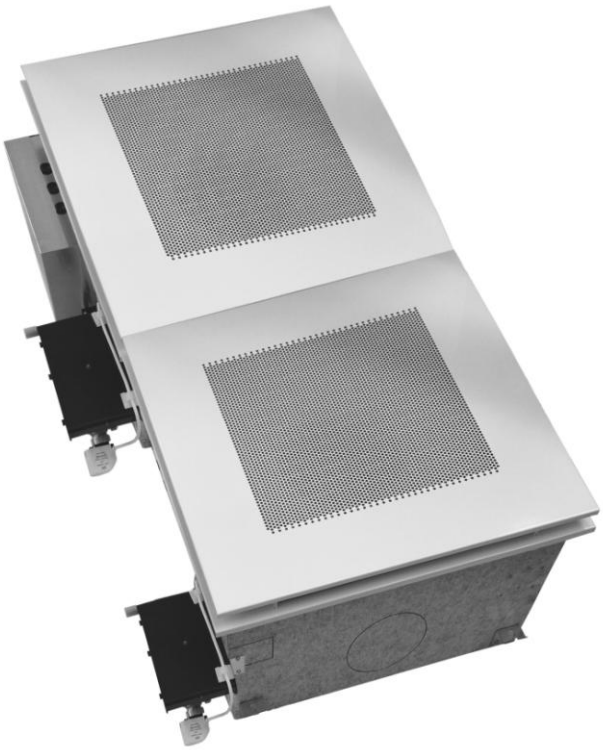
Aertesi airpower

something different

Technical Manual

New Water Cassette

Series BREZZA DOUBLE



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1-INTRODUCTION

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

The series BREZZA is proposed with traditional AC motors with three speeds and which EC motors with low consumption. 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

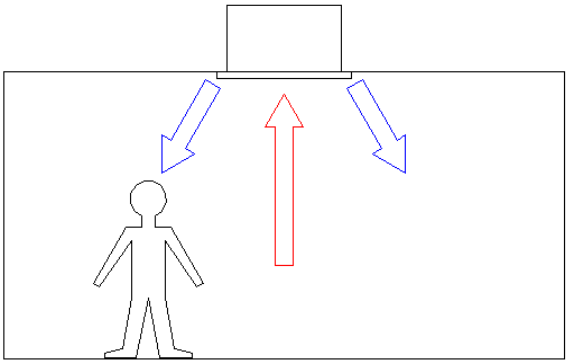
Electrical power supply	220 ÷ 240V / 50Hz
Inletcoil water temperature	5 ÷ 70°C
Return air temperature	10 ÷ 50°C
RH air intake	15 ÷ 70%

It is advisable to let work the Brezza Cassette at the above mentioned extremes limits of operation ONLY for short periods, because the operation for long periods can reduce normal components.

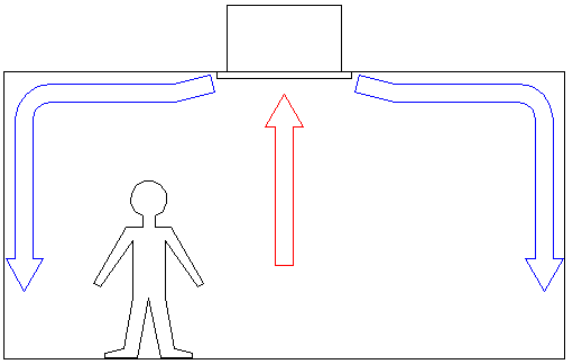
3- COANDA EFFECT

New cassette Series BREZZA has been developed to ensure a high comfort. In fact, the particular shape of the panel as per the COANDA effect, avoids the annoying cold drafts (since ever the problem of fan-coil cassettes).

The COANDA effect is the tendency of a fluid jet to follow the contour of a nearby surface. So the air flow follows the ceiling, then fells nearly at the wall. Since the air speed at this point is very low, this does not create discomfort to people.

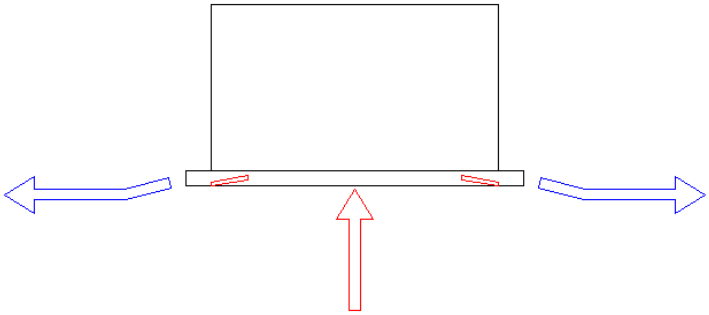


Traditional Cassette

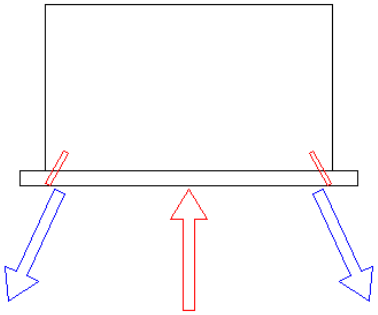


Cassette with Coanda effect

In case where the ceiling is higher than 3m, accordingly there is the need to channel down the air flow, Aertesi provides an accessory panel with adjustable flaps. So you can set manually, for each of the four turns, the orientation of the flow: horizontal (with Coanda effect), or in vertical position.



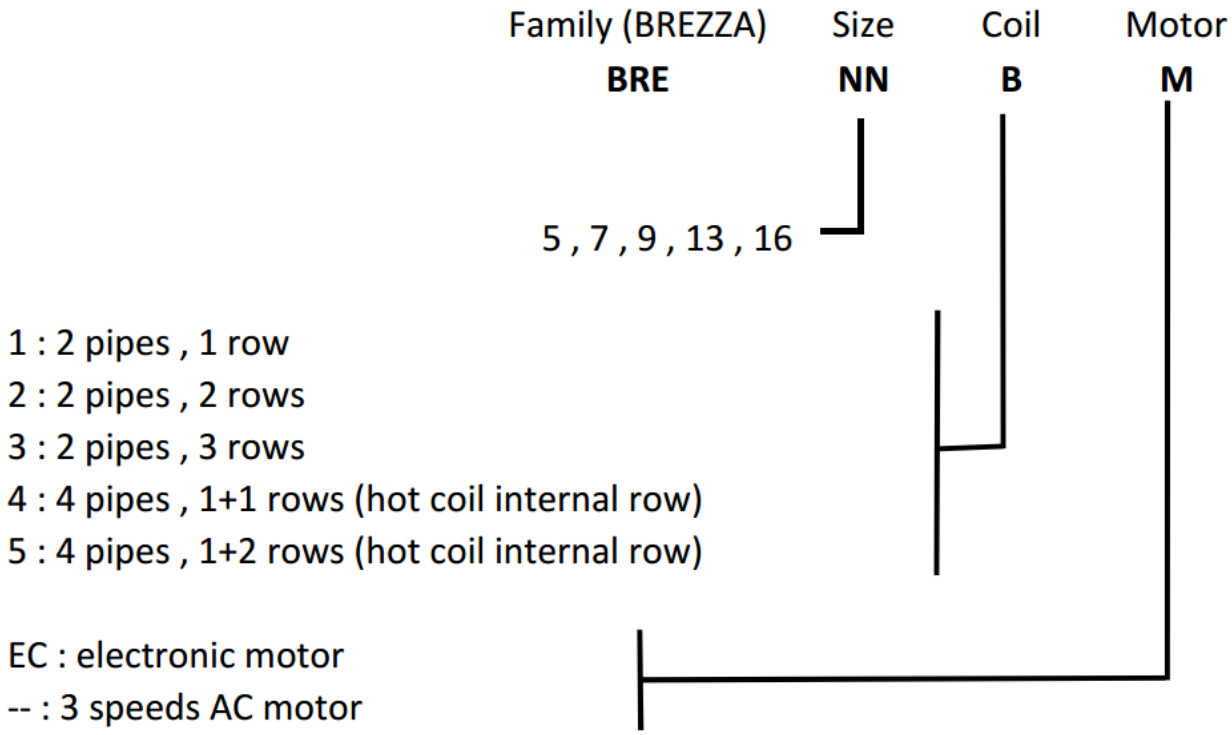
Flaps on horizontal position (Coanda)



Flaps on vertical position

4- KEY READING CODES

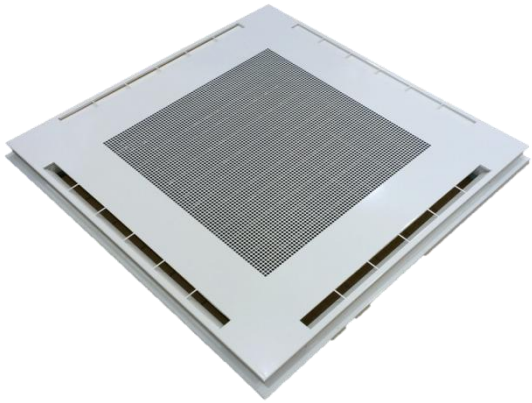
The standard version is with 3-rows coil (for versions 2 pipes) or 1 + 2 ranks (for versions 4 pipes), with fixed blades in COANDA position. All other versions are optional.



5-TECHNICAL DETAILS

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

FRONTAL PANEL: painted plate thickness 0.8mm. The conformation of the baffles ensures a Coanda Effect to the air flow output. As an accessory, you can have the adjustable deflectors to have the Coanda effect or vertical airflow (or intermediate positions). The fresh design of the panel fits perfectly into any environment and type of ceiling.



ACCESSIBILITY : the filter can be removed without any tools. The accessibility to internal components (fan and condensate pump) is guaranteed by removing the front panel. Water connections, valves and electrical panel are on the same side and thus you need 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 (nylon PA6-25GF); it is backward curved blades, directly coupled to the motor. The motor and fans are balanced after assembly to ensure, vibrations absence. Motor is mounted on ball bearings without any maintenance.

The AC motor has three speed, degree of protection IP44, insulation class "B". Thermal protection incorporated.

The EC motor is controlled 0-10V, IP54 protection, insulation class "B", noise emissions according to EN 61000-6-3 (civil environment), thermal motor protection and electronics, protection locked rotor.

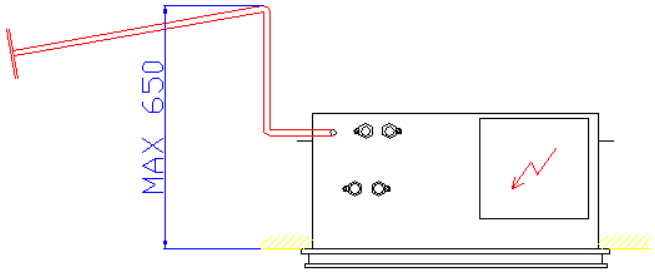
COIL: made with copper pipe diameter 3/8 "and corrugated aluminum fins with high efficiency, with manual air vent valve at the top. Nominal pressure PN10.

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

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

ELECTRICAL BOARD: made of galvanized steel plate and positioned on the same side of water connections.

CONDENSATE DRAIN PUMP: centrifugal type, equipped with a double level float (on-off pump and alarm) and check valve (to avoid the return of odors from the plughole and reduce the noise power). 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					
		133			163			135			165		
Speed(E)		min	med	max	min	med	max	min	med	max	min	med	max
Airflow	mc/h	560	800	1140	860	1260	1470	560	800	1140	860	1260	1470
COOLING – Air 27°C b.s. , 19°C b.u. – Input water temperature 7°C , output water temperature 12°C													
Total capacity(E)	kW	4,11	5,51	7,46	5,88	8,10	9,16	3,52	4,75	6,23	5,00	6,69	7,47
Sens. capacity(E)	kW	2,94	4,00	5,30	4,25	5,72	6,44	2,57	3,37	4,36	3,58	4,68	5,20
Water flow	l/h	706	946	1279	1008	1389	1571	603	815	1069	859	1148	1281
Δp water(E)	kPa	3,3	5,6	9,8	6,3	11,3	14,1	3,8	6,4	10,5	7,0	12,0	14,6
HEATING – Air 20°C –inlet water temperature 50°C ,same for cooling flow													
Capacity(E)	kW	4,79	6,50	8,71	6,91	9,44	10,66	-	-	-	-	-	-
Water flow	l/h	706	946	1279	1008	1389	1571	-	-	-	-	-	-
Δp water(E)	kPa	3,1	5,3	9,2	6,0	10,7	13,4	-	-	-	-	-	-
HEATING – Air 20°C - inlet water temperature 70°C , output water temperature 60°C													
Capacity(E)	kW	-	-	-	-	-	-	5,25	6,69	8,47	7,03	8,96	9,90
Water flow	l/h	-	-	-	-	-	-	476	606	767	637	811	896
Δp water(E)	kPa	-	-	-	-	-	-	3,5	5,5	8,3	6,0	9,2	11,2
ELECTRIC MOTOR ABSORTION													
Consumption(E)	W	60	76	100	108	144	174	60	76	100	108	144	174
Max absorption	A	0,46			0,80			0,46			0,80		
SOUND DATA													
Sound power(E)	dB(A)	39	46	56	53	63	66	39	46	56	53	63	66
Sound pressure	dB(A)	30	37	57	44	54	57	30	37	57	44	54	57

(E)= EUROVENTcertificated data

7-TECHNICAL DATA(EC motors)

7.1-Cassette with 3 rows coil

		2 PIPES						4 PIPES					
		133			163			135			165		
Speed(E)		4V	7V	10V	4V	7V	10V	4V	7V	10V	4V	7V	10V
Airflow	mc/h	410	760	1120	570	1050	1520	410	760	1120	570	1050	1520
COOLING – Air 27°C d.b. , 19°C w.b.. – inlet water temperature 7°C , output water temperature 12°C													
Total capacity(E)	kW	3,11	5,28	7,35	4,17	6,96	9,42	2,61	4,56	6,13	3,58	5,83	7,66
Sens.capacity(E)	kW	2,19	3,85	5,22	2,99	4,95	6,60	1,98	3,25	4,29	2,61	4,09	5,35
Water flow	l/h	534	905	1260	716	1195	1616	448	783	1052	614	1001	1315
Δp water(E)	kPa	2,1	5,3	9,4	3,5	8,6	14,8	2,2	6,0	10,1	3,9	9,3	15,3
HEATING – Air 20°C – inlet water temperature 50°C , same for cooling flow													
Capacity(E)	kW	3,60	6,24	8,57	4,87	8,12	10,95	-	-	-	-	-	-
Water flow	l/h	534	905	1260	716	1195	1616	-	-	-	-	-	-
Δp water(E)	kPa	1,8	4,9	9,0	3,3	8,2	14,2	-	-	-	-	-	-
HEATING – Air 20°C - inlet water temperature 70°C , output water temperature 60°C													
Capacity(E)	kW	-	-	-	-	-	-	4,16	6,47	8,29	5,32	7,96	10,16
Water flow	l/h	-	-	-	-	-	-	377	586	751	481	721	919
Δp water(E)	kPa	-	-	-	-	-	-	2,2	5,1	8,1	3,5	7,4	11,7
ELECTRIC MOTOR ABSORTION													
Consumption(E)	W	6	18	42	10	36	97	6	18	42	10	36	97
Max absorption	A	0,34			0,76			0,34			0,76		
DATI SONORI													
Sound power(E)	dB(A)	34	48	59	41	57	66	34	48	59	41	57	66
Sound pressure	dB(A)	25	39	50	32	48	57	25	39	50	32	48	57
ENERGY SAVING CLASS													
FCEER (E)		A			A			A			A		
FCCOP(E)		A			A			A			A		

(E)= EUROVENT certificated data

8- OPTIONAL COIL TECNICAL DATA(AC motors)

8.1- Cassette with 1 or 2 rows coil

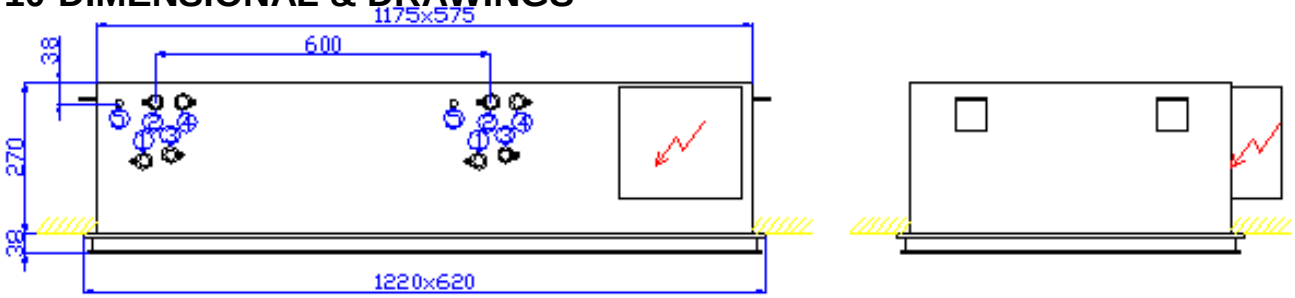
		2 PIPES						4 PIPES					
		132			162			134			164		
Speed		min	med	max	min	med	max	min	med	max	min	med	max
Airflow	mc/h	560	800	1140	860	1260	1470	560	800	1140	860	1260	1470
COOLING – Air 27°C d.b. , 19°C w.b.. – inlet water temperature 7°C , output water temperature 12°C													
Total capacity	kW	3,37	4,53	5,94	4,80	6,39	7,12	2,28	2,94	3,73	3,12	3,99	4,40
Sens.capacity	kW	2,49	3,26	4,20	3,44	4,52	5,02	1,67	2,14	2,67	2,22	2,86	3,11
Water flow	l/h	578	778	1019	824	1096	1221	391	504	640	535	684	754
Δp water	kPa	3,2	5,5	9,0	6,1	10,2	12,4	2,9	4,5	6,9	4,9	7,8	9,3
HEATING – Air 20°C – inlet water temperature 50°C , same for cooling flow													
Capacity	kW	4,12	5,45	7,10	5,76	7,63	8,53	-	-	-	-	-	-
Water flow	l/h	578	778	1019	824	1096	1221	-	-	-	-	-	-
Δp water	kPa	3,0	5,2	8,6	5,9	9,8	12,0	-	-	-	-	-	-
HEATING – Air 20°C - inlet water temperature 70°C , output water temperature 60°C													
Capacity	kW	-	-	-	-	-	-	5,25	6,69	8,47	7,03	8,96	9,90
Water flow	l/h	-	-	-	-	-	-	476	606	767	637	811	896
Δp water	kPa	-	-	-	-	-	-	3,5	5,5	8,3	6,0	9,2	11,2
ELECTRIC MOTOR ABSORTION													
Consumption	W	60	76	100	108	144	174	60	76	100	108	144	174
Max absorption	A	0,46			0,80			0,46			0,80		
SOUND DATA													
Sound power	dB(A)	39	46	56	53	63	66	39	46	56	53	63	66
Sound pressure	dB(A)	30	37	57	44	54	57	30	37	57	44	54	57

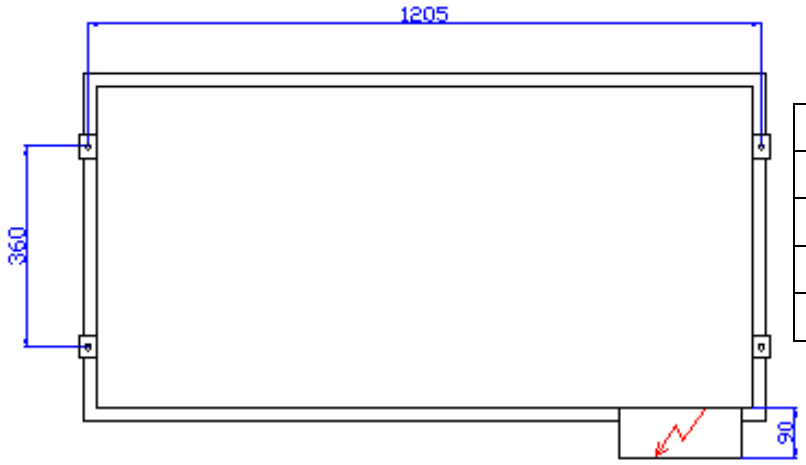
9-TECHNICAL DATA OPTIONAL COILS (EC motor)

9.1- Cassette with1 or 2 rows coil

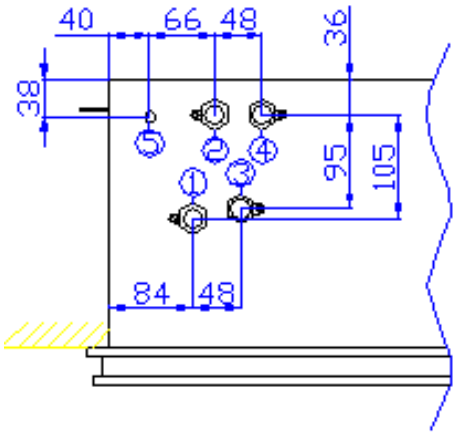
		2 PIPES						4 PIPES					
		132			162			134			164		
Speed		4V	7V	10V	4V	7V	10V	4V	7V	10V	4V	7V	10V
Airflow	mc/h	410	760	1120	570	1050	1520	410	760	1120	570	1050	1520
COOLING – Air 27°C d.b. , 19°C w.b.. – inlet water temperature 7°C , output water temperature 12°C													
Total capacity	kW	2,46	4,38	5,85	3,43	5,57	7,30	1,75	2,86	3,68	2,32	3,53	4,51
Sens.capacity	kW	1,92	3,13	4,14	2,52	3,96	5,12	1,34	2,07	2,64	1,69	2,50	3,19
Water flow	l/h	423	751	1004	588	956	1253	299	491	632	398	606	774
Δp water	kPa	1,8	5,2	8,7	3,3	7,9	13,0	1,7	4,3	6,8	3,0	6,2	9,8
HEATING – Air 20°C – inlet water temperature 50°C , same for cooling flow													
Capacity	kW	3,16	5,25	7,00	4,18	6,65	8,73	-	-	-	-	-	-
Water flow	l/h	423	751	1004	588	956	1253	-	-	-	-	-	-
Δp water	kPa	1,7	4,8	8,3	3,1	7,5	12,5	-	-	-	-	-	-
HEATING – Air 20°C - inlet water temperature 70°C , output water temperature 60°C													
Capacity	kW	-	-	-	-	-	-	4,16	6,47	8,29	5,32	7,96	10,16
Water flow	l/h	-	-	-	-	-	-	377	586	751	481	721	919
Δp water	kPa	-	-	-	-	-	-	2,2	5,1	8,1	3,5	7,4	11,7
ELECTRIC MOTOR ABSORTION													
Consumption	W	6	18	42	10	36	97	6	18	42	10	36	97
Max absorption	A	0,34			0,76			0,34			0,76		
SOUND DATA													
Sound power	dB(A)	34	48	59	41	57	66	34	48	59	41	57	66
Sound pressure	dB(A)	25	39	50	32	48	57	25	39	50	32	48	57
ENERGY SAVING CLASS													
FCEER		A			A			A			B		
FCCOP		A			B			A			A		

10-DIMENSIONAL & DRAWINGS





1	Batteria principale IN	1/2"
2	Batteria principale OUT	1/2"
3	Batteria ausiliaria IN	1/2"
4	Batteria ausiliaria OUT	1/2"
5	Scarico condensa	d.12



		132/162	**133/163**	**134/164**	**135/165**
Unit gross Weight	**kg**	56	60	56	60
Internal volume main coil	**litri**	2,6	4,0	2,8	2,8
Internal volume auxiliary coil	**litri**	-	-	1,2	1,2

11-ACCESSORIES

Accessories available are:

	HYDRAULIC ACCESSORIES	**A/K/C**
V22	V22 2-way valve ON-OFF 230V	A/K
V42	V42 2-way valve ON-OFF for 4 pipe	A/K
V23	V23 3-way valve ON-OFF 230V	A/K
V43	V43 3-way valve ON-OFF 230V for 4 pipe	A/K
V22M	V22M Valve 2-way modulating 0-10V	A/K
V42M	V42M Valve 2-way modulating 0-10V for 4 pipe	A/K
V23M	V23M valve 3 way modulating 0-10V	A/K
V43M	V43M valve 3 way modulating 0-10V for 4 pipe	A/K
ADPB	ADPB Water trap auxiliary (supplied as standard)	K
FLEX2	Hoses for parallel connection valves (2 pipes)	K
FLEX4	Hoses for parallel connection valves (4 pipes)	K
PSCC-BI	PSCC-BI Auxiliary Condensate drain pump	A
	ELETTRICAL ACCESSORIES	
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

A = accessory supplied mounted on the base;

K = accessory kit supplied unassembled;

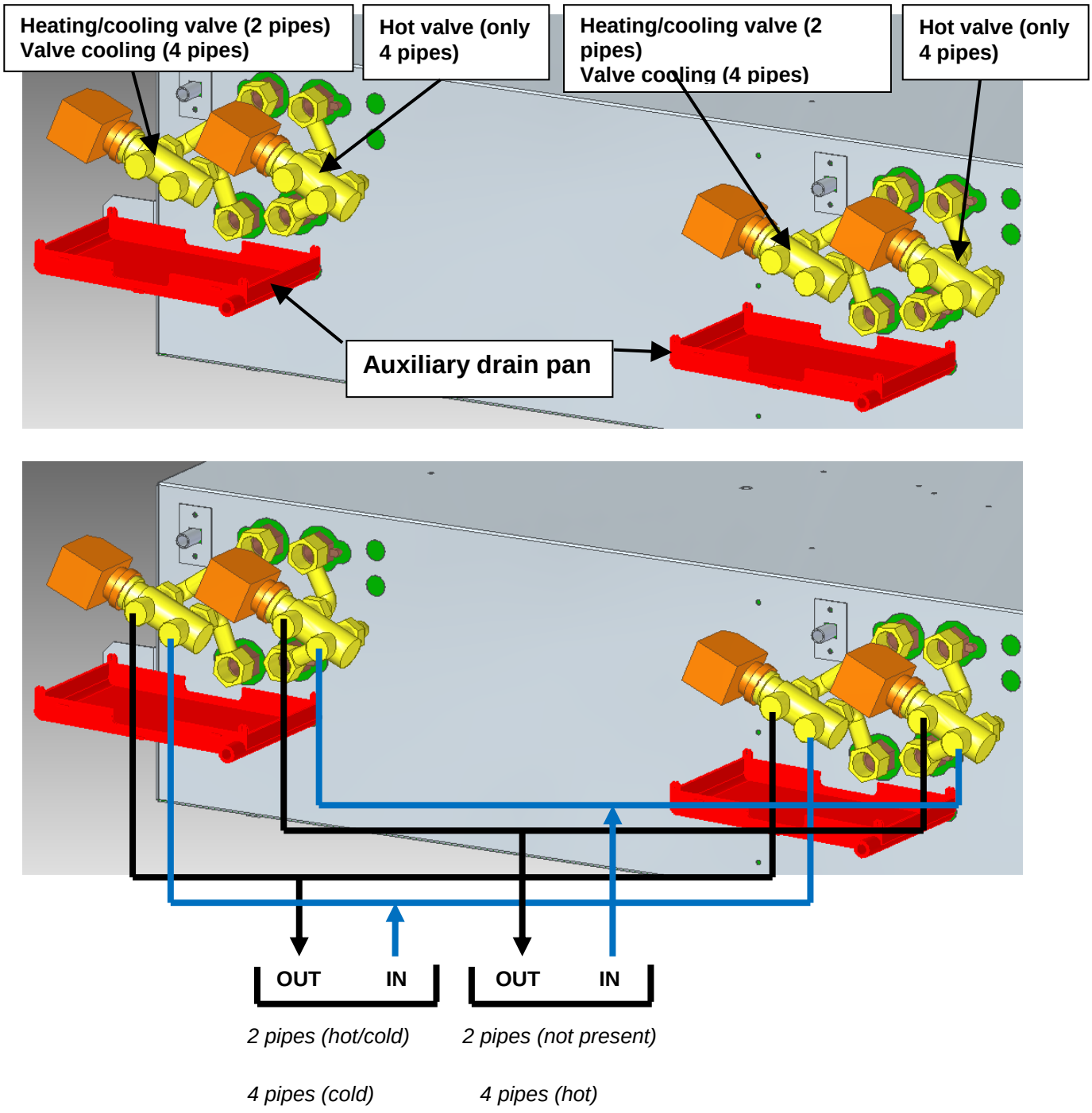
B = accessory supplied assembled, but not mounted on the base

11.1- Valves (V) and auxiliary tray (ADPB)

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

Valves can be supplied to the unit assembled or in kit (disassembled parts). All codes kits include two valves, one for each battery in double cassette. The drain pan is supplied as standard with the cassette, without extra-price (ADPB)

The cassette have two double 1200x600 kit valves, one for the right battery and one for the left battery. Both kits valves are connected in parallel, the aim is a kit consisting of hoses and TEE brass (see paragraph on accessory Flex2 - Flex4).

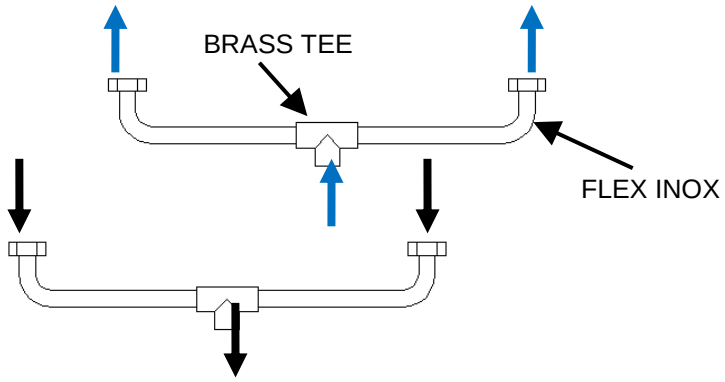


Valves group and auxiliary tray (cassette double 1200x600)

VALVES FOR MAIN COILS	**---**	**132-133-134-135-162-163-164-165**
VALVES FOR AUXILIARY COILS	**134-135-164-165**	**---**
GENERAL FEATURES		
Size connections	1/2"	3/4"
Kv (valvola 2 vie)	1,7	2,5
Kv (valvola 3 vie, via diritta)	1,7	2,5
Kv (valvola 3 vie, by-pass)	1,2	1,6
Max differential pressure	2,0bar	1,0bar
Nominal pressure	16bar	
Nominal pressure	4-110°C	
ON-OFF ACTUATOR		
Power supply	230V-50Hz (24V-50Hz on request)	
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	
Travel time	8S	
Control signal	0-10V	
Impedance control signal	100k	
Protection	IP43	

11.2- Hose connecting valves (Flex2 and Flex4)

To facilitate the parallel connection of the valves, described in the previous paragraph, you can use the accessory Flex2 (for 2-pipe systems) and Flex4 (for 4-pipe systems). The kit consists of hoses with braided stainless steel (with 3/4 "for the valve) and brass TEE to connect the pipes from 3/4". You can also directly connect the hoses to the coil, inserting an adaptor nipple 1/2 "-3/4" (nipple not supplied).

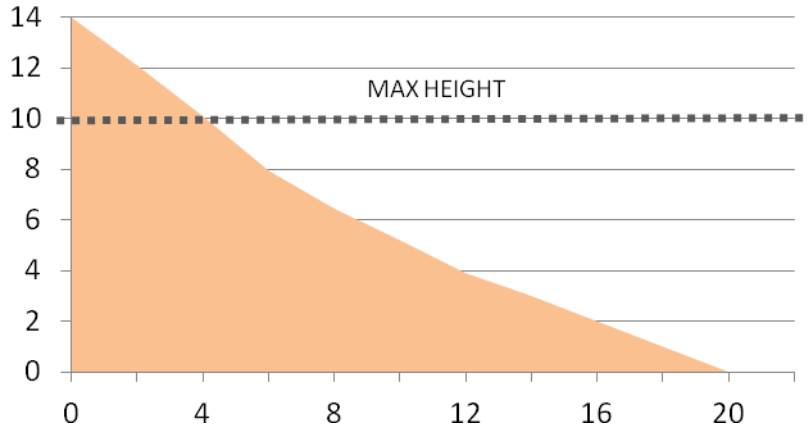


Accessory for flexible double cassette 1200x600

11.3- Condensate drain pump Auxiliary (PSCC-BI)

The supplementary condensate drain pump is supplied assembled outside of the box, at the side of the drainage pipe. Then must provide for the possibility of inspection also on this side.

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 8° resistivi 250V
Thermal Protection	90°C (riarmo automatico)
Protection	IP54



11.4- Speed motor control board SC3

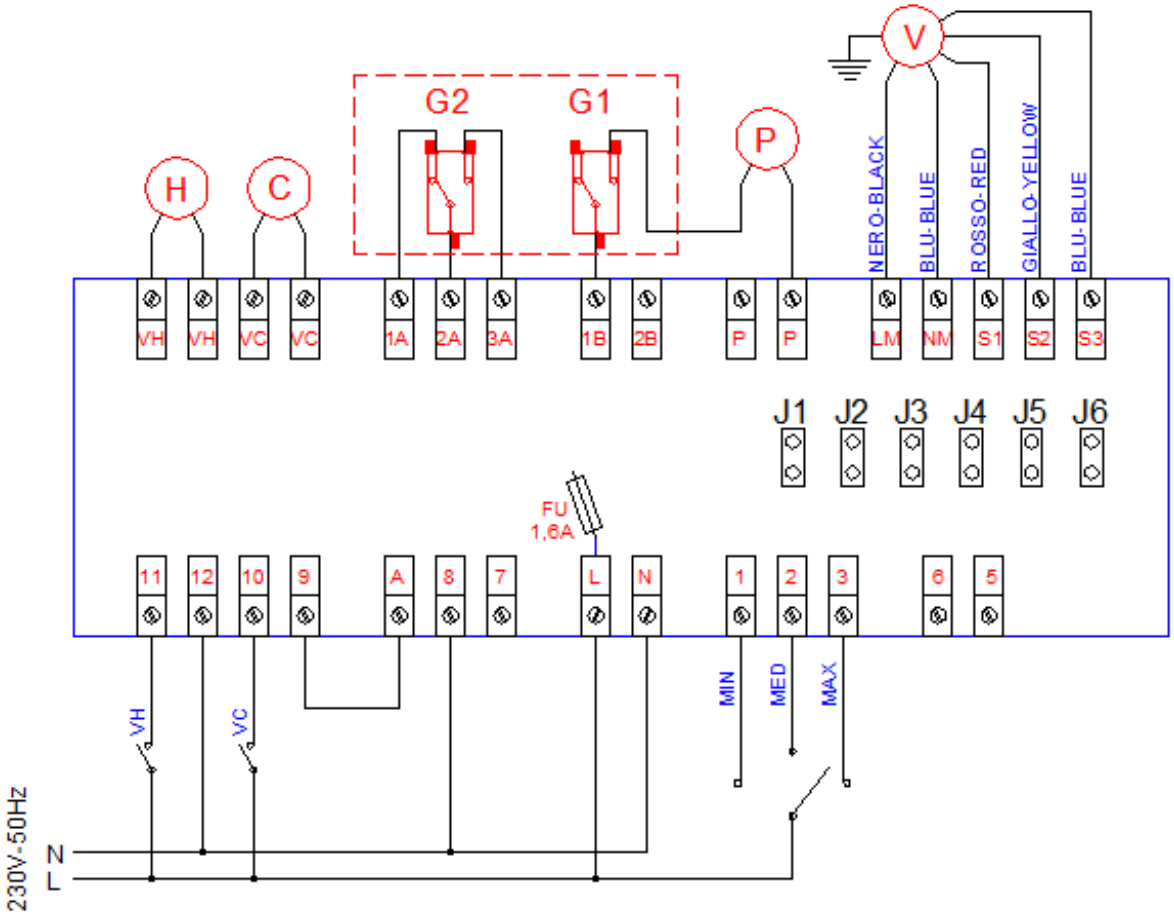
The 3-speed motor board allows you to control the EC motor with a traditional thermostat 3-speed or with a thermostat with 0-10V signal. With this accessory, it is also possible to control more than one unit with a single thermostat (not addressable master-slave).

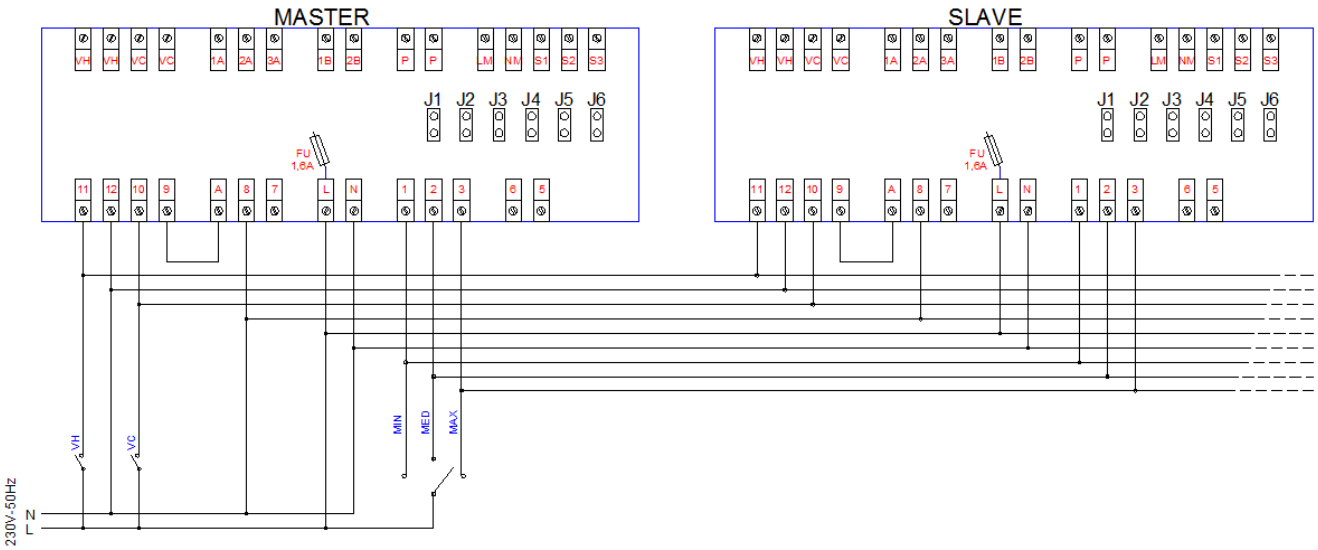
For each double cassette, you need two cards SC3 (to be considered as a slave of the other).

CONTROL FROM EXTERNAL THERMOSTAT	
VH	Contact on-off valve heating (4 tubes)
VC	Contact on-off valve cooling (2-4 tubes)
MIN	Minimum fan speed
MED	Minimum fan speed
MAX	Maximum speed fan
GND	Reference signal 0-10V
0-10V	0-10V signal for motor control

ELECTRICAL CONNECTIONS FOR 3 SPEEDSCONTROL : you must close the jumpers J3 and J4; jumpers J1, J2, J5, J6 are reserved to factory settings and should not be changed.

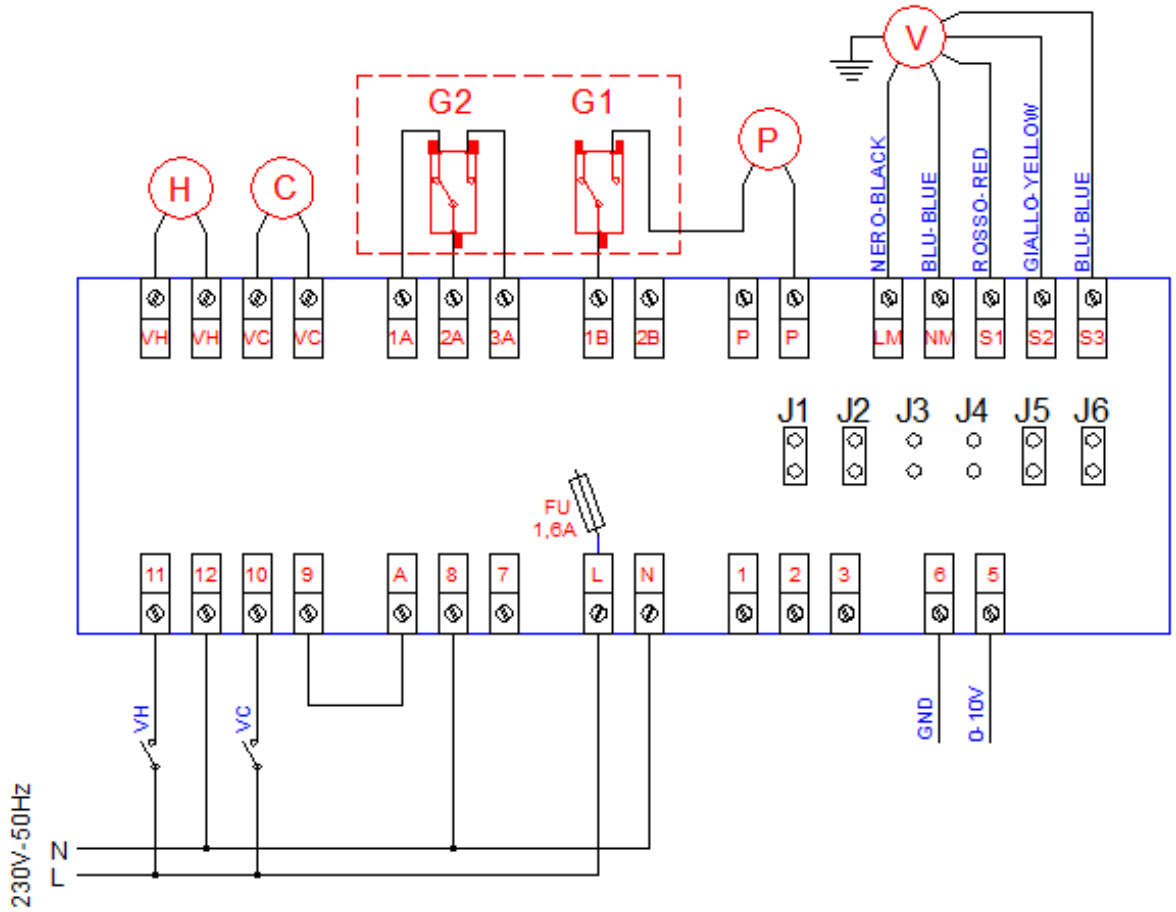
Model	J1	J2	J3	J4	J5	J6
7x-13x	opened	closed	closed	closed	closed	closed
9x-16x	closed	opened	closed	closed	closed	closed

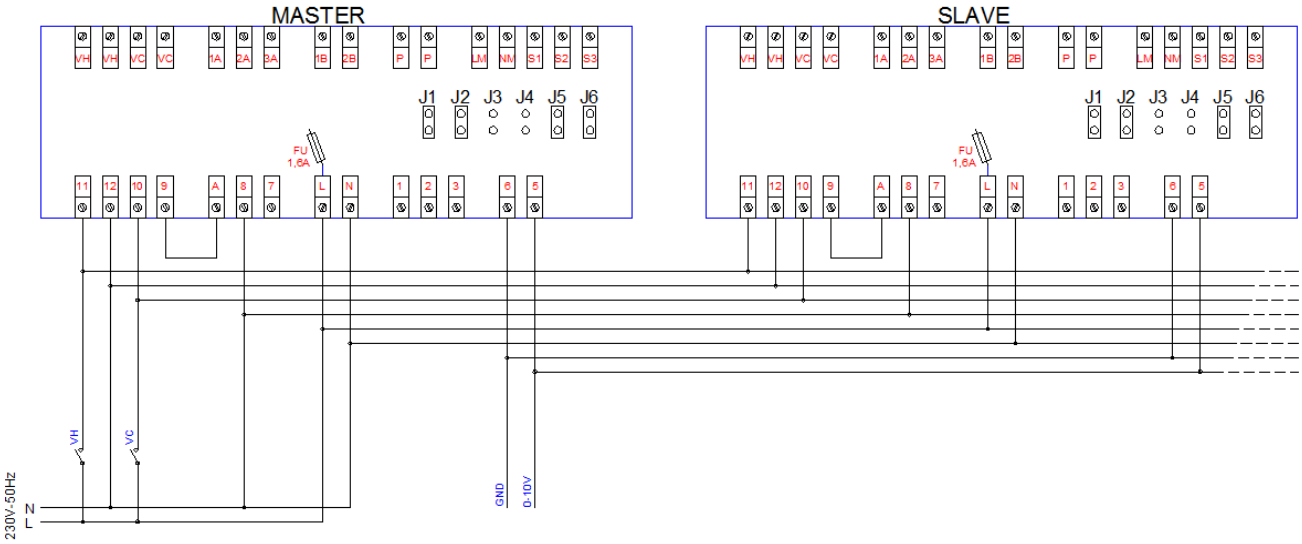




ELECTRICAL CONNECTIONS FOR CONTROL SIGNAL 0-10V: you must open the jumpers J3 and J4; jumpers J1, J2, J5, J6 are reserved to factory settings and should not be changed.

Model	J1	J2	J3	J4	J5	J6
7x-13x	closed	closed	opened	opened	opened	opened
9x-16x	closed	closed	opened	opened	closed	opened





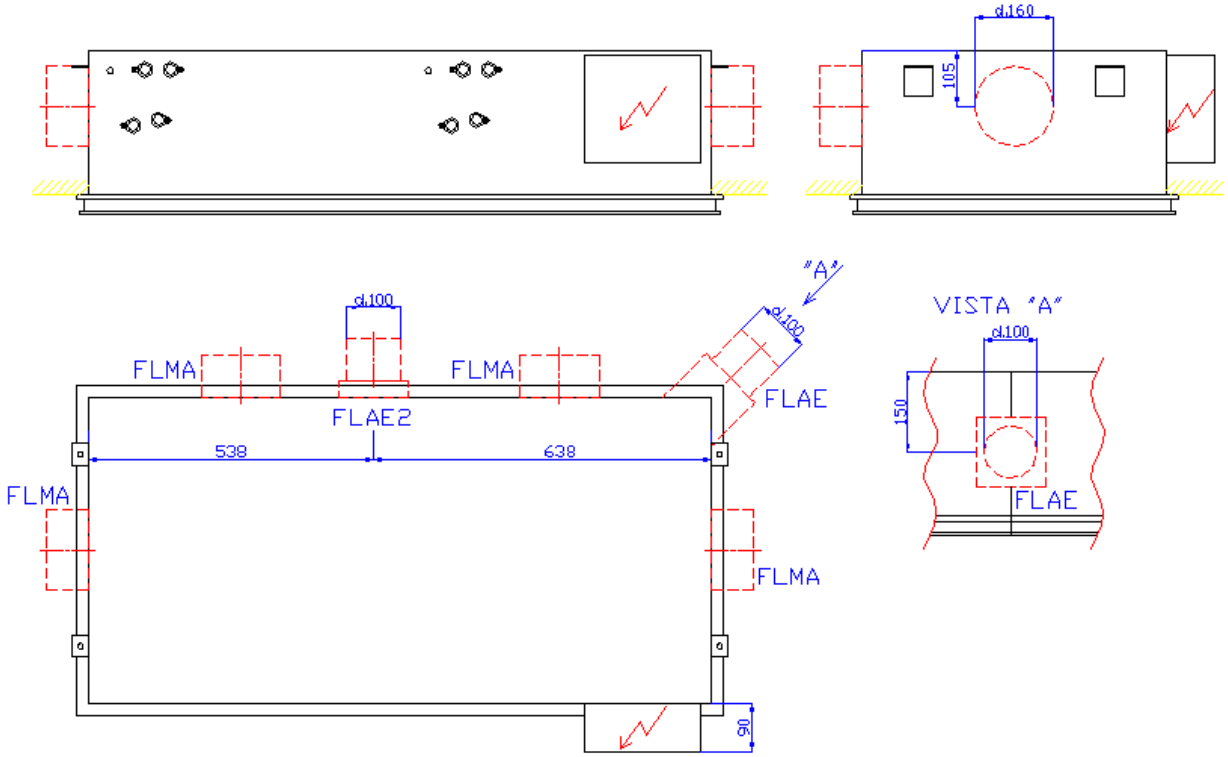
11.5- Flange for air delivery duct (FLMA)

You can connect up to 3 throws ducted through D.160 collars. The available prevalence is a function of the number of collars connected and the air flow rate. Collars positions are represented in the figure below.

11.6- Flange for external air intake (FLAE-FLAE2)

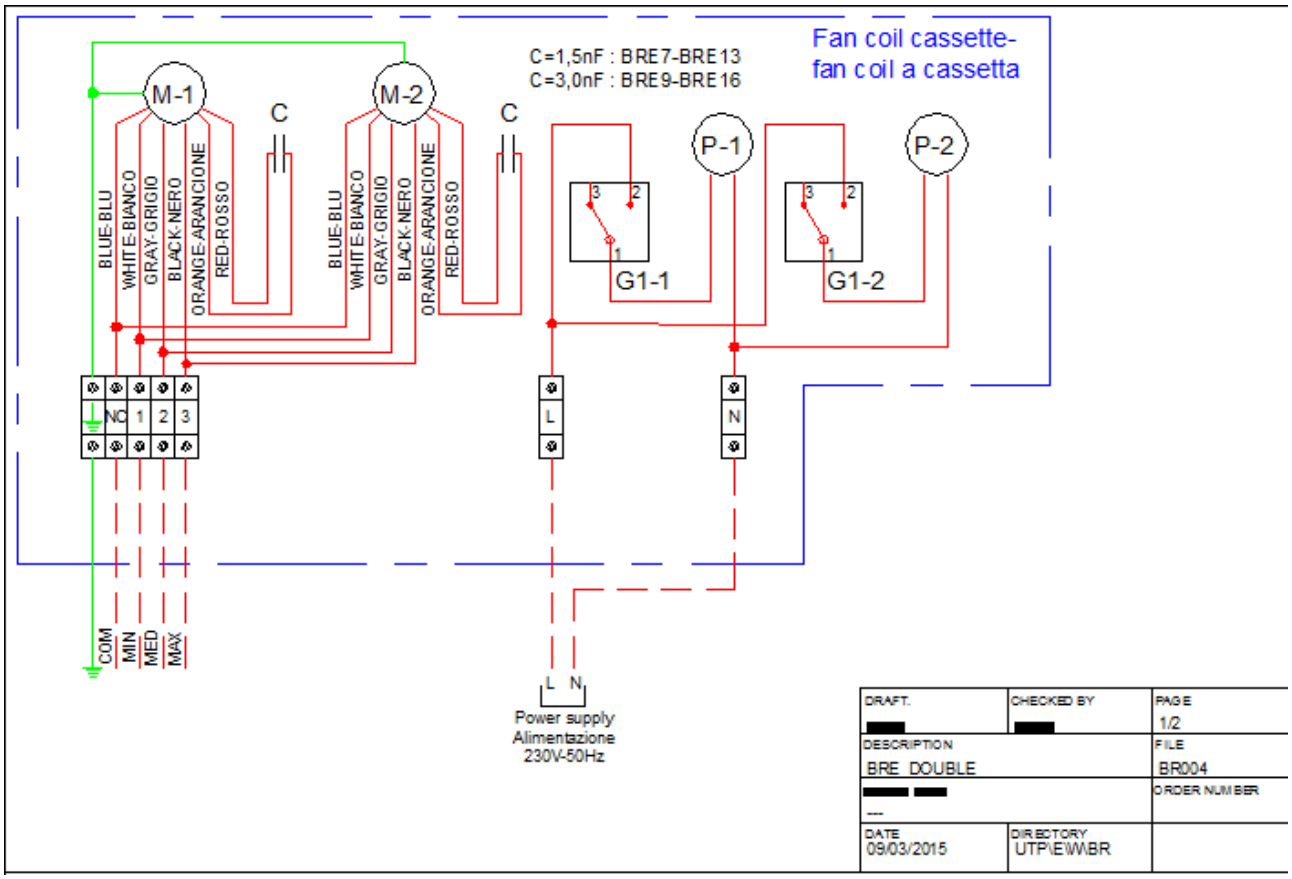
It is possible to connect an external air intake via a D.100 collar. The maximum flow of outside air is 100MC/h. The outside air has to be treated, filtered and must not be at a low temperature.

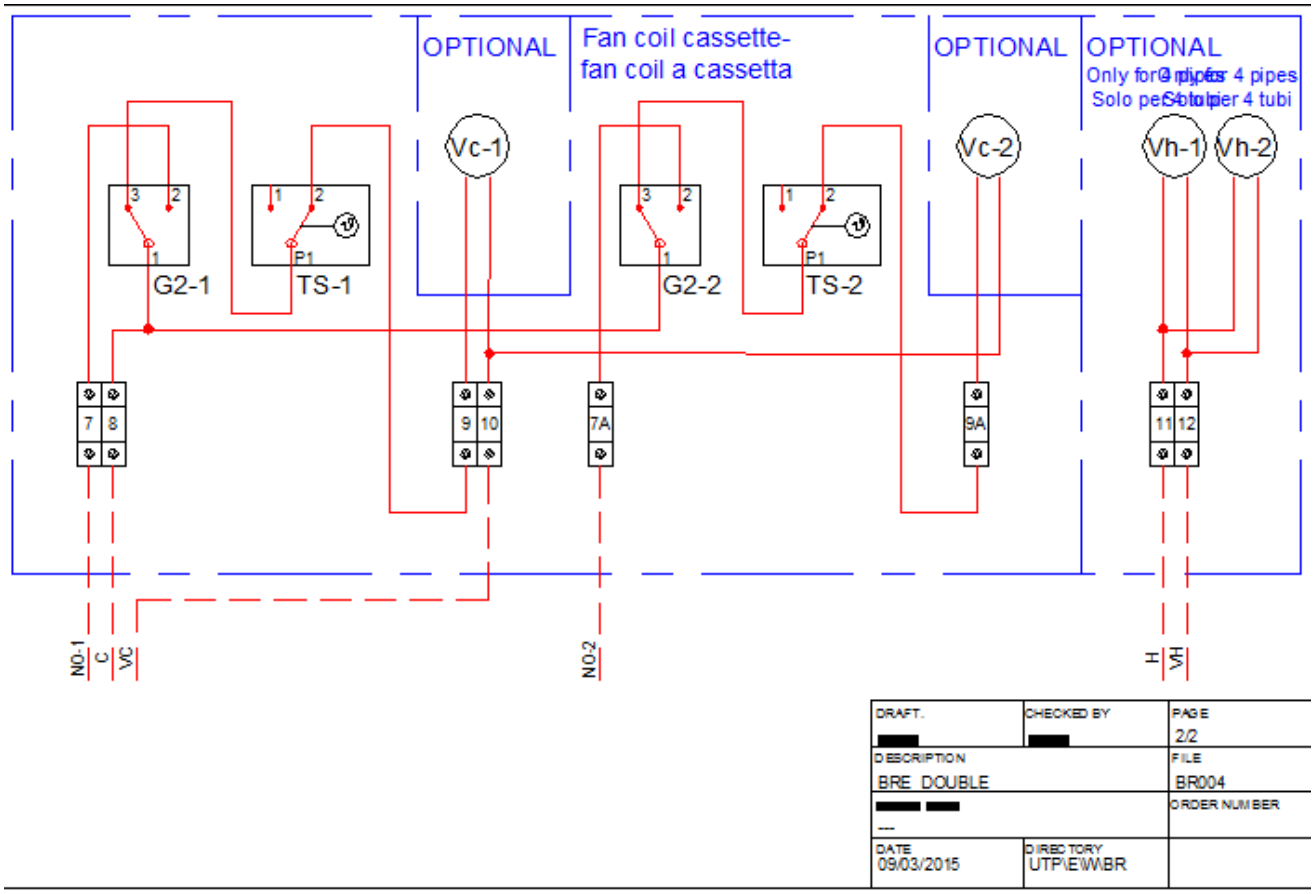
The flange for fresh air intake has FLAE code or FLAE2 code. These have different installation points on the unit, as in the drawing below.

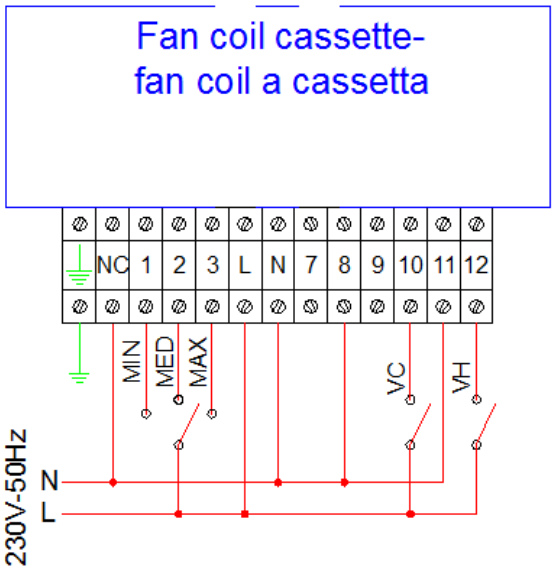


12-Electrical wiring diagrams

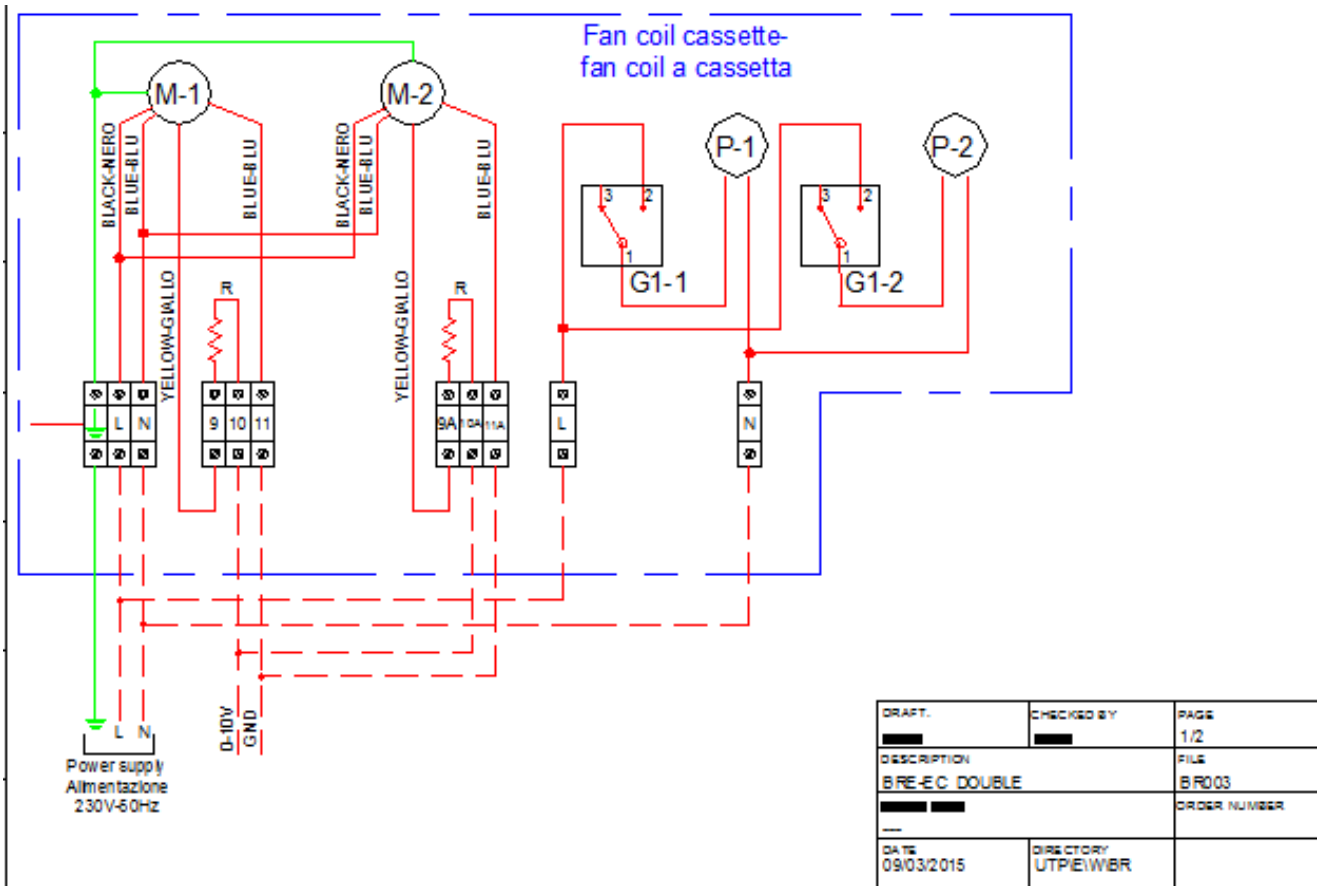
12.1- Wiring diagram cassette with AC motor

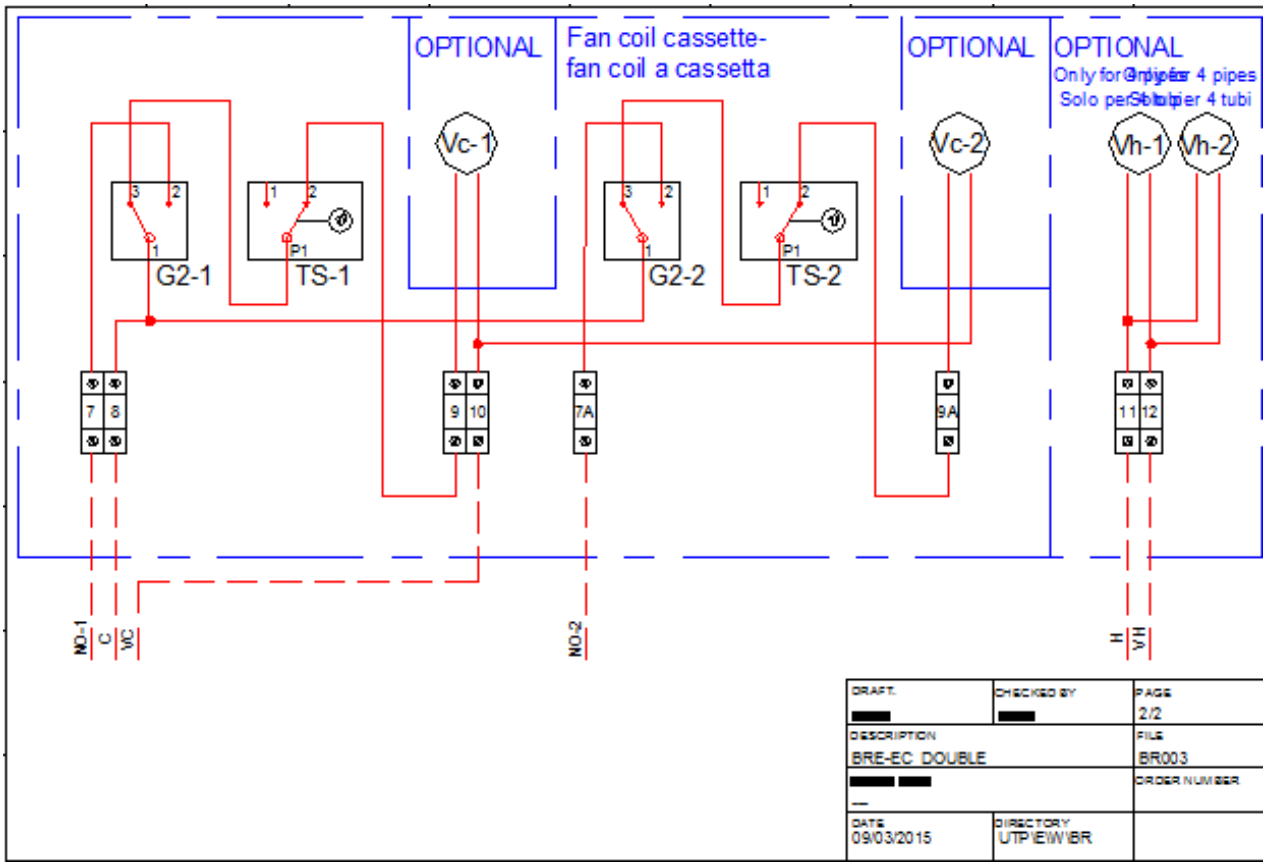


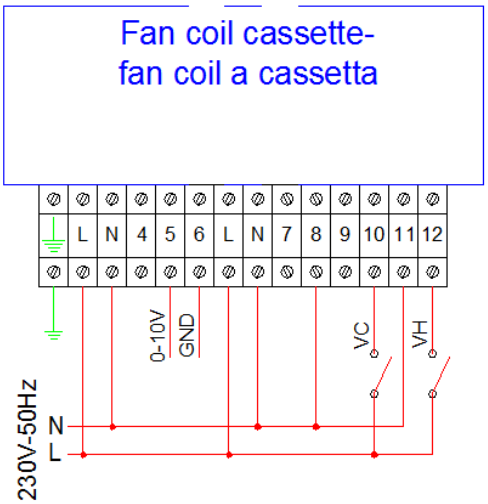

OPTIONAL
Fan coil cassette-
fan coil a cassetta
OPTIONAL
OPTIONAL
Only for 4 pipes
Solo per 4 tubi
Vc-1
Vc-2
Vh-1
Vh-2
G2-1
TS-1
G2-2
TS-2
P1
7 8
9 10
7A
9A
11 12
NO-1
C
VC
NO-2
H
VH
DRAFT.
CHECKED BY
PAGE
2/2
DESCRIPTION
BRE DOUBLE
FILE
BR004
ORDER NUMBER
DATE
09/03/2015
DIRECTORY
UTP\EW\BR


Fan coil cassette-
fan coil a cassetta
NC 1 2 3 L N 7 8 9 10 11 12
MIN
MED
MAX
VC
VH
230V-50Hz
N
L

12.2-Wiring diagram cassette with EC motor







CONTROL FROM EXTERNAL THERMOSTAT	
VH	Contact on-off valve heating (4 tubes)
VC	Contact on-off valve cooling (2-4 tubes)
MIN	Minimum fan speed
MED	Minimum fan speed
MAX	Maximum speed fan
GND	Reference signal 0-10V
0-10V	0-10V signal for motor control

NOTES:

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