Aertesi airpower

BREZZA BIG

SERIES

TECHNICAL MANUAL

NEW
WATER
CASSETTE

INDEX

1-INTRODUCTION

The new Water Cassette Series BREZZA units are designed for air conditioning in residential and commercial plants. The installation is indoor, not exposed to ice or extreme temperatures, in dust-free and not explosive environments. The manufacturer declines any responsibility in case of incorrect use.

The series BREZZA is proposed with traditional three speeds AC motors, and with low consumption EC motors. The table below shows the electric power saving that can be achieved with EC motors (at constant working point of the machine).

2- WORKING CONDITION LIMITS

Electrical power supply	220 ÷ 240V / 50Hz
Inlet coil water temperature	5÷ 70°C
Return air temperature	12÷ 35°C
RH air in take	15 ÷ 70%

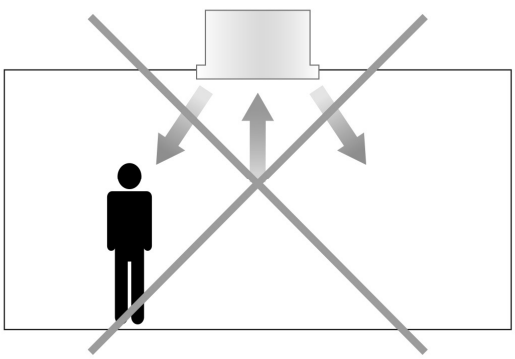
It is advisable for the Brezza Cassette to work at the above mentioned extremes operation limits ONLY for short periods. Operation at such limit conditions for prolonged periods can reduce the normal life of the components.

N.B. EC motor regulation speed set.

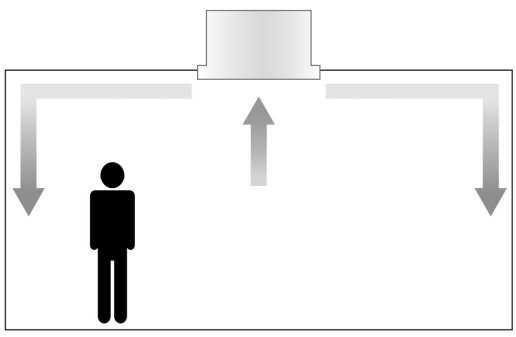
We suggest to operate the EC motor version using a minimum 2V (or more) voltage signal in presence of electrical noise from external devices (magnetic field, microwave, flickers, etc.), in order to avoid any possible interference in the set.

3-COANDA EFFECT

The new cassette Series BREZZA has been developed to ensure high comfort. In fact, the particular shape of the panel as per the COANDA effect, avoids the annoying cold drafts (a common problem with fan-coil cassette). COANDA effect is the tendency of a fluid jet to follow the contour of a nearby surface. This way the air flow follows the ceiling, then flows down near the wall. Since at this point the air flows at very low speed, this does not create uncomfortable air streams.

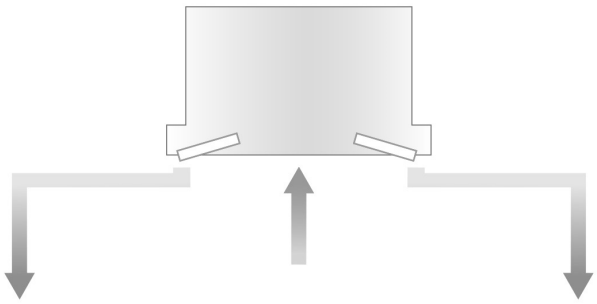


Traditional Cassette

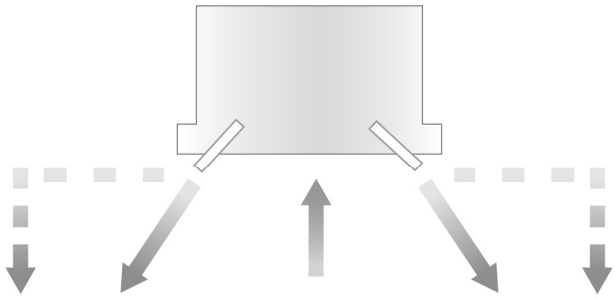


Cassette with Coanda effect

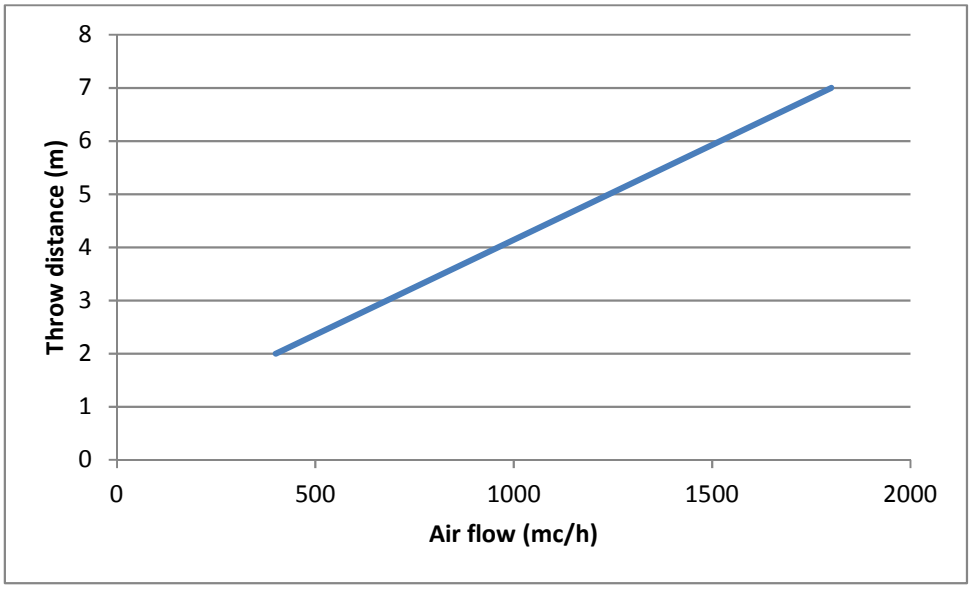
Where the ceiling height is over 3m, and therefore there is the need to channel down the air flow, Aertesi provides an accessory panel with adjustable flaps. This way you can manually set, for each of the four turns, the orientation of the flow: horizontal (with Coanda effect), or in vertical position.



Flaps on horizontal position (Coanda)



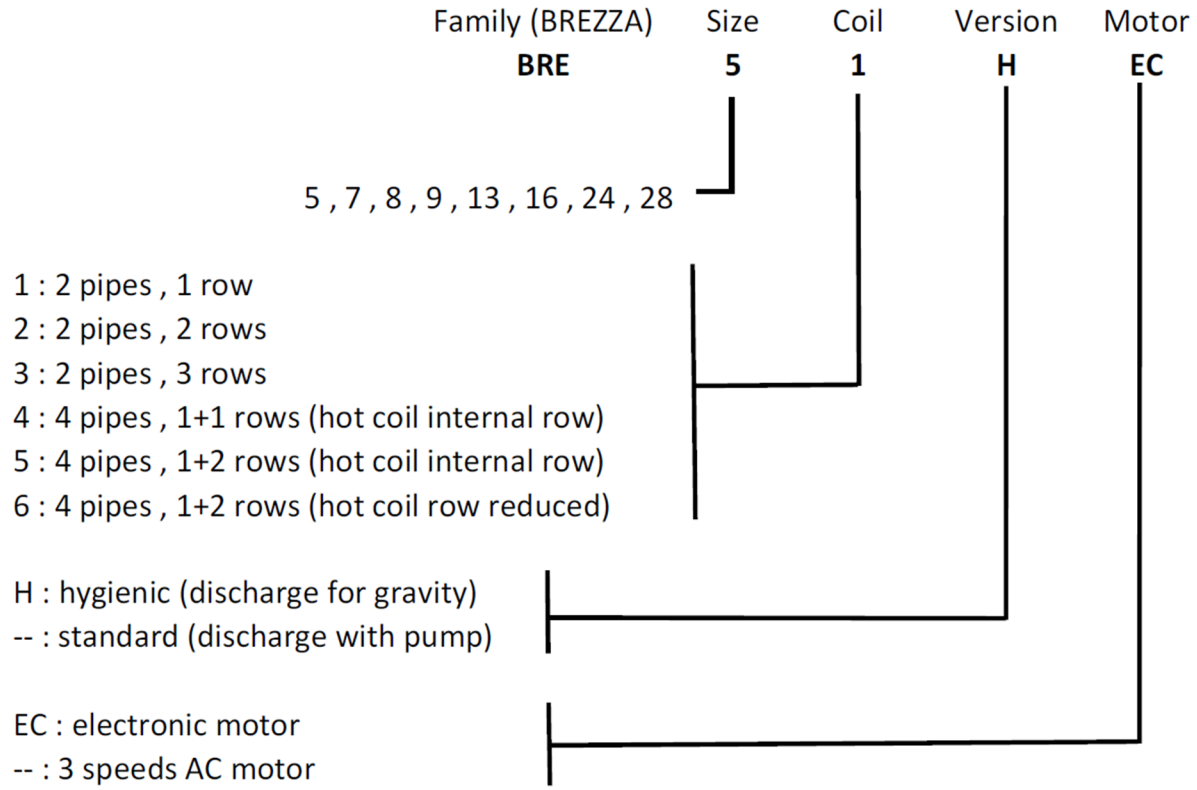
Flaps on vertical position



CAUTION: the difference of temperature between outlet air and room air may affect the throw distance.

4-READING CODES KEY

The standard version is with 3-row coil (for 2 pipe versions) or 1 + 2 ranks (for 4 pipe versions), with fixed blades in Coanda position. All other versions are optional.



5-TECHNICAL DETAILS

STRUCTURE: made in galvanized steel sheet, thickness 1.00mm. The robust design prevents vibration and includes mounting brackets to the ceiling.

FRONT PANEL: realized in sheet metal plate thickness 0.8mm in white color RAL 9003; it is available in two alternative solutions:
MPK-C (only stationary deflectors for Coanda air flow) and MPK-D (with manually adjustable deflectors to have both Coanda effect or vertical airflow).
The innovative design of the panel fits perfectly into any environment and type of ceiling.

ACCESSIBILITY: the filter can be removed without need of any tools. Internal components (fan and condensate pump) are easily accessible by removing the front panel. Water connections, valves and electrical panel are located on the same side, thus needing only one inspection hatch in the ceiling.

FILTER: Class G1 (EN779), 6 mm thickness, made in polypropylene mesh.

FAN GROUP: The fan is made of reinforced plastic material, dynamically balanced; it mounts backward curved blades, directly coupled to the motor. The motor and the fans are balanced after assembly to ensure the absence of vibrations. Motor is mounted on anti-vibrating rubbers to reduce at minimum the noise reverberation.

The three-speed AC motor comes with incorporated thermal protection.

The EC motor 0-10V comes with electronic control, thermal motor and electronics protection, locked rotor protection.

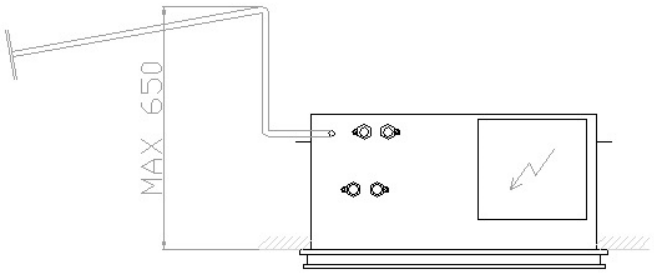
COIL: made with copper pipe diameter 3/8 "and high efficiency corrugated aluminum fins, with manual air vent valve at the top. Nominal pressure PN10.

WATER TANK: blower housing made of expanded polystyrene (EPP) with condensation tank in molded plastic, which ensures no water leakage even after long use. The shape of the tank facilitates the outflow and ensures minimum stagnation of water.

INSULATION: cassette body insulated with cross-linked polyethylene foam 10 mm thick, class B-BL-s2d0 s1d0, in compliance with EN13501-1. Front panel insulated with polyethylene, thickness 3mm.

ELECTRICAL BOARD: case in galvanized steel plate, positioned on the same side of the water connections.

CONDENSATE DRAIN PUMP: centrifugal type, includes a double level float switch (on-off pump and alarm) and check valve (to avoid the return of odors from the exhaust and reduce noise at power-on). The maximum head of the pump is 650mm, measured from the edge of the panel.



6-TECHNICAL DATA (AC motors)

6.1-Cassette with 3 rows coil

		2 TUBI						4 TUBI					
		243			283			246			286		
Speed(E)		min	med	max	min	med	max	min	med	max	min	med	max
Airflow	mc/h	505	940	1380	640	1175	1660	505	940	1380	640	1175	1660
COOLING – Air 27°C d.b. , 19°C w.b..–inlet water temperature 7°C , output water temperature 12°C													
Total capacity(E)	kW	3,92	6,61	9,04	4,74	7,97	10,42	3,80	6,37	8,54	4,66	7,56	9,79
Sens. capacity(E)	kW	2,74	4,63	6,24	3,38	5,51	7,18	2,65	4,34	5,78	3,21	5,14	6,61
Water flow	l/h	673	1134	1552	813	1367	1788	652	1093	1465	800	1297	1680
Δp water(E)	kPa	4,9	12,5	22,0	6,9	17,5	28,3	6,7	16,9	28,7	9,7	23,0	36,7
HEATING – Air 20°C –inlet water temperature 50°C ,same for cooling flow													
Capacity(E)	kW	4,56	7,77	10,61	5,60	9,33	12,28	-	-	-	-	-	-
Water flow	l/h	673	1134	1552	813	1367	1788	-	-	-	-	-	-
Δp water(E)	kPa	4,1	10,4	18,2	5,6	14,4	23,5	-	-	-	-	-	-
HEATING – Air 20°C - inlet water temperature 70°C , output water temperature 60°C													
Capacity(E)	kW	-	-	-	-	-	-	4,19	6,28	7,97	4,90	7,24	8,83
Water flow	l/h	-	-	-	-	-	-	368	552	700	430	636	776
Δp water(E)	kPa	-	-	-	-	-	-	3,1	6,6	10,2	4,2	8,5	12,3
ELECTRIC MOTOR POWER INPUT													
Consumption(E)	W	35	78	120	39	87	131	35	78	120	39	87	131
Maxabsorption	A	0,70			0,70			0,70			0,70		
NOISE DATA													
Sound power(E)	dB(A)	27	42	52	32	48	57	27	42	52	32	48	57
Sound pressure	dB(A)	18	33	43	23	39	48	18	33	43	23	39	48

(E)= EUROVENT certified data (Heating application ratings as in NS1 working condition)

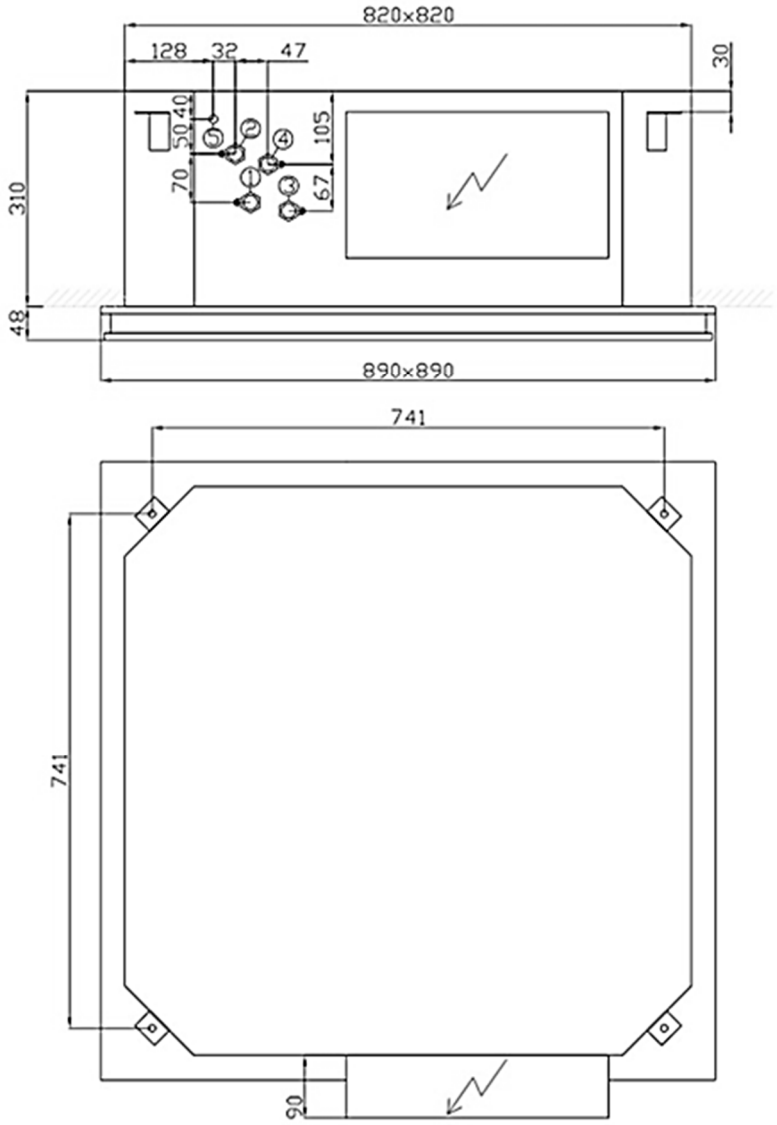
7- TECHNICAL DATA (EC motors)

7.1- Cassette with 3 rows coil

		2 TUBI			4 TUBI		
		283			286		
Speed(E)		1V	4V	9V	1V	4V	9V
Airflow	mc/h	630	1040	1700	630	1040	1700
COOLING – Air 27°C d.b. , 19°C w.b..–inlet water temperature 7°C , output water temperature 12°C							
Total capacity(E)	kW	4,67	7,19	10,60	4,59	6,92	9,96
Sens. capacity(E)	kW	3,33	5,01	7,29	3,17	4,68	6,70
Water flow	l/h	802	1234	1818	787	1187	1709
Δp water(E)	kPa	6,7	14,6	29,3	9,4	19,6	37,8
HEATING – Air 20°C –inlet water temperature 50°C ,same for cooling flow							
Capacity(E)	kW	5,52	8,44	12,50	-	-	-
Water flow	l/h	802	1234	1818	-	-	-
Δp water(E)	kPa	5,5	12,0	24,4	-	-	-
HEATING – Air 20°C - inlet water temperature 70°C , output water temperature 60°C							
Capacity(E)	kW	-	-	-	4,90	6,75	9,04
Water flow	l/h	-	-	-	430	593	794
Δp water(E)	kPa	-	-	-	4,2	7,6	12,9
ELECTRIC MOTOR POWER INPUT							
Consumption(E)	W	10	27	104	10	27	104
Maxabsorption	A	1,00			1,00		
NOISE DATA							
Sound power(E)	dB(A)	31	44	57	31	44	57
Sound pressure	dB(A)	22	35	48	22	35	48
SOUND DATA							
FCEER		289 (A)			281 (A)		
FCCOP		348 (A)			294 (A)		

(E)= EUROVENT certified data (Heating application ratings as in NS1 working condition)

8- DIMENSIONS & WEIGHTS



1	Auxiliary coil IN	1/2"
2	Auxiliary coil OUT	1/2"
3	Main coil IN	3/4"
4	Main coil OUT	3/4"
5	Drain pipe	d.12

		243-283	**246-286**
Unit gross Weight	**kg**	50	50
Internal volume main coil	**liters**	4,0	3,6
Internal volume auxiliary coil	**liters**	-	1,1

9-ACCESSORIES

Available accessories:

	HYDRAULIC ACCESSORIES	A/K/C
V22	2-way valve ON-OFF 230V	A/K
V42	2-way valve ON-OFF for 4 pipe	A/K
V23	3-way valve ON-OFF 230V	A/K
V43	3-way valve ON-OFF 230V for 4 pipe	A/K
V22M	2-way Valve modulating 0-10V	A/K
V42M	2-way Valve modulating 0-10V for 4 pipe	A/K
V23M	3 way valve modulating 0-10V	A/K
V43M	3 way valve modulating 0-10V for 4 pipe	A/K
ADPB	Auxiliary water tank (supplied as standard)	K
PSCC-BI	Auxiliary Condensate drain pump	A
	ELETTRICALACCESSORIES	
TR24	Transformer 230Vac-24VAC, 20VA for modulating valve	A
SC3	3-speed motor control board (for EC motor)	A
	AERAULIC ACCESSORIES	
FLMA	Flange for discharge air duct	B
FLAE	Flange for fresh air intake	B
MECO	Metal cover for exposed installation	K
	OPTIONAL FILTERS	
FA/SAN	Filter with Sanitized treatment	A
FA/H	High efficiency filter PF-ePM10 65% (only for hygienic version H)	K

A / K / C:

A = accessory supplied already mounted on the base;

K = accessory kit supplied unassembled;

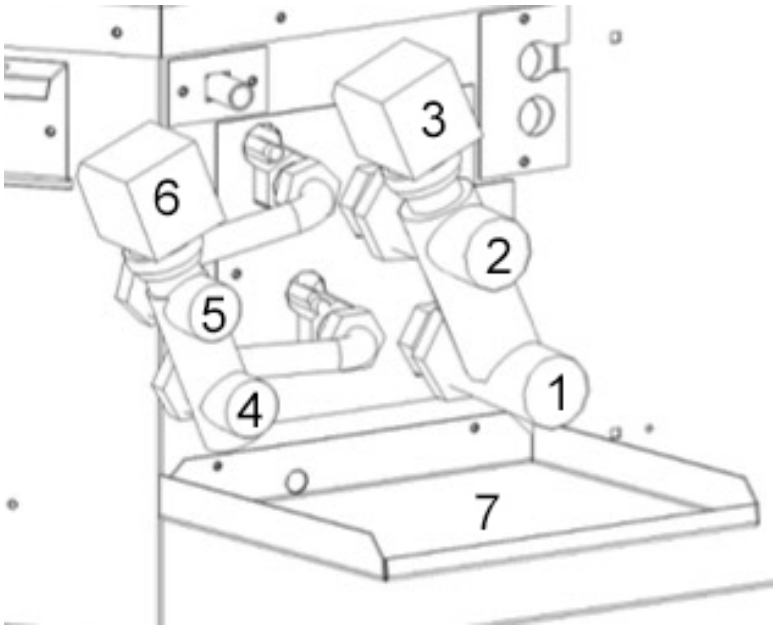
B = accessory supplied assembled, but not mounted on the base

9.1- Valves (V) and auxiliary tank (ADPB)

We recommend the use of servo-controlled valves, to prevent the formation of condensation on the surface of the unit when the fan is stopped.

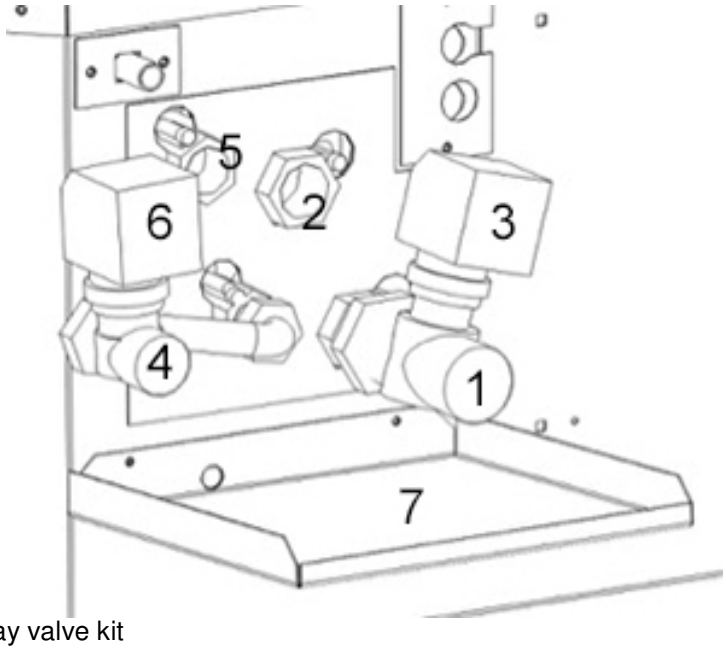
The valves can be supplied assembled on the unit or in kit (disassembled parts). The drain tank is supplied with the cassette as standard, with no additional costs (ADPB).

1. Input for 2 pipes system or cold coil (4 pipe system)
2. Output for 2 pipes system or cold coil (4 pipe system)
3. Hot/Cold valve kit (2 pipes) / Cold valve kit (4 pipes)
4. Input for hot coil (4 pipe system only)
5. Output for hot coil (4 pipe system only)
6. Hot valve kit (4 pipes system only)
7. Auxiliary drain tank



3-way valve kit

1. Input for 2 pipes system or cold coil (4 pipe system)
2. Output for 2 pipes system or cold coil (4 pipe system)
3. Hot/Cold valve kit (2 pipes) / Cold valve kit (4 pipes system)
4. Input for hot coil (4 pipe system only)
5. Output for hot coil (4 pipe system only)
6. Hot valve (4 pipe system only)
7. Auxiliary drain tank



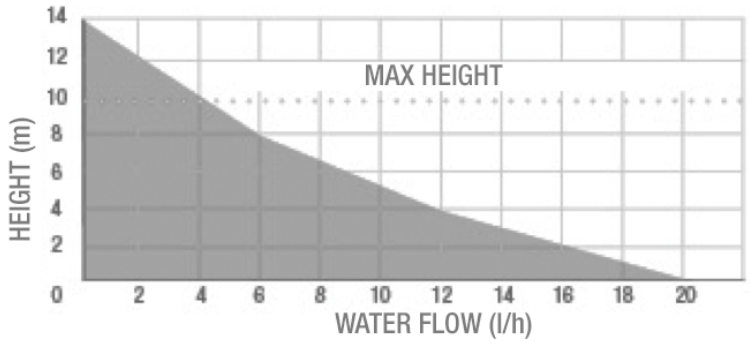
2-way valve kit

VALVES FOR MAIN COILS	**----**	**243-246-283-286**
VALVES FOR AUXILIARY COILS	**246-286**	**----**
GENERAL FEATURES		
Size connections	3/4"	1"
Kv (2-way valve)	2,5	4,5
Kv (3-way valve, straight way)	2,5	4,5
Kv (3-way valve, by-pass)	1,6	3,1
Max differential pressure	1,0bar	0,7bar
Nominal pressure	16bar	
Water temperature	4-110°C	
ON-OFF ACTUATOR		
Power supply	230V-50Hz (24V-50Hz on demand)	
Power consumption	2,5W	
Running time	180s	
Feature (valve + actuator) N.C.	N.C. (Usually closed)	
protection	IP44	
MODULAT ACTUATOR		
Electrical supply	24V-50Hz	
Power consumption 1.5W	1.5W	
Travel time	8S	
Control signal	0-10V	
Impedance control signal	100k	
Protection	IP43	

9.2- Condensate Auxiliary drain pump (PSCC-BI)

The condensate drain pump voltage is supplied assembled to the side of the box, at the side of the exhaust pipe. Inspection space on this side must be provided as well.

Maximum water flow	20 l/h
Maximum discharge height	10m (4l/h)
Sound pressure 1m	28dB(A)
supply	230V – 50/60Hz
Micro switch alarm	NC 8A resistive 250V
Thermal Protection	90°C (auto reset)
Protection	IP54

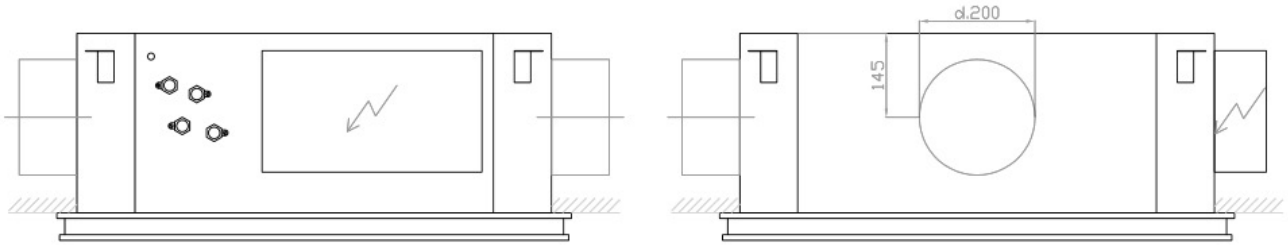


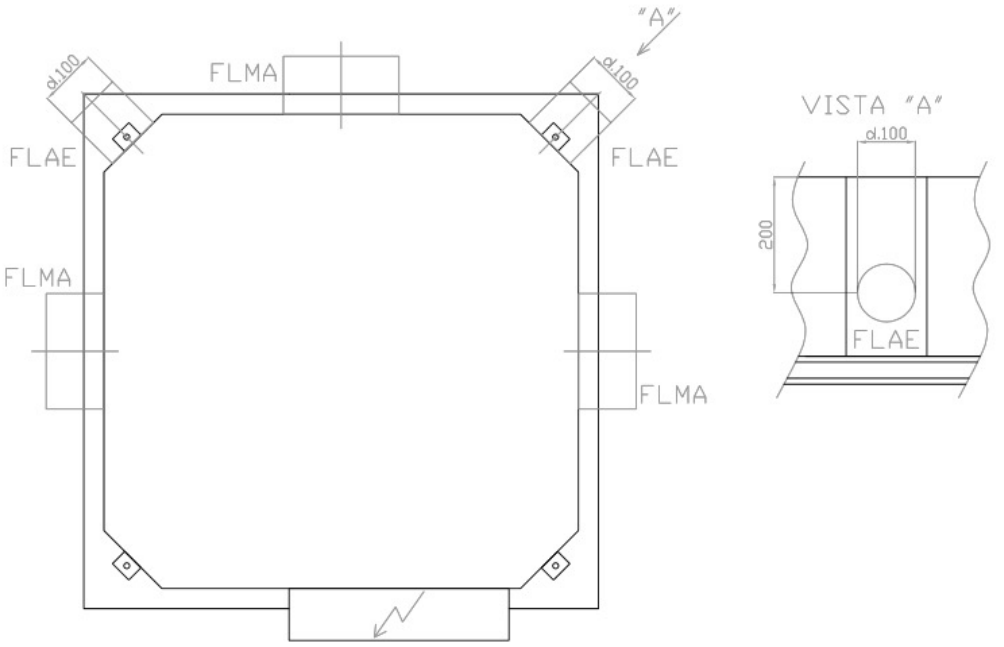
9.3-Flange for air delivery duct (FLMA)

You can connect up to 3 delivery ducted through D.200 collars. The available head is a function of the number of collars connected and the air flow rate. The position of each collar is represented in the figure below.

9.4-Flange for external air intake (FLAE).

It is possible to connect an external air intake via a D.100 collar. The maximum flow of outside air is 100m3 / h. The outside air must be treated, filtered and it must not be at a low temperature.



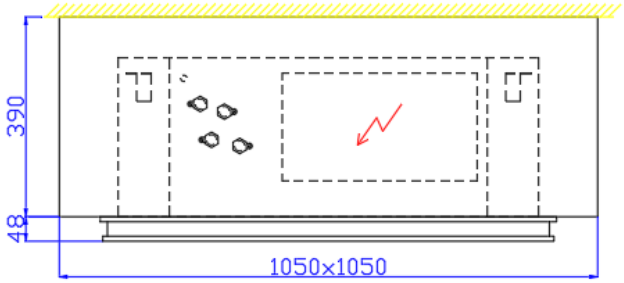


9.5-Metal cover for exposed installation (MECO)

The MECO accessory allows an exposed cassette to be installed when there is no false ceiling or when the existing false ceiling height is insufficient to contain it. It is made of painted sheet metal and its installation is harmonized with the cassette and its panel. The cover is easily removable on the electrical and hydraulic connection side, to allow maintenance on electric box and valves.

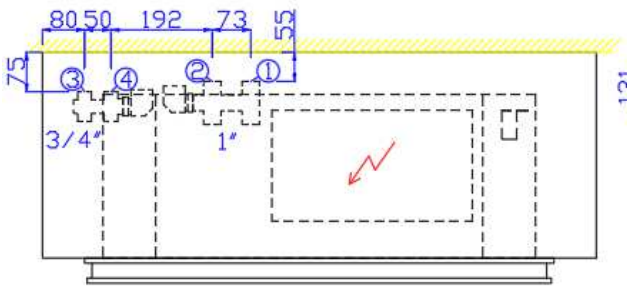
Two variations are available: one for hydraulic connections coming from the top (vertical) and one from the lateral side (horizontal) just above the ceiling. If also valve are needed, special valve kit must be ordered, this kit is optimized for easy installation, and, for horizontal version, includes flexible pipes and manual ball valve.

Coil Connections

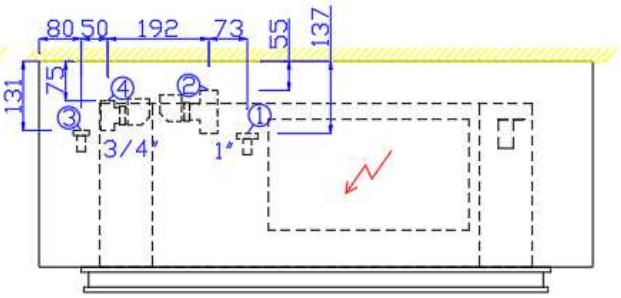


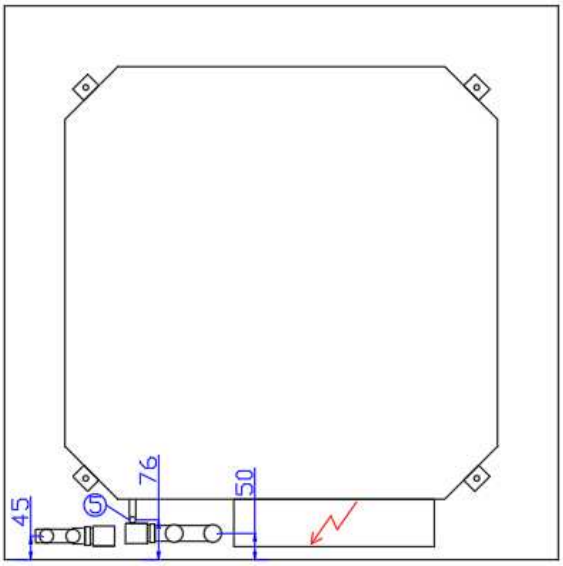
1	Main coil IN
2	Main coil OUT
3	Auxiliary coil IN
4	Auxiliary coil OUT
5	Condensate drain (d.12)

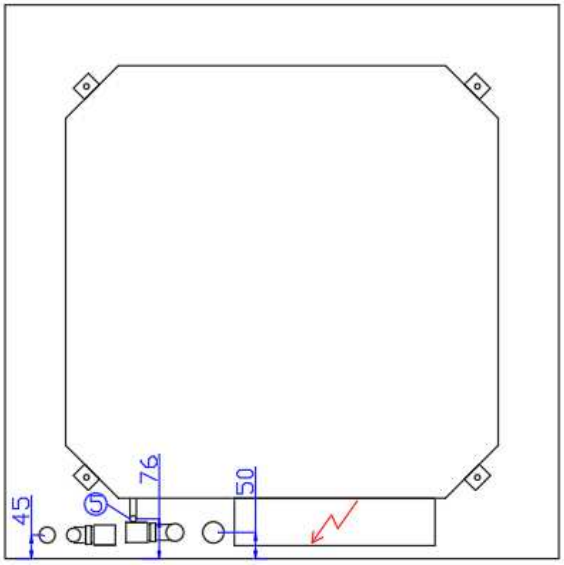
4-way valve connections (vertical)



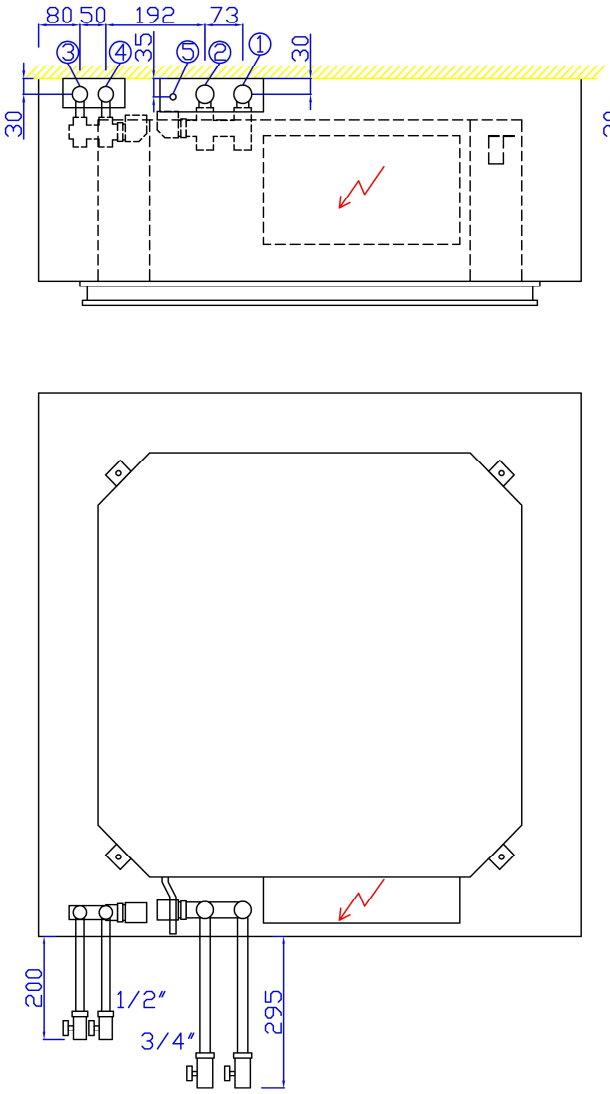
2-way valve connections (vertical)



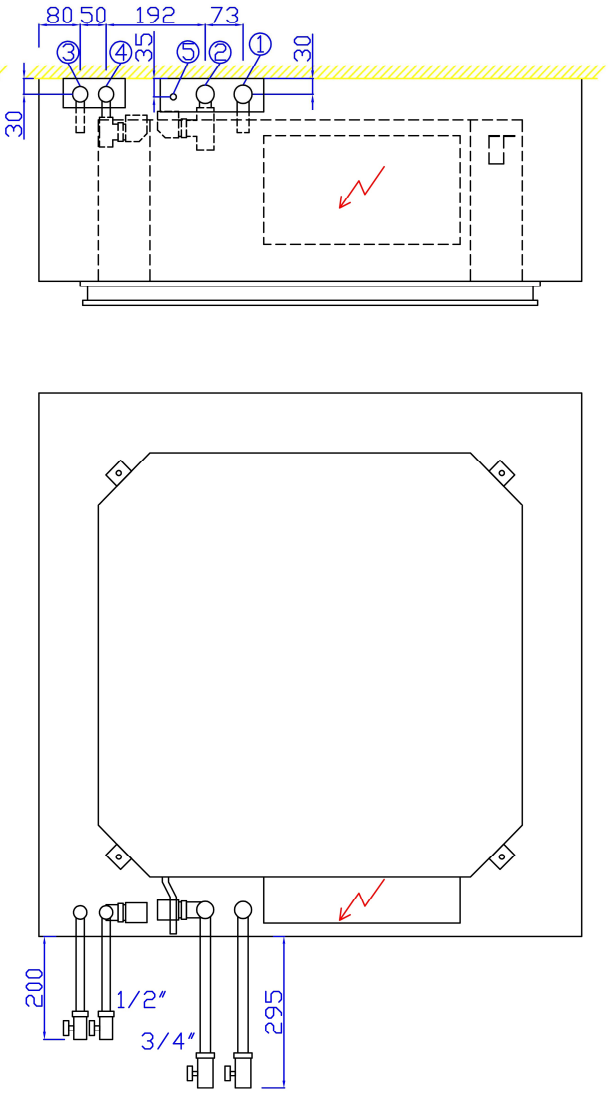




4-way valve connections (horizontal)



2-way valve connections (horizontal)



COVER CODE	DESCRIPTION	VALVE KIT CODE (*)
MECO-BRE243/283S 81	For horizontal connections –2 pipes	Valve code + “BRE243/283S 81”
MECO-BRE246/286S 81	For horizontal connections –4 pipes	Valve code + “BRE246/286S 81”
MECO-BRE243/286S 92	For vertical connections–2/4 pipes	Valve code+“BRE243/283S 26” for 2 pipes Valve code+“BRE246/286S 26” for 4 pipes

(*) It’s possible to install inside MECO only ON/OFF valve (2 or 4 pipes) or modulating valve (only 2 pipes). It’s not possible to install modulating valve for 4 pipes.

9.6-Filter with Sanitized treatment (FA/SAN)

Filter in synthetic material with support in galvanised steel and double galvanised mesh, thickness 6mm. The special FiltraSan treatment, developed in collaboration with Sanitized, certifies the non-proliferation of mould and bacteria:

Staphylococcus aureus reduction: >99.99% according to the JIS L 1902 standard

Fungal growth rate: none according to EN ISO 846 standard

The complete test reports and certifications can be obtained from our Sales department.

9.7-High efficiency filter (FA/H)

Filter in synthetic material, total thickness 130mm and class PF-ePM10 65%. Given its considerable size, it can be installed only in the hygienic version cassette (H). The pressure drop due to the high filtration class results in a decrease in the cassette efficiency by about 10% (with clean filter) compared to its rated performance. We also recommend using the standard filter as a pre-filter, otherwise the FA/H filter could clog very quickly.

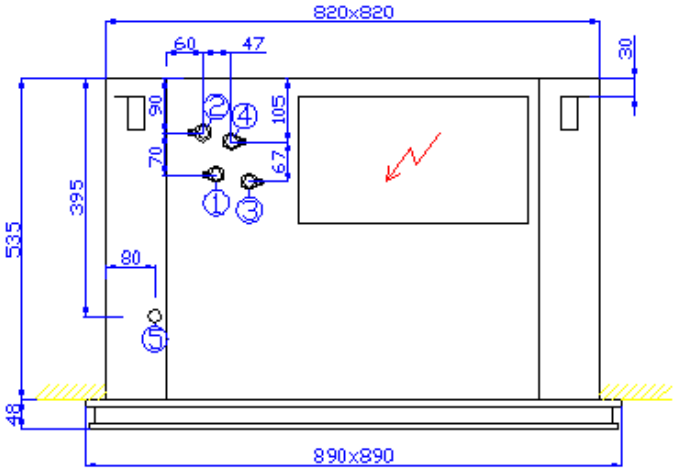
10-Hygienic version

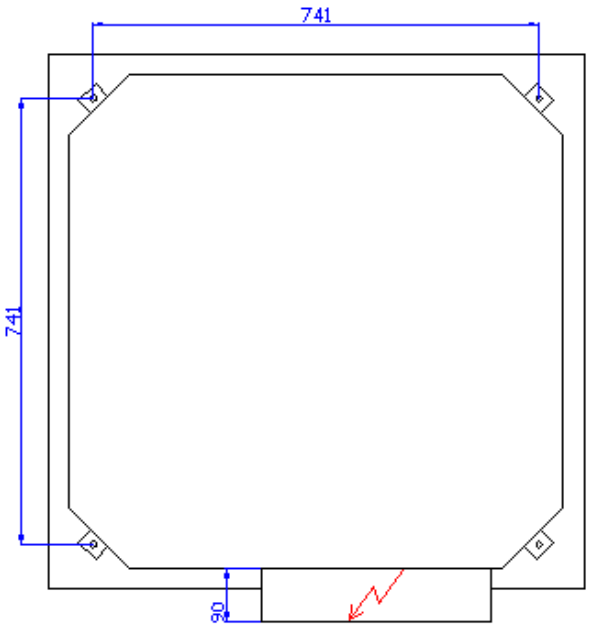
The hygienic version differs from the standard version due to the absence of the condensate drain pump. Draining is achieved by gravity, so in order to have the required difference in height, the overall height of the cassette is greater.

This version is recommended in environments characterised by:

- Less frequent maintenance (banks, police offices, ...): services due to pump or pump float faults are no longer required
- Increased hygiene requirements (hospitals, health care facilities ...): water stagnation inside the tank is reduced, consequently, the chances of bacteria or mould growth are reduced.
- Silent environment requirements (libraries, ...): the (however limited) condensate drain pump operating noise is eliminated.

For a better level of hygiene, we recommend using the optional FA/SAN and/or FA/H filter cassette (see the specific paragraph)

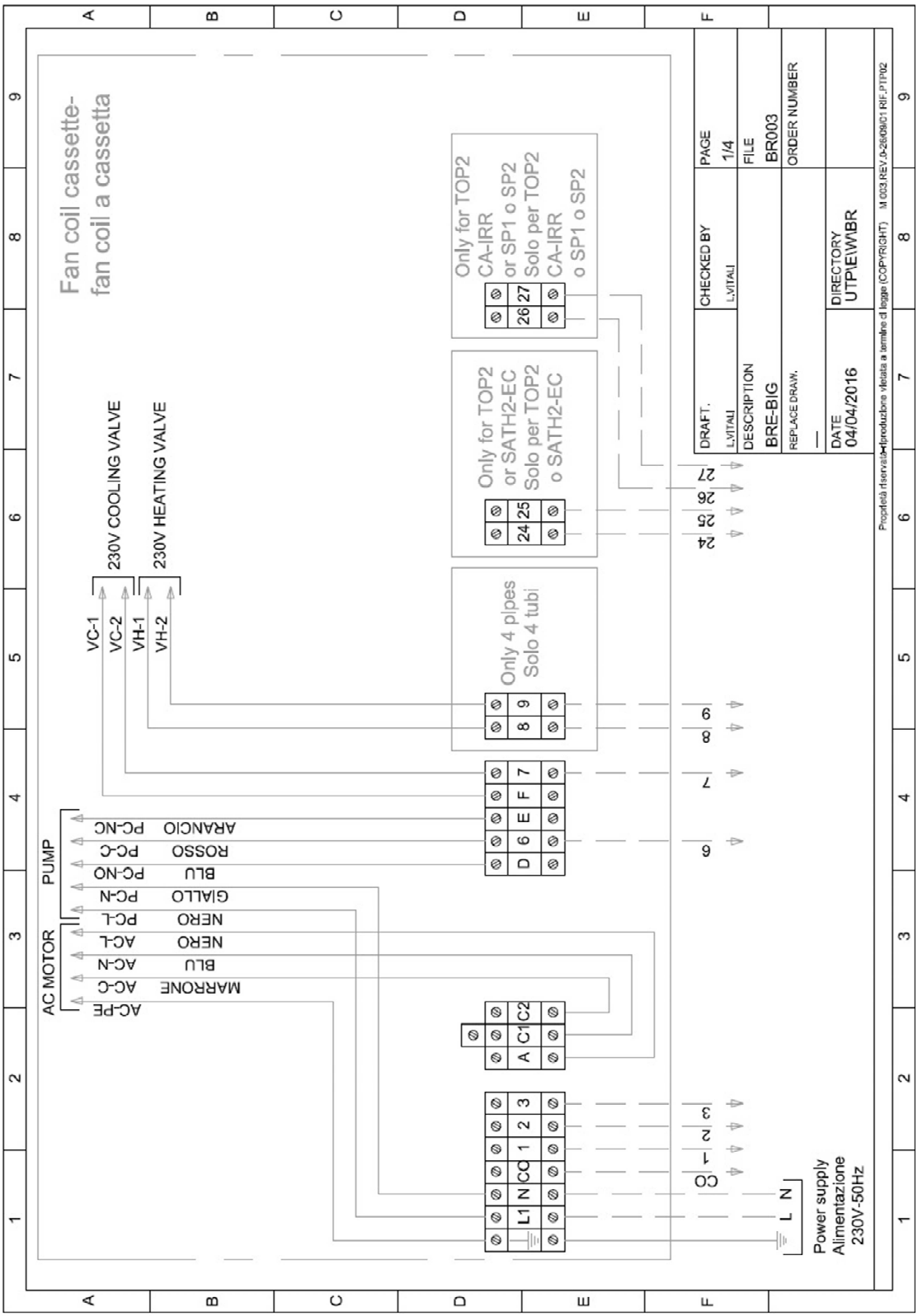




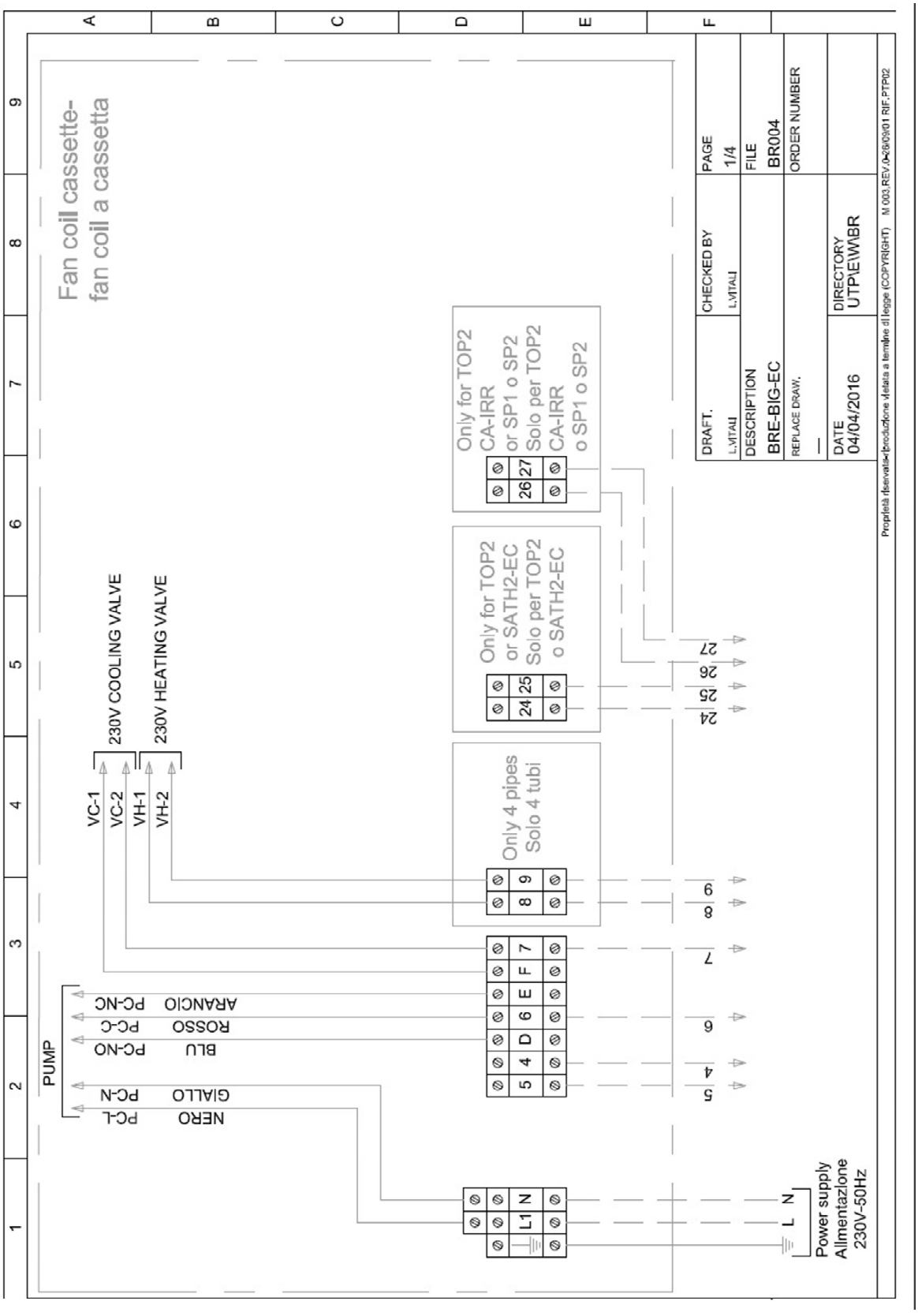
1	Main coil IN
2	Main coil OUT
3	Auxiliary coil IN
4	Auxiliary coil OUT
5	Condensate drain

11-ELECTRICAL DIAGRAMS

11.1-AC MOTOR



11.2-EC MOTOR


Fan coil cassette-
fan coil a cassetta
230V COOLING VALVE
230V HEATING VALVE
VC-1
VC-2
VH-1
VH-2
PUMP
PC-NC
PC-C
PC-NO
PC-L
PC-N
ARANCIO
ROSSO
BLU
GIALLO
NERO
Only for TOP2
CA-IRR
or SP1 o SP2
Solo per TOP2
CA-IRR
o SP1 o SP2
Only for TOP2
or SATH2-EC
Solo per TOP2
o SATH2-EC
Only 4 pipes
Solo 4 tubi
L1 N
L N
Power supply
Allmentazione
230V-50Hz
DRAFT.
L.MTALI
CHECKED BY
L.MTALI
PAGE
1/4
DESCRIPTION
BRE-BIG-EC
FILE
BR004
REPLACE DRAW.
—
ORDER NUMBER
DATE
04/04/2016
DIRECTORY
UTP\EW\BR

EXTERNAL THERMOSTAT CONTROLS	
CO	Common motor (neutral)
1	Minimum speed motor (line)
2	Medium speed motor (line)
3	Maximum speed motor (line)
4	GND motor signal
5	0-10V motor signal
6	Common 2 pipes valve /cooling 4 pipes valve (neutral)
7	Signal 2 pipes valve /cooling 4 pipes valve (neutral)
8	Common 4 pipes valve (neutral) – only if present
9	Signal 4 pipes valve (line) – only if present
24-25	NTC water probe – only if present
26-27	NTC remote air probe – only if present

NOTES:

Aertesi srl reserves the right to introduce at any time whatever modifications deemed necessary to improve the product with possible modification of the relevant technical data.

Aertesi
MADE IN ITALY

something different

AER.MT.BREBIG.GB.007.08.19

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