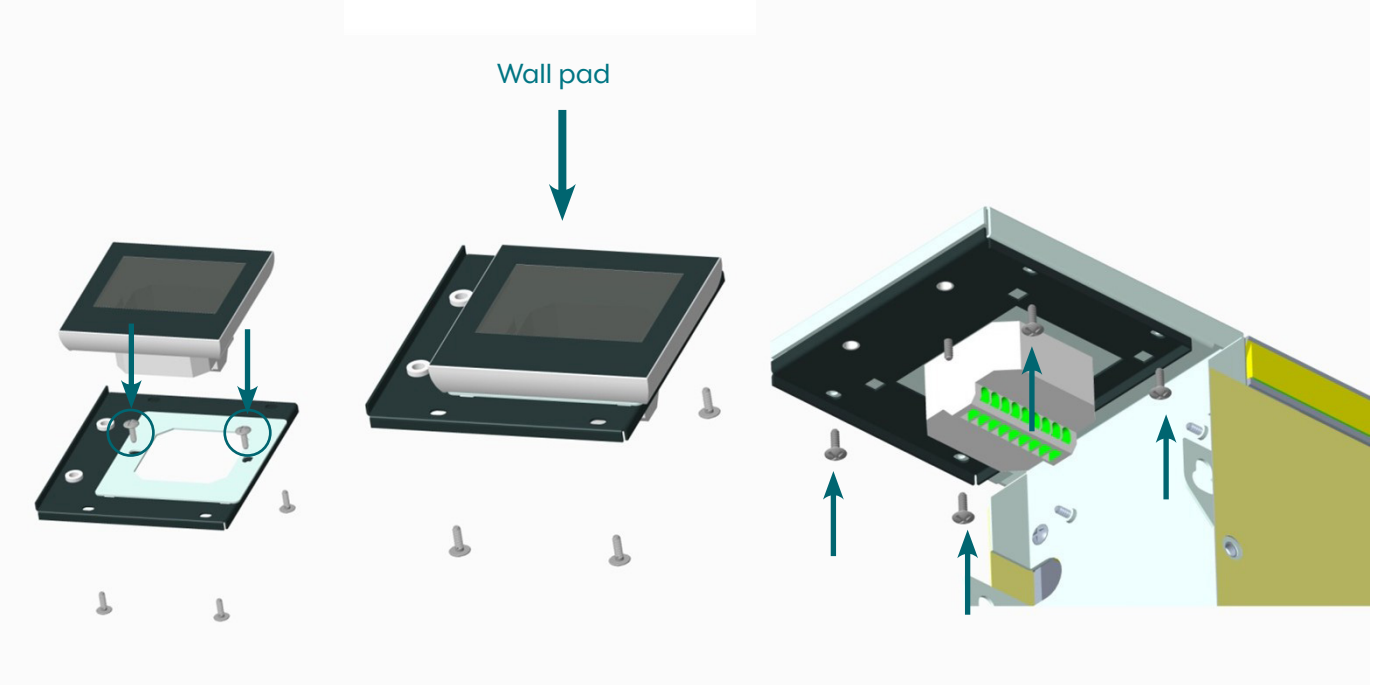
NUMBER	CODE	DESCRIPTION	QTY
1	A450088	ACTUACTOR WITH MICRO	1
2	A450002	1/2" FLAT VALVE BODY	1
3	A450006	FLAT TEFLON GASKET	4
4	A450061	SHORT FLAT PIPE FITTING	1
5	A450058	½" FLAT TEFLON GASKET	4
6	A450005	2-WAY DISTRIBUTOR	2
7	A450094	LONG FLAT PIPE FITTING	1

Check always the water leakage absence before starting up the system or turning on the unit.

ACCESSORIES INSTRUCTIONS

CTOP2WF-BI Wall pad



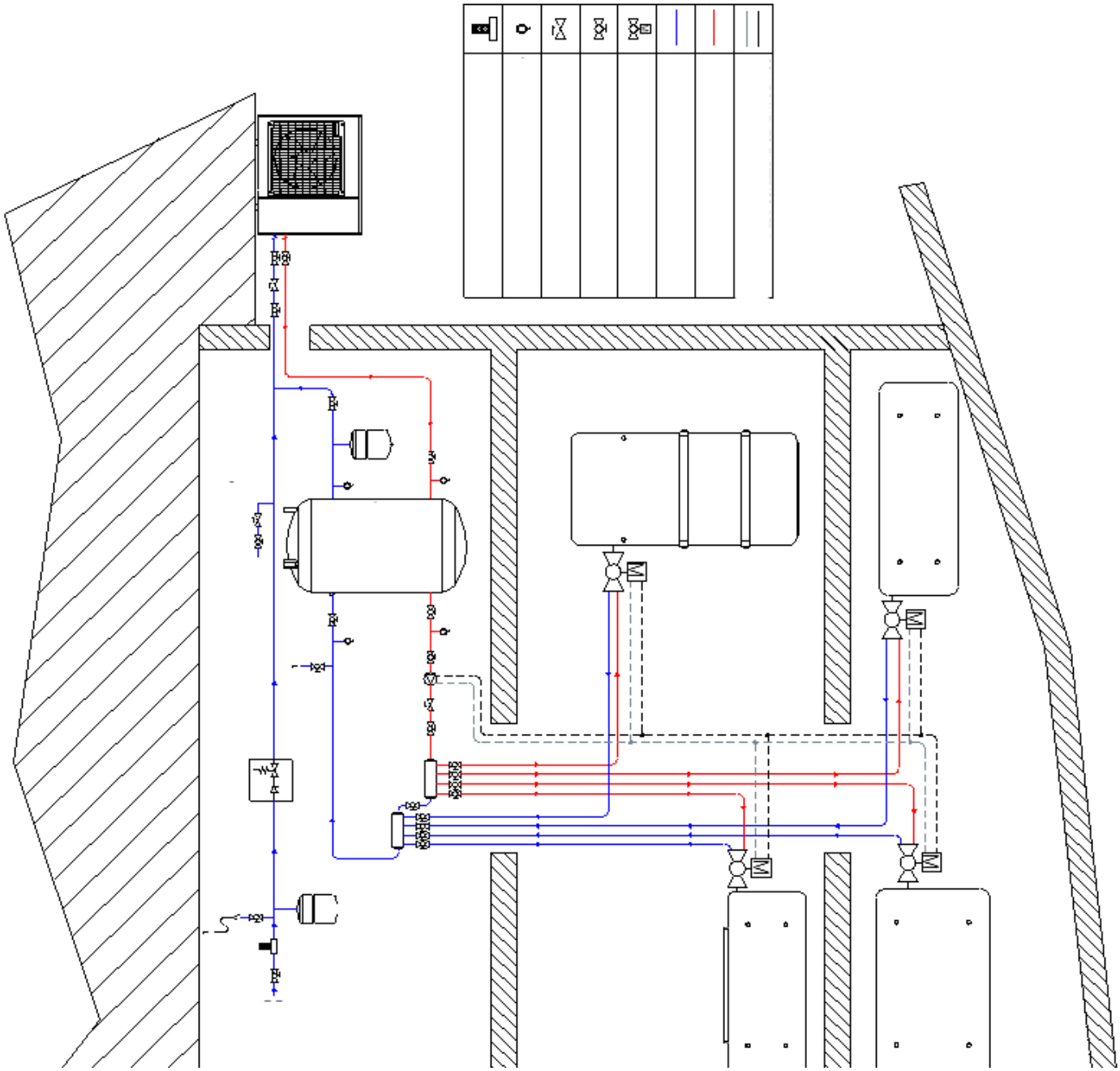


Number	Code	Description
1	A760028	WALL PAD
2		METAL SUPPORT 1
3	R127031170	METAL SUPPORT 2
4	100010280	SCREW M4*10FH

Adjust position on top of wall pad.

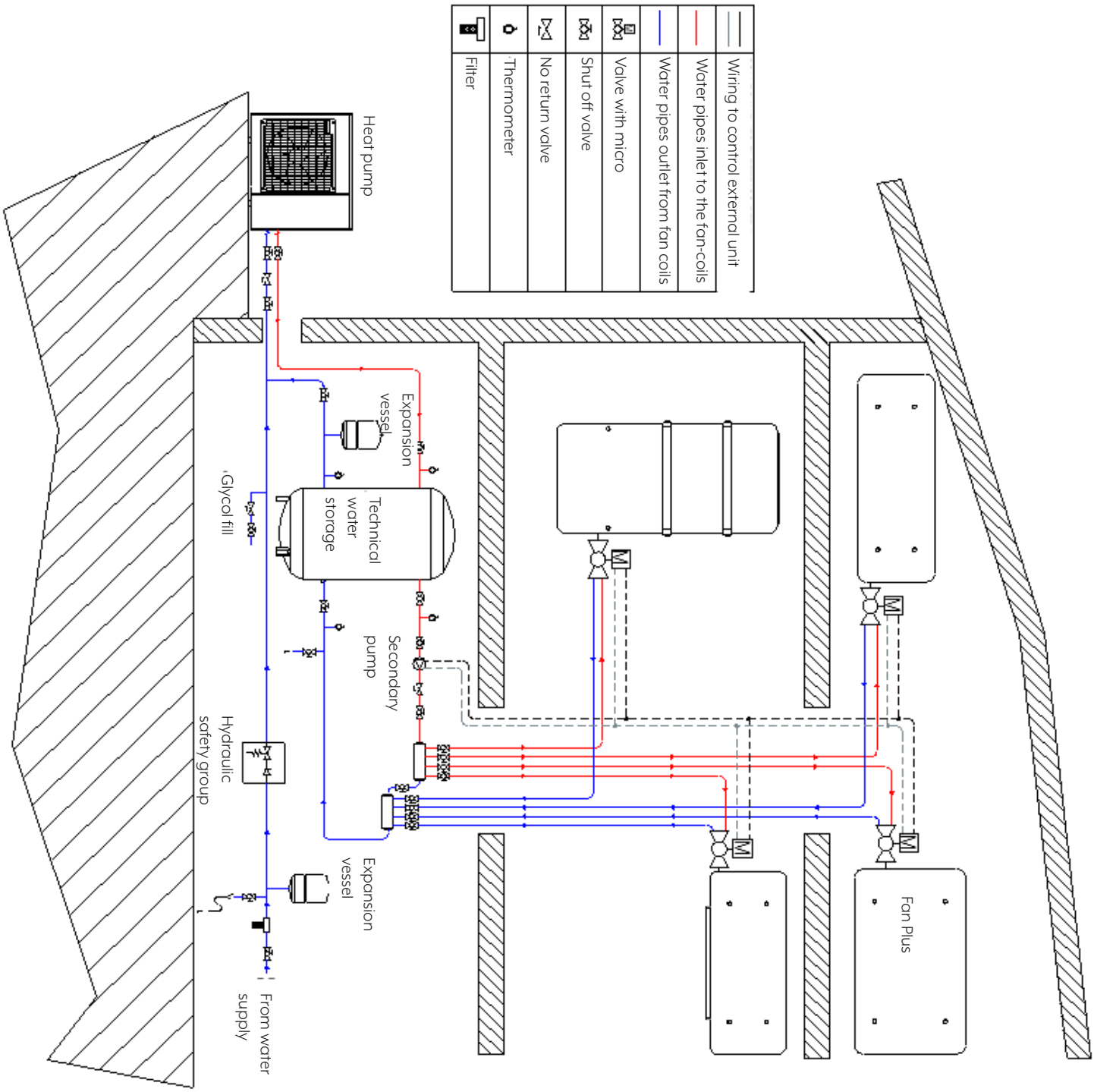
TECHNICAL DRAWINGS

FS400



HYDRAULIC DIAGRAM

Generic



WATER PROBE RESISTANCEE

Value table

NTC sensor table:			R25=5.0K 1%				
Temp° C	Resistance value	Temp° C	Resistance value	Temp° C	Resistance value	Temp° C	Resistance value
-1	14.8903	27	4.6300	55	1.7216	83	0.733
0	14.2293	28	4.4569	56	1.6663	84	0.713
1	13.6017	29	4.2912	57	1.6131	85	0.693
2	13.0055	30	4.1327	58	1.5618	86	0.674
3	12.4391	31	3.9808	59	1.5123	87	0.655
4	11.9008	32	3.8354	60	1.4647	88	0.638
5	11.3890	33	3.6961	61	1.4188	89	0.620
6	10.9023	34	3.5626	62	1.3746	90	0.604
7	10.4393	35	3.4346	63	1.3319	91	0.587
8	9.9987	36	3.3120	64	1.2908	92	0.572
9	9.5794	37	3.1943	65	1.2511	93	0.556
10	9.1801	38	3.0815	66	1.2128	94	0.542
11	8.7999	39	2.9733	67	1.174	95	0.527
12	8.4377	40	2.8694	68	1.139	96	0.514
13	8.0925	41	2.7697	69	1.105	97	0.500
14	7.7635	42	2.6740	70	1.072	98	0.487
15	7.4498	43	2.5821	71	1.040	99	0.475
16	7.1506	44	2.4939	72	1.009	100	0.462
17	6.8652	45	2.4091	73	0.980	-2	15.5800
18	6.5928	46	2.3276	74	0.951	-3	16.3200
19	6.3328	47	2.2493	75	0.923	-4	17.0000
20	6.0846	48	2.1740	76	0.897	-5	17.9030
21	5.8475	49	2.1017	77	0.871	-6	18.7603
22	5.6210	50	2.0320	78	0.846	-7	19.6703
23	5.4046	51	1.9651	79	0.822	-8	20.6300
24	5.1978	52	1.9007	80	0.798	-9	21.6403
25	5.0000	53	1.8387	81	0.776	-10	22.7103
26	4.8109	54	1.7790	82	0.754	-11	23.7103