Fan coils

Sabiana has been making fan coils since 1980, units that stand out for their **attractive design** and very low noise and power consumption, responding to current demand for **energy saving** and **indoor comfort**.

In 1994 the company acquired the patent to exclusively manufacture one of the most innovative components ever developed for hydronic terminal units, one that is still widely used today and is part of a product designed to air-condition a wide variety of different environments, with the result of **significantly improving indoor air quality** (IAQ) and, by reducing the amount of outside air needed in the system, decreasing air-conditioning costs. The name of this electronic filter - **Crystall** - is quite symbolic, and is used to identify this specific type of solution.

In 2004 a new generation of **cassettes** was introduced, designed for installation in false ceilings, featuring a modern design, different colours and different aesthetic solutions, leading the company to soon become one of the European leaders in the production of fan coils and helping it expand its market to other continents.

In 2009, Sabiana was the first company in the world to introduce **inverter-driven brushless and sensorless motors** in its cassette units, with power consumption below 10 watts in the most common operating conditions.
Continuous adjustment of air flow-rate also means muchmore precise control over indoor temperature.

The following pages illustrate all the solutionsthat are currently available, both featuring traditional asynchronous motors and electronically controlled motors, with performance certified by the independent institute **EUROVENT**.

Sabiana obtained the Eurovent certification in 1996. Eurovent is an independent body recognized in all Europe that ensures total reliability and transparency of performances.

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Carisma Collection

Carisma is the result of a great commitment of energy and resources, with the aim of offering an innovative product in terms of design, performance, low noise, energy saving and functionality.
Upon request, **innovative electronic motors** with extremely low energy consumption, controlled by an inverter board and identified by ECM, are available with centrifugal and tangential fan. The ECM motors allow electrical consumption to be decreased by more than 50% compared to traditional asynchronous motors. They enable continuous air flow control and precise control over the ambient temperature, with further benefits in terms of very low noise levels thanks to the reduced average working speed.

The 5 models (for wall and ceiling installation, with casing and concealed) and the different available coils (with three or four rows for two pipe systems, one or two rows for four pipe systems) offer great installation flexibility and allow the use of low temperature hot water, in line with the development of modern boilers and heat pumps.
As a special option, the Carisma range can be fitted with the **Crystall patented electronic filter** featuring a class D rating according to Standard UNI 11254, with similar performances to the initial ones of a traditional mechanical filter featuring a class F9 rating according to Standard UNI EN 779.

A full range of controls is available for rapidly obtaining correct ambient temperature and desired performances and comfort. The Carisma model is complemented with a full range of accessories: various types of adjustment valves, sturdy support feet, rear covering panel for glass installation, additional electric heater, auxiliary condensate pump, fresh air intake louver, air inlet/outlet diffusers for concealed systems.

Carisma CRC

Fan coil unit with centrifugal fan with asynchronous motor

Range includes **9 air flow rates** (from 105 to 1500 m^3/h) and **5 models** (for wall and ceiling installation, with casing and concealed), each equipped with 3 or 4 row coil and with the possibility to add a 1 or 2 row coil for 4 pipe systems.

It is the most comprehensive range, perfectly suited to meet all of the climate control needs of work environments such as offices, shops, restaurants and hotel rooms featuring ducted installations with available pressure **up to 50 Pa**.

TECHNICAL CHARACTERISTICS

Outer casing: made with strong synthetic lateral corners and from galvanized and prepainted front steel panel. The plastic top grid has fixed louvres and is reversible in order to distribute the air in two different directions.
Standard colours:

- Lateral corners and top grid: **Pantone Cool Grey 1C (light grey)**
- Front panel: **RAL 9003 (white)**
- Other colours on request.

Inner casing: made from 1 mm galvanized steel insulated with 3 mm polyolefin (PO) foam (class M1)..

Filter: polypropylene cellular fabric regenerating filter. The filter frame of galvanized steel is inserted into special plastic sliding guides fastened to the internal structure for easy insertion and removal of the filter. Filter presence is highlighted by a plastic front cover featuring the same colour as the top grid.

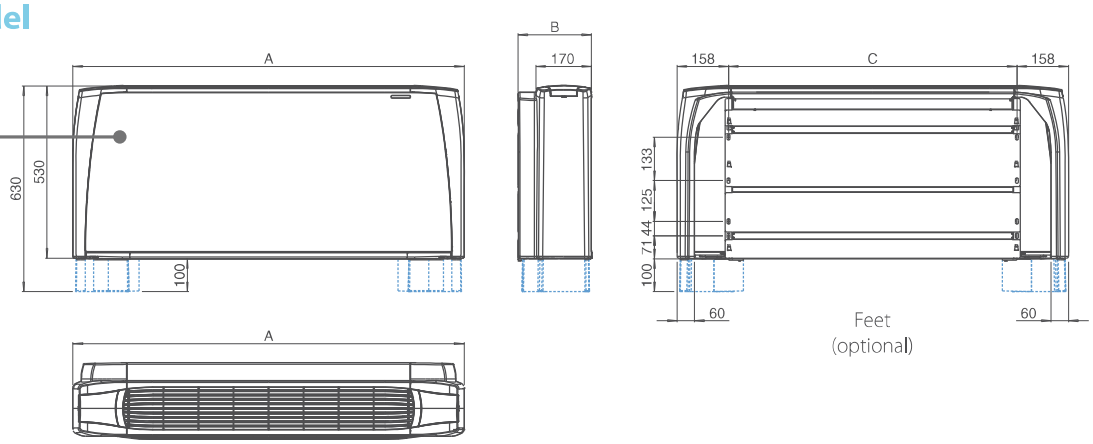
Fan assembly: the fans have aluminium or plastic blades directly keyed on the motor with double aspiration and they are dynamically and statically balanced during manufacture in order to have an extremely quiet operation.

Electric motor: the motor is wired for single phase and has six speeds, three of which are connected, with capacitor. The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings. Internal thermal protection with automatic reset, protection IP 20, class B.

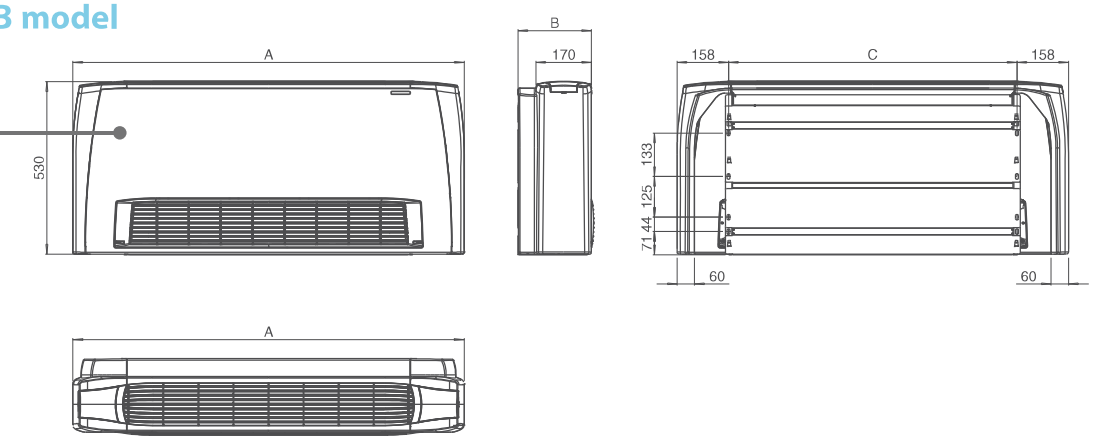
Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain. The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.
Flow and return pipe connections are situated at the same end on the left side looking at the unit. On request we can deliver the unit with the connections on the right end side. This operation can also be easily carried out on site during installation.

Condensate collection tray: made from plastic with an "L"-shaped plastic fitted on the inner casing; in the MO-MVB and IV-IO model the tray is insulated with 3 mm polyolefin (PO) foam (class M1). The outside diameter of the condensate discharge pipe is 15 mm.

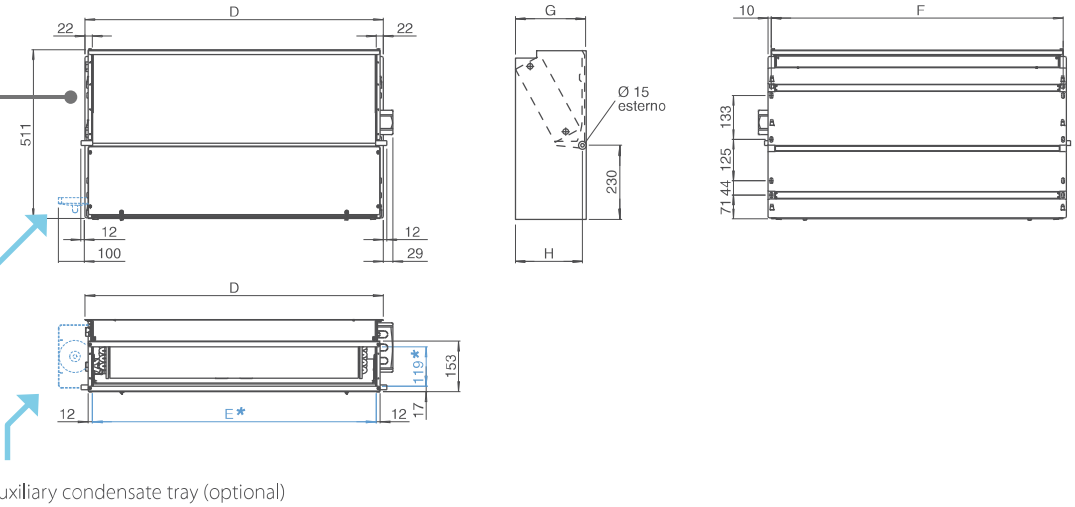
MV model



MO-MVB model



IV-IO model

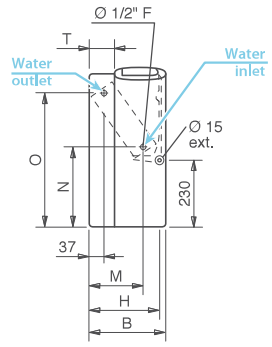
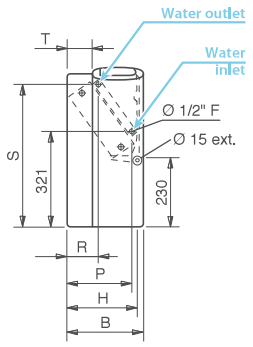
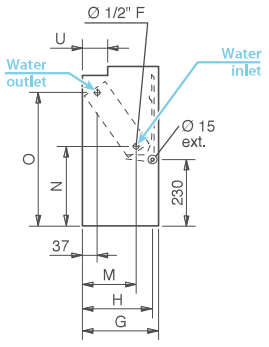
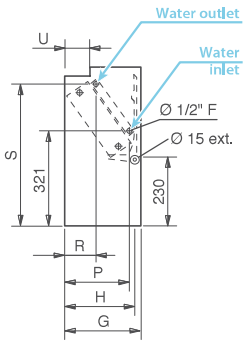


Auxiliary condensate tray (optional)

Coil connections on the left

* Supply frame dimension = E x 119 mm

Coil connections

MV and MO-MVB model		IV-IO model	
3 or 4 row coils	Heating additional coil (1 or 2 rows)	3 or 4 row coils	Heating additional coil (1 or 2 rows)
			

Dimension (mm)

Model	1	2	3	4	5	6	7	8	9
A	670	770	985	985	1200	1200	1415	1415	1415
B	225	225	225	225	225	225	225	255	255
C	354	454	669	669	884	884	1099	1099	1099
D	374	474	689	689	904	904	1119	1119	1119
E	330	430	645	645	860	860	1075	1075	1075
F	354	454	669	669	884	884	1099	1099	1099
G	218	218	218	218	218	218	218	248	248
H	205	205	205	205	205	205	205	235	235
M	145	145	145	145	145	145	145	170	170
N	260	260	260	260	260	260	260	270	270
O	460	460	460	460	460	460	460	450	450
P	185	185	185	185	185	185	185	210	210
R	105	105	105	105	105	105	105	110	110
S	475	475	475	475	475	475	475	465	465
T	55	55	55	55	55	55	55	85	85
U	65	65	65	65	65	65	65	95	95

Weight (kg)

			Weight with packaging									Weight without packaging								
		Model	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
MV MO-MVB	ROWS	**3**	15,5	17,2	21,4	22,5	26,9	27,7	32,1	35,7	35,9	13,9	15,4	19,1	20,2	24,1	24,9	28,8	32,0	32,2
		3+1	16,2	18,0	22,6	23,7	28,4	29,2	33,9	37,5	37,7	14,6	16,2	20,3	21,4	25,6	26,4	30,6	33,8	34,0
		3+2	16,7	18,6	23,3	24,4	29,3	30,1	35,0	38,6	38,8	15,1	16,8	21,0	22,1	26,5	27,3	31,7	34,9	35,1
		4	16,0	18,0	22,4	23,5	28,1	29,0	33,6	37,2	37,4	14,4	16,2	20,1	21,2	25,3	26,2	30,3	33,5	33,7
		4+1	16,7	18,8	23,6	24,7	29,6	30,5	35,4	39,0	39,2	15,1	17,0	21,3	22,4	26,8	27,7	32,1	35,3	35,5
IV-IO	ROWS	**3**	12,2	13,6	17,1	18,1	21,9	22,8	27,0	30,2	30,4	10,6	11,8	15,3	16,3	19,6	20,5	24,2	27,1	27,3
		3+1	12,9	14,4	18,3	19,3	23,4	24,3	28,8	32,0	32,2	11,3	12,6	16,5	17,5	21,1	22,0	26,0	28,9	29,1
		3+2	13,4	15,0	19,0	20,0	24,3	25,2	29,9	33,1	33,3	11,8	13,2	17,2	18,2	22,0	22,9	27,1	30,0	30,2
		4	12,7	14,4	18,1	19,1	23,1	24,1	28,5	31,7	31,9	11,1	12,6	16,3	17,3	20,8	21,8	25,7	28,6	28,8
		4+1	13,4	15,2	19,3	20,3	24,6	25,6	30,3	33,5	33,7	11,8	13,4	17,5	18,5	22,3	23,3	27,5	30,4	30,6

Water content (litres)

Modello		1	2	3	4	5	6	7	8	9
ROWS	**3**	0,5	0,6	0,9	0,9	1,3	1,6	1,7	1,9	1,9
	4	0,7	0,8	1,3	1,3	1,7	2,2	2,4	2,8	2,8
	+1	0,2	0,2	0,3	0,3	0,4	0,5	0,5	0,6	0,6
	+2	0,4	0,4	0,6	0,6	0,8	1,0	1,0	1,2	1,2

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Units with 3 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T +12 °C L.W.T

HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model			CRC 13						CRC 23						CRC 33					
Speed			1 (E)	2	3	4 (E)	5	6 (E)	1 (E)	2	3 (E)	4	5 (E)	6	1	2 (E)	3 (E)	4	5 (E)	6
			MIN			MED		MAX	MIN		MED		MAX			MIN	MED		MAX	
Air flow		m^3/h	**105**	125	150	**175**	195	**220**	**145**	170	**220**	250	**295**	340	185	**235**	**270**	325	**385**	440
Cooling total emission (E)		kW	**0,57**	0,66	0,75	**0,84**	0,91	**1,00**	**0,90**	0,99	**1,23**	1,35	**1,53**	1,70	1,27	**1,55**	**1,76**	2,04	**2,35**	2,61
Cooling sensible emission (E)		kW	**0,45**	0,53	0,60	**0,69**	0,75	**0,83**	**0,68**	0,76	**0,95**	1,06	**1,21**	1,36	0,92	**1,13**	**1,30**	1,51	**1,76**	1,97
Heating (E)		kW	**0,64**	0,76	0,86	**0,98**	1,07	**1,19**	**0,94**	1,06	**1,34**	1,49	**1,70**	1,92	1,26	**1,56**	**1,79**	2,10	**2,44**	2,74
Heating - Water 70-60 °C		kW	**1,31**	1,53	1,75	**1,99**	2,18	**2,42**	**1,90**	2,14	**2,70**	3,00	**3,44**	3,89	2,54	**3,14**	**3,61**	4,24	**4,92**	5,52
Dp Cooling (E)		kPa	**2,5**	3,0	3,8	**4,7**	5,4	**6,3**	**2,5**	3,0	**4,4**	5,3	**6,5**	7,9	6,6	**9,4**	**11,8**	15,3	**19,7**	23,8
Dp Heating (E)		kPa	**0,9**	1,1	1,4	**1,8**	2,1	**2,5**	**2,2**	2,8	**4,2**	5,0	**6,4**	7,9	5,4	**7,8**	**10,0**	13,2	**17,1**	21,0
Fan (E)		W	**16**	19	21	**25**	29	**33**	**14**	16	**22**	26	**32**	40	15	**20**	**25**	32	**41**	49
Sound power (E)		dB(A)	**32**	34	36	**39**	42	**45**	**30**	33	**40**	43	**47**	51	31	**36**	**40**	45	**49**	52
Sound pressure (*)		dB(A)	**23**	25	27	**30**	33	**36**	**21**	24	**31**	34	**38**	42	22	**27**	**31**	36	**40**	43
1 row heating additional coil (Water 70/60 °C)	Heating (E)	kW	**0,63**	0,71	0,79	**0,89**	0,96	**1,04**	**0,94**	1,04	**1,25**	1,36	**1,52**	1,68	1,35	**1,59**	**1,77**	2	**2,26**	2,48
	Dp Heat. (E)	kPa	**0,7**	0,9	1,0	**1,3**	1,5	**1,7**	**1,7**	2,0	**2,8**	3,3	**4,0**	4,8	3,9	**5,2**	**6,3**	7,8	**9,7**	11,4

Model			CRC 43						CRC 53						CRC63					
Speed			1	2 (E)	3 (E)	4	5 (E)	6	1	2 (E)	3	4 (E)	5 (E)	6	1 (E)	2	3 (E)	4	5 (E)	6
				MIN	MED		MAX			MIN		MED		MAX	MIN		MED		MAX	
Air flow		m^3/h	185	**265**	**335**	400	**485**	570	250	**315**	420	**495**	545	**650**	**415**	505	**590**	680	**760**	830
Cooling total emission (E)		kW	1,25	**1,71**	**2,11**	2,43	**2,83**	3,19	1,66	**2,01**	2,55	**2,90**	3,13	**3,58**	**2,50**	2,94	**3,32**	3,70	**4,01**	4,26
Cooling sensible emission (E)		kW	0,91	**1,26**	**1,57**	1,82	**2,15**	2,45	1,22	**1,49**	1,91	**2,19**	2,38	**2,76**	**1,87**	2,23	**2,54**	2,86	**3,12**	3,35
Heating (E)		kW	1,25	**1,74**	**2,18**	2,52	**2,97**	3,41	1,65	**2,02**	2,61	**3,00**	3,24	**3,75**	**2,56**	3,05	**3,45**	3,90	**4,26**	4,56
Heating - Water 70-60 °C		kW	2,51	**3,51**	**4,36**	5,08	**6,00**	6,87	3,32	**4,07**	5,26	**6,04**	6,54	**7,57**	**5,17**	6,15	**6,96**	7,87	**8,61**	9,22
Dp Cooling (E)		kPa	6,5	**11,2**	**16,2**	20,8	**27,2**	33,8	4,1	**5,8**	8,8	**11,1**	12,7	**16,2**	**8,6**	11,4	**14,1**	17,2	**19,8**	22,1
Dp Heating (E)		kPa	5,3	**9,5**	**14,0**	18,2	**24,3**	30,8	3,4	**4,8**	7,5	**9,6**	11,0	**14,2**	**7,3**	9,9	**12,3**	15,2	**17,8**	20,1
Fan (E)		W	14	**21**	**28**	34	**44**	57	18	**22**	32	**39**	46	**61**	**37**	46	**55**	67	**78**	88
Sound power (E)		dB(A)	27	**33**	**39**	43	**47**	52	26	**31**	37	**41**	43	**48**	**37**	42	**46**	49	**52**	54
Sound pressure (*)		dB(A)	18	**24**	**30**	34	**38**	43	17	**22**	28	**32**	34	**39**	**28**	33	**37**	40	**43**	45
1 row heating additional coil (Water 70/60 °C)	Heating (E)	kW	1,34	**1,73**	**2,06**	2,32	**2,65**	2,88	1,77	**2,07**	2,53	**2,83**	3,03	**3,42**	**2,50**	2,87	**3,19**	3,54	**3,81**	4,04
	Dp Heat. (E)	kPa	3,9	**6,0**	**8,2**	10,1	**12,8**	14,8	1,2	**1,6**	2,3	**2,8**	3,2	**3,9**	**3,2**	4,1	**4,9**	5,8	**6,7**	7,4

Model			CRC 73						CRC 83						CRC 93					
Speed			1	2 (E)	3	4 (E)	5	6 (E)	1	2 (E)	3	4 (E)	5	6 (E)	1	2 (E)	3	4 (E)	5	6 (E)
				MIN		MED		MAX		MIN		MED		MAX		MIN		MED		MAX
Air flow		m^3/h	445	**535**	630	**735**	840	**925**	510	**655**	815	**1020**	1100	**1200**	735	**830**	980	**1210**	1365	**1500**
Cooling total emission (E)		kW	2,82	**3,29**	3,74	**4,21**	4,66	**5,01**	3,01	**3,68**	4,32	**5,09**	5,36	**5,69**	4,00	**4,38**	4,95	**5,74**	6,21	**6,56**
Cooling sensible emission (E)		kW	2,08	**2,45**	2,80	**3,19**	3,56	**3,85**	2,27	**2,82**	3,35	**4,02**	4,26	**4,55**	3,08	**3,40**	3,89	**4,60**	5,03	**5,37**
Heating (E)		kW	2,83	**3,34**	3,83	**4,33**	4,83	**5,23**	3,22	**4,02**	4,78	**5,75**	6,11	**6,55**	4,42	**4,86**	5,58	**6,62**	7,26	**7,78**
Heating - Water 70-60 °C		kW	5,71	**6,72**	7,67	**8,73**	9,76	**10,55**	6,49	**8,11**	9,67	**11,63**	12,36	**13,25**	8,87	**9,82**	11,29	**13,39**	14,70	**15,74**
Dp Cooling (E)		kPa	12,3	**16,2**	20,3	**25,1**	30,1	**34,2**	7,2	**10,3**	13,8	**18,4**	20,2	**22,5**	11,8	**13,8**	17,3	**22,4**	25,9	**28,6**
Dp Heating (E)		kPa	10,1	**13,5**	17,2	**21,3**	25,9	**29,7**	5,6	**8,3**	11,3	**15,6**	17,3	**19,6**	9,8	**11,6**	14,8	**19,9**	23,5	**26,5**
Fan (E)		W	44	**54**	66	**79**	92	**103**	47	**62**	81	**105**	116	**130**	78	**92**	108	**134**	152	**176**
Sound power (E)		dB(A)	38	**42**	47	**51**	54	**56**	39	**45**	50	**56**	58	**60**	47	**50**	54	**58**	62	**64**
Sound pressure (*)		dB(A)	29	**33**	38	**42**	45	**47**	30	**36**	41	**47**	49	**51**	38	**41**	45	**49**	53	**55**
1 row heating additional coil (Water 70/60 °C)	Heating (E)	kW	2,89	**3,29**	3,68	**4,09**	4,49	**4,79**	3,03	**3,60**	4,17	**4,86**	5,11	**5,41**	3,89	**4,22**	4,74	**5,46**	5,90	**6,23**
	Dp Heat. (E)	kPa	3,4	**4,3**	5,2	**6,3**	7,4	**8,3**	3,7	**5,0**	6,5	**8,5**	9,3	**10,3**	5,8	**6,7**	8,2	**10,5**	12,0	**13,2**

(E) = EUROVENT certified performance. **MIN-MED-MAX** = Standard connected speeds.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

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Units with 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T +12 °C L.W.T

HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model			CRC 14						CRC 24						CRC 34					
Speed			1 (E)	2	3	4 (E)	5	6 (E)	1 (E)	2	3 (E)	4	5 (E)	6	1	2 (E)	3 (E)	4	5 (E)	6
			MIN			MED		MAX	MIN		MED		MAX			MIN	MED		MAX	
Air flow		m^3/h	**105**	125	150	**175**	195	**220**	**145**	170	**220**	250	**295**	340	185	**235**	**270**	325	**385**	440
Cooling total emission (E)		kW	**0,65**	0,77	0,87	**1,00**	1,08	**1,20**	**1,00**	1,11	**1,41**	1,56	**1,78**	2,00	1,32	**1,63**	**1,87**	2,17	**2,53**	2,83
Cooling sensible emission (E)		kW	**0,49**	0,58	0,66	**0,77**	0,84	**0,94**	**0,73**	0,82	**1,05**	1,17	**1,35**	1,53	0,95	**1,18**	**1,36**	1,59	**1,86**	2,09
Heating (E)		kW	**0,69**	0,80	0,92	**1,07**	1,17	**1,31**	**0,99**	1,11	**1,43**	1,60	**1,83**	2,08	1,30	**1,62**	**1,87**	2,19	**2,59**	2,88
Heating - Water 70-60 °C		kW	**1,38**	1,62	1,86	**2,15**	2,36	**2,63**	**1,98**	2,24	**2,88**	3,22	**3,69**	4,19	2,60	**3,23**	**3,73**	4,40	**5,14**	5,80
Dp Cooling (E)		kPa	**1,9**	2,5	3,2	**4,0**	4,7	**5,6**	**4,9**	6,1	**9,1**	11,0	**13,9**	17,2	3,7	**5,3**	**6,7**	8,8	**11,5**	14,1
Dp Heating (E)		kPa	**1,7**	2,2	2,8	**3,7**	4,3	**5,3**	**4,0**	4,9	**7,6**	9,3	**11,8**	14,8	2,8	**4,2**	**5,4**	7,1	**9,8**	11,5
Fan (E)		W	**16**	19	21	**25**	29	**33**	**14**	16	**22**	26	**32**	40	15	**20**	**25**	32	**41**	49
Sound power (E)		dB(A)	**32**	34	36	**39**	42	**45**	**30**	33	**40**	43	**47**	51	31	**36**	**40**	45	**49**	52
Sound pressure (*)		dB(A)	**23**	25	27	**30**	33	**36**	**21**	24	**31**	34	**38**	42	22	**27**	**31**	36	**40**	43
1 row heating additional coil (Water 70/60 °C)	Heating (E)	kW	**0,63**	0,71	0,79	**0,89**	0,96	**1,04**	**0,94**	1,04	**1,25**	1,36	**1,52**	1,68	1,35	**1,59**	**1,77**	2,00	**2,26**	2,48
	Dp Heat. (E)	kPa	**0,7**	0,9	1,0	**1,3**	1,5	**1,7**	**1,7**	2,0	**2,8**	3,3	**4,0**	4,8	3,9	**5,2**	**6,3**	7,8	**9,7**	11,4

Model			CRC 44						CRC 54						CRC 64					
Speed			1	2 (E)	3 (E)	4	5 (E)	6	1	2 (E)	3	4 (E)	5 (E)	6	1 (E)	2	3 (E)	4	5 (E)	6
				MIN	MED		MAX			MIN		MED		MAX	MIN		MED		MAX	
Air flow		m^3/h	185	**265**	**335**	400	**485**	570	250	**315**	420	**495**	**545**	650	**415**	505	**590**	680	**760**	830
Cooling total emission (E)		kW	1,31	**1,81**	**2,25**	2,62	**3,08**	3,50	1,77	**2,17**	2,79	**3,21**	**3,49**	4,03	**2,79**	3,34	**3,81**	4,31	**4,71**	5,04
Cooling sensible emission (E)		kW	0,94	**1,32**	**1,65**	1,93	**2,30**	2,63	1,28	**1,58**	2,04	**2,36**	**2,58**	3,01	**2,03**	2,45	**2,81**	3,20	**3,52**	3,79
Heating (E)		kW	1,28	**1,80**	**2,27**	2,64	**3,14**	3,62	1,71	**2,10**	2,74	**3,16**	**3,46**	4,01	**2,82**	3,39	**3,90**	4,46	**4,92**	5,31
Heating - Water 70-60 °C		kW	2,57	**3,62**	**4,56**	5,32	**6,33**	7,30	3,44	**4,23**	5,51	**6,37**	**6,97**	8,07	**5,66**	6,81	**7,85**	8,98	**9,90**	10,68
Dp Cooling (E)		kPa	3,4	**6,1**	**9,0**	11,7	**15,5**	19,6	7,3	**10,4**	16,3	**20,8**	**24,2**	31,3	**14,4**	19,7	**24,8**	30,9	**36,2**	40,9
Dp Heating (E)		kPa	2,6	**5,0**	**7,2**	9,4	**12,8**	16,4	5,6	**8,1**	12,9	**16,6**	**19,5**	25,2	**11,9**	16,5	**21,1**	26,8	**31,8**	36,3
Fan (E)		W	14	**21**	**28**	34	**44**	57	18	**22**	32	**39**	**46**	61	**37**	46	**55**	67	**78**	88
Sound power (E)		dB(A)	27	**33**	**39**	43	**47**	52	26	**31**	37	**41**	**43**	48	**37**	42	**46**	49	**52**	54
Sound pressure (*)		dB(A)	18	**24**	**30**	34	**38**	43	17	**22**	28	**32**	**34**	39	**28**	33	**37**	40	**43**	45
1 row heating additional coil (Water 70/60 °C)	Heating (E)	kW	1,34	**1,73**	**2,06**	2,32	**2,65**	2,88	1,77	**2,07**	2,53	**2,83**	**3,03**	3,42	**2,50**	2,87	**3,19**	3,54	**3,81**	4,04
	Dp Heat. (E)	kPa	3,9	**6,0**	**8,2**	10,1	**12,8**	14,8	1,2	**1,6**	2,3	**2,8**	**3,2**	3,9	**3,2**	4,1	**4,9**	5,8	**6,7**	7,4

Model			CRC 74						CRC 84						CRC 94					
Speed			1	2 (E)	3	4 (E)	5	6 (E)	1	2 (E)	3	4 (E)	5	6 (E)	1	2 (E)	3	4 (E)	5	6 (E)
				MIN		MED		MAX		MIN		MED		MAX		MIN		MED		MAX
Air flow		m^3/h	445	**535**	630	**735**	840	**925**	510	**655**	815	**1020**	1100	**1200**	735	**830**	980	**1210**	1365	**1500**
Cooling total emission (E)		kW	2,99	**3,51**	4,01	**4,56**	5,08	**5,48**	3,22	**3,97**	4,72	**5,63**	5,94	**6,34**	4,34	**4,79**	5,45	**6,41**	6,98	**7,42**
Cooling sensible emission (E)		kW	2,18	**2,57**	2,96	**3,39**	3,80	**4,13**	2,38	**2,98**	3,58	**4,33**	4,59	**4,93**	3,28	**3,63**	4,18	**4,98**	5,48	**5,87**
Heating (E)		kW	2,95	**3,49**	4,03	**4,62**	5,15	**5,59**	3,37	**4,26**	5,14	**6,27**	6,60	**7,20**	4,70	**5,23**	6,01	**7,18**	7,93	**8,52**
Heating - Water 70-60 °C		kW	5,93	**7,02**	8,12	**9,30**	10,38	**11,26**	6,78	**8,55**	10,37	**12,52**	13,34	**14,36**	9,47	**10,55**	12,13	**14,52**	16,02	**17,23**
Dp Cooling (E)		kPa	9,5	**12,5**	15,9	**20,0**	24,2	**27,7**	9,6	**14,0**	19,0	**26,0**	28,6	**32,2**	8,9	**10,6**	13,4	**17,8**	20,7	**23,2**
Dp Heating (E)		kPa	7,5	**10,1**	13,1	**16,6**	20,1	**23,2**	8,5	**12,8**	17,9	**24,9**	27,8	**31,7**	8,3	**10,0**	12,8	**17,6**	20,9	**23,7**
Fan (E)		W	44	**54**	66	**79**	92	**103**	47	**62**	81	**105**	116	**130**	78	**92**	108	**134**	152	**176**
Sound power (E)		dB(A)	38	**42**	47	**51**	54	**56**	39	**45**	50	**56**	58	**60**	47	**50**	54	**58**	62	**64**
Sound pressure (*)		dB(A)	29	**33**	38	**42**	45	**47**	30	**36**	41	**47**	49	**51**	38	**41**	45	**49**	53	**55**
1 row heating additional coil (Water 70/60 °C)	Heating (E)	kW	2,89	**3,29**	3,68	**4,09**	4,49	**4,79**	3,03	**3,60**	4,17	**4,86**	5,11	**5,41**	3,89	**4,22**	4,74	**5,46**	5,90	**6,23**
	Dp Heat. (E)	kPa	3,4	**4,3**	5,2	**6,3**	7,4	**8,3**	3,7	**5,0**	6,5	**8,5**	9,3	**10,3**	5,8	**6,7**	8,2	**10,5**	12,0	**13,2**

(E) = EUROVENT certified performance. **MIN-MED-MAX** = Standard connected speeds.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

Breeze Frame Kit | FOR CARISMA CRC WALL CONCEALED INSTALLATION

The Carisma Breeze frame kit is available in **3 sizes** and allows the installation of **recessed** Carisma fan coils.

The kit includes a top closing panel that prevents the access to technical spaces and coil ensuring **the safety of the end user**.

The aesthetic frame includes:

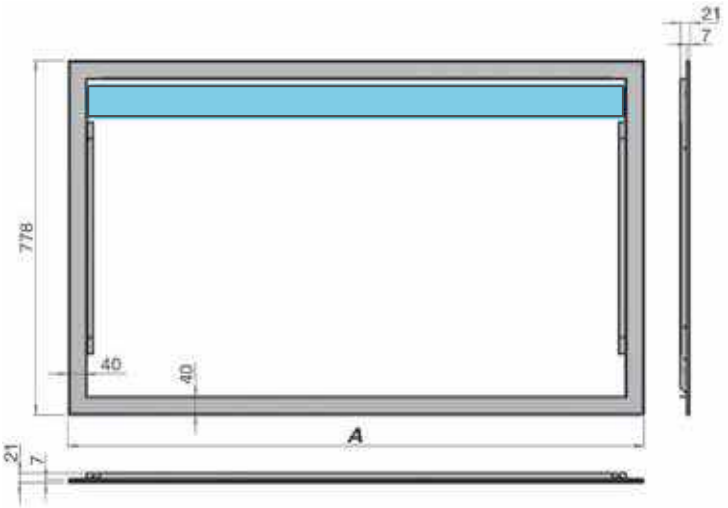
- the closing frame;
- air supply louvre;
- front panel;
- air intake grid.

The air supply louvre is made of extruded aluminum with satin finish.

Perimeter frame, front panel and **intake grid** are made of steel painted with epoxy polyester coat, dried in a furnace at 180°, colour RAL 9003. It is possible to repaint the entire frame of the same color as the wall.

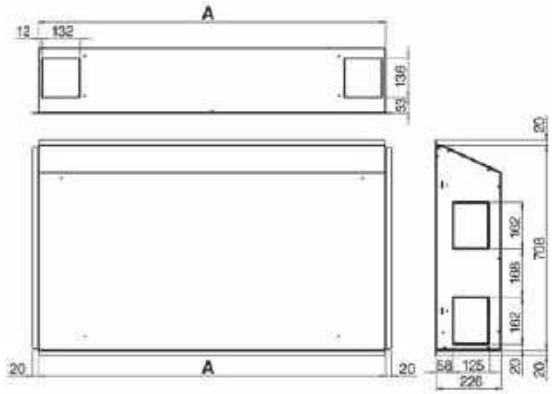
The recessed box is made of galvanized steel with opening for the electrical and hydraulic connections.

Aesthetic frame dimensions



Size	Measurement A
2	837
3/4	1052
5/6	1267

Recessed box dimensions



Size	Measurement A
2	771
3/4	986
5/6	1201

Indoor Air Quality

The **Crystall Sabiana** electrostatic filter matches the need for better air conditioning with the concepts of space and design.
With this filter the various stages of air treatment are combined in one appliance.

Thanks to this new patented filter (efficiency compliant with new Standard UNI 11254), air pollutants such as cigarette smoke, dust (PM10, PM2.5), pollen and most biological organisms **are eliminated**.

In addition, as fresh air is not being introduced to obtain the best climatic conditions, there are consequential energy savings.

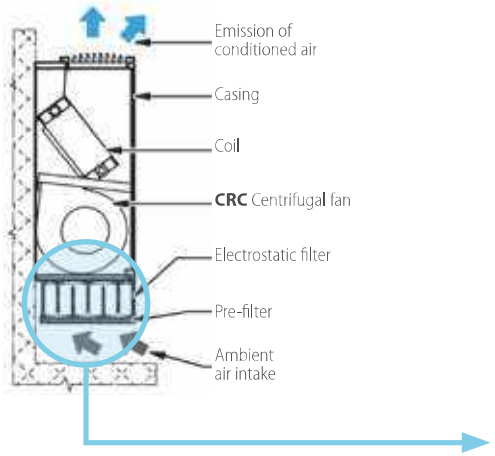
Operating principle of the Crystall electronic filter

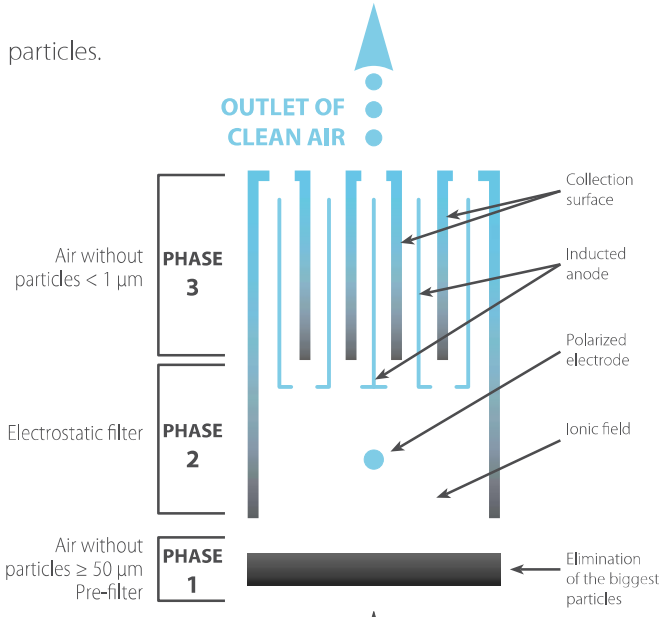
The air is sucked in and first passes a mechanical prefilter, which stops away particles of more than 50 µm (dust, insects, etc.). Then the smallest particles (50÷0.01 µm) are exposed to an intensive ionic field and are polarized (**PHASE 1**).

The charged particles passing through the second filter section, are pushed back by the anode and attracted by the collection surfaces by a strong, inducted magnetic field (**PHASE 2**).

The charged particles passing through the second filter section, are pushed back by the anode and attracted by the collection surfaces by a strong, inducted magnetic field **(PHASE 3)**.

The air which leaves the unit is free from polluting particles.





Electronic controls included

Standard MV-MVB models	
CB	3 speed control
CB-T	3 speed control with electronic thermostat and manual summer/winter switch
CB-C	3 speed control with electronic thermostat and centralized summer/winter switch
CB-AUT	Automatic 3 speed control with electronic thermostat and centralized/manual summer/winter switch

N.B.: if the electrostatic filter or the electric heater is mounted, use the "**IAQ**" controls.

Wall electronic controls

Standard MV, MO-MVB and IV-IO models	
WM-3V	3 speed control
WM-T	3 speed control with electronic thermostat and manual summer/winter switch
WM-TQR	3 speed control with electronic thermostat and centralized/manual summer/winter switch
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-503	Automatic speed control with electronic thermostat to be mounted in the 503 box (to be used with UP-503 only)
T2T	Electromechanical thermostat with summer/winter switch (only for 2 pipe units)
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit
UP-503	Power unit for WM-503 remote controls, not fitted on the unit

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Electronic controls for MB boards

MB-M	MB electronic board fitted on the unit
MB-S	MB electronic board supplied with separate packaging
T-MB	Wall control (to be used with MB board only)
T-MB-M	Control fitted on the unit, for MV/MVB models with left connections (available with right connections, to be used with MB board and UP-AU board only)
T-MB-S	Control supplied with separate packaging, for MV/MVB models with left connections (available with right connections, to be used with MB board and UP-AU board only)
RM-RT03	RT03 infra-red remote control with fitted receiver, for MV/MO-MVB models (to be used with MB board only)
RS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RM	Receiver for RT03 infra-red remote control fitted on the unit, for MV/MO-MVB models (to be used with MB board only)
RS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Sabianet management system for a network of fan coils	
Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Built-in electronic control

T-MB
Wall electronic control

WM-TQR
Wall electronic control

Carisma CRC-ECM

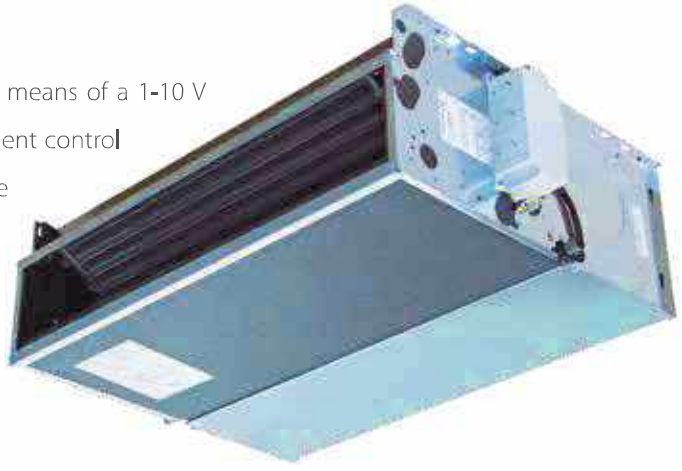
Fan Coil Unit with Centrifugal Fan with EC Brushless Electronic Motor and Inverter Board

Range includes **5 air flow rates** (from 115 to 1395 m^3/h) and **5 models** (for wall and ceiling installation, with casing and concealed), each equipped with 3 or 4 row coil and with the possibility to add a 1 or 2 row coil for 4 pipe systems. This is the series with the **lowest electrical consumption** in relation to both heat performance as well as working static performance and is particularly suited to satisfying the strictest energy consumption needs **of class A** buildings, and to ensuring excellent acoustic comfort.

The ECM range makes use of the excellent experience gained with the SkyStar Cassette fan coils with inverter board, first in the world in production since 2009, and which have had great success on all markets.

The innovative **brushless** and **sensorless** type synchronous electronic motor with permanent magnets, is controlled by an inverter board designed and developed in Italy. The board is mounted on the unit, closed to the motor, without the need to be cooled down by the air flow.

The air flow rate can be varied **in continuously** by means of a 1-10 V signal generated by Sabiana controls or by independent control systems. The continuous air flow control improves the acoustic comfort and allows a more punctual reply to the variation of the thermal loads and a greater stability of the requested ambient temperature.



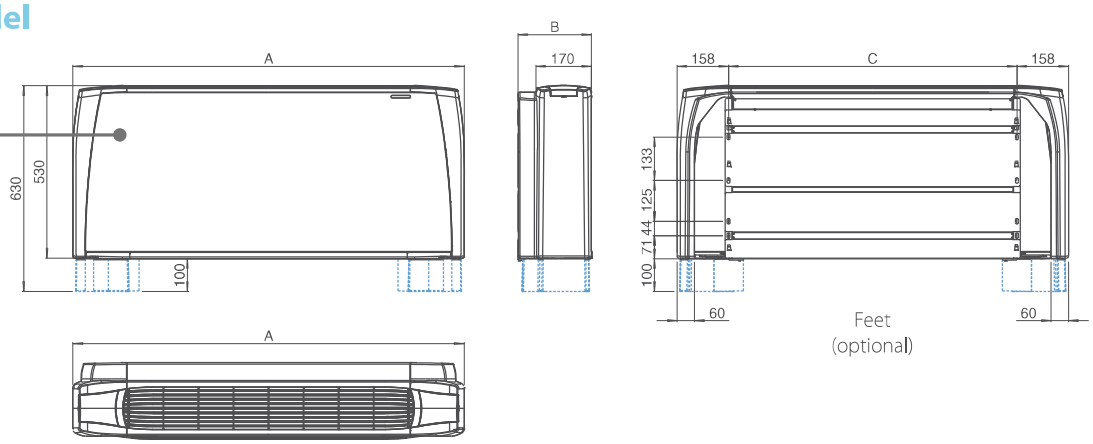
The extreme efficiency, also at low speed, makes possible a great reduction in electric consumption (50% less in comparison to CRC AC motor) with absorption values under normal operating conditions that **do not exceed 16 Watt**.

The excellent values of the CRC range in terms of sound levels have been maintained **in all working conditions**, without any resonance phenomenon at any frequency.

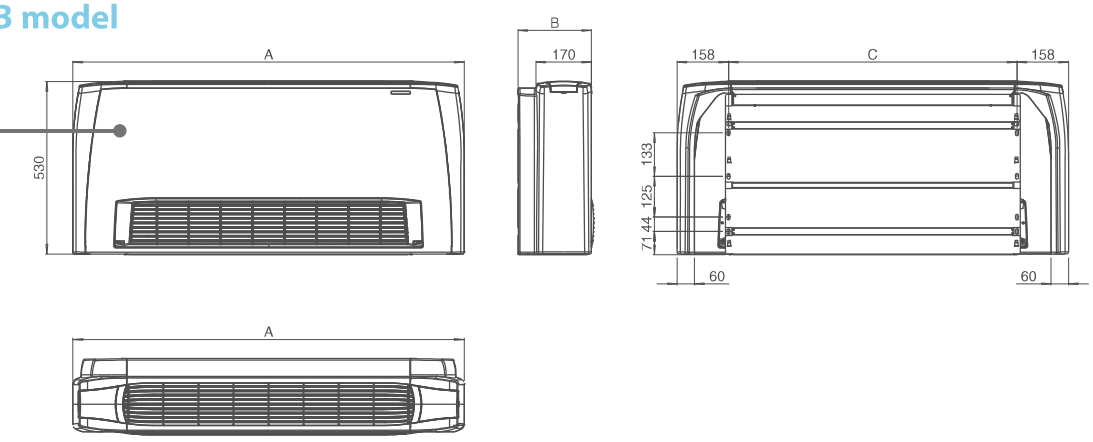
The full compliance with the Electromagnetic Compatibility Directive and with the other severe Standards in force is certified by an independent institute.

For the technical characteristics of the various components refer to Carisma CRC Fan Coil Unit, except for Electronic motor:
Three phase permanent magnet brushless electronic motor that is controlled with current reconstructed according to a **BLAC** sinusoidal wave.
The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply.
The electric power supply required for the machine is therefore single-phase with voltage of **230 - 240 V** and frequency of **50 - 60 Hz**.

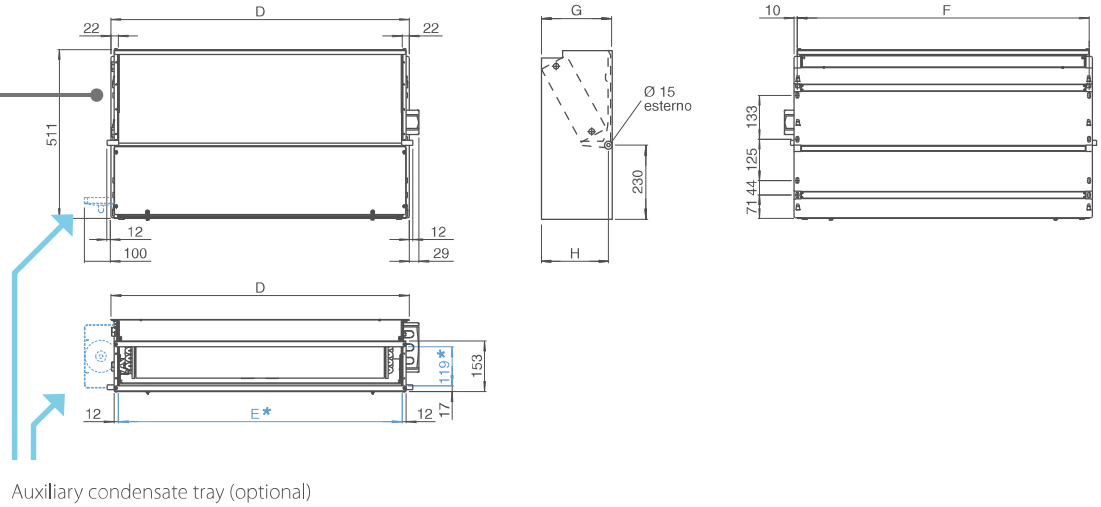
MV model



MO-MVB model



IV-IO model

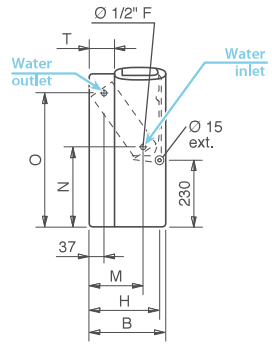
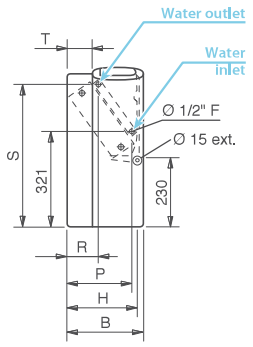
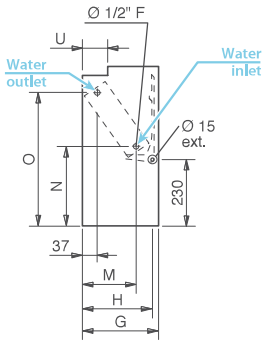
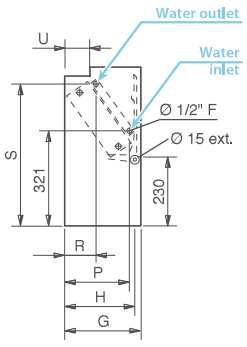


Coil connections on the left

* Supply frame dimension = E x 119 mm

DIMENSIONS, WEIGHT, WATER CONTENT

Coil connections

MV and MO-MVB model		IV-IO model	
3 or 4 row coils	Heating additional coil (1 or 2 rows)	3 or 4 row coils	Heating additional coil (1 or 2 rows)
			

Dimension (mm)

Model	2	4	6	7	9
A	770	985	1200	1415	1415
B	225	225	225	225	255
C	454	669	884	1099	1099
D	474	689	904	1119	1119
E	430	645	860	1075	1075
F	454	669	884	1099	1099
G	218	218	218	218	248
H	205	205	205	205	235
M	145	145	145	145	170
N	260	260	260	260	270
O	460	460	460	460	450
P	185	185	185	185	210
R	105	105	105	105	110
S	475	475	475	475	465
T	55	55	55	55	85
U	65	65	65	65	95

Weight (kg)

	Model		Weight with packaging					Weight without packaging				
			2	4	6	7	9	2	4	6	7	9
MV MO-MVB	ROWS	**3**	17,2	22,5	27,7	32,1	35,9	15,4	20,2	24,9	28,8	32,2
		3+1	18,0	23,7	29,2	33,9	37,7	16,2	21,4	26,4	30,6	34,0
		3+2	18,6	24,4	30,1	35,0	38,8	16,8	22,1	27,3	31,7	35,1
		4	18,0	23,5	29,0	33,6	37,4	16,2	21,2	26,2	30,3	33,7
		4+1	18,8	24,7	30,5	35,4	39,2	17,0	22,4	27,7	32,1	35,5
IV-IO	ROWS	**3**	13,6	18,1	22,8	27,0	30,4	11,8	16,3	20,5	24,2	27,3
		3+1	14,4	19,3	24,3	28,8	32,2	12,6	17,5	22,0	26,0	29,1
		3+2	15,0	20,0	25,2	29,9	33,3	13,2	18,2	22,9	27,1	30,2
		4	14,4	19,1	24,1	28,5	31,9	12,6	17,3	21,8	25,7	28,8
		4+1	15,2	20,3	25,6	30,3	33,7	13,4	18,5	23,3	27,5	30,6

Water content (litres)

Model		2	4	6	7	9
ROWS	**3**	0,6	0,9	1,6	1,7	1,9
	4	0,8	1,3	2,2	2,4	2,8
	+1	0,2	0,3	0,5	0,5	0,6
	+2	0,4	0,6	1,0	1,0	1,2

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com
www.eurovent-certification.com

Units with 3 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model			CRC-ECM 23					CRC-ECM 43					CRC-ECM 63				
Inverter Power **(V)**			1 **(E)**	3	5 **(E)**	7,5	10 **(E)**	1 **(E)**	3	5 **(E)**	7,5	10 **(E)**	1 **(E)**	3	5 **(E)**	7,5	10 **(E)**
Speed			**MIN**		**MED**		**MAX**	**MIN**		**MED**		**MAX**	**MIN**		**MED**		**MAX**
Air flow		m^3/h	**120**	170	**220**	270	**330**	**210**	280	**350**	430	**515**	**305**	395	**495**	610	**735**
Cooling total emission **(E)**		kW	**0,73**	0,97	**1,18**	1,37	**1,59**	**1,41**	1,80	**2,18**	2,57	**2,95**	**1,96**	2,44	**2,93**	3,44	**3,96**
Cooling sensible emission **(E)**		kW	**0,55**	0,74	**0,92**	1,09	**1,28**	**1,03**	1,33	**1,64**	1,95	**2,26**	**1,46**	1,83	**2,22**	2,64	**3,08**
Heating **(E)**		kW	**0,77**	1,04	**1,29**	1,52	**1,80**	**1,42**	1,84	**2,26**	2,69	**3,14**	**1,96**	2,46	**3,00**	3,55	**4,14**
Heating - Water 70-60 °C		kW	**1,55**	2,10	**2,61**	3,09	**3,64**	**2,85**	3,70	**4,55**	5,43	**6,33**	**3,95**	4,97	**6,04**	7,17	**8,37**
Dp Cooling **(E)**		kPa	**2,2**	3,6	**5,1**	6,7	**8,6**	**7,9**	12,0	**17,0**	22,6	**28,9**	**5,5**	8,0	**11,1**	14,8	**19,0**
Dp Heating **(E)**		kPa	**1,6**	2,7	**3,9**	5,2	**7,0**	**6,6**	10,4	**14,9**	20,4	**26,7**	**4,5**	6,8	**9,6**	12,9	**17,0**
Fan **(E)**		W	**7**	9	**11**	15	**21**	**6**	9	**12**	17	**25**	**7**	10	**15**	22	**32**
Sound power **(E)**		dB(A)	**30**	36	**41**	47	**51**	**30**	36	**42**	47	**51**	**33**	38	**44**	49	**54**
Sound pressure **(*)**		dB(A)	**21**	27	**32**	38	**42**	**21**	27	**33**	38	**42**	**24**	29	**35**	40	**45**
1 row heating additional coil (Water 70/60 °C)	Heating **(E)**	kW	**0,81**	1,04	**1,23**	1,42	**1,63**	**1,47**	1,79	**2,11**	2,42	**2,74**	**2,00**	2,40	**2,80**	3,24	**3,68**
	Dp Heat. **(E)**	kPa	**1,3**	1,9	**2,6**	3,4	**4,3**	**4,5**	6,4	**8,5**	10,9	**13,6**	**1,5**	2,1	**2,8**	3,6	**4,5**

Model			CRC-ECM 73					CRC-ECM 93				
Inverter Power **(V)**			1 **(E)**	3	5 **(E)**	7,5	10 **(E)**	1 **(E)**	3	5 **(E)**	7,5	10 **(E)**
Speed			**MIN**		**MED**		**MAX**	**MIN**		**MED**		**MAX**
Air flow		m^3/h	**400**	500	**610**	755	**890**	**605**	785	**945**	1175	**1395**
Cooling total emission **(E)**		kW	**2,60**	3,13	**3,68**	4,36	**4,94**	**3,45**	4,22	**4,82**	5,60	**6,26**
Cooling sensible emission **(E)**		kW	**1,92**	2,33	**2,77**	3,32	**3,80**	**2,63**	3,28	**3,79**	4,49	**5,10**
Heating **(E)**		kW	**2,56**	3,13	**3,72**	4,43	**5,08**	**3,74**	4,65	**5,41**	6,46	**7,38**
Heating - Water 70-60 °C		kW	**5,16**	6,30	**7,50**	8,94	**10,25**	**7,55**	9,40	**10,94**	13,06	**14,95**
Dp Cooling **(E)**		kPa	**10,5**	14,5	**19,4**	26,1	**32,6**	**8,9**	12,7	**16,1**	21,1	**25,9**
Dp Heating **(E)**		kPa	**8,5**	12,1	**16,4**	22,2	**28,3**	**7,3**	10,7	**14,0**	19,1	**24,2**
Fan **(E)**		W	**9,0**	13,0	**18,5**	28,5	**41,0**	**16,0**	25,0	**41,0**	65,0	**99,0**
Sound power **(E)**		dB(A)	**37**	43	**48**	53	**57**	**44**	50	**55**	60	**64**
Sound pressure **(*)**		dB(A)	**28**	34	**39**	44	**48**	**35**	41	**46**	51	**55**
1 row heating additional coil (Water 70/60 °C)	Heating **(E)**	kW	**2,65**	3,10	**3,56**	4,13	**4,63**	**3,40**	4,08	**4,62**	5,35	**5,98**
	Dp Heat. **(E)**	kPa	**2,9**	3,9	**4,9**	6,4	**7,8**	**4,6**	6,3	**7,8**	10,1	**12,3**

(E) = EUROVENT certified performance.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

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Units with 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model			CRC-ECM 24					CRC-ECM 44					CRC-ECM 64				
Inverter Power **(V)**			1 **(E)**	3	5 **(E)**	7,5	10 **(E)**	1 **(E)**	3	5 **(E)**	7,5	10 **(E)**	1 **(E)**	3	5 **(E)**	7,5	10 **(E)**
Speed			**MIN**		**MED**		**MAX**	**MIN**		**MED**		**MAX**	**MIN**		**MED**		**MAX**
Air flow		m^3/h	**115**	160	**210**	260	**325**	**200**	265	**340**	415	**505**	**290**	375	**475**	590	**720**
Cooling total emission **(E)**		kW	**0,77**	1,06	**1,32**	1,57	**1,86**	**1,43**	1,83	**2,27**	2,71	**3,17**	**2,05**	2,59	**3,19**	3,84	**4,51**
Cooling sensible emission **(E)**		kW	**0,56**	0,78	**0,98**	1,19	**1,42**	**1,03**	1,34	**1,67**	2,02	**2,39**	**1,48**	1,89	**2,34**	2,84	**3,38**
Heating **(E)**		kW	**0,78**	1,08	**1,37**	1,65	**1,98**	**1,42**	1,83	**2,30**	2,77	**3,32**	**2,02**	2,59	**3,23**	3,93	**4,68**
Heating - Water 70-60 °C		kW	**1,57**	2,18	**2,75**	3,33	**4,01**	**2,83**	3,67	**4,59**	5,57	**6,60**	**4,05**	5,21	**6,48**	7,90	**9,43**
Dp Cooling **(E)**		kPa	**3,2**	5,5	**8,0**	11,0	**14,8**	**4,0**	6,1	**8,9**	12,3	**16,1**	**8,2**	12,4	**17,8**	24,8	**33,0**
Dp Heating **(E)**		kPa	**2,6**	4,7	**7,1**	9,9	**13,6**	**3,1**	4,9	**7,3**	10,2	**13,7**	**6,6**	10,3	**15,1**	21,4	**29,1**
Fan **(E)**		W	**7,0**	8,8	**11,0**	14,6	**21,0**	**6,0**	9,0	**12,0**	17,0	**25,0**	**7,0**	10,0	**15,0**	22,0	**32,0**
Sound power **(E)**		dB(A)	**30**	36	**41**	47	**51**	**30**	36	**42**	47	**51**	**33**	38	**44**	49	**54**
Sound pressure **(*)**		dB(A)	**21**	27	**32**	38	**42**	**21**	27	**33**	38	**42**	**24**	29	**35**	40	**45**
1 row heating additional coil (Water 70/60 °C)	Heating **(E)**	kW	**0,81**	1,04	**1,23**	1,42	**1,63**	**1,47**	1,79	**2,11**	2,42	**2,74**	**2,00**	2,40	**2,80**	3,24	**3,68**
	Dp Heat. **(E)**	kPa	**1,3**	1,9	**2,6**	3,4	**4,3**	**4,5**	6,4	**8,5**	10,9	**13,6**	**1,5**	2,1	**2,8**	3,6	**4,5**

Model			CRC-ECM 74					CRC-ECM 94				
Inverter Power **(V)**			1 **(E)**	3	5 **(E)**	7,5	10 **(E)**	1 **(E)**	3	5 **(E)**	7,5	10 **(E)**
Speed			**MIN**		**MED**		**MAX**	**MIN**		**MED**		**MAX**
Air flow		m^3/h	**380**	475	**585**	735	**875**	**575**	755	**910**	1145	**1365**
Cooling total emission **(E)**		kW	**2,61**	3,20	**3,82**	4,61	**5,30**	**3,59**	4,49	**5,21**	6,18	**7,04**
Cooling sensible emission **(E)**		kW	**1,90**	2,34	**2,82**	3,44	**3,99**	**2,69**	3,40	**3,99**	4,81	**5,53**
Heating **(E)**		kW	**2,57**	3,17	**3,84**	4,66	**5,43**	**3,76**	4,81	**5,63**	6,84	**7,93**
Heating - Water 70-60 °C		kW	**5,16**	6,38	**7,73**	9,39	**10,93**	**7,58**	9,69	**11,37**	13,82	**16,03**
Dp Cooling **(E)**		kPa	**7,3**	10,5	**14,3**	20,0	**25,6**	**6,3**	9,3	**12,1**	16,4	**20,8**
Dp Heating **(E)**		kPa	**5,9**	8,6	**12,0**	16,9	**22,0**	**5,6**	8,7	**11,4**	16,1	**20,9**
Fan **(E)**		W	**9,0**	13,0	**18,5**	28,5	**41,0**	**16,0**	25,0	**41,0**	65,0	**99,0**
Sound power **(E)**		dB(A)	**37**	43	**48**	53	**57**	**44**	50	**55**	60	**64**
Sound pressure **(*)**		dB(A)	**28**	34	**39**	44	**48**	**35**	41	**46**	51	**55**
1 row heating additional coil (Water 70/60 °C)	Heating **(E)**	kW	**2,65**	3,10	**3,56**	4,13	**4,63**	**3,40**	4,08	**4,62**	5,35	**5,98**
	Dp Heat. **(E)**	kPa	**2,9**	3,9	**4,9**	6,4	**7,8**	**4,6**	6,3	**7,8**	10,1	**12,3**

(E) = EUROVENT certified performance.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

Electronic controls included

MV-MVB model	
CB-T-ECM	Continuous fan speed control with electronic thermostat and summer/winter switch

N.B.: if the electrostatic filter is mounted (CRC–ECM only), use the "**IAQ**" controls.

Wall electronic controls

MV, MO-MVB and IV-IO model	
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and LCD display
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Electronic controls for MB boards

Versione MV, MO-MVB e IV-IO	
MB-ECM-M	MB electronic board fitted on the unit
MB-ECM-S	MB electronic board supplied with separate packaging
T-MB	Wall control (to be used with MB board only)
T-MB-M	Control fitted on the unit, for MV/MVB models with left connections (available with right connections, to be used with MB board and UP-AU board only)
T-MB-S	Control supplied with separate packaging, for MV/MVB models with left connections (available with right connections, to be used with MB board and UP-AU board only)
RM-RT03	RT03 infra-red remote control with fitted receiver, for MV/MO-MVB models (to be used with MB board only)
RS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RM	Receiver for RT03 infra-red remote control fitted on the unit, for MV/MO-MVB models (to be used with MB board only)
RS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Sabianet management system for a network of fan coils	
Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

CB-T-ECM control

WM-AU control and Power Unit

Carisma CRT-ECM

Fan Coil Unit with Tangential Fan with EC Brushless Electronic Motor and Inverter Board

Range includes **5 air flow rates** (from 95 to 900 m^3/h) and **5 models** (for wall and ceiling installation, with casing and concealed), each equipped with 3 row coil and with the possibility to add a 1 row coil for 4 pipe systems.

With electrical consumption less than 8 W on the entire range at the lowest speed, it can be considered to be **the best fan coil on the market** in electrical consumption. Therefore, it is particularly suited whenever there are low environmental thermal requirements and the focus is on consumption and acoustic comfort.

The ECM range makes use of the excellent experience gained with the SkyStar Cassette fan coils with inverter board, first in the world in production since 2009, and which have had great success on all markets.

The innovative **brushless** and **sensorless** type synchronous electronic motor with permanent magnets, is controlled by an inverter board designed and developed in Italy.
The board is mounted on the unit, closed to the motor, without the need to be cooled down by the air flow.

The air flow rate can be varied **in continuous** by means of a 1-10 V signal generated by Sabiana controls or by independent control systems.
The continuous air flow control improves the acoustic comfort and allows a more punctual reply to the variation of the thermal loads and a greater stability of the requested ambient temperature.

TECHNICAL CHARACTERISTICS

The extreme efficiency, also at low speed, makes possible a great reduction in electric consumption with absorption values under normal operating conditions that **do not exceed 8 Watt**.
The excellent values in terms of sound levels have been maintained in all working conditions, without any resonance phenomenon at any frequency.

The full compliance with the Electromagnetic Compatibility Directive and with the other strict Standards in force is certified by an independent institutee.

Outer casing: made with strong synthetic lateral corners and from galvanized and prepainted front steel panel. The plastic top grid has fixed louvres and is reversible in order to
distribute the air in two different directions.
Standard colours:
- Lateral corners and top grid: **Pantone Cool Grey 1C (light grey)**
- Front panel: **RAL 9003 (white)**
- Other colours on request.

Inner casing: made from 1 mm galvanized steel insulated with 3 mm polyolefin (PO) foam (class M1).

Filter: polypropylene cellular fabric regenerating filter. The filter frame of galvanized steel is inserted into special plastic sliding guides fastened to the internal structure for easy insertion and removal of the filter. Filter presence is highlighted by a plastic front cover featuring the same colour as the top grid.

Fan assembly: the tangential fan assembly is composed of two fan shrouds: an external one in ABS and an internal one of perforated, shaped steel. The fan has an external diameter of 120mm and is the length of the coil. The fins are concave and are positioned in a spiral shape along the whole length of the fan.

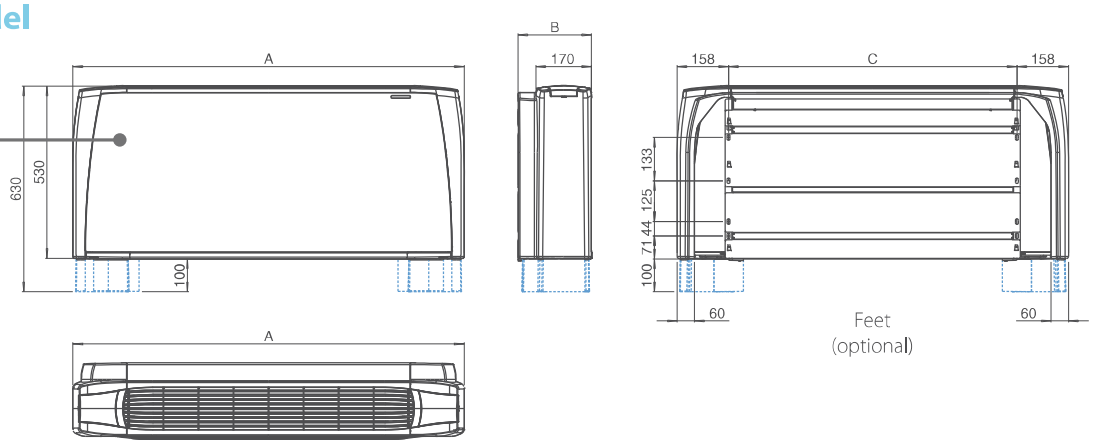
Electronic motor: three phase permanent magnet brushless electronic motor that is controlled with current reconstructed according to a **BLAC** sinusoidal wave.
The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply.
The electric power supply required for the machine is therefore single-phase with voltage of **230 - 240 V** and frequency of **50 - 60 Hz**.

Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The coil has two 1/2inch BSP internal connections and 1/8 inch BSP air vent and drain. The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

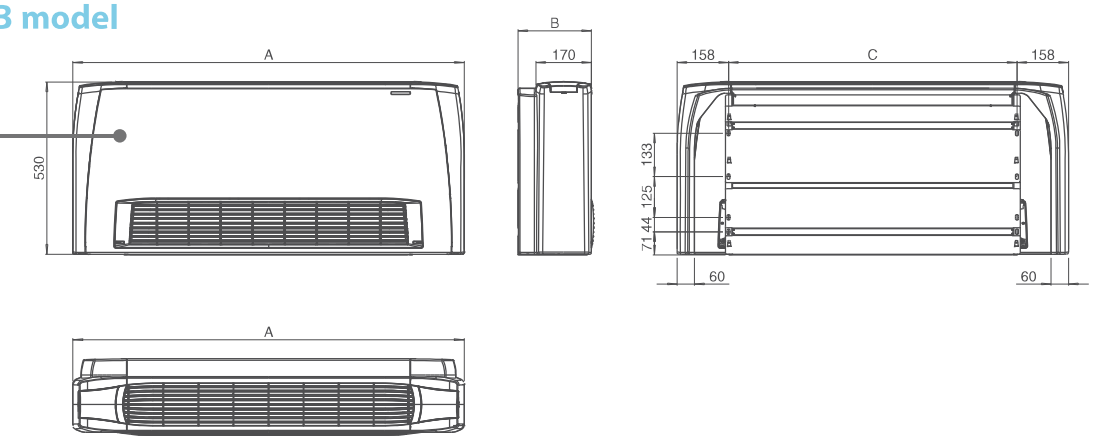
Flow and return pipe connections are situated at the same end on the left side looking at the unit. On request we can deliver the unit with the connections on the right end side: this must be specified on the order as this operation can not be carried out on site during installation.

Condensate collection tray: made from plastic with an "L"-shaped plastic fitted on the inner casing; in the MO-MVB and IV-IO model the tray is insulated with 3 mm polyolefin (PO) foam (class M1).
The outside diameter of the condensate discharge pipe is 15 mm.

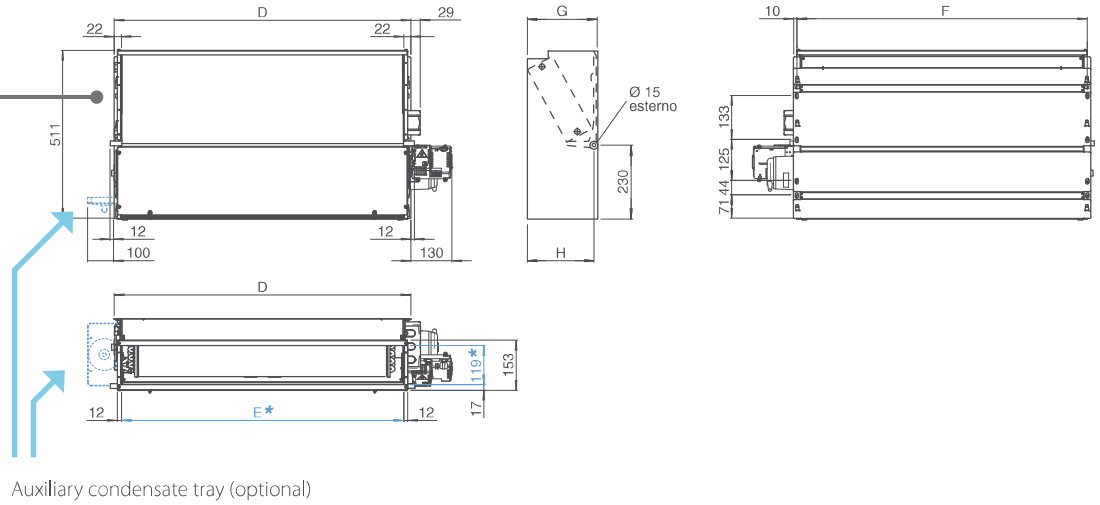
MV model



MO-MVB model



IV-IO model

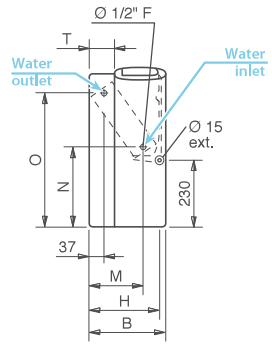
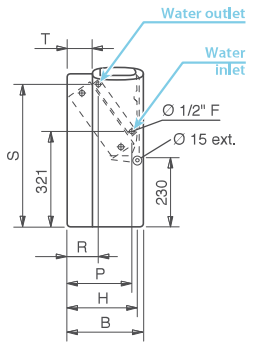
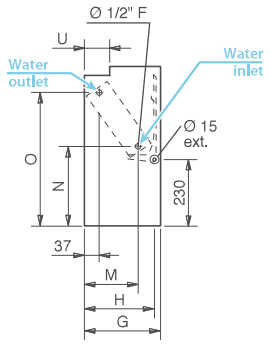
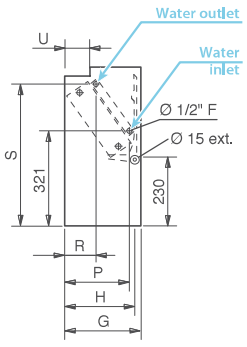


Auxiliary condensate tray (optional)

Coil connections on the left

* Supply frame dimension = E x 119 mm

Coil connections

MV and MO-MVB model		IV-IO model	
3 row coil	Heating additional coil (1 row))	3 row coil	Heating additional coil (1 row)
			

Dimension (mm)

Model	1	2	3	5	7
A	670	770	985	1200	1415
B	225	225	225	225	225
C	354	454	669	884	1099
D	374	474	689	904	1119
E	330	430	645	860	1075
F	354	454	669	884	1099
G	218	218	218	218	218
H	205	205	205	205	205
M	145	145	145	145	145
N	260	260	260	260	260
O	460	460	460	460	460
P	185	185	185	185	185
R	105	105	105	105	105
S	475	475	475	475	475
T	55	55	55	55	55
U	65	65	65	65	65

Weight (kg)

	Model		Weight with packaging					Weight without packaging				
			1	2	3	5	7	1	2	3	5	7
MV MO-MVB	ROWS	**3**	14,8	16,2	19,6	24,2	28,7	13,2	14,4	17,3	21,4	25,4
		3+1	15,5	17,0	20,8	25,7	30,5	13,9	15,2	18,5	22,9	27,2
IV-IO	ROWS	**3**	11,5	12,6	15,3	19,2	23,6	9,9	10,8	13,5	16,9	20,8
		3+1	12,2	13,4	16,5	20,7	25,4	10,6	11,6	14,7	18,4	22,6

Water content (litres)

Model		1	2	3	5	7
ROWS	**3**	0,5	0,6	0,9	1,3	1,7
	3+1	0,2	0,2	0,3	0,4	0,5

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Units with 3 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T +12 °C L.W.T.

HEATING (winter mode)
Entering air temperature: +20 °C
Entering water temperature: +50 °C
Water flow rate as for the cooling conditions

Model		CRT-ECM 13			CRT-ECM 23			CRT-ECM 33			CRT-ECM 53			CRT-ECM 73		
Inverter Power **(V)**		1 **(E)**	5 **(E)**	10 **(E)**	1 **(E)**	5 **(E)**	10 **(E)**	1 **(E)**	5 **(E)**	10 **(E)**	1 **(E)**	5 **(E)**	10 **(E)**	1 **(E)**	5 **(E)**	10 **(E)**
Speed		**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**
Air flow	m^3/h	105	165	240	150	215	305	220	325	450	295	460	675	400	630	900
Cooling total emission **(E)**	kW	0,55	0,76	0,99	0,85	1,11	1,41	1,37	1,88	2,38	1,83	2,62	3,49	2,48	3,57	4,67
Cooling sensible emission **(E)**	kW	0,44	0,63	0,86	0,66	0,88	1,15	1,02	1,43	1,85	1,37	2,01	2,74	1,85	2,73	3,65
Heating **(E)**	kW	0,80	1,10	1,48	1,17	1,52	1,96	1,79	2,45	3,12	2,39	3,45	4,63	3,14	4,57	6,06
Heating - Water 70-60 °C	kW	1,39	1,95	2,63	2,01	2,63	3,41	3,05	4,17	5,32	4,07	5,88	7,92	5,31	7,74	10,31
Dp Cooling **(E)**	kPa	0,8	1,4	2,2	2,1	3,4	5,2	7,4	12,9	19,7	4,8	9,1	15,0	9,6	18,2	29,1
Dp Heating **(E)**	kPa	0,7	1,1	1,8	1,7	2,7	4,2	6,2	10,4	16,0	3,9	7,4	12,1	7,7	15,0	24,0
Fan **(E)**	W	4,0	6,0	10,0	4,5	6,5	11,5	5,0	8,5	16,0	6,0	11,5	26,0	7,0	15,0	38,0
Sound power **(E)**	dB(A)	29	39	48	33	43	49	33	42	49	35	46	53	37	48	56
Sound pressure **(*)**	dB(A)	20	30	39	24	34	40	24	33	40	26	37	44	28	39	47

Units with 1 row additional coil

4 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +70 °C E.W.T. +60 °C L.W.T.

Model		CRT-ECM 13+1			CRT-ECM 23+1			CRT-ECM 33+1			CRT-ECM 53+1			CRT-ECM 73+1		
Inverter Power **(V)**		1 **(E)**	5 **(E)**	10 **(E)**	1 **(E)**	5 **(E)**	10 **(E)**	1 **(E)**	5 **(E)**	10 **(E)**	1 **(E)**	5 **(E)**	10 **(E)**	1 **(E)**	5 **(E)**	10 **(E)**
Speed		**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**
Air flow	m^3/h	95	150	225	135	195	285	200	295	415	270	420	640	355	565	820
Cooling total emission **(E)**	kW	0,51	0,72	0,95	0,78	1,02	1,34	1,25	1,71	2,22	1,69	2,44	3,35	2,26	3,29	4,35
Cooling sensible emission **(E)**	kW	0,40	0,60	0,81	0,60	0,81	1,09	0,93	1,30	1,73	1,26	1,85	2,62	1,68	2,50	3,37
Heating **(E)**	kW	0,62	0,85	1,09	0,98	1,23	1,57	1,54	2,00	2,51	2,05	2,76	3,67	2,67	3,68	4,72
Dp Cooling **(E)**	kPa	0,8	1,5	2,3	1,8	2,9	4,8	6,1	10,6	16,8	4,2	8,0	14,0	8,2	15,8	25,7
Dp Heating **(E)**	kPa	0,7	1,1	1,8	1,7	2,5	3,9	4,9	7,8	11,6	1,6	2,7	4,4	3,0	5,2	8,1
Fan **(E)**	W	4,0	6,0	10,0	4,5	6,5	11,5	5,0	8,5	16,0	6,0	11,5	26,0	7,0	15,0	38,0
Sound power **(E)**	dB(A)	31	39	48	33	43	49	33	42	49	35	46	53	37	48	56
Sound pressure **(*)**	dB(A)	22	30	39	24	34	40	24	33	40	26	37	44	28	39	47

(E) = EUROVENT certified performance.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

Electronic controls included

MV-MVB model	
CB-T-ECM	Continuous fan speed control with electronic thermostat and summer/winter switch

N.B.: in caso di filtro elettrostatico (solo CRC–ECM), utilizzare i corrispettivi "IAQ".

Wall electronic controls

MV, MO-MVB and IV-IO model	
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and LCD display
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Electronic controls for MB boards

MV, MO-MVB and IV-IO model	
MB-ECM-M	MB electronic board fitted on the unit
MB-ECM-S	MB electronic board supplied with separate packaging
T-MB	Wall control (to be used with MB board only)
T-MB-M	Control fitted on the unit, for MV/MVB models with left connections (available with right connections, to be used with MB board and UP-AU board only)
T-MB-S	Control supplied with separate packaging, for MV/MVB models with left connections (available with right connections, to be used with MB board and UP-AU board only)
RM-RT03	RT03 infra-red remote control with fitted receiver, for MV/MO-MVB models (to be used with MB board only)
RS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RM	Receiver for RT03 infra-red remote control fitted on the unit, for MV/MO-MVB models (to be used with MB board only)
RS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Carisma CRR-ECM

Residential Fan Coil Unit with Electronic Motor and Inverter Board

Range includes **4 air flow rates** (from 90 to 550 m^3/h) and **2 model** (a parete da incasso), both bequipped with 3 row coil.

The **CRR** series was created to offer a **residential** fan coil with a sophisticated design and low depth **(183 mm)** and a specially silent tangential fan assembly.

TECHNICAL CHARACTERISTICS

Outer casing: made with strong synthetic lateral corners and from galvanized and prepainted front steel panel.
The plastic top grid has fixed louvres and is reversible in order to distribute the air in two different directions.
Standard colours:

- Lateral corners and top grid: **Pantone Cool Grey 1C (light grey)**
- Front panel: **RAL 9003 (white)**
- Other colours on request.

Inner casing: made from 1 mm galvanized steel insulated with 3 mm polyolefin (PO) foam (class M1).

Filter: polypropylene cellular fabric regenerating filter.
The filter frame of galvanized steel is inserted into special plastic sliding guides fastened to the internal structure for easy insertion and removal of the filter. Filter presence is highlighted by a plastic front cover featuring the same colour as the top grid.

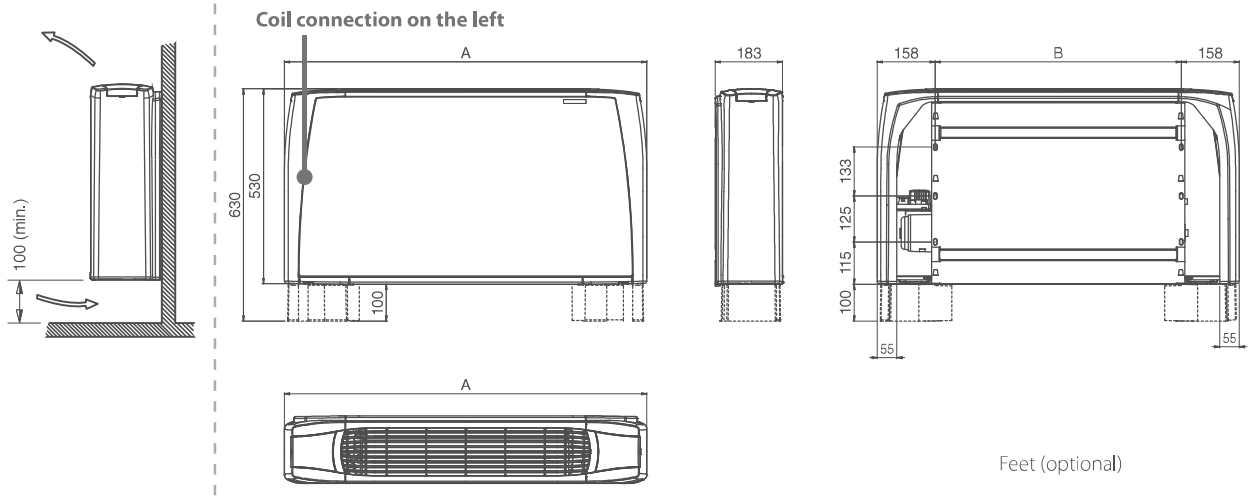
Fan assembly: the tangential fan assembly is composed of two fan shrouds: an external one in ABS and an internal one of perforated, shaped steel. The fan has an external diameter of 120mm and is the length of the coil.
The fins are concave and are positioned in a spiral shape along the whole length of the fan.

Electronic motor: three phase permanent magnet brushless electronic motor that is controlled with current reconstructed according to a **BLAC** sinusoidal wave. The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply. The electric power supply required for the machine is therefore single-phase with voltage of **230 - 240 V** and frequency of **50 - 60 Hz**.

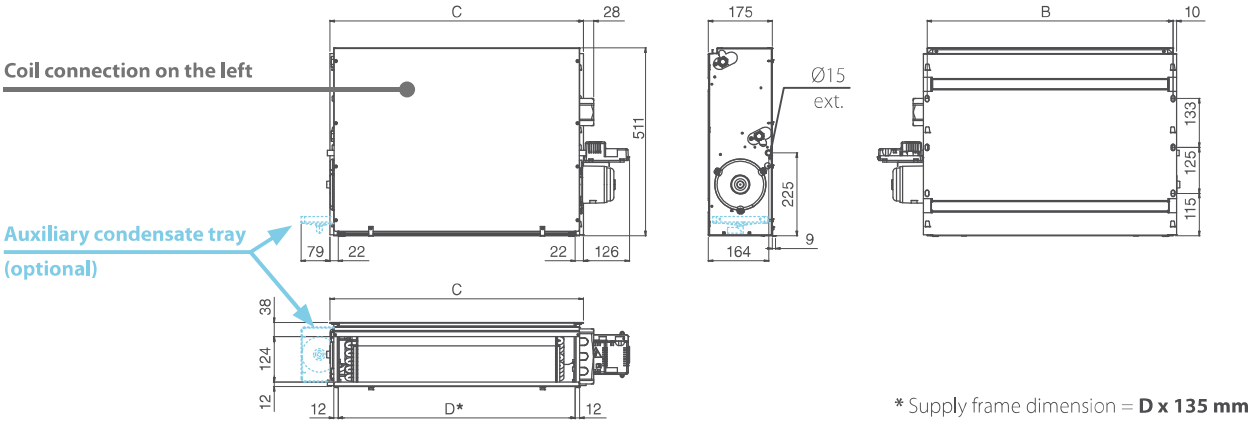
Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain.
The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.
Flow and return pipe connections are situated at the same end on the left side looking at the unit.
On request we can deliver the unit with the connections on the right end side: this must be specified on the order as this operation can not be carried out on site during installation.

Condensate collection tray: made from plastic fitted on the inner casing.
The outside diameter of the condensate discharge pipe is 15 mm.

MV model

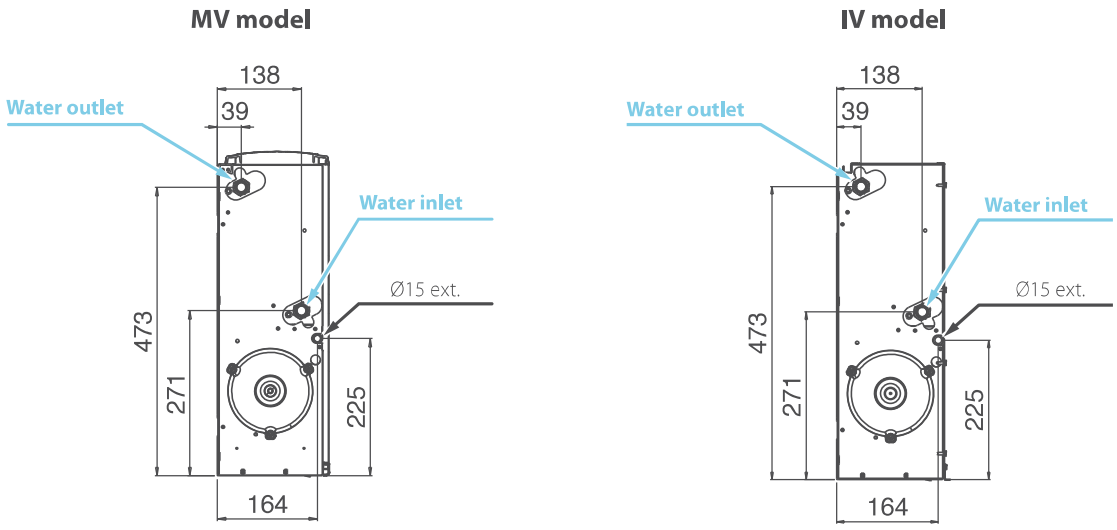


IV model



* Supply frame dimension = **D x 135 mm**

Coil connections



Dimension (mm)

Model	1	2	3	4
A	670	770	985	1200
B	354	454	669	884
C	374	474	689	904
D	330	430	645	860

Weight (kg)

	Weight with packaging				Weight without packaging			
Model	1	2	3	4	1	2	3	4
MV model	13,4	15,1	18,9	22,7	11,6	13,1	16,6	20,1
IV model	11,3	13,0	16,8	20,6	9,7	11,2	14,6	18,2

Water content (litres)

Model	1	2	3	4
	0,5	0,6	0,9	1,3

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www.eurovent-certification.com

Units with 3 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

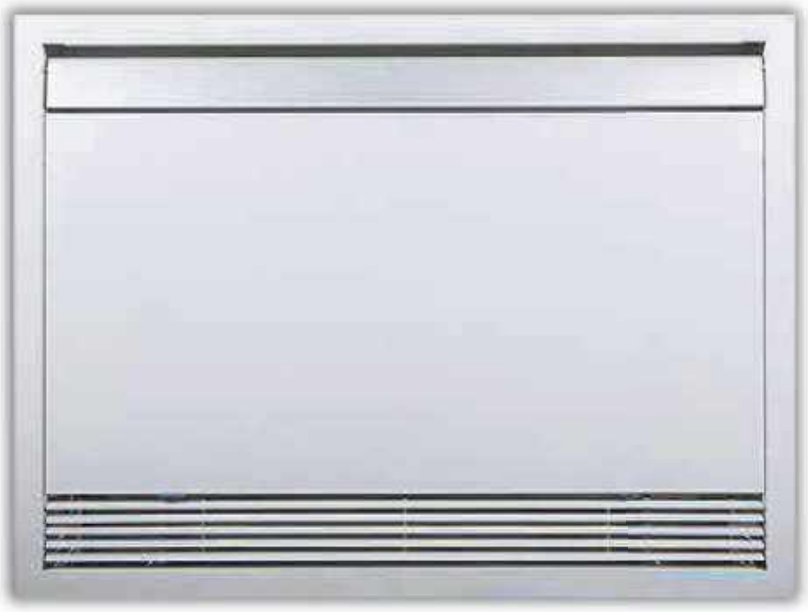
HEATING (winter mode)
Entering air temperature: +20 °C
Entering water temperature: +45/40 °C

Model			CRR-ECM 1					CRR-ECM 2				
Inverter Power **(V)**			1 **(E)**	3	5 **(E)**	7,5	10 **(E)**	1 **(E)**	3	5 **(E)**	7,5	10 **(E)**
Speed			**MIN**		**MED**		**MAX**	**MIN**		**MED**		**MAX**
Air flow		m^3/h	90	120	145	180	210	100	135	170	210	245
Cooling total emission **(E)**		kW	0,51	0,62	0,71	0,81	0,89	0,65	0,81	0,95	1,10	1,21
Cooling sensible emission **(E)**		kW	0,39	0,50	0,58	0,68	0,76	0,47	0,60	0,72	0,85	0,95
Heating **(E)**		kW	0,56	0,67	0,75	0,89	1,00	0,78	0,93	1,09	1,30	1,46
Dp Cooling **(E)**		kPa	0,90	1,30	1,60	2,10	2,40	1,60	2,40	3,20	4,20	5,00
Dp Heating **(E)**		kPa	1,10	1,50	1,90	2,50	3,10	1,80	2,50	3,30	4,50	5,60
Fan **(E)**		W	5	5	6	8	10	5	6	6	8	10
Sound power **(E)**	Lw	dB(A)	32	36	40	44	48	32	36	39	43	47
Sound pressure **(*)**	Lp	dB(A)	23	27	31	35	39	23	27	30	34	38

Model			CRR-ECM 3					CRR-ECM 4				
Inverter Power **(V)**			1 **(E)**	3	5 **(E)**	7,5	10 **(E)**	1 **(E)**	3	5 **(E)**	7,5	10 **(E)**
Speed			**MIN**		**MED**		**MAX**	**MIN**		**MED**		**MAX**
Air flow		m^3/h	170	225	280	350	410	240	320	390	470	550
Cooling total emission **(E)**		kW	1,17	1,45	1,70	1,99	2,20	1,61	2,00	2,30	2,62	2,90
Cooling sensible emission **(E)**		kW	0,83	1,04	1,24	1,47	1,64	1,15	1,45	1,69	1,94	2,17
Heating **(E)**		kW	1,33	1,56	1,82	2,18	2,47	1,85	2,18	2,50	2,90	3,28
Dp Cooling **(E)**		kPa	6,20	9,10	12,20	16,20	19,40	4,40	6,50	8,50	10,70	12,80
Dp Heating **(E)**		kPa	6,30	8,40	11,20	15,50	19,40	4,60	6,20	7,90	10,30	12,90
Fan **(E)**		W	5	7	8	11	15	6	7	10	14	22
Sound power **(E)**	Lw	dB(A)	34	38	42	46	50	34	38	43	48	51
Sound pressure **(*)**	Lp	dB(A)	25	29	33	37	41	25	29	34	39	42

(E) = EUROVENT certified performance. **MIN-MED-MAX** = Standard connected speeds.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

Breeze Frame Kit | FOR CARISMA CRR-ECM WALL CONCEALED INSTALLATION



The Carisma Breeze frame kit is available in **3 sizes** and allows the installation of **recessed** CarismaCRR-ECM IV model fan coils.

The kit includes a top closing panel that prevents the access to technical spaces and coil ensuring **the safety of the end user**.

Breeze Frame Kit | TECHNICAL CHARACTERISTICS

The aesthetic frame includes:

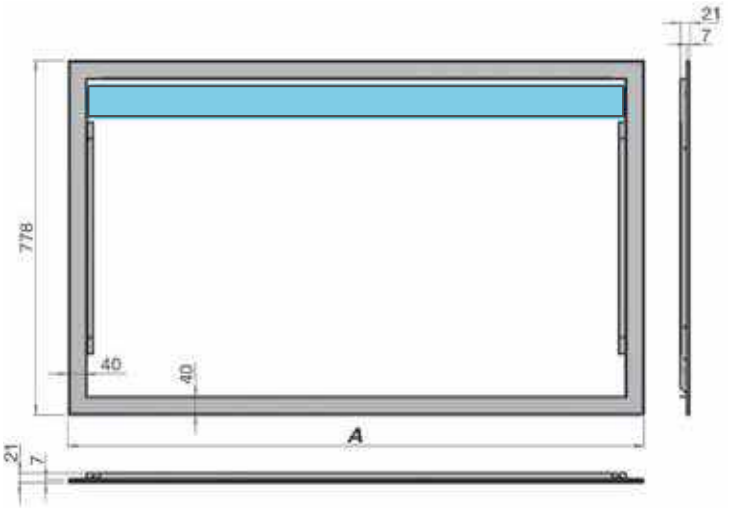
- the closing frame;
- air supply louvre;
- front panel;
- air intake grid.

The air supply louvre is made of extruded aluminum with satin finish.

Perimeter frame, front panel and **intake grid** are made of steel painted with epoxy polyester coat, dried in a furnace at 180°, colour RAL 9003. It is possible to repaint the entire frame of the same color as the wall.

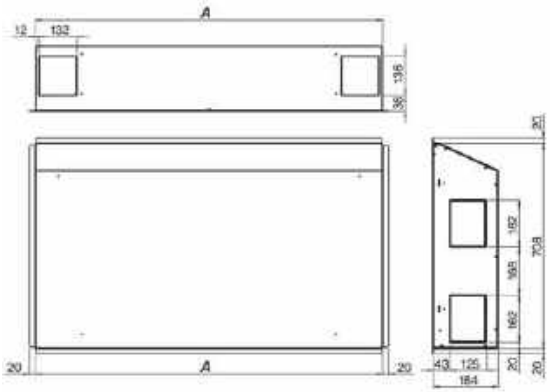
The recessed box is made of galvanized steel with opening for the electrical and hydraulic connections.

Aesthetic frame dimensions



Size	Measurement A
2	837
3	1052
4	1267

Recessed box dimensions



Size	Measurement A
2	771
3	986
4	1201

Electronic controls included

MV-MVB model	
CB-T-ECM	Continuous fan speed control with electronic thermostat and summer/winter switch

Wall electronic controls

MV, MO-MVB and IV-IO models	
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and LCD display
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Carisma CFR

Fan Coil Unit with Tangential Fan with Asynchronous Motor

Carisma CFR fan coils are designed to meet the frequent requirement in homes **of combining the typical qualities of radiators**, such as reduced depth and quiet operation, **with the typical quality of fan coils** for controlling the climate in environments all year round with a high comfort air outlet temperature.

They are available into **two main versions**: with front radial panel or with front panel for covering only. In winter, the first solution provides both a convective and radiant thermal exchange, **further improving the feeling of well being**.

On demand, recessed versions, horizontal ceiling mounted versions and 4 pipe systems are available for installation in non residential buildings.

TECHNICAL CHARACTERISTICS

Carisma CFR fan coils are available in two models:

- with coil for **MV** and **IV-IO** models;
- with coil coupled to a radiant element for **MVR** models.

MV and IV-IO models, aided by the water coil only, meet all the typical requirements of a fan coil with especially reduced size.

MVR model, in addition to the water coil, includes an integrated radiant element which enhances the efficiency of the unit, providing in winter both a convective and radiant static thermal exchange.

Frontal panel and removable lateral corners (to inspect the compartment, electric or hydraulic connections) in galvanised steel painted with oven-dried epoxy powders RAL 9010.

Casing in high resistance galvanised steel.

Coil:

- **Coil** in copper pipes and aluminium fins with high efficiency turbulence. Eurokonus 3/4" threaded fittings, comply with the new requirements of EU standards; the headers are equipped with air vent and water drains. The coil is equipped with a sensor to detect water temperature. **The standard position of the hydraulic connections is on the left side looking at the unit from the front. However the coils are reversible: the side of the connections can therefore be inverted on site. Right side connections are possible on demand**. The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.
- **Radiant element (MVR models only)** connected in parallel to the coil and equipped with a thermostatic valve which opens when the water reaches a temperature of 29°C.

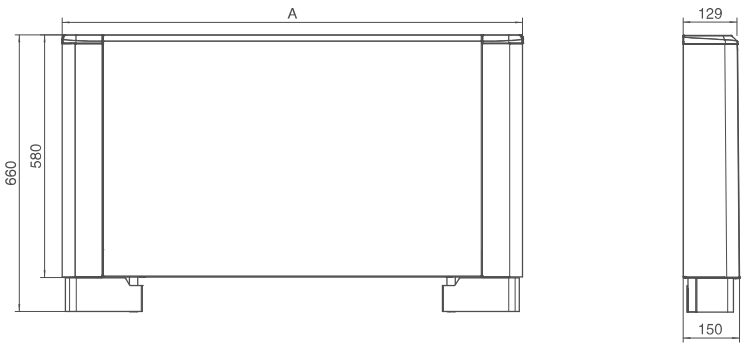
Fan assembly including tangential fan in synthetic material with offset fins (extremely silent) mounted on EPDM anti-vibration supports. Statically and dynamically balanced rotor, coupled directly on the motor shaft.

Single-phase resin pack **electric motor** mounted on EPDM anti-vibration supports with sensor for HALL effect.

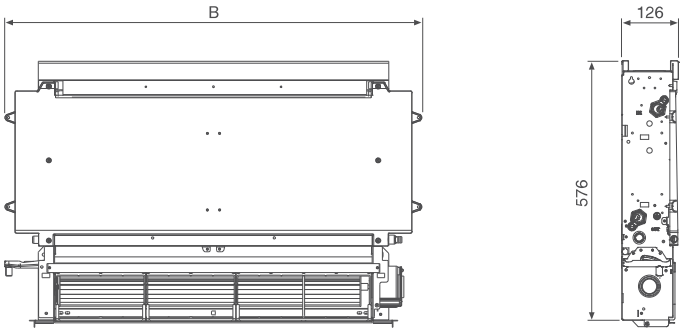
Reversible **supply air grid** in galvanised steel painted with oven-dried epoxy powders RAL 9010. Large size with high mechanical resistance.

Condensate collection tray in shockproof PVC, easily removable for periodical cleaning. Condensate collection tray in shockproof ABS for horizontal installation (optional).

MV-MVR model



IV-IO model



Dimension (mm)

Model	1	2	3	4
A	698	898	1.098	1.298
B	525	725	925	1.125

Weight(kg)

	Weight with packaging				Weight without packaging			
Model	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
MV	15,0	17,0	20,0	23,0	12,5	14,0	16,5	19,5
MVR	17,0	19,5	24,0	27,5	14,5	16,5	20,5	23,5
IV-IO	11,5	15,0	18,5	22,0	9,0	12,0	15,0	18,0

Water content (litri)

Model	Coil				Radiant element			
	1	**2**	**3**	**4**	**1**	**2**	**3**	**4**
MV	0,47	0,80	1,13	1,46	–	–	–	–
MVR	0,47	0,80	1,13	1,46	0,30	0,50	0,70	0,90
IV-IO	0,47	0,80	1,13	1,46	–	–	–	–

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The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27°C d.b. +19°C w.b.
Water temperature: +7°C E.W.T. +12°C L.W.T.

HEATING (winter mode)
Entering air temperature: +20°C
Water temperature: +40°C E.W.T.
Water flow rate as for the cooling conditions

Model		CFR 1			CFR 2			CFR 3			CFR 4		
Speed		**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**
Air flow	m^3/h	100	125	160	170	230	320	180	270	460	370	450	575
Cooling total emission **(E)**	kW	0,38	0,72	0,83	0,92	1,36	1,76	1,51	2,11	2,56	1,99	2,70	3,31
Cooling sensible emission **(E)**	kW	0,26	0,51	0,65	0,66	1,04	1,27	1,11	1,57	1,96	1,55	2,10	2,56
Heating **(E)**	kW	0,64	0,84	1,05	1,25	1,65	2,31	1,75	2,56	3,12	2,21	3,10	4,10
Dp Cooling **(E)**	kPa	3,8	10,6	13,1	2,4	5,5	8,2	7,5	14,2	19,0	7,3	13,8	18,7
Dp Heating **(E)**	kPa	3,2	8,8	10,9	2,0	4,6	6,8	6,2	11,8	15,8	6,1	11,5	15,5
Fan **(E)**	W	6	10	17	9	18	28	9	21	35	17	27	38
Sound power **(E)**	dB(A)	38	45	52	39	46	53	41	47	53	39	45	53
Sound pressure **(*)**	dB(A)	29	36	43	30	37	44	32	38	44	30	36	44

(E) = Eurovent certified performance.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

Carisma CFR-ECM

Fan Coil Unit with Tangential Fan with EC Brushless Electronic Motor

Carisma CFR fan coils are designed to meet the frequent requirement in homes **of combining the typical qualities of radiators**, such as reduced depth and quiet operation, **with the typical quality of fan coils** for controlling the climate in environments all year round with a high comfort air outlet temperature.

They are available into **two main versions**: with front radial panel or with front panel for covering only. In winter, the first solution provides both a convective and radiant thermal exchange, **further improving the feeling of well being**.

All models are supplied with **low energy consumption electronic motors**.

On demand, recessed versions, horizontal ceiling mounted versions and 4 pipe systems are available for installation in non residential buildings.

TECHNICAL CHARACTERISTICS

Carisma CFR-ECM fan coils are available in two models:

- with coil for **MV** and **IV-IO** models;
- with coil coupled to a radiant element for **MVR** models.

MV and IV-IO models, aided by the water coil only, meet all the typical requirements of a fan coil with especially reduced size.

MVR model, in addition to the water coil, includes an integrated radiant element which enhances the efficiency of the unit, providing in winter both a convective and radiant static thermal exchange.

Frontal panel and removable lateral corners (to inspect the compartment, electric or hydraulic connections) in galvanised steel painted with oven-dried epoxy powders RAL 9010.

Casing in high resistance galvanised steel.

Coil:

- **Coil** in copper pipes and aluminium fins with high efficiency turbulence. Eurokonus 3/4" threaded fittings, comply with the new requirements of EU standards; the headers are equipped with air vent and water drains. The coil is equipped with a sensor to detect water temperature. **The standard position of the hydraulic connections is on the left side looking at the unit from the front. However the coils are reversible: the side of the connections can therefore be inverted on site. Right side connections are possible on demand**. The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.
- **Radiant element (MVR models only)** connected in parallel to the coil and equipped with a thermostatic valve which opens when the water reaches a temperature of 29°C.

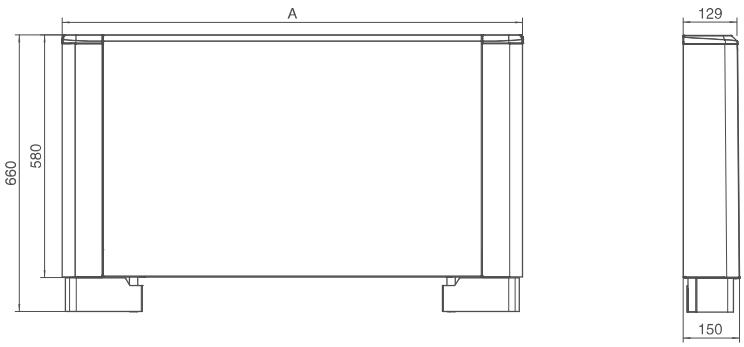
Fan assembly including tangential fan in synthetic material with offset fins (extremely silent) mounted on EPDM anti-vibration supports. Statically and dynamically balanced rotor, coupled directly on the motor shaft.

High efficiency EC **electric motor** BLDC for speed continuous control, with resin pack mounted on EPDM antivibration supports.

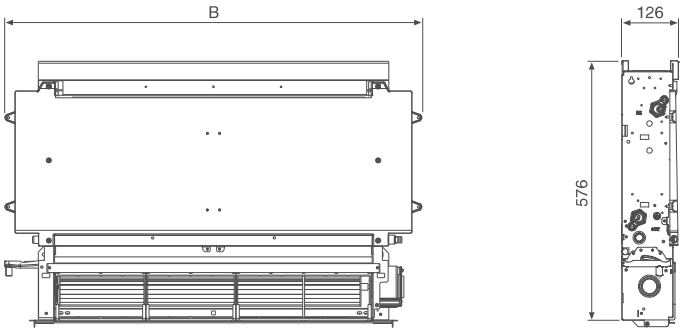
Reversible **supply air grid** in galvanised steel painted with oven-dried epoxy powders RAL 9010. Large size with high mechanical resistance.

Condensate collection tray in shockproof PVC, easily removable for periodical cleaning. Condensate collection tray in shockproof ABS for horizontal installation (optional).

MV-MVR model



IV-IO model



Dimension (mm)

Model	1	2	3	4
A	698	898	1098	1298
B	525	725	925	1125

Weight (kg)

Model	Weight with packaging				Weight without packaging			
	1	2	3	4	1	2	3	4
MV	15,0	17,0	20,0	23,0	12,5	14,0	16,5	19,5
MVR	17,0	19,5	24,0	27,5	14,5	16,5	20,5	23,5
IV-IO	11,5	15,0	18,5	22,0	9,0	12,0	15,0	18,0

Water content (litri)

Model	Coil				Radiant element			
	1	2	3	4	1	2	3	4
MV	0,47	0,80	1,13	1,46	–	–	–	–
MVR	0,47	0,80	1,13	1,46	0,30	0,50	0,70	0,90
IV-IO	0,47	0,80	1,13	1,46	–	–	–	–

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The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27°C d.b. +19°C w.b.
Water temperature: +7°C E.W.T. +12°C L.W.T.

HEATING (winter mode)
Entering air temperature: +20°C
Water temperature: +40°C E.W.T.
Water flow rate as for the cooling conditions

Model		CFR-ECM 1			CFR-ECM 2			CFR-ECM 3			CFR-ECM 4		
Speed		**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**
Air flow	m^3/h	100	125	160	170	230	320	180	270	460	370	450	575
Cooling total emission **(E)**	kW	0,38	0,72	0,83	0,92	1,36	1,76	1,51	2,11	2,56	1,99	2,70	3,31
Cooling sensible emission **(E)**	kW	0,26	0,51	0,65	0,66	1,04	1,27	1,11	1,57	1,96	1,55	2,10	2,56
Heating **(E)**	kW	0,64	0,84	1,05	1,25	1,65	2,31	1,75	2,56	3,12	2,21	3,10	4,10
Dp Cooling **(E)**	kPa	3,8	10,6	13,1	2,4	5,5	8,2	7,5	14,2	19,0	7,3	13,8	18,7
Dp Heating **(E)**	kPa	3,2	8,8	10,9	2,0	4,6	6,8	6,2	11,8	15,8	6,1	11,5	15,5
Fan **(E)**	W	5	7	11	6	9	19	7	11	20	8	12	24
Sound power **(E)**	dB(A)	38	45	52	39	46	53	41	47	53	39	45	53
Sound pressure **(*)**	dB(A)	29	36	43	30	37	44	32	38	44	30	36	44

(E) = Eurovent certified performance.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

Carisma CRC-MVI

Fan Coil Unit with Centrifugal Fan with Asynchronous Motor

Range includes **5 air flow rates** (from 145 to 925 m^3/h) each equipped with 4 row coil and with the possibility to add a 1 row coil for 4 pipe systems.

It includes some models from the CRC series but with a **particularly sturdy casing**, suited for installation in public places where there is a high risk of damage and improper use of the fan coil.

TECHNICAL CHARACTERISTICS

Casing: in galvanised steel plate, pre-painted in RAL 9002 (light grey), thickness 1.2 mm with built-in safety closures and keys for opening the front panel.

Output grills: in grey-finished extruded aluminium.

Inner casing: made from 1 mm galvanized steel insulated with 3 mm polyolefin (PO) foam (class M1).

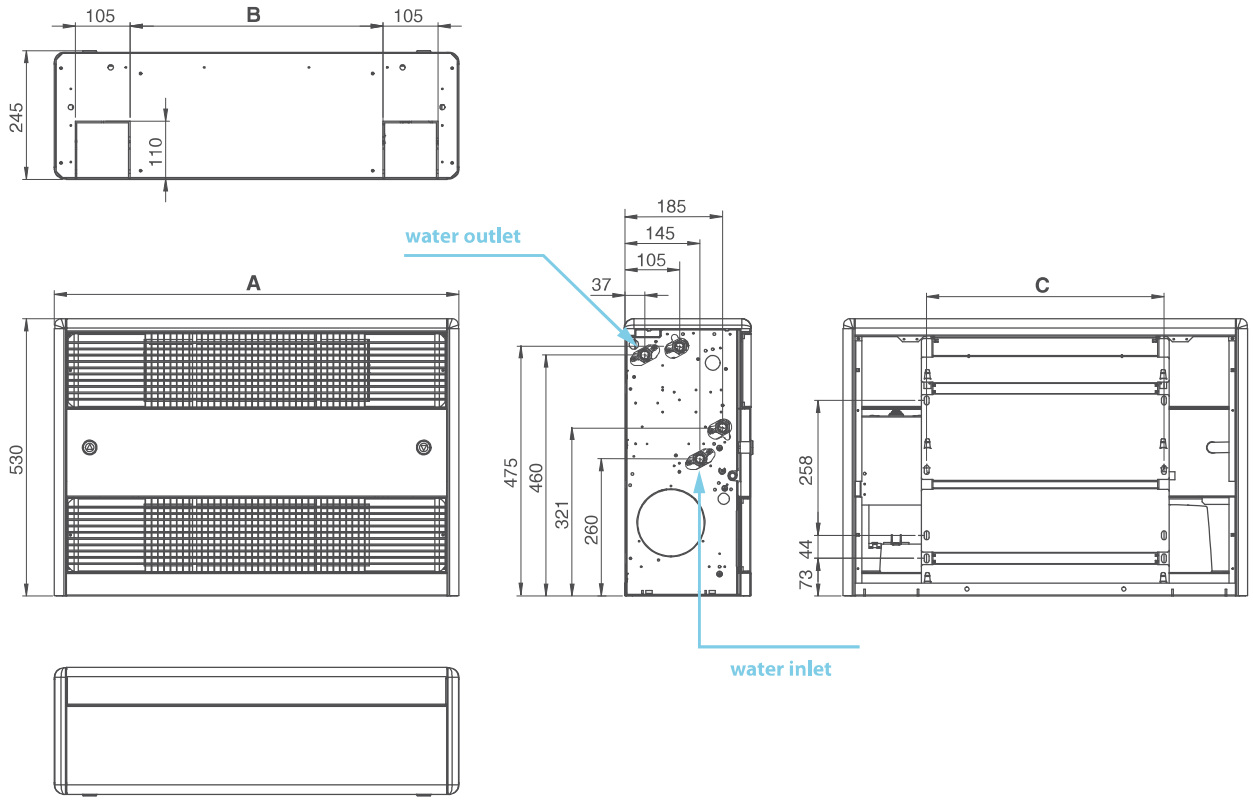
Filter: polypropylene cellular fabric regenerating filter.

Fan assembly: the fans have aluminium or plastic blades directly keyed on the motor with double aspiration and they are dynamically and statically balanced during manufacture in order to have an extremely quiet operation.

Electric motor: the motor is wired for single phase and has six speeds, three of which are connected, with capacitor. The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings. Internal thermal protection with automatic reset, protection IP 20, class B.

Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The coil has two 1/2inch BSP internal connections and 1/8 inch BSP air vent and drain. The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

Condensate collection tray: made from plastic fitted on the inner casing; the tray is insulated with 3 mm polyolefin (PO) foam (class M1).
The outside diameter of the condensate discharge pipe is 15 mm.



Dimension (mm)

Model	CRC 24 MVI	CRC 44 MVI	CRC 54 MVI	CRC 64 MVI	CRC 74 MVI
A	775	990	1.205	1.205	1.420
B	487	702	917	917	1132
C	454	669	884	884	1099

Weight (kg)

Model		Weight with packaging					Weight without packaging				
		CRC 24 MVI	CRC 44 MVI	CRC 54 MVI	CRC 64 MVI	CRC 74 MVI	CRC 24 MVI	CRC 44 MVI	CRC 54 MVI	CRC 64 MVI	CRC 74 MVI
ROWS	4	25,0	32,5	39,1	40,0	46,6	23,0	29,5	36,1	37,0	42,6
	4+1	25,8	33,7	40,6	41,5	48,4	23,8	30,7	37,6	38,5	44,4

Water content (litri)

Model		CRC 24 MVI	CRC 44 MVI	CRC 54 MVI	CRC 64 MVI	CRC 74 MVI
ROWS	4	0,8	1,3	1,7	2,2	2,4
	4+1	0,2	0,3	0,4	0,5	0,5

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Units with 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27°C d.b. +19°C w.b.
Water temperature: +7°C E.W.T. +12°C L.W.T.

HEATING (winter mode)
Entering air temperature: +20°C
Water temperature: +45°C E.W.T. +40°C L.W.T.

Model			CRC 24 MVI						CRC 44 MVI						CRC 54 MVI					
Speed			1 (E)	2	3 (E)	4	5 (E)	6	1	2 (E)	3 (E)	4	5 (E)	6	1	2 (E)	3	4 (E)	5 (E)	6
			MIN		MED		MAX			MIN	MED		MAX			MIN		MED	MAX	
Air Flow		m^3/h	**145**	170	**220**	250	**295**	340	185	**265**	**335**	400	**485**	570	250	**315**	420	**495**	**545**	650
Cooling total emission (E)		kW	**1,00**	1,11	**1,41**	1,56	**1,78**	2,00	1,31	**1,81**	**2,25**	2,62	**3,08**	3,50	1,77	**2,17**	2,79	**3,21**	**3,49**	4,03
Cooling sensible emission (E)		kW	**0,73**	0,82	**1,05**	1,17	**1,35**	1,53	0,94	**1,32**	**1,65**	1,93	**2,30**	2,63	1,28	**1,58**	2,04	**2,36**	**2,58**	3,01
Heating (E)		kW	**0,99**	1,11	**1,43**	1,60	**1,83**	2,08	1,28	**1,80**	**2,27**	2,64	**3,14**	3,62	1,71	**2,10**	2,74	**3,16**	**3,46**	4,01
Heating - Water 70-60 °C		kW	**1,98**	2,24	**2,88**	3,22	**3,69**	4,19	2,57	**3,62**	**4,56**	5,32	**6,33**	7,30	3,44	**4,23**	5,51	**6,37**	**6,97**	8,07
Dp Cooling (E)		kPa	**4,9**	6,1	**9,1**	11,0	**13,9**	17,2	3,4	**6,1**	**9,0**	11,7	**15,5**	19,6	7,3	**10,4**	16,3	**20,8**	**24,2**	31,3
Dp Heating (E)		kPa	**4,0**	4,9	**7,6**	9,3	**11,8**	14,8	2,6	**5,0**	**7,2**	9,4	**12,8**	16,4	5,6	**8,1**	12,9	**16,6**	**19,5**	25,2
Fan (E)		W	**14**	16	**22**	26	**32**	40	14	**21**	**28**	34	**44**	57	18	**22**	32	**39**	**46**	61
Sound power (E)		dB(A)	**30**	33	**40**	43	**47**	51	27	**33**	**39**	43	**47**	52	26	**31**	37	**41**	**43**	48
Sound pressure (*)		dB(A)	**21**	24	**31**	34	**38**	42	18	**24**	**30**	34	**38**	43	17	**22**	28	**32**	**34**	39
1 row heating additional coil (Water 70/60 °C)	Heating (E)	kW	**0,94**	1,04	**1,25**	1,36	**1,52**	1,68	1,34	**1,73**	**2,06**	2,32	**2,65**	2,88	1,77	**2,07**	2,53	**2,83**	**3,03**	3,42
	Dp Heat. (E)	kPa	**1,7**	2,0	**2,8**	3,3	**4,0**	4,8	3,9	**6,0**	**8,2**	10,1	**12,8**	14,8	1,2	**1,6**	2,3	**2,8**	**3,2**	3,9

Model			CRC 64 MVI						CRC 74 MVI					
Speed			1 (E)	2	3 (E)	4	5 (E)	6	1	2 (E)	3	4 (E)	5	6 (E)
			MIN		MED		MAX			MIN		MED		MAX
Air Flow		m^3/h	**415**	505	**590**	680	**760**	830	445	**535**	630	**735**	840	**925**
Cooling total emission (E)		kW	**2,79**	3,34	**3,81**	4,31	**4,71**	5,04	2,99	**3,51**	4,01	**4,56**	5,08	**5,48**
Cooling sensible emission (E)		kW	**2,03**	2,45	**2,81**	3,20	**3,52**	3,79	2,18	**2,57**	2,96	**3,39**	3,80	**4,13**
Heating (E)		kW	**2,82**	3,39	**3,90**	4,46	**4,92**	5,31	2,95	**3,49**	4,03	**4,62**	5,15	**5,59**
Heating - Water 70-60 °C		kW	**5,66**	6,81	**7,85**	8,98	**9,90**	10,68	5,93	**7,02**	8,12	**9,30**	10,38	**11,26**
Dp Cooling (E)		kPa	**14,4**	19,7	**24,8**	30,9	**36,2**	40,9	9,5	**12,5**	15,9	**20,0**	24,2	**27,7**
Dp Heating (E)		kPa	**11,9**	16,5	**21,1**	26,8	**31,8**	36,3	7,5	**10,1**	13,1	**16,6**	20,1	**23,2**
Fan (E)		W	**37**	46	**55**	67	**78**	88	44	**54**	66	**79**	92	**103**
Sound power (E)		dB(A)	**37**	42	**46**	49	**52**	54	38	**42**	47	**51**	54	**56**
Sound pressure (*)		dB(A)	**28**	33	**37**	40	**43**	45	29	**33**	38	**42**	45	**47**
1 row heating additional coil (Water 70/60 °C)	Heating (E)	kW	**2,50**	2,87	**3,19**	3,54	**3,81**	4,04	2,89	**3,29**	3,68	**4,09**	4,49	**4,79**
	Dp Heat. (E)	kPa	**3,2**	4,1	**4,9**	5,8	**6,7**	7,4	3,4	**4,3**	5,2	**6,3**	7,4	**8,3**

(E) = Eurovent certified performance. **MIN-MED-MAX** = Standard connected speeds.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

Wall electronic controls

Can be connected only to wall controls for Fan Coil Units with asynchronous motors (infra-red remote control excluded)

PSM-DI	Multifunction control
Sabianet	Management system for a network of fan coils

Accessories

PLH	Plinth

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Carisma CRSL

High Pressure Fan Coil Unit with Asynchronous Motor

Range includes **7 air flow rates** (from 340 to 2100 m^3/h) each equipped with 3 or 4 row coil and with the possibility to add a 1 or 2 row coil for 4 pipe systems.
It is the perfect range to meet all air-conditioning requirements of work environments like offices, shops, restaurants and hotel rooms featuring ducted installations with available pressure **up to 80 Pa**.

All range is compliant with the new **(EU) Regulation No. 327/2011** which requires **very low electric consumption ratings** in relation to performances provided.

TECHNICAL CHARACTERISTICS

Casing: made from 1 mm galvanized steel insulated with 3 mm polyolefin (PO) foam (class M1).

Filter: polypropylene cellular fabric regenerating filter. The filter frame of galvanized steel is inserted into special plastic sliding guides fastened to the internal structure for easy insertion and removal of the filter.

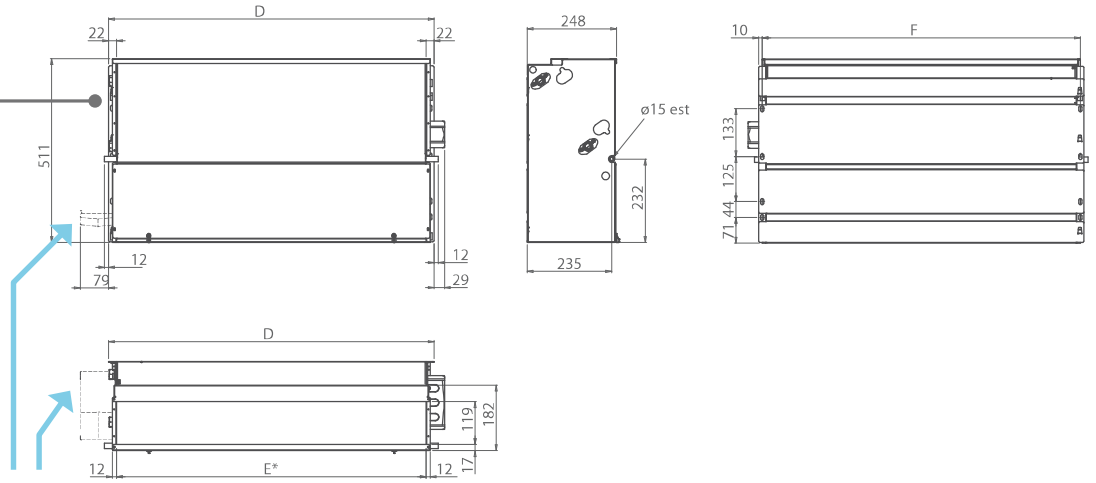
Fan assembly: the fans have aluminium or plastic blades directly keyed on the motor with double aspiration and they are dynamically and statically balanced during manufacture in order to have an extremely quiet operation.

Electric motor: the motor is wired for single phase and has five speeds, with capacitor.
The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings.
Internal thermal protection with automatic reset, protection IP 20, class B.

Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process.
The coil has two 1/2inch BSP internal connections and 1/8 inch BSP air vent and drain.
The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.
Flow and return pipe connections are situated at the same end on the left side looking at the unit.
On request we can deliver the unit with the connections on the right end side.
This operation can also be easily carried out on site during installation.

Condensate collection tray: **"L"-**shaped, fitted on the inner casing, for size 1÷4 made of plastic and for sizes 5÷7, made in painted steel; the tray is insulated with 3 mm polyolefin (PO) foam (class M1).
The outside diameter of the condensate discharge pipe is 15 mm.

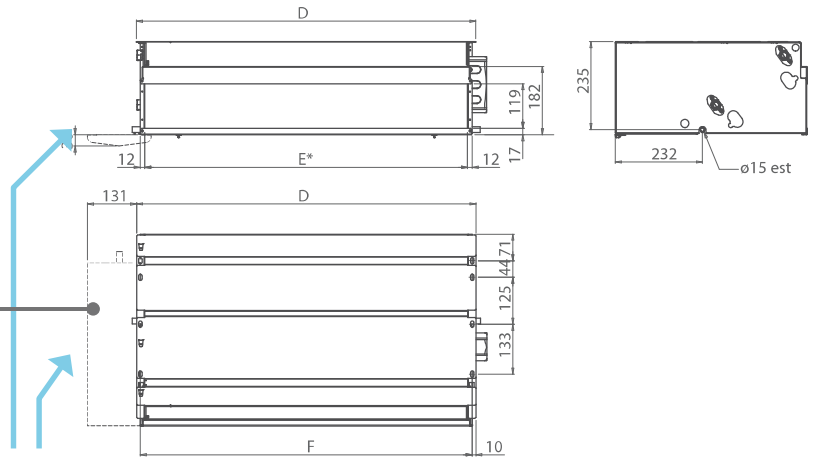
Vertical Installation



Auxiliary condensate tray (optional)

* Supply frame dimension = E x 119 mm

Horizontal Installation



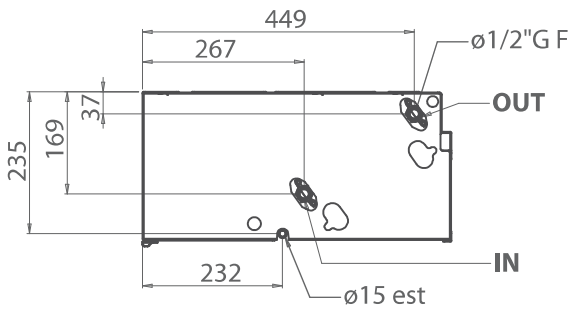
Auxiliary condensate tray (optional)

Coil connections on the left

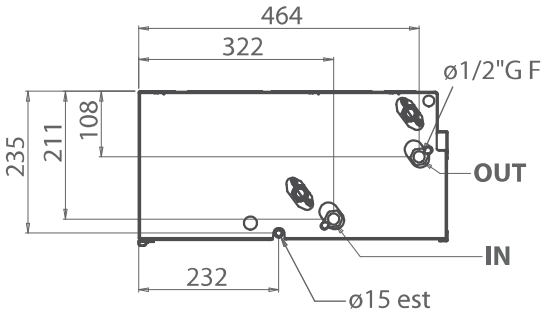
* Supply frame dimension = E x 119 mm

Coil connections

3 or 4 row coils



Heating additional coil
(1 or 2 rows)



Dimension (mm)

Model	1	2	3	4	5	6	7
D	689	904	1119	1119	1334	1549	1549
E	645	860	1075	1075	1290	1505	1505
F	669	884	1099	1099	1314	1529	1529

Weight (kg)

	Weight with packaging							Weight without packaging						
Model	1	2	3	4	5	6	7	1	2	3	4	5	6	7
3	19,5	26,4	29,5	30,9	42,4	52,2	52,4	18,5	25,4	26,5	27,9	38,4	47,2	47,4
3+1	20,7	27,9	31,3	32,7	44,3	54,5	54,7	19,7	26,9	28,3	29,7	40,3	49,5	49,7
3+2	21,4	28,8	32,4	33,8	-	-	-	20,4	27,8	29,4	30,8	-	-	-
4	20,5	27,7	30,9	32,0	43,8	53,9	54,1	19,5	26,7	27,9	29,0	39,8	48,9	49,1
4+1	21,7	29,2	32,7	33,8	45,7	56,2	56,4	20,7	28,2	29,7	30,8	41,7	51,2	51,4

Water content (litres)

	1	2	3	4	5	6	7
3	0,9	1,6	1,9	1,9	2,6	3,2	3,2
4	1,3	2,2	2,8	2,8	3,4	4,2	4,2
+1	0,3	0,5	0,6	0,6	0,8	0,9	0,9
+2	0,6	1,0	1,2	1,2	-	-	-

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Units with 3 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model		CRSL 13			CRSL 23			CRSL 33			CRSL 43		
Velocità (E)		**1**	**4**	**5**	**1**	**4**	**5**	**1**	**4**	**5**	**1**	**4**	**5**
Portata aria **(E)**	m^3/h	205	290	315	395	575	625	380	720	790	600	850	980
Prevalenza utile **(E)**	Pa	25	50	58	26	50	58	14	50	60	23	50	65
Raffreddamento resa totale **(E)**	kW	1,43	1,88	2,00	2,57	3,40	3,60	2,68	4,42	4,72	3,85	4,97	5,47
Raffreddamento resa sensibile **(E)**	kW	1,01	1,35	1,44	1,85	2,53	2,70	1,90	3,30	3,55	2,82	3,77	4,22
Riscaldamento **(E)**	kW	1,43	1,96	2,11	2,67	3,70	3,98	2,71	4,82	5,22	4,10	5,56	6,27
Dp Raffreddamento **(E)**	kPa	11	17	20	10,6	17,7	19,6	6,3	15,7	17,7	12,2	19,4	23,2
Dp Riscaldamento **(E)**	kPa	9	16	18	8,9	16,1	18,3	5,1	14,3	16,6	10,7	18,6	23,0
Assorbimento Motore **(E)**	W	27	45	51	59	87	94	50	96	110	88	122	148
Potenza sonora mandata **(E)**	dB(A)	34	42	43	38	47	49	36	48	51	44	52	55
Potenza sonora ripresa + irraggiata **(E)**	dB(A)	42	50	52	45	55	56	43	56	58	51	59	62
Pressione sonora mandata **(*)**	dB(A)	25	33	34	29	38	40	27	39	42	35	43	46
Pressione sonora ripresa + irraggiata **(*)**	dB(A)	33	41	43	36	46	47	34	47	49	42	50	53
Codice Plenum **(E)**		9069191			9069222			9066368			9066368		

Model		CRSL 53			CRSL 63			CRSL 73		
Speed (E)		**1**	**4**	**5**	**1**	**4**	**5**	**1**	**3**	**4**
Air flow **(E)**	m^3/h	475	810	970	580	1120	1240	905	1270	1425
Available pressure **(E)**	Pa	18	50	70	15	50	60	26	50	63
Cooling total emission **(E)**	kW	3,30	5,04	5,72	3,99	6,62	7,11	5,58	7,11	7,70
Cooling sensible emission **(E)**	kW	2,31	3,64	4,19	2,83	4,94	5,36	4,06	5,37	5,89
Heating **(E)**	kW	3,33	5,36	6,25	3,94	6,96	7,58	5,82	7,73	8,49
Dp Cooling **(E)**	kPa	12,2	26,3	33,1	6,6	16,4	18,7	12,2	18,8	21,7
Dp Heating **(E)**	kPa	9,7	23,0	30,4	5,1	14,2	16,5	10,3	17,1	20,2
Fan **(E)**	W	65	110	140	69	125	145	155	177	186
Sound power outlet **(E)**	dB(A)	37	48	53	38	50	52	46	53	56
Sound power inlet + radiated **(E)**	dB(A)	43	56	60	46	58	60	53	60	63
Sound pressure outlet **(*)**	dB(A)	28	39	44	29	41	43	37	44	47
Sound pressure inlet + radiated **(*)**	dB(A)	34	47	51	37	49	51	44	51	54
Plenum code **(E)**		9069195			9069196			9069196		

(E) = EUROVENT certified performance.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m3 room and a reverberation time of 0.5 sec.

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Units with 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model		CRSL 14			CRSL 24			CRSL 34			CRSL 44		
Speed (E)		**1**	**4**	**5**	**1**	**4**	**5**	**1**	**4**	**5**	**1**	**4**	**5**
Air flow **(E)**	m^3/h	205	290	315	395	575	625	380	720	790	600	850	980
Available pressure **(E)**	Pa	25	50	58	26	50	58	14	50	60	23	50	65
Cooling total emission **(E)**	kW	1,54	2,07	2,22	2,93	4,01	4,28	2,89	4,99	5,36	4,10	5,36	5,94
Cooling sensible emission **(E)**	kW	1,07	1,46	1,57	2,03	2,84	3,04	2,00	3,55	3,84	2,95	3,97	4,46
Heating **(E)**	kW	1,49	2,07	2,23	2,85	4,02	4,34	2,76	4,99	5,42	4,22	5,77	6,55
Dp Cooling **(E)**	kPa	5,6	9,7	11,0	15,8	27,9	31,3	11,8	31,7	36,1	7,9	12,9	15,6
Dp Heating **(E)**	kPa	5,1	9,2	10,5	12,3	22,8	26,2	8,6	24,9	28,9	6,6	11,5	14,5
Fan **(E)**	W	27	45	51	59	87	94	50	96	110	89	120	146
Sound power outlet **(E)**	dB(A)	34	42	43	38	47	49	36	48	51	44	52	55
Sound power inlet + radiated **(E)**	dB(A)	42	50	52	45	55	56	43	56	58	51	59	62
Sound pressure outlet **(*)**	dB(A)	25	33	34	29	38	40	27	39	42	35	43	46
Sound pressure inlet + radiated **(*)**	dB(A)	33	41	43	36	46	47	34	47	49	42	50	53
Plenum code **(E)**		9069191			9069222			9066368			9066368		

Model		CRSL 54			CRSL 64			CRSL 74		
Speed (E)		**1**	**4**	**5**	**1**	**4**	**5**	**1**	**3**	**4**
Air flow **(E)**	m^3/h	475	810	970	580	1120	1240	905	1270	1425
Available pressure **(E)**	Pa	18	50	70	15	50	60	26	50	63
Cooling total emission **(E)**	kW	3,48	5,44	6,22	4,23	7,25	7,82	6,10	7,92	8,62
Cooling sensible emission **(E)**	kW	2,43	3,89	4,52	2,96	5,26	5,72	4,34	5,80	6,38
Heating **(E)**	kW	3,41	5,57	6,54	4,17	7,63	8,34	6,30	8,52	9,42
Dp Cooling **(E)**	kPa	6,3	14,2	18,1	5,1	13,6	15,6	10,1	16,1	18,7
Dp Heating **(E)**	kPa	5,2	12,5	16,7	4,3	12,7	15,0	9,0	15,6	18,6
Fan **(E)**	W	65	110	140	66	125	145	155	177	186
Sound power outlet **(E)**	dB(A)	37	48	53	38	50	52	46	53	56
Sound power inlet + radiated **(E)**	dB(A)	43	56	60	46	58	60	53	60	63
Sound pressure outlet **(*)**	dB(A)	28	39	44	29	41	43	37	44	47
Sound pressure inlet + radiated **(*)**	dB(A)	34	47	51	37	49	51	44	51	54
Plenum code **(E)**		9069195			9069196			9069196		

(E) = EUROVENT certified performance.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m3 room and a reverberation time of 0.5 sec.

Wall electronic controls

Standard models	
WM-3V	3 speed control
WM-T	3 speed control with electronic thermostat and manual summer/winter switch
WM-TQR	3 speed control with electronic thermostat and centralized/manual summer/winter switch
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-503	Automatic speed control with electronic thermostat to be mounted in the 503 box
T2T	Electromechanical thermostat with summer/winter switch (only for 2 pipe units)
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit
UP-503	Power unit for WM-503 remote controls, not fitted on the unit

Electronic controls for MB boards

MB-M	MB electronic board fitted on the unit
MB-S	MB electronic board supplied with separate packaging
T-MB	Wall control (to be used with MB board only)
RS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Sabianet management system for a network of fan coils	
Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied (with separate packaging)
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

WM-AU
Wall electronic controls

T2T
Wall electronic controls

RT03
Infra-red remote control

Carisma CRSL-ECM

High Pressure Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board

Range includes **4 air flow rates** (from 330 to 2460 m^3/h) each equipped with 3 or 4 row coil and with the possibility to add a 1 or 2 row coil for 4 pipe systems.
In high pressure ducted fan coils, the ability **to continuously vary** the air flow gives great regulation and control flexibility, at the same time **ensuring** excellent environmental conditions and extremely low electrical consumption.

The ECM range makes use of the excellent experience gained with the SkyStar Cassette fan coils with inverter board, first in the world in production since 2009, and which have had great success on all markets.

The innovative synchronous electronic motor with permanent magnets, is controlled by an inverter board designed and developed in Italy.
The board is mounted on the unit, closed to the motor, without the need to be cooled down by the air flow.

TECHNICAL CHARACTERISTICS

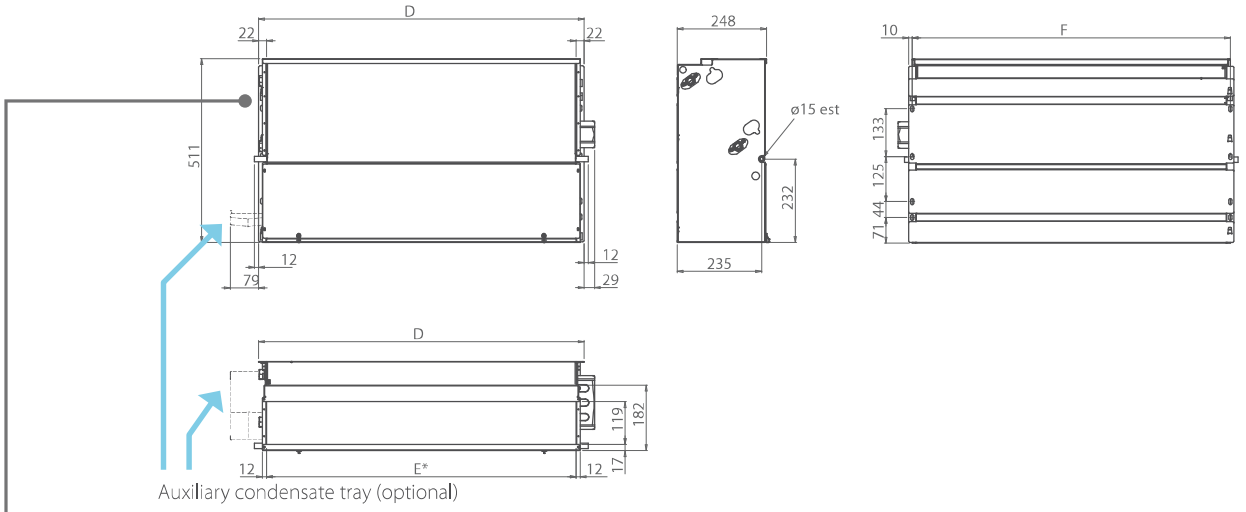
The air flow rate can be varied **in continuously** by means of a 1-10 V signal generated by Sabiana controls or by independent control systems.
The continuous air flow control improves the acoustic comfort and allows a quicker response to the variation of the thermal loads and a greater stability of the requested ambient temperature.

The extreme efficiency, also at low speed, makes it possible to greatly reduce electrical consumption (in comparison to CRSL AC motor) under normal operating conditions.
The excellent values of the CRSL-ECM range in terms of sound levels have been maintained **in all working conditions**, without any resonance phenomenon at any frequency.

The full compliance with the Electromagnetic Compatibility Directive and with the other severe Standards in force is certified by an independent institute.

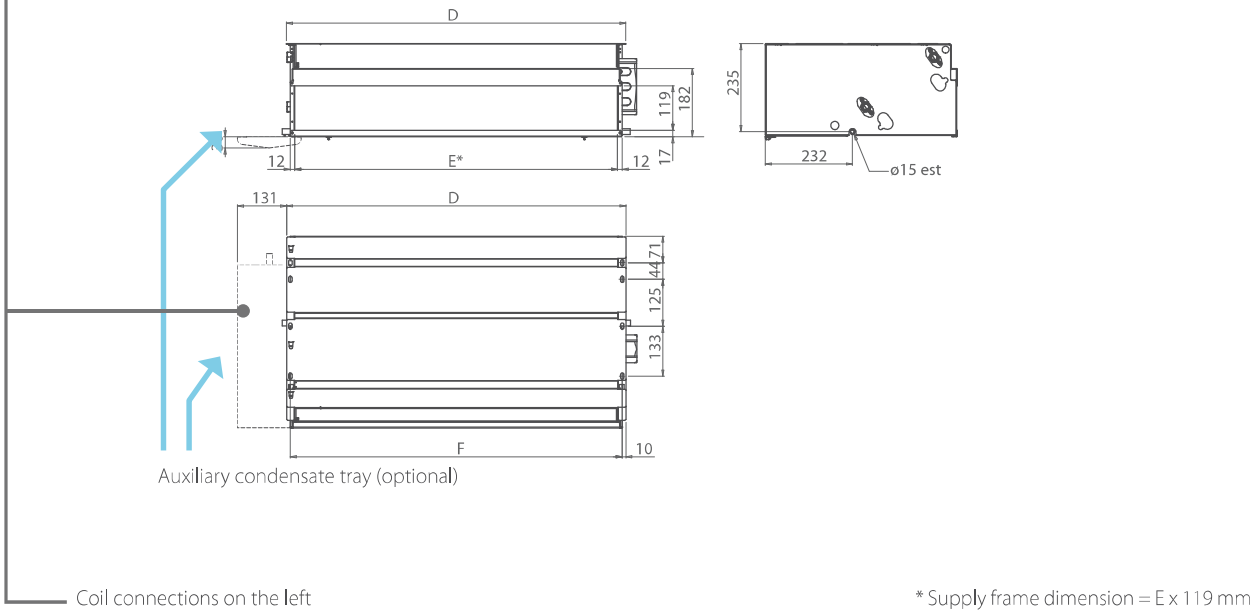
For the technical characteristics of the various components refer to Carisma CRSL, **except for Electronic motor**:
Three phase permanent magnet electronic motor that is controlled with current reconstructed according to a **BLAC** sinusoidal wave.
The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply.
The electric power supply required for the machine is therefore single-phase with voltage of **230 V** and frequency of **50 - 60 Hz**.

Vertical Installation



* Supply frame dimension = E x 119 mm

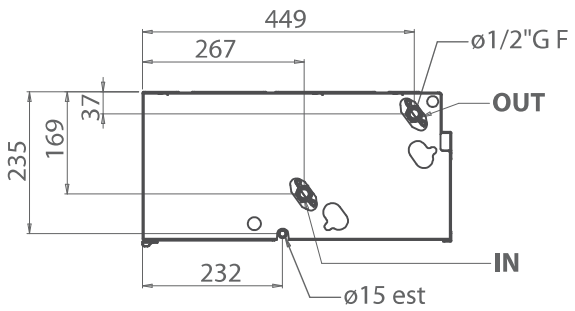
Horizontal Installation



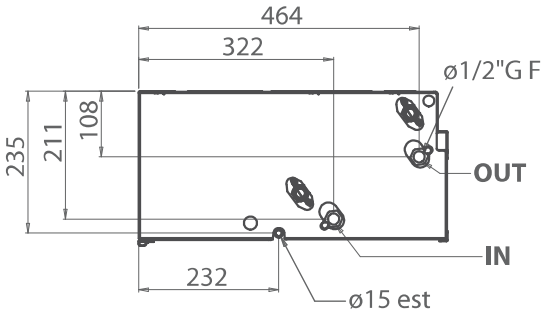
* Supply frame dimension = E x 119 mm

Coil connections

3 or 4 row coils



Heating additional coil
(1 or 2 rows)



Dimension (mm)

Model	1	2	4	7
D	689	904	1119	1549
E	645	860	1075	1505
F	669	884	1099	1529

Weight (kg)

	Weight with packaging				Weight without packaging			
Model	1	2	4	7	1	2	4	7
3	18,9	25,6	29,4	49,9	17,9	24,6	26,4	44,9
3+1	20,1	27,1	31,2	52,2	19,1	26,1	28,2	47,2
3+2	20,8	28,0	32,3	-	19,8	27,0	29,3	-
4	19,9	26,9	30,5	51,6	18,9	25,9	27,5	46,6
4+1	21,1	28,4	32,3	53,9	20,1	27,4	29,3	48,9

Water content (litres)

	1	2	4	7
3	0,9	1,6	1,9	3,2
4	1,3	2,2	2,8	4,2
+1	0,3	0,5	0,6	0,9
+2	0,6	1,0	1,2	-

www.eurovent-certification.com

Units with 3 and 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model		CRSL-ECM 13			CRSL-ECM 23			CRSL-ECM 43			CRSL-ECM 73		
Inverter Power **(V)**		4	6,3	8	4	6.5	8.5	3,5	7	9	2,5	5	8
Speed (E)		**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Air flow **(E)**	m^3/h	240	305	360	430	540	630	595	850	980	900	1175	1410
Available pressure **(E)**	Pa	32	50	68	34	50	70	24	50	66	30	50	72
Cooling total emission **(E)**	kW	1,64	1,97	2,23	2,72	3,21	3,55	3,84	4,94	5,43	5,66	6,81	7,67
Cooling sensible emission **(E)**	kW	1,17	1,42	1,63	1,99	2,38	2,68	2,83	3,77	4,21	4,15	5,11	5,86
Heating **(E)**	kW	1,65	2,05	2,37	2,88	3,51	4,00	4,07	5,56	6,27	5,69	7,09	8,24
Dp Cooling **(E)**	kPa	13,3	18,7	23,5	11,5	15,6	18,9	11,8	18,9	22,5	12,1	17,1	21,4
Dp Heating **(E)**	kPa	11,6	17,0	22,1	10,2	14,6	18,5	10,6	18,6	23,0	9,8	14,6	19,1
Fan **(E)**	W	18	29	39	26	43	64	30	67	98	52	100	155
Sound power outlet **(E)**	dB(A)	38	44	48	38	47	49	44	52	55	47	54	57
Sound power inlet + radiated **(E)**	dB(A)	45	51	55	45	55	58	51	59	62	54	61	64
Sound pressure outlet **(*)**	dB(A)	29	35	39	29	38	40	35	43	46	38	45	48
Sound pressure inlet + radiated **(*)**	dB(A)	36	42	46	36	46	49	42	50	53	45	52	55
Plenum code **(E)**		9069191			9069222			9066368			9069196		

Model		CRSL-ECM 14			CRSL-ECM 24			CRSL-ECM 44			CRSL-ECM 74		
Inverter Power **(V)**		4	6,3	8	4	6.5	8.5	3,5	7	9	2,5	5	8
Speed (E)		**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**	**1**	**2**	**3**
Air flow **(E)**	m^3/h	240	305	360	430	540	630	595	850	980	900	1175	1410
Available pressure **(E)**	Pa	32	50	68	34	50	70	24	50	66	30	50	72
Cooling total emission **(E)**	kW	1,77	2,17	2,48	3,14	3,79	4,25	4,09	5,34	5,91	6,12	7,46	8,47
Cooling sensible emission **(E)**	kW	1,25	1,54	1,78	2,20	2,68	3,04	2,95	3,97	4,45	4,40	5,48	6,33
Heating **(E)**	kW	1,73	2,17	2,52	3,08	3,80	4,37	4,19	5,77	6,55	6,26	7,96	9,35
Dp Cooling **(E)**	kPa	7,2	10,3	13,2	17,5	24,7	30,6	7,7	12,6	15,2	9,9	14,3	18,1
Dp Heating **(E)**	kPa	6,7	9,9	13,1	14,1	20,6	26,6	6,5	11,5	14,5	8,9	13,8	18,4
Fan **(E)**	W	18	29	39	26	43	64	30	67	98	52	100	155
Sound power outlet **(E)**	dB(A)	38	44	48	38	47	49	44	52	55	47	54	57
Sound power inlet + radiated **(E)**	dB(A)	45	51	55	45	55	58	51	59	62	54	61	64
Sound pressure outlet **(*)**	dB(A)	29	35	39	29	38	40	35	43	46	38	45	48
Sound pressure inlet + radiated **(*)**	dB(A)	36	42	46	36	46	49	42	50	53	45	52	55
Plenum code **(E)**		9069191			9069222			9066368			9069196		

(E) = EUROVENT certified performance.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m3 room and a reverberationtime of 0.5 sec.

Wall electronic controls

Standard models	
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and liquid crystal display
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Electronic controls for MB boards

MB-ECM-M	MB electronic board fitted on the unit
MB-ECM-S	MB electronic board supplied with separate packaging
T-MB	Wall control (to be used with MB board only)
RS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Sabianet management system for a network of fan coils	
Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

PMC Multizone Plenum

Air distribution system for Carisma CRSL and CRSL-ECM

Carisma Multizone is an advanced air distribution system suitable for centralised installations where the comfort of each environment must be adapted to individual needs.
It can be fitted on Carisma CRSL and Carisma CRSL-ECM ducted fan coils.

The **Multizone** system comprises a plenum with spigots, modulating dampers and electronic control for managing different temperatures through varying the air flows in each of the air-conditioned zones.
The controls allow separate programming for the different zones; the system can also interface with supervisory systems via Modbus.

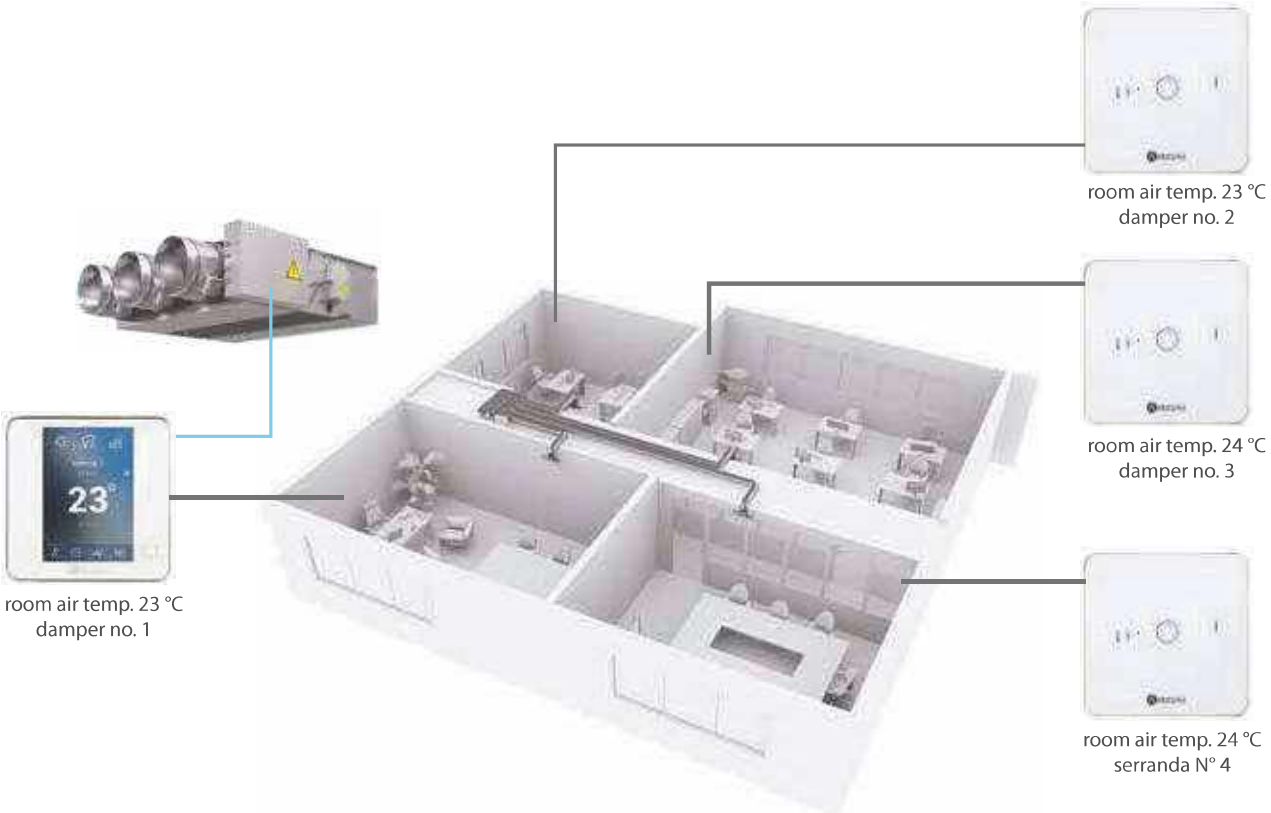
TECHNICAL CHARACTERISTICS

The modulating dampers are motorised, adjustable and are managed by the electronic control.

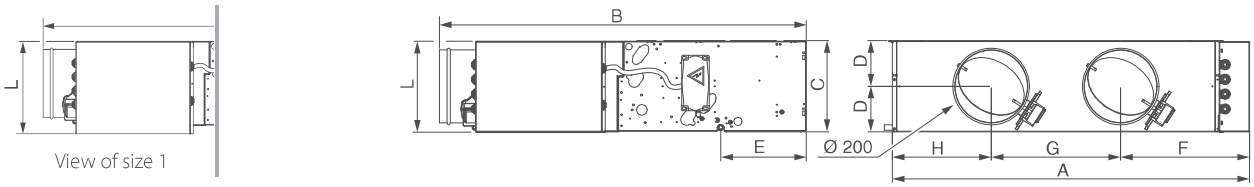
The plenum is delivered complete with all components (power board, control for asynchronous or ECM motors and motorised dampers) already assembled, while the thermostat and sensors must be ordered separately; the plenum is fitted with a male terminal block for quick connections to the female terminal block on the fan coil.

Each system requires one **Multizone wall control** (which also serves as the zone sensor) plus one **Zone sensor** for each zone, up to a maximum of four per system (five zones in total, including the Multizone wired wall control); the plenum, wall control and zone sensors must be connected using the Multizone communication cable (available in 10 m or 100 m lengths).

Benefits: as well as improving aesthetics, with one ducted indoor unit is possible to air-condition several rooms, independently managing fan speed and air flow.

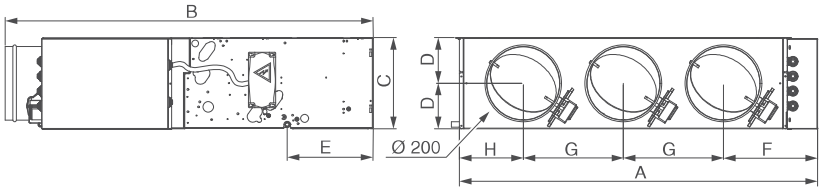


Plenum with two spigots for CRSL / CRSL-ECM - sizes 1 and 2



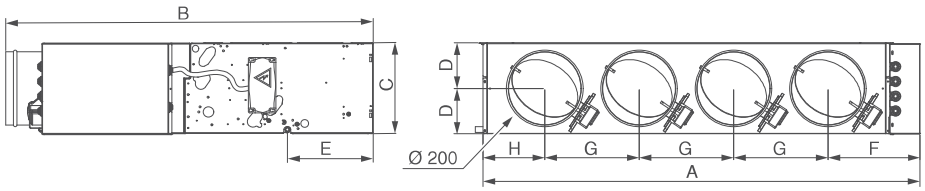
Size	Dimensions (mm)									Weight (kg)
	A	B	C	D	E	F	G	H	L	
1	751	993	218	109	230	260	313	178	248	9,8
2	966	993	248	124	230	349	350	267	248	11,0

Plenum with three spigots for CRSL / CRSL-ECM - sizes 2 and 3



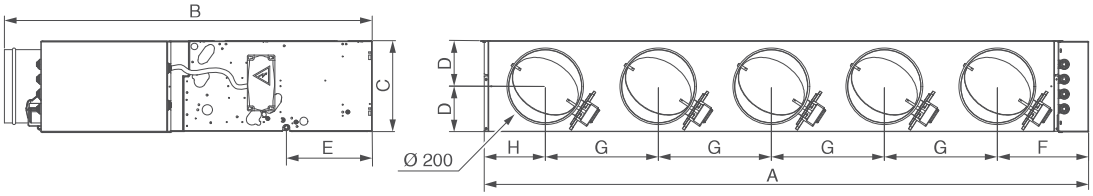
Size	Dimensions(mm)								Weight (kg)
	A	B	C	D	E	F	G	H	
2	966	993	248	124	230	254	270	172	12,3
3	1.181	993	248	124	230	284	347,5	202	13,5

Plenum with four spigots for CRSL / CRSL-ECM - sizes 3 and 4



Size	Dimensions (mm)								Peso (kg)
	A	B	C	D	E	F	G	H	
3	1.181	993	248	124	230	249	255	167	14,8
4	1.631	993	248	124	230	316,5	360	234,5	17,4

Plenum with five spigots for CRSL - size 4



Size	Dimensions (mm)								Weight (kg)
	A	B	C	D	E	F	G	H	
4	1.631	993	248	124	230	246,5	305	164,5	18,7

Controls

MZ-WM **Multizone wall control**

Wall thermostat with tempered glass touchscreen and steel casing

- Zone thermostat.
- ON/OFF programming for each.
- Definition of hourly temperature set point profile for each zone.
- Programming of seasonal change-over.
- Energy Saving mode with setpoint limitation.
- Humidity sensor.
- Wall-mounted using the support supplied.

MZ-SZ **Zone sensor**

Wall sensor with steel and glass casing with touch buttons

- Zone ON/OFF.
- Room temperature and relative humidity reading.
- Temperature set point adjustment ± 3 °C.

Accessories

MZ-C10 **Multizone communication cable, 10 m**

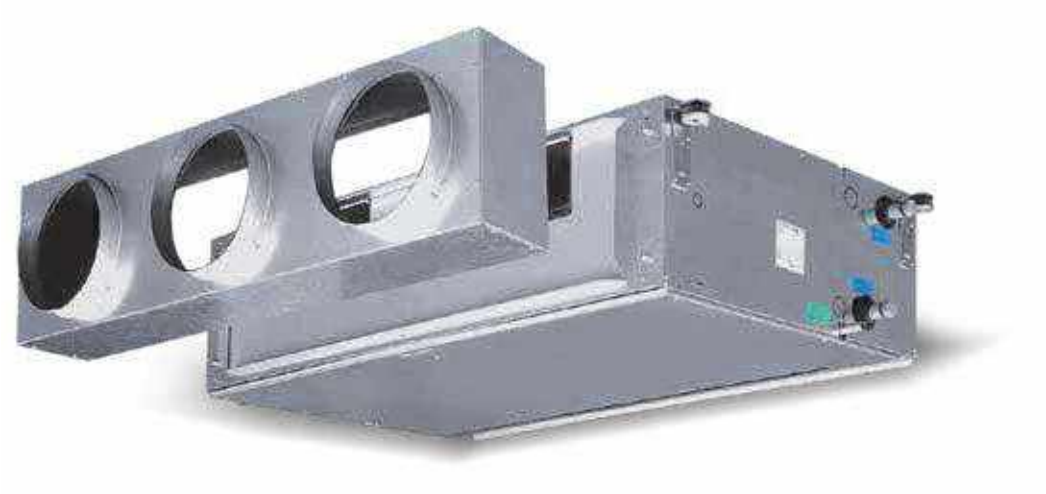
(for connecting the thermostats or receivers to the board)

MZ-C100 **Multizone communication cable, 100 m**

(for connecting the thermostats or receivers to the board)

Maestro MTL

High Pressure Fan Coil Unit with Asynchronous Motor



The **Maestro high pressure** fan coils are produced in 7 sizes.
Designed and built for concealed installations, they have small dimensions, are very silent and have a particularly interesting price in relation to their performance (all sizes, even at the lowest speed, have a residual pressure head of at least **160 Pa**).

They are suitable for climate control for small and medium commercial and sports environments or for large civil environments and integrate perfectly in regular false ceilings.
The sizes 1÷5 are equipped with **5 speed** fans, 3 of which are connected to the terminal board while the sizes 6-7 are equipped with **3 speed** fans.
The base models call for a 4 row coil but upon request, units with 3 row coils or additional coils (for 4 pipe systems) with one or two rows can be provided.
A complete set of accessories solves any type of system problem.

TECHNICAL CHARACTERISTICS

Casing: made of galvanized steel, 1 mm thick for sizes 1÷3 and 1,2 mm for sizes 4÷7, insulated with 10 mm polyolefin (PO) foam (class M1).

Fan assembly: consists of quiet centrifugal fans with two impellers (made of plastic for sizes 1÷5 and made of aluminium for sizes 6÷7) and a directly driven single phase motor (230V 50Hz).

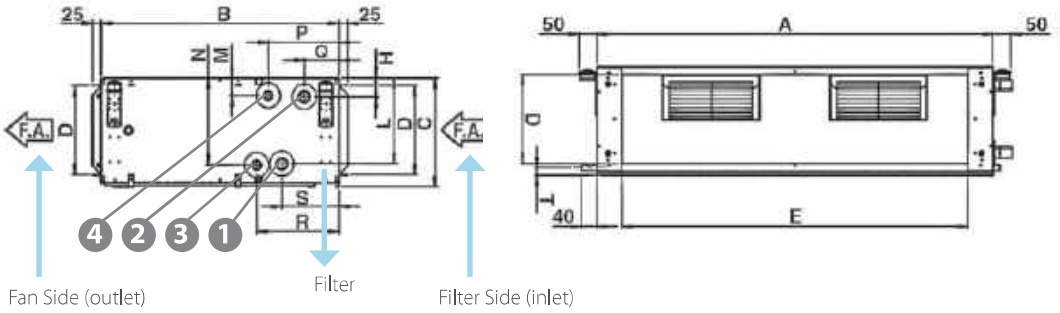
Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process.
The Maestro Sabiana range is available with the combination of either 3 or 4 row coils (sizes 1÷5) with the possibility to add a 1 or 2 row coil (3+1, 4+1, 3+2, 4+2 versions for 4 pipe systems), and 4 or 6 row coils (sizes 6-7) with the possibility to add a 2 row coil (4+2, 6+2 versions for 4 pipe systems).
The connections are on the left hand side looking from the air inlet of the unit (see picture).
On request or on site the connections can be moved to the other side.
The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

Filter: polypropylene cellular fabric regenerating filter.
The filter frame of galvanized steel is inserted into sliding guides fastened to the internal structure for easy insertion and removal of the filter.

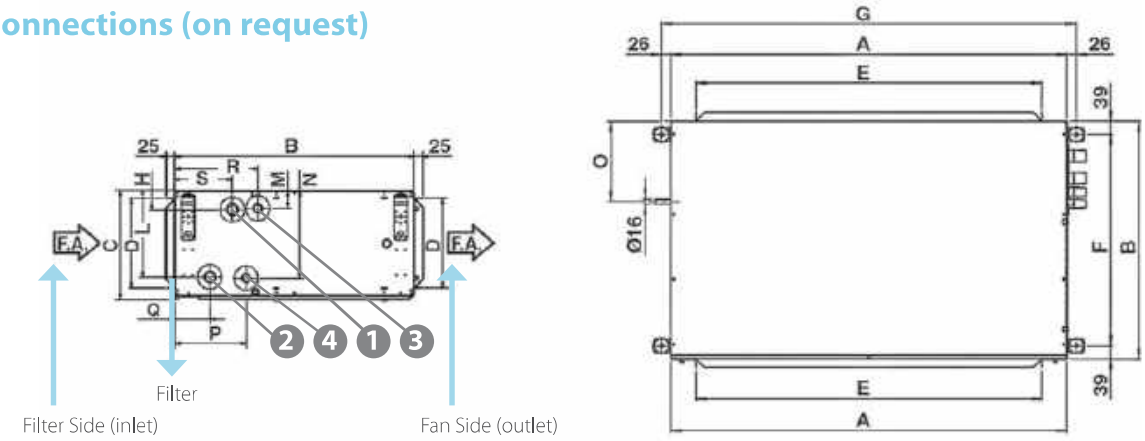
Condensate collection tray: made from galvanized steel insulated with 3 mm polyolefin (PO) foam (class M1).

All range is compliant with the new **(EU) Regulation No. 327/2011** which requires **very low electric consumption ratings** in relation to performances provided.

Left connections (standard)



Right connections (on request)



Model	Dimensions (mm)			
	O	P	Q	R
MTL 1÷5	209	103	169	243
MTL 6-7	304	154	264	338

Model	Dimensions											Coil			
												Main		Additional	
	A	B	C	D	E	F	G	H	L	M	N	1	2	3	4
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	IN	OUT	IN	OUT
MTL 1	1133	698	310	255	991	620	1185	54	245	50	249	3/4"	3/4"	3/4"	3/4"
MTL 2	1133	698	310	255	991	620	1185	54	245	50	249	1"	1"	3/4"	3/4"
MTL 3	1133	698	360	305	991	620	1185	54	295	50	299	1"	1"	3/4"	3/4"
MTL 4	1445	853	360	293	1302	775	1497	58	291	54	295	1 1/4"	1 1/4"	1"	1"
MTL 5	1445	853	435	368	1302	775	1497	58	367	54	370	1 1/4"	1 1/4"	1"	1"
MTL 6	1535	1100	488	421	1393	1022	1587	59	416	55	421	1 1/4"	1 1/4"	1"	1"
MTL 7	1535	1100	588	521	1393	1022	1587	59	516	55	521	1 1/4"	1 1/4"	1"	1"

Model	Weight without packaging (kg)						Weight with packaging (kg)						Water content (litres)			
	3R	3+1R	3+2R	4R	4+1R	4+2R	3R	3+1R	3+2R	4R	4+1R	4+2R	3R	4R	1R	2R
MTL 1	45	48	50	47	50	51	48	51	53	50	53	54	2,0	2,6	0,9	1,5
MTL 2	46	50	52	48	51	53	49	53	55	51	54	56	2,9	3,7	1,1	1,8
MTL 3	54	58	60	56	60	62	57	61	63	59	63	65	3,5	4,6	1,4	2,4
MTL 4	75	80	83	78	83	86	79	84	87	82	87	90	4,7	6,0	2,0	3,2
MTL 5	85	90	94	88	94	98	89	94	98	92	98	102	5,7	7,1	2,7	4,1

	4R	4+2R	6R	6+2R	4R	4+2R	6R	6+2R	4R	6R	2R
MTL 6	124	134	130	140	127	137	133	143	7,6	11,1	4,1
MTL 7	140	152	148	160	143	155	151	163	9,7	13,8	5,5

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Units with 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19°C w.b.
Water temperature: +7 °C E.W.T. +12°C L.W.T.

HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model MTL		14			24			34			44			54 (**)			64 (**)			74 (**)		
Speed (E)		1	3	5	1	3	5	1	3	5	1	3	5	1	3	5	1	3	5	1	3	5
Air flow **(E)**	m^3/h	790	1125	1410	840	1410	1825	1710	2075	2440	2070	2580	3020	2740	3280	3850	1880	3385	4800	3925	5070	7100
Available pressure **(E)**	Pa	25	50	75	15	50	80	30	50	70	35	50	70	35	50	70	150	150	150	150	150	150
Cooling total emission **(E)**	kW	4,17	5,21	5,92	4,99	7,01	8,15	8,71	9,76	10,71	10,90	12,40	13,60	14,54	16,19	17,76	12,42	18,73	22,89	21,54	25,33	30,63
Cooling sensible emission **(E)**	kW	3,25	4,26	5,03	3,66	5,48	6,62	6,67	7,68	8,65	8,25	9,70	10,90	11,21	12,80	14,37	8,88	14,16	17,98	16,05	19,46	24,53
Heating **(E)**	kW	4,98	6,44	7,67	5,57	8,27	10,10	10,20	11,75	13,19	12,79	14,92	16,53	17,67	20,32	22,93	20,86	33,52	43,60	39,34	47,85	61,14
Dp Cooling **(E)**	kPa	5,1	7,6	9,6	6,9	12,7	16,8	16,0	19,8	23,4	13,9	17,7	20,9	13,3	16,3	19,4	7,4	15,3	22,6	14,4	19,3	27,6
Dp Heating **(E)**	kPa	5,2	8,2	11,3	6,2	17,0	18,3	15,6	23,0	24,8	13,4	17,7	21,3	14,2	18,3	22,8	3,9	9,1	14,7	8,5	12,1	18,8
Fan **(E)**	W	115	154	191	170	230	285	350	420	470	390	490	570	500	617	760	574	778	1304	1518	1758	2460
Sound power outlet **(E)**	dB(A)	44	52	58	44	56	61	57	62	65	59	63	66	63	67	70	63	71	77	71	75	81
Sound power inlet + radiated **(E)**	dB(A)	47	55	60	47	59	64	60	64	67	61	65	68	65	69	72	-	-	-	-	-	-
Sound pressure outlet **(*)**	dB(A)	35	43	49	35	47	52	48	53	56	50	54	57	54	58	61	54	62	68	62	66	72
Sound pressure inlet + radiated **(*)**	dB(A)	38	46	51	38	50	55	51	55	58	52	56	59	56	60	63	-	-	-	-	-	-
Plenum code **(E)**		9034200			9034200			9034220			9034230			9034240			9034280			9034290		

Units with additional coil

4 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +65 °C E.W.T. +55 °C L.W.T.

Model MTL		14+1			24+1			34+1			44+1			54+1 (**)			64+2 (**)			74+2 (**)		
Speed (E)		1	3	5	1	3	5	1	3	5	1	3	5	1	3	5	1	3	5	1	3	5
Air flow **(E)**	m^3/h	770	1090	1350	840	1390	1775	1680	2045	2390	2055	2545	2960	2700	3245	3800	1860	3330	4680	3920	5040	6980
Available pressure **(E)**	Pa	25	50	75	15	50	80	30	50	70	35	50	70	35	50	70	150	150	150	150	150	150
Cooling total emission **(E)**	kW	4,09	5,11	5,79	4,99	6,96	8,03	8,61	9,67	10,58	10,85	12,34	13,46	13,75	15,31	16,73	12,33	18,56	22,52	21,53	25,25	30,36
Cooling sensible emission **(E)**	kW	3,18	4,16	4,87	3,66	5,42	6,49	6,58	7,60	8,51	8,21	9,61	10,72	10,62	12,13	13,56	8,81	14,02	17,62	16,05	19,39	24,28
Heating **(E)**	kW	3,96	4,87	5,47	4,63	6,28	7,16	7,62	8,47	9,20	9,83	11,07	12,00	12,67	14,00	15,28	19,81	29,78	37,13	35,50	41,88	51,31
Dp Cooling **(E)**	kPa	4,90	7,30	9,20	6,90	12,50	16,30	15,70	19,40	22,90	13,80	17,40	20,50	12,00	14,70	17,40	7,30	15,00	22,00	14,40	19,10	27,10
Dp Heating **(E)**	kPa	11,7	17,0	21,0	14,5	25,2	31,9	15,9	19,3	22,3	27,6	34,1	39,5	26,0	31,1	36,3	11,9	24,9	37,0	23,8	32,0	46,1
Fan **(E)**	W	115	154	191	170	230	285	350	420	470	390	490	570	500	617	760	565	750	1327	1499	1727	2376
Sound power outlet **(E)**	dB(A)	44	52	58	44	56	61	57	62	65	59	63	66	63	67	70	63	71	77	71	75	81
Sound power inlet + radiated **(E)**	dB(A)	47	55	60	47	59	64	60	64	67	61	65	68	65	72	72	-	-	-	-	-	-
Sound pressure outlet **(*)**	dB(A)	35	43	49	35	47	52	48	53	56	50	54	57	54	58	61	54	62	68	62	66	72
Sound pressure inlet + radiated **(*)**	dB(A)	38	46	51	38	50	55	51	55	58	52	56	59	56	60	63	-	-	-	-	-	-
Plenum code **(E)**		9034200			9034200			9034220			9034230			9034240			9034280			9034290		

(E) = EUROVENT certified performance.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.
(**) = Models not covered by EUROVENT certification program.

Kit 230V

Main and auxiliary coil valve kit
(to be used only with ON/OFF 230 V controls: QCV-MB, WM-T and WM-TQR)

230 V, ON-OFF valve.

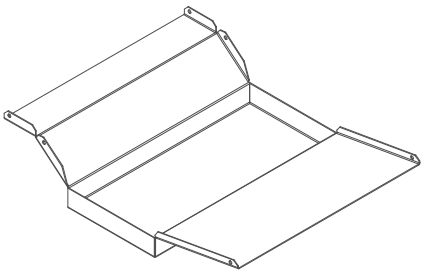
Kit 24V

Main and auxiliary coil valve kit
(to be used only with QCV-MB modulating valve control board)

Valve with 3 points - 24 Volt actuator.

BCM

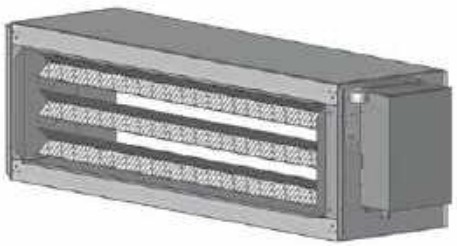
External auxiliary condensate collection tray



BEM

Electric coil

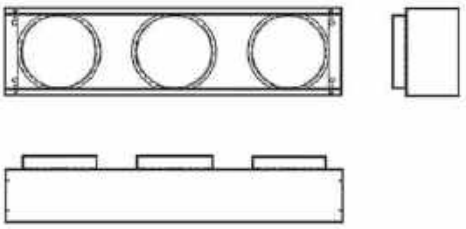
Consists of electric resistances and a security thermostat, which are inside a galvanized steel and insulated casing.



PMM

Intake/supply spigot plenum

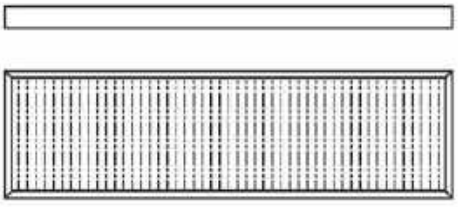
Intake/supply spigot plenum with 3 spigots (Sizes 1 - 2 - 3) or 4 spigots (Sizes 4 - 5)..



SFM

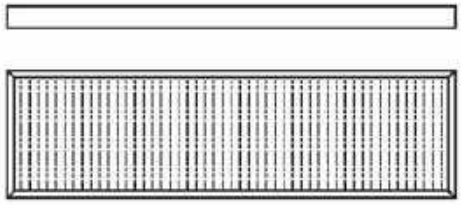
G3 synthetic filter

The filter is a washable synthetic fibre, flame-proof according to Class F1 DIN 53438.
Efficiency of ASHRAE 84%, Eurovent EU3.



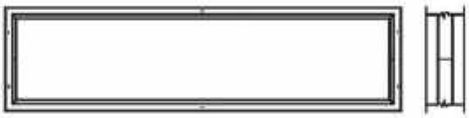
SFM-F6 **F6 Synthetic Filter**
(for sizes 6 ÷7 only)

High efficiency compact filter in glass microfiber paper, Class F6 according to EN779.



GAV **Antivibrating connection**

Intake/supply antivibrating connection, made of two galvanized frames and a PVC flexible connection.



Electronic controls included

COM	Speed selector with 4 positions: OFF, first speed, second speed, third speed
WM-3V	3 speed control
WM-T	3 speed control with electronic thermostat and manual summer/winter switch
WM-TQR	3 speed control with electronic thermostat and centralized/manual summer/winter switch
SEL-S	Receiving board for centralized control

Electronic controls for MB boards

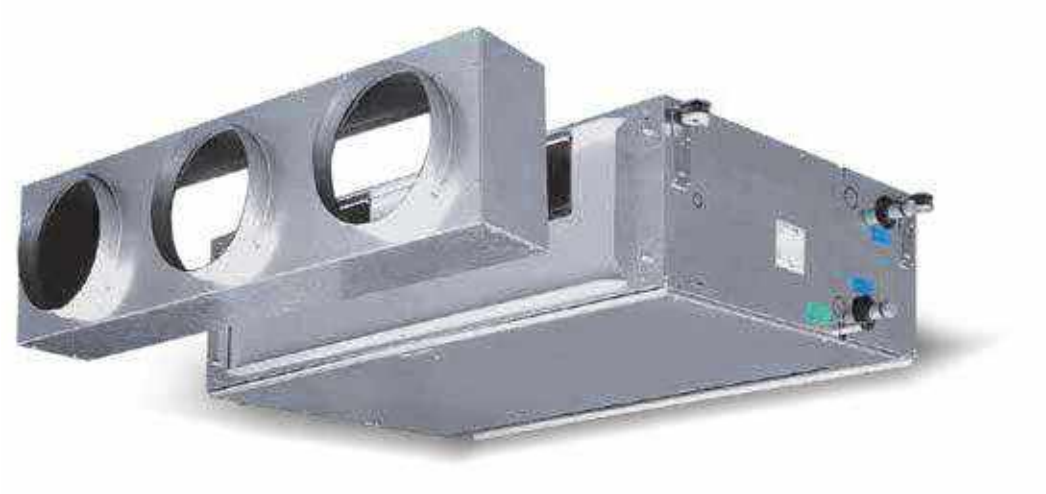
QCV-MB	MB version control board (T-MB wall control included)
PSM-DI	Multifunction control (to be used with QCV-MB control board only)

Sabianet management system for a network of fan coils	
Sabianet	Sabianet (to be used with QCV-MB control board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

NOTE: for more information about Controls, please see the dedicated pages.

Maestro MTL-ECM

High Pressure Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board



The **Maestro MTL-ECM high pressure** fan coils are produced in 4 sizes.
Designed and built for concealed installations, they have small dimensions, are very silent and have a particularly interesting price in relation to their performance (all sizes, even at the lowest speed, have a residual pressure head of at least **160 Pa**).
They are suitable for climate control for small and medium commercial and sports environments or for large civil environments and integrate perfectly in regular false ceilings.
In high pressure ducted fan coils, the ability to **continuously** vary the air flow gives great regulation and control flexibility, at the same time ensuring excellent environmental conditions and extremely low electrical consumption.

The ECM range makes use of the excellent experience gained with the SkyStar Cassette fan coils with inverter board, first in the world in production since 2009, and which have had great success on all markets.

The innovative electronic motor with permanent magnets, is controlled electronic board (inverter).

TECHNICAL CHARACTERISTICS

The air flow rate can be varied **in continuously** by means of a 1-10 V signal generated by Sabiana controls or by independent control systems.

The continuous air flow control improves the acoustic comfort and allows a more punctual reply to the variation of the thermal loads and a greater stability of the requested ambient temperature.

The extreme efficiency, also at low speed, makes possible a great reduction in electric consumption (in comparison to the yet efficient MTL motor) under normal operating conditions. The excellent values of the MTL-ECM range have been maintained **in all working conditions**, without any resonance phenomenon at any frequency.

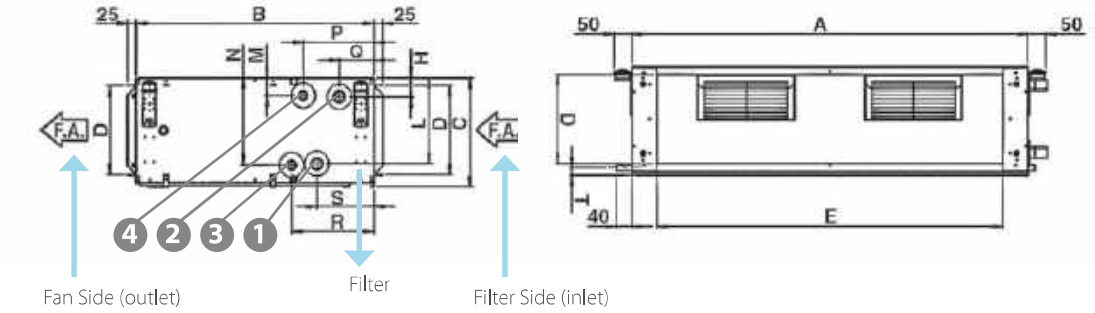
The full compliance with the Electromagnetic Compatibility Directive and with the other severe Standards in force is certified by an independent institute.

For the technical characteristics of the various components refer to High Pressure Fan Coil Maestro MTL unit, except for **Electronic motor**: three phase permanent magnet electronic one that is controlled with current reconstructed according to a **BLAC** sinusoidal wave.

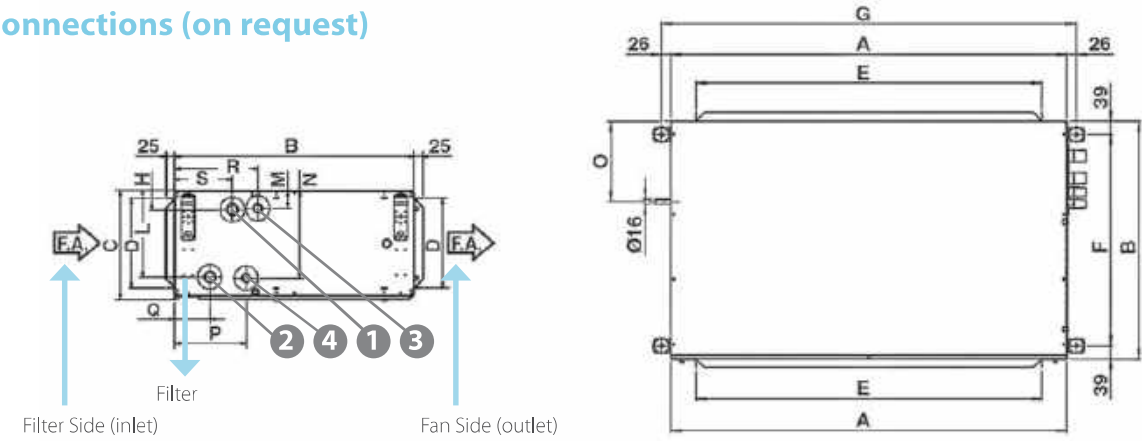
The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply. The electric power supply required for the machine is therefore single-phase with voltage of **230 V** and frequency of **50 - 60 Hz**.

All range is compliant with the new **(EU) Regulation No. 327/2011** which requires very low electric consumption ratings in relation to performances provided.

Left connections (standard)



Right connections (on request)



Model	Dimensions (mm)			
	O	P	Q	R
MTL-ECM 1÷4	209	103	169	243

Model	Dimensions											Coil			
												Main		Additional	
	A	B	C	D	E	F	G	H	L	M	N	1	2	3	4
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	IN	OUT	IN	OUT
MTL-ECM 1	1133	698	310	255	991	620	1185	54	245	50	249	3/4"	3/4"	3/4"	3/4"
MTL-ECM 2	1133	698	310	255	991	620	1185	54	245	50	249	1"	1"	3/4"	3/4"
MTL-ECM 3	1133	698	360	305	991	620	1185	54	295	50	299	1"	1"	3/4"	3/4"
MTL-ECM 4	1445	853	360	293	1302	775	1497	58	291	54	295	1 1/4"	1 1/4"	1"	1"

Model	Weight without packaging (kg)						Weight with packaging (kg)						Water content (litri)			
	3R	3+1R	3+2R	4R	4+1R	4+2R	3R	3+1R	3+2R	4R	4+1R	4+2R	3R	4R	1R	2R
MTL-ECM 1	45	48	50	47	50	51	48	51	53	50	53	54	2,0	2,6	0,9	1,5
MTL-ECM 2	46	50	52	48	51	53	49	53	55	51	54	56	2,9	3,7	1,1	1,8
MTL-ECM 3	54	58	60	56	60	62	57	61	63	59	63	65	3,5	4,6	1,4	2,4
MTL-ECM 4	75	80	83	78	83	86	79	84	87	82	87	90	4,7	6,0	2,0	3,2

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Units with 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19°C w.b.
Water temperature: +7 °C E.W.T. +12°C L.W.T.

HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model MTL-ECM		14			24			34			44		
Tensione Pilotaggio Inverter (E)	V	4,5	7	9	4	6	8	4,5	6,5	8	5,5	7,5	10
Speed (E)		**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**
Air flow **(E)**	m^3/h	780	1100	1310	940	1360	1780	1380	1950	2390	1840	2440	3080
Available pressure **(E)**	Pa	26	50	70	24	50	85	25	50	75	28	50	80
Cooling total emission **(E)**	kW	4,14	5,11	5,61	5,44	6,86	7,94	7,87	9,70	10,81	10,47	12,39	13,99
Cooling sensible emission **(E)**	kW	3,24	4,18	4,72	4,08	5,36	6,44	5,93	7,61	8,72	7,90	9,65	11,23
Heating **(E)**	kW	5,18	6,80	7,76	6,42	8,64	10,62	8,64	11,25	13,06	12,13	15,15	18,08
Dp Cooling **(E)**	kPa	4,9	7,2	8,7	7,7	11,8	15,8	11,7	17,4	21,6	12,2	16,9	21,7
Dp Heating **(E)**	kPa	5,3	8,7	11,1	7,5	12,9	18,8	10,1	16,4	21,4	11,6	17,4	23,9
Fan **(E)**	W	40	88	144	44	110	225	80	195	340	110	253	530
Sound power outlet **(E)**	dB(A)	45	52	59	45	55	61	52	60	64	55	62	67
Sound power inlet + radiated **(E)**	dB(A)	48	55	61	48	57	63	55	62	66	58	64	69
Sound pressure outlet **(*)**	dB(A)	36	43	50	36	46	52	43	51	55	46	53	58
Sound pressure inlet + radiated **(*)**	dB(A)	39	46	52	39	48	54	46	53	57	49	55	60
Plenum code **(E)**		9034200			9034200			9034220			9034230		

Units with additional coil

4 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +65 °C E.W.T. +55 °C L.W.T.

Model MTL-ECM		14+1			24+1			34+1			44+1		
Tensione Pilotaggio Inverter (E)	V	4,5	7	9	4	6	8	4,5	6,5	8	5,5	7,5	10
Speed (E)		**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**
Air flow **(E)**	m^3/h	750	1040	1250	920	1340	1750	1350	1920	2350	1810	2400	3040
Available pressure **(E)**	Pa	26	50	72	24	50	85	25	50	75	28	50	80
Cooling total emission **(E)**	kW	4,04	4,94	5,46	5,36	6,79	7,87	7,76	9,59	10,70	10,36	12,27	13,90
Cooling sensible emission **(E)**	kW	3,14	4,01	4,55	4,01	5,30	6,35	5,83	7,51	8,61	7,79	9,53	11,13
Heating **(E)**	kW	3,43	4,18	4,62	4,33	5,42	6,25	5,90	7,20	8,02	8,06	9,48	10,75
Dp Cooling **(E)**	kPa	4,6	6,8	8,3	7,5	11,6	15,5	11,4	17,1	21,2	12,0	16,6	21,4
Dp Heating **(E)**	kPa	9,4	13,4	16,0	13,6	20,4	26,4	9,9	14,3	17,3	19,6	26,3	33,0
Fan **(E)**	W	40	88	144	44	115	225	80	200	340	110	253	530
Sound power outlet **(E)**	dB(A)	45	52	59	45	55	61	52	60	64	55	62	67
Sound power inlet + radiated **(E)**	dB(A)	48	55	61	48	57	63	55	62	66	58	64	69
Sound pressure outlet **(*)**	dB(A)	36	43	50	36	46	52	43	51	55	46	53	58
Sound pressure inlet + radiated **(*)**	dB(A)	39	46	52	39	48	54	46	53	57	49	55	60
Plenum code **(E)**		9034200			9034200			9034220			9034230		

(E) = EUROVENT certified performance.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

Kit 230V

Main and auxiliary coil valve kit
(to be used only QCV-MB control board, WM-AU and T-MB controls)

230 V, ON-OFF valve.

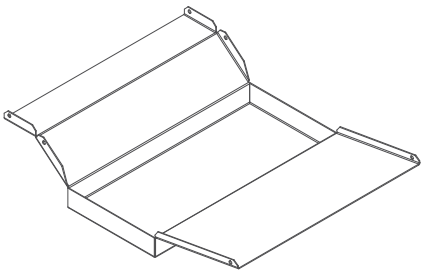
Kit 24V

Main and auxiliary coil valve kit
(to be used only with QCV-MB control board)

Valve with 3 points - 24 Volt actuator.

BCM

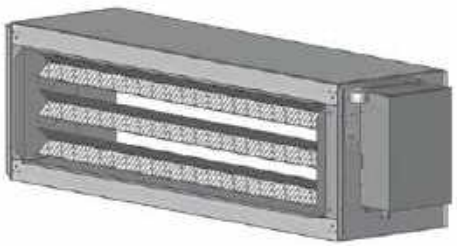
External auxiliary condensate collection tray



BEM

Electric coil

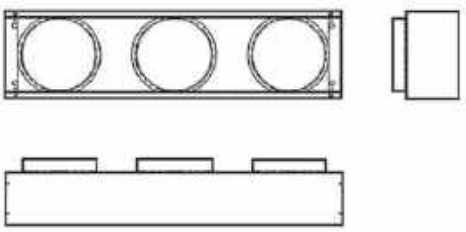
Consists of electric resistances and a security thermostat, which are inside a galvanized steel and insulated casing.



PMM

Intake/supply spigot plenum

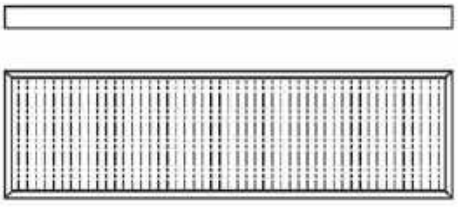
Intake/supply spigot plenum with 3 spigots (Sizes 1 - 2 - 3) or 4 spigots (Sizes 4).



SFM

G3 synthetic filter

The filter is a washable synthetic fibre, flame-proof according to Class F1 DIN 53438.
Efficiency of ASHRAE 84%, Eurovent EU3.



GAV **Antivibrating connection**

Intake/supply antivibrating connection, made of two galvanized frames and a PVC flexible connection.

Wall electronic controls

Standard models	
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
UPMM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Electronic controls for MB boards

QCV-MB	MB version control board (T-MB wall control included)
PSM-DI	Multifunction control (to be used with QCV-MB control board only)

Sabianet management system for a network of fan coils	
Sabianet	Sabianet (to be used with QCV-MB control board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Crystall Flex System

Electronic Filter

The **Crystall Flex System** is an innovative filtering system, designed to be easily installed downstream from horizontal concealed fan coils.
Created especially for the hotel industry, it can be perfectly added to different structures such as nursing homes and retirement homes and, more generally, wherever a high level of comfort and air quality is needed.

It is made up of **3 elements**:

- patented electronic plate filter ("Femec" type);
- electronic control and power board;
- high voltage flexible connection cable.

The system has been designed to reduce the indoor recirculation of various types of pollutants found in the ducting of air-conditioning systems.
As a result, it is ideal for various types of environments, such as schools, hospitals and rest homes (corridors, waiting rooms, wards), doctors' surgeries, hotels and anywhere indoor air quality needs to be improved.

TECHNICAL CHARACTERISTICS

There are many reasons why pollutants can be found in ducts. The main one is the lack of cleaning and maintenance of the ducts, together with other factors such as incorrect equilibrium and/or pressurisation, the circulation of air between different rooms when the system is off, the lack of suitable filters or the air being bypassed around the filtering cells inside the air handling unit, the lack of attention paid when replacing the filters, the presence of favourable conditions in terms of temperature and humidity for the proliferation of bacterial organisms, etc.

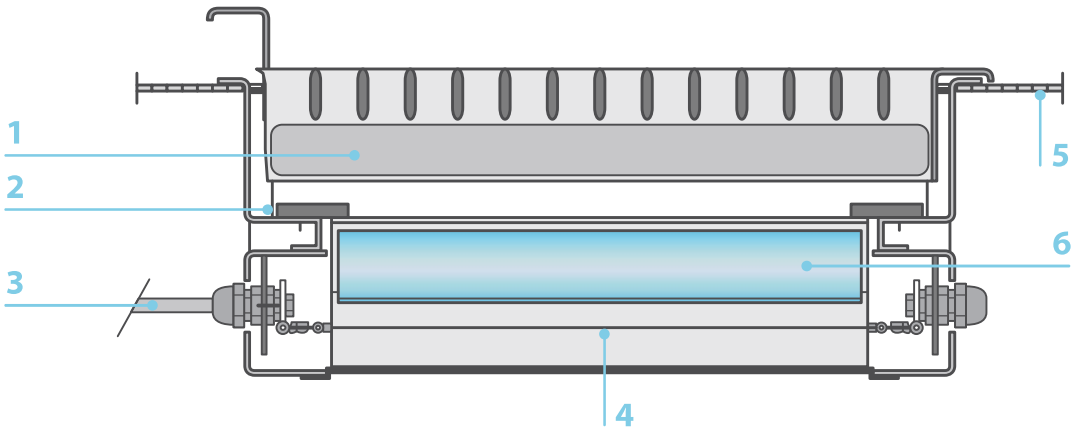
While pollution in ducts can be reduced through periodical maintenance, in reality this is rarely done due to the considerable costs, the difficulty in accessing the systems or the impossibility of shutting down the system for an extended period.

One possible alternative solution that significantly reduces the health risks and drastically cuts the costs of maintenance on ducts involves the installation of active electrostatic filters immediately before the air is introduced into the room.

Electronic filters are known to be very effective in trapping particles, fibres, biological substances, etc., even when these are very small in diameter (less than 1 micron), while only causing a moderate pressure drop in the passing air, both initially (when the filter is clean) and over time when there is dirt on the surfaces.

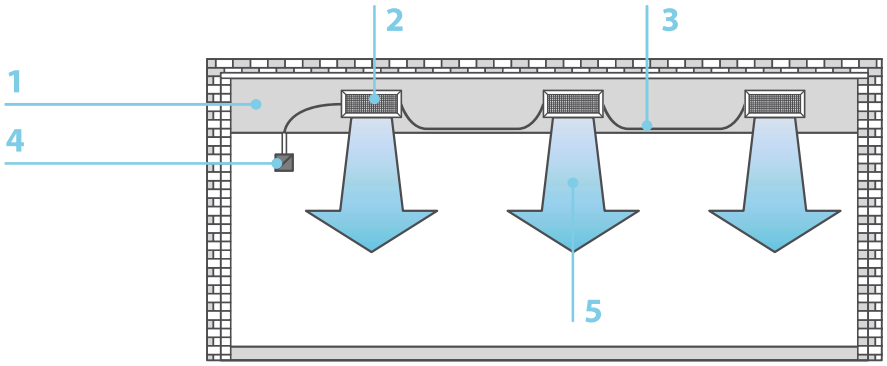
The bactericide action of electronic filters prevents the proliferation of biological substances (bacteria, mould, yeast, etc.) on the surfaces of the transiting dust, even if these are not trapped by the filter (other "mechanical" filtering systems may, on the other hand, represent a support that is favourable to the proliferation of biological substances).

The **Crystall Flex System** is consequently an effective, reliable and simple product.
Furthermore, it has extremely low maintenance costs: it never needs replacing and can be washed and sanitised using ordinary detergents, without any decline in efficiency or product life.



1 Air outlet grid
2 Electronic filter lock
3 High voltage cable
4 Ionic field
5 Duct
6 **"Crystall"** electronic filter

Crystall Flex System | TECHNICAL CHARACTERISTICS



1 Duct
2 Air outlet grid
3 Shielded high voltage cable
4 Power supply and control box
5 Air outlet

Advantages of the Crystall Flex System:

- Installation possible on existing systems
- Low impact on the thermal and aeraulic equilibrium of the system
- Reduced pressure drop even when the filter is dirty
- Significant bactericide action on biological pollutants
- No cost for replacing the filters (the filters are totally regenerable by simply washing them)
- Very low additional energy costs
- Simple and fast maintenance
- No system downtime for the maintenance of the filtering units
- Remote power supply that can power multiple filtering units at the same time.

Tests and Certification

The Crystall system has been the subject of numerous trials and efficiency and effectiveness tests to assess the functions and performance of the systems in real conditions.

At the Turin Polytechnic Department of Energy, efficiency and load loss tests were performed using the EN779 international filter classification standards, where applicable.

The University of Ancona carried out over 180 laboratory tests on microbiological substances (total airborne microbiological load), including bacteria, mould, fungi, etc., which confirmed, through the statistical analysis of the data taken from the Fischer test, the effectiveness of the Crystall electronic filter in reducing the bacterial load.

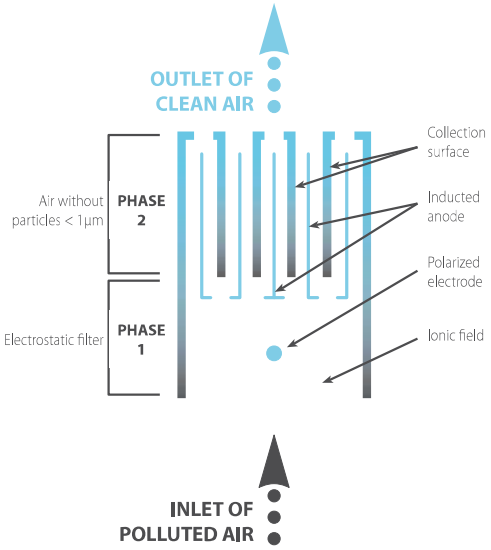
Other tests have been carried out **in the SABIANA laboratories** on the flow-rate, pressure drop, electrical safety and instrumental efficiency of the filtration process on microparticles by numerically counting the most common particle size categories in various rooms.
The particles monitored had the diameters specified by the WHO (World Health Organization) and the EPA (Environmental Protection Agency) as being the most harmful to our health (<2.5 micron PM 2.5), with volumetric counts (number/m^3) being performed in a common living environment, using a laser particle counter (LPC).

The Crystall electronic filter is made up of two main elements.

The first is comprised of an electronic plate filter and is inside a special bearing structure that is designed and shaped based on the type of intended application.
The structural element, therefore defines the type of application, allowing its installation downstream of horizontal flushmounted fan coils (PM-CRY).
The second element is the supply and control equipment that contains the circuit board and connection terminals.

Active plate electronic filter Femec type

The filter element is made up of two sections:
the first is comprised of tungsten electrodes and insulating elements;
the second section, meant for capturing polluting particles, is made of paired and suitably shaped special aluminium sheets, making up the collection manifold.
This section can be easily removed for effortless maintenance. The filter's operating principle is extremely simple. Pollutants cross the first section made up of electrodes and electronically charged by the electrical field produced (ionization). The particles are then collected on the filter plates that are in opposite polarity.
Due to the high voltage inside the filter an intense and disparate electrical field is generated with an avalanche effect called a "corona discharge".



Electronics board

This mainly contains the filter circuit board.
The equipment is supplied with 230V and is capable of generating a high voltage but low intensity current (max 3 mA) needed to produce the ionizing field.
A single unit can supply several terminals based on the total filter surface used.
The equipment is supplied with a remotable alarm status contact and, locally, with a failure indicator light.

Connection cable

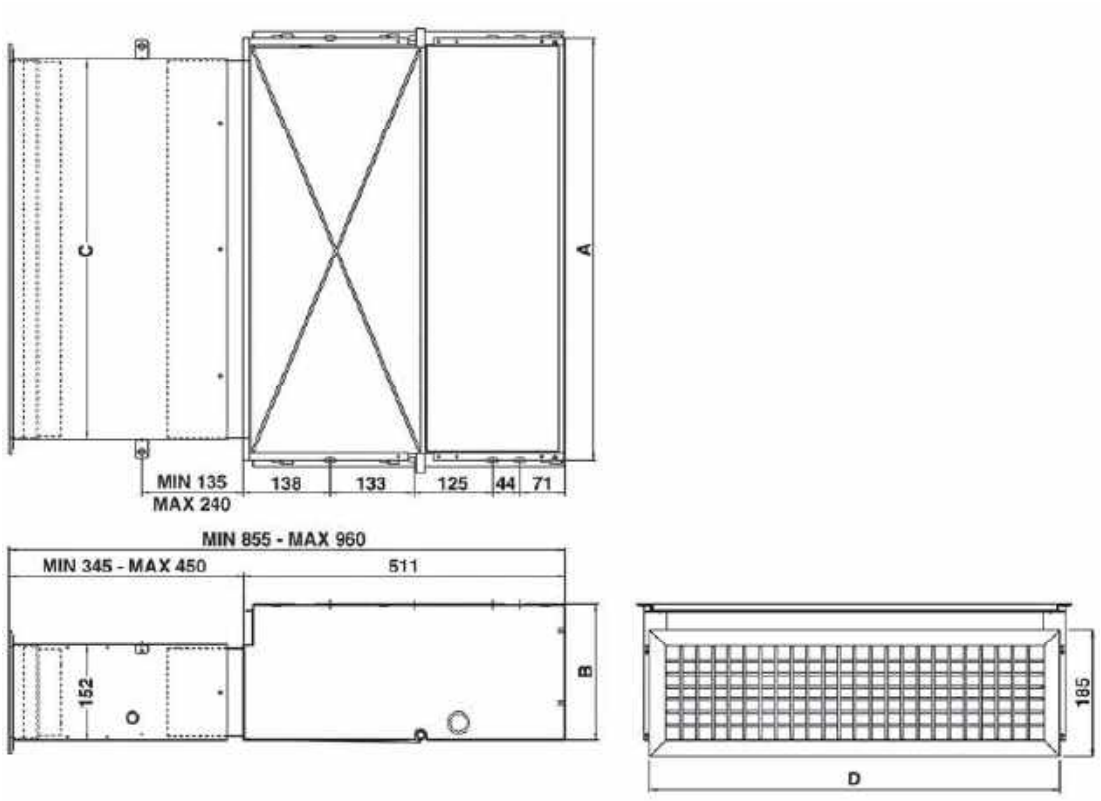
It is made up of a special AWG-22 wire with external insulation suitable for high voltage use.

Crystall Flex System | DIMENSIONS

This type of equipment was specifically created to be able to be inserted downstream of Sabiana **Carisma CRC (IO model)** horizontal concealed fan coils and Sabiana **Carisma CRSL** ducted fan coils.
By adapting the duct and/or the outlet grid, it can also be installed downstream of existing fan coils.

The structure is made of galvanised plate and is comprised of:

- an adjustable length of duct work;
- a Femec type electrostatic filter;
- an electronic filter control unit that can be installed on the side of the duct work or on the side of the fan coile;
- an aluminium outlet grill with a double row of fins.



Model	suitable for		Dimensions			
	Carisma CRC IO model	Carisma CRSL	A	B	C	D
	Size	Size	mm	mm	mm	mm
PM-CRY-2	2	-	454	218	400	435
PM-CRY-3-4	3 - 4	1	669	218	600	635
PM-CRY-5-6	5 - 6	-	884	218	800	835
PM-CRY-4S	-	2	884	248	800	835
PM-CRY-7	7	-	1099	218	1000	1035
PM-CRY-8-9	8 - 9	3	1099	248	1000	1035

Accessories

FAP **Fresh air intake kit**

Wall electronic controls

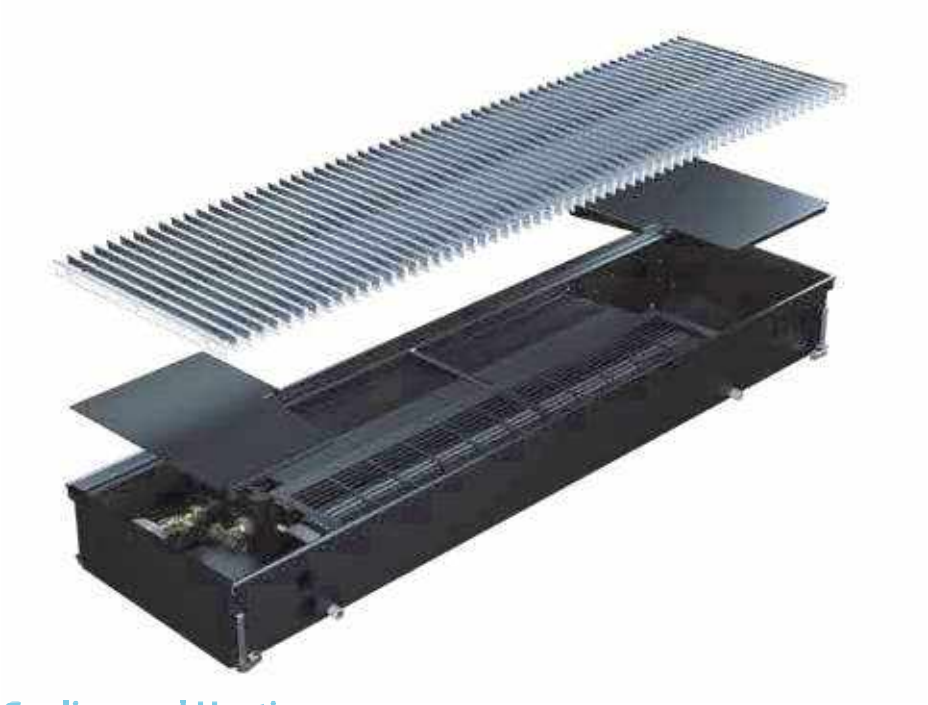
WM-TQR

WM-AU

Functions	Identification	
	WM-TQR	WM-AU
ON-OFF switch	✔	✔
ON-OFF switch for Crystall electrostatic filter or electric heater	✔	✔
Manual 3 speed switch	✔	✔
Manual/Automatic 3 speed selection		✔
Summer/Winter switch	✔	✔
Remote centralized Summer/Winter switch or by an automatic change-over fitted on the water pipe	✔	✔
Automatic Summer/Winter switch with neutral zone for 4 pipe installation with 2 valves		✔
Room thermostat for fan control (ON-OFF)	✔	✔
Room thermostat for 1 valve control (2 pipe installation)	✔	✔
Room thermostat for 2 valve control (4 pipe installation)	✔	✔
Simultaneous thermostatic control of the valves and fan		✔
Room thermostat for chilled water valve (SUMMER) and electric heater (WINTER) control (in winter only the electric heater is working)	✔	✔
Installation of electronic low temperature cut-out thermostat (TME)	✔	✔

Carisma Floor CFP-ECM

Trench Convector Unit



Cooling and Heating

Carisma Floor CFP-ECM trench convectors represent a combination of innovative aesthetics and functionality in an air conditioning system.
They are designed to **efficiently heat, cool** and **ventilate** buildings with large windows or doors.
The air flow skims the window in such a way that the units can be placed where people leave. In doing so the design flexibility is increased.

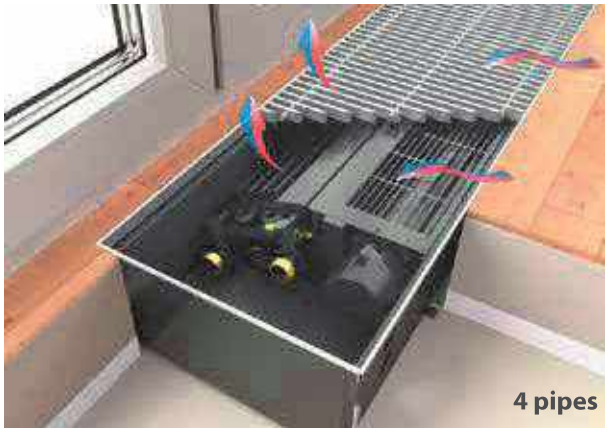
The wide range of models includes **solutions which can be customised** depending on architectural requirements with diffusion grids in a variety of materials and colours.
The standard lengths available are 7, in 2 or 4 pipe versions. It is possible to adapt the thermal and sound performances to every design requirements, thanks to the innovative fan coil group modularity.
Several combinations are available: out of standard lengths of 50 mm pitch included

All the units are supplied with low energy consumption electronic motors.
A large variety of control and regulation accessories is available.
Floor trench convectors are used inside **private homes, on verandas, in public offices and buildings and in exhibition and commercial areas**.

TECHNICAL CHARACTERISTICS

CFP-ECM 130-330

CFP-ECM 175-350



Walkable **floor casing**, in galvanised steel sheet, coated with Anthracite grey (RAL 7016) powder paint, with external height adjustable system preassembled with an antivibrating device. Condensate collection tray integrated in floor casing, including two frontal connections along the drain side O15 mm.

Coil consisting of copper pipes and aluminium fins, painted Anthracite grey (RAL 7016) and housed, with acoustic decoupling, in transversal galvanised and painted steel frame. Euroconus connection, front or lateral side, with connection nut (int. thread .") and air venting.

Tangential fan, with protective cover, 24V EC motors freely adjustable (0 – 10 V) pre-wired and ready for connection.

Aluminium roll-up grid consisting of stable profiles, anodised in natural colours, with 20 x 6 mm slats.
Grid with overall height of 20 mm and free 70% transversal section, inserted in floor casing and acoustically insulated by rubber gaskets. Perimeter listel with finish similar to the cover grid (except for the wooden grids).

Mounting protective wooden cover with a **protective profile** of the perimeter listels to protect the fan coils during installation.

The Carisma CFP-ECM units are supplied without regulation board (accessory available in the "Controls and Accessories" section).

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CFP-ECM 2T version

Standard versions
7 Lengths with width: 330 mm and height 130 mm: 900 -1200 - 1400 - 1700 -2000 - 2500 - 3000
7 Lengths with width:350 mm and height 175 mm: 1000 - 1200 - 1400 - 1700 - 2000 - 2500 - 3000
Special lengths on request (50 mm pitch)
Aluminium roll-up grid.

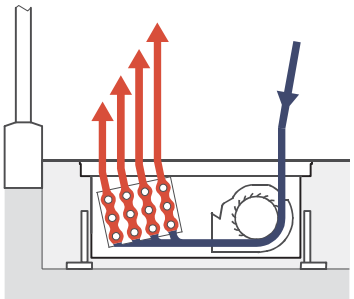
Identifications and models

Dimensions			Model
Casing Length L (mm)	Casing Height H (mm)	Casing Width T (mm)	
900	130	330	**CFP-ECM 2T 900-130-330**
1000	175	350	**CFP-ECM 2T 1000-175-350**
1200	130	330	**CFP-ECM 2T 1200-130-330**
	175	350	**CFP-ECM 2T 1200-175-350**
1400	130	330	**CFP-ECM 2T 1400-130-330**
	175	350	**CFP-ECM 2T 1400-175-350**
1700	130	330	**CFP-ECM 2T 1700-130-330**
	175	350	**CFP-ECM 2T 1700-175-350**
2000	130	330	**CFP-ECM 2T 2000-130-330**
	175	350	**CFP-ECM 2T 2000-175-350**
2500	130	330	**CFP-ECM 2T 2500-130-330**
	175	350	**CFP-ECM 2T 2500-175-350**
3000	130	330	**CFP-ECM 2T 3000-130-330**
	175	350	**CFP-ECM 2T 3000-175-350**

Operating principle

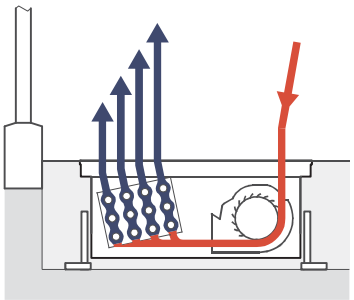
Forced heating convection

The cold air which skims the windows is suctioned and heated by the coil.
The heated air rises, creating a curtain.



Forced cooling convection

Installation in front of the window surfaces efficiently contrasts the diffusion of heat due to solar radiation.



Version CFP-ECM 4T

Standard versions
7 Lengths with width: 330 mm and height 130 mm: 900 -1200 - 1400 - 1700 -2000 - 2500 - 3000
7 Lengths with width:350 mm and height 175 mm: 1000 - 1200 - 1400 - 1700 - 2000 - 2500 - 3000
Special lengths on request (50 mm pitch)
Aluminium roll-up grid.

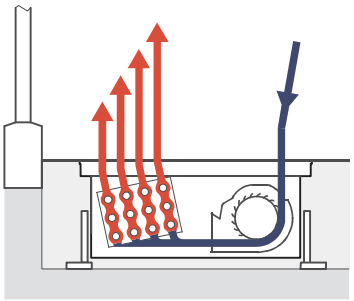
Identifications and models

Dimensions			Model
Casing Length L (mm)	Casing Height H (mm)	Casing Width T (mm)	
900	130	330	**CFP-ECM 4T 900-130-330**
1000	175	350	**CFP-ECM 4T 1000-175-350**
1200	130	330	**CFP-ECM 4T 1200-130-330**
	175	350	**CFP-ECM 4T 1200-175-350**
1400	130	330	**CFP-ECM 4T 1400-130-330**
	175	350	**CFP-ECM 4T 1400-175-350**
1700	130	330	**CFP-ECM 4T 1700-130-330**
	175	350	**CFP-ECM 4T 1700-175-350**
2000	130	330	**CFP-ECM 4T 2000-130-330**
	175	350	**CFP-ECM 4T 2000-175-350**
2500	130	330	**CFP-ECM 4T 2500-130-330**
	175	350	**CFP-ECM 4T 2500-175-350**
3000	130	330	**CFP-ECM 4T 3000-130-330**
	175	350	**CFP-ECM 4T 3000-175-350**

Operating principle

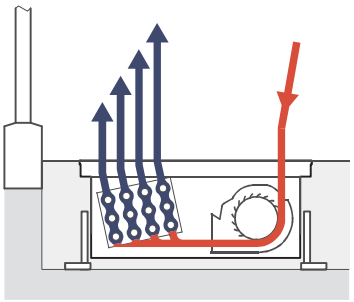
Forced heating convection

The cold air which skims the windows is suctioned and heated by the coil.
The heated air rises, creating a curtain.



Forced cooling convection

Installation in front of the window surfaces efficiently contrasts the diffusion of heat due to solar radiation.



CFP-ECM 2T version

Casing length 900 mm
Casing height 130 mm

2 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 2T 900-130-330			
Casing length **L**		mm	**900**			
Casing width **T**		mm	**330**			
Fan motor drive signal EC		V	3	5	7	10
Air flow **QV**		m^3/h	80	143	193	229
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	199	517	705	830
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(ensible emission)	W	164	357	515	651
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(ensible emission)	W	145	283	407	507
Sound power L_w		dB(A)	29	36	47	57
Sound pressure L_p **(*)**		dB(A)	20	27	38	48
Weight **M**		kg	17,33			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 2T 900-130-330			
Casing length **L**	mm	**900**			
Casing width **T**	mm	**330**			
Fan motor drive signal EC	V	3	5	7	10
Air flow **QV**	m^3/h	80	143	193	229
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	899	1588	2278	3024
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	536	947	1358	1804
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	404	714	1024	1360
Sound power L_w	dB(A)	29	36	47	57
Sound pressure L_p **(*)**	dB(A)	20	27	38	48
Weight **M**	kg	17,33			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

CFP-ECM 2T version

Casing length 1000 mm
Casing height 175 mm

2 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 2T 1000-175-350			
Casing length **L**		mm	**1000**			
Casing width **T**		mm	**350**			
Fan motor drive signal EC		V	3	5	7	10
Air flow **QV**		m^3/h	204	279	347	455
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	568	842	1057	1510
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	454	621	806	1012
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	404	617	825	1067
Sound power L_w		dB(A)	38	43	49	58
Sound pressure L_p **(*)**		dB(A)	29	34	40	49
Weight **M**		kg	21,13			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 2T 1000-175-350			
Casing length **L**	mm	**1000**			
Casing width **T**	mm	**350**			
Fan motor drive signal EC	V	3	5	7	10
Air flow **QV**	m^3/h	204	279	347	455
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	2322	3165	3988	5187
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	1385	1887	2379	3093
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	1044	1423	1793	2332
Sound power L_w	dB(A)	38	43	49	58
Sound pressure L_p **(*)**	dB(A)	29	34	40	49
Peso **M**	kg	21,13			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec

CFP-ECM 2T version

Casing length 1200 mm
Casing height 130 mm / 175 mm

2 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 2T 1200-130-330				CFP-ECM 2T 1200-175-350			
Casing length **L**		mm	**1200**				**1200**			
Casing width **T**		mm	**330**				**350**			
Fan motor drive signal EC		V	3	5	7	10	3	5	7	10
Air flow **QV**		m^3/h	125	231	323	373	264	370	460	607
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	309	835	1178	1351	735	1116	1404	2015
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	255	576	860	1060	588	823	1071	1350
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	226	456	681	826	523	818	1095	1424
Sound power L_w		dB(A)	30	38	49	56	35	41	48	57
Sound pressure L_p **(*)**		dB(A)	21	29	40	47	26	32	39	48
Weight **M**		kg	22,18				24,94			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 2T 1200-130-330				CFP-ECM 2T 1200-175-350			
Casing length **L**	mm	**1200**				**1200**			
Casing width **T**	mm	**330**				**350**			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow **QV**	m^3/h	125	231	323	373	264	370	460	607
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	1561	2799	4006	4736	3190	4348	5479	7126
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	931	1669	2389	2825	1902	2593	3268	4250
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	702	1259	1801	2130	1434	1955	2464	3204
Sound power L_w	dB(A)	30	38	49	56	35	41	48	57
Sound pressure L_p **(*)**	dB(A)	21	29	40	47	26	32	39	48
Weight **M**	kg	22,18				24,94			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

CFP-ECM 2T version

Casing length 1400 mm
Casing height 130 mm / 175 mm

2 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 2T 1400-130-330				CFP-ECM 2T 1400-175-350			
Casing length **L**		mm	**1400**				**1400**			
Casing width **T**		mm	**330**				**350**			
Fan motor drive signal EC		V	3	5	7	10	3	5	7	10
Air flow **QV**		m³/h	158	284	396	432	290	412	513	678
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	390	1027	1448	1564	806	1242	1563	2250
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	322	708	1058	1227	645	915	1193	1508
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	285	561	837	956	573	911	1220	1591
Sound power L_w		dB(A)	32	39	50	56	33	40	47	57
Sound pressure L_p **(*)**		dB(A)	23	30	41	47	24	31	38	48
Weight **M**		kg	25,75				28,04			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 2T 1400-130-330				CFP-ECM 2T 1400-175-350			
Casing length **L**	mm	**1400**				**1400**			
Casing width **T**	mm	**330**				**350**			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow **QV**	m³/h	158	284	396	432	290	412	513	678
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	1968	3529	4985	5655	3624	4939	6225	8095
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	1174	2105	2973	3373	2161	2946	3713	4828
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	885	1587	2241	2543	1629	2221	2799	3640
Sound power L_w	dB(A)	32	39	50	56	33	40	47	57
Sound pressure L_p **(*)**	dB(A)	23	30	41	47	24	31	38	48
Weight **M**	kg	25,75				28,04			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

CFP-ECM 2T version

Casing length 1700 mm
Casing height 130 mm / 175 mm

2 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 2T 1700-130-330				CFP-ECM 2T 1700-175-350			
Casing length **L**		mm	**1700**				**1700**			
Casing width **T**		mm	**330**				**350**			
Fan motor drive signal EC		V	3	5	7	10	3	5	7	10
Air flow **QV**		m^3/h	191	353	471	489	382	560	699	930
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	474	1276	1719	1770	1062	1689	2131	3086
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	391	880	1256	1389	849	1245	1625	2068
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	346	697	994	1082	755	1238	1663	2181
Sound power L_w		dB(A)	32	39	50	55	40	46	52	63
Sound pressure L_p **(*)**		dB(A)	23	30	41	46	31	37	43	54
Weight **M**		kg	31				35,78			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 2T 1700-130-330				CFP-ECM 2T 1700-175-350			
Casing length **L**	mm	**1700**				**1700**			
Casing width **T**	mm	**330**				**350**			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow **QV**	m^3/h	191	353	471	489	382	560	699	930
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	2485	4434	5970	6513	5143	7009	8834	11489
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	1482	2644	3560	3884	3067	4180	5269	6852
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	1117	1994	2684	2929	2312	3152	3972	5166
Sound power L_w	dB(A)	32	39	50	55	40	46	52	63
Sound pressure L_p **(*)**	dB(A)	23	30	41	46	31	37	43	54
Weight **M**	kg	31				35,78			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

CFP-ECM 2T version

Casing length 2000 mm
Casing height 130 mm / 175 mm

2 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 2T 2000-130-330				CFP-ECM 2T 2000-175-350			
Casing length **L**		mm	**2000**				**2000**			
Casing width **T**		mm	**330**				**350**			
Fan motor drive signal EC		V	3	5	7	10	3	5	7	10
Air flow **QV**		m³/h	232	439	578	660	447	675	845	1130
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	575	1588	2110	2388	1242	2036	2575	3749
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	474	1096	1541	1874	993	1501	1964	2512
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	420	868	1220	1460	883	1493	2009	2650
Sound power L_w		dB(A)	32	40	51	58	38	44	51	61
Sound pressure L_p **(*)**		dB(A)	23	31	42	49	29	35	42	52
Weight **M**		kg	36,78				41,48			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 2T 2000-130-330				CFP-ECM 2T 2000-175-350			
Casing length **L**	mm	**2000**				**2000**			
Casing width **T**	mm	**330**				**350**			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow **QV**	m³/h	232	439	578	660	447	675	845	1130
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	2980	5383	7727	9489	6445	8748	11071	14397
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	1777	3211	4608	5659	3844	5239	6603	8586
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	1340	2421	3474	4267	2898	3950	4978	6474
Sound power L_w	dB(A)	32	40	51	58	38	44	51	61
Sound pressure L_p **(*)**	dB(A)	23	31	42	49	29	35	42	52
Weight **M**	kg	36,78				41,48			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

CFP-ECM 2T version

Casing length 2500 mm
Casing height 130 mm / 175 mm

2 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 2T 2500-130-330				CFP-ECM 2T 2500-175-350			
Casing length **L**		mm	**2500**				**2500**			
Casing width **T**		mm	**330**				**350**			
Fan motor drive signal EC		V	3	5	7	10	3	5	7	10
Air flow **QV**		m^3/h	305	580	739	770	602	917	1148	1538
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	755	2098	2698	2787	1675	2766	3499	5102
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	622	1448	1971	2186	1339	2039	2669	3419
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	551	1146	1560	1703	1191	2029	2730	3607
Sound power L_w		dB(A)	33	41	52	58	39	45	51	61
Sound pressure L_p **(*)**		dB(A)	24	32	43	49	30	36	42	52
Weight **M**		kg	45,63				53,11			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 2T 2500-130-330				CFP-ECM 2T 2500-175-350			
Casing length **L**	mm	**2500**				**2500**			
Casing width **T**	mm	**330**				**350**			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow **QV**	m^3/h	305	580	739	770	602	917	1148	1538
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	3910	7075	9859	11237	8832	12037	15171	19729
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	2332	4219	5880	6702	5267	7179	9048	11766
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	1758	3181	4433	5063	3971	5412	6822	8871
Sound power L_w	dB(A)	33	41	52	58	39	45	51	61
Sound pressure L_p **(*)**	dB(A)	24	32	43	49	30	36	42	52
Weight **M**	kg	45,63				53,11			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

CFP-ECM 2T version

Casing length 3000 mm
Casing height 130 mm / 175 mm

2 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 2T 3000-130-330				CFP-ECM 2T 3000-175-350			
Casing length **L**		mm	**3000**				**3000**			
Casing width **T**		mm	**330**				**350**			
Fan motor drive signal EC		V	3	5	7	10	3	5	7	10
Air flow **QV**		m^3/h	365	693	810	855	751	1143	1430	1916
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	905	2506	3094	3122	2087	3446	4359	6355
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	746	1729	2281	2427	1668	2540	3325	4259
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	661	1369	1804	1891	1483	2527	3401	4493
Sound power L_w		dB(A)	33	41	52	57	36	42	49	60
Sound pressure L_p **(*)**		dB(A)	24	32	43	48	27	33	40	51
Weight **M**		kg	53,74				62,6			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 2T 3000-130-330				CFP-ECM 2T 3000-175-350			
Casing length **L**	mm	**3000**				**3000**			
Casing width **T**	mm	**330**				**350**			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow **QV**	m^3/h	365	693	810	855	751	1143	1430	1916
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	4553	8242	11158	12190	11002	14995	18898	24577
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	2715	4915	6655	7270	6561	8943	11271	14648
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	2047	3706	5017	5481	4947	6742	8498	11051
Sound power L_w	dB(A)	33	41	52	57	36	42	49	60
Sound pressure L_p **(*)**	dB(A)	24	32	43	48	27	33	40	51
Weight **M**	kg	53,74				62,6			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

CFP-ECM 4T version

Casing length 900 mm
Casing height 130 mm

4 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 4T 900-130-330			
Casing length **L**		mm	**900**			
Casing width **T**		mm	**330**			
Fan motor drive signal EC		V	3	5	7	10
Air flow **QV**		m^3/h	68	113	149	171
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	169	410	545	620
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	139	283	398	487
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	123	224	315	379
Sound power L_w		dB(A)	29	36	47	57
Sound pressure L_p **(*)**		dB(A)	20	27	38	48
Weight **M**		kg	16,76			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 4T 900-130-330			
Casing length **L**	mm	**900**			
Casing width **T**	mm	**330**			
Fan motor drive signal EC	V	3	5	7	10
Air flow **QV**	m^3/h	68	113	149	171
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	664	1137	1580	1999
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	396	678	942	1192
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	298	511	710	899
Sound power L_w	dB(A)	29	36	47	57
Sound pressure L_p **(*)**	dB(A)	20	27	38	48
Weight **M**	kg	16,76			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

CFP-ECM 4T version

Casing length 1000 mm
Casing height 175 mm

4 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 4T 1000-175-350			
Casing length **L**		mm	**1000**			
Casing width **T**		mm	**350**			
Fan motor drive signal EC		V	3	5	7	10
Air flow **QV**		m^3/h	161	216	265	342
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	449	651	808	1133
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	359	480	616	759
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	319	477	630	801
Sound power L_w		dB(A)	40	44	50	59
Sound pressure L_p **(*)**		dB(A)	31	35	41	50
Weight **M**		kg	20,15			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 4T 1000-175-350			
Lunghezza canale **L**	mm	**1000**			
Larghezza canale **T**	mm	**350**			
Tensione di comando motore EC	V	3	5	7	10
Portata aria **QV**	m^3/h	161	216	265	342
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	1529	2984	2627	3416
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	912	1243	1567	2037
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	688	937	1181	1536
Sound power L_w	dB(A)	40	44	50	59
Sound pressure L_p **(*)**	dB(A)	31	35	41	50
Weight **M**	kg	20,15			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

CFP-ECM 4T version

Casing length 1200 mm
Casing height 130 mm / 175 mm

4 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 4T 1200-130-330				CFP-ECM 4T 1200-175-350			
Casing length **L**		mm	**1200**				**1200**			
Casing width **T**		mm	**330**				**350**			
Fan motor drive signal EC		V	3	5	7	10	3	5	7	10
Air flow **QV**		m^3/h	103	184	250	279	227	311	382	495
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	255	667	913	1010	632	937	1166	1642
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	210	460	667	792	505	691	889	1101
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	186	364	528	617	449	687	910	1161
Sound power L_w		dB(A)	30	38	49	56	37	42	48	58
Sound pressure L_p **(*)**		dB(A)	21	29	40	47	28	33	39	49
Weight **M**		kg	21,1				23,96			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 4T 1200-130-330				CFP-ECM 4T 1200-175-350			
Casing length **L**	mm	**1200**				**1200**			
Casing width **T**	mm	**330**				**350**			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow **QV**	m^3/h	103	184	250	279	227	311	382	495
Heating sensible emission:ΔTm 50,0 K – 75/65 °C	W	1131	1974	2761	3355	2232	3042	3834	4987
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	675	1177	1647	2001	1331	1814	2287	2974
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	509	888	1241	1508	1004	1368	1724	2242
Sound power L_w	dB(A)	30	38	49	56	37	42	48	58
Sound pressure L_p **(*)**	dB(A)	21	29	40	47	28	33	39	49
Weight **M**	kg	21,1				23,96			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

CFP-ECM 4T version

Casing length 1400 mm
Casing height 130 mm / 175 mm

4 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 4T 1400-130-330				CFP-ECM 4T 1400-175-350			
Casing length **L**		mm	**1400**				**1400**			
Casing width **T**		mm	**330**				**350**			
Fan motor drive signal EC		V	3	5	7	10	3	5	7	10
Air flow **QV**		m^3/h	132	236	323	362	258	357	440	571
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	327	855	1179	1309	717	1077	1341	1894
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	269	590	861	1027	573	794	1023	1269
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	239	467	681	800	510	790	1046	1339
Sound power L_w		dB(A)	30	38	49	56	35	41	48	57
Sound pressure L_p **(*)**		dB(A)	21	29	40	47	26	32	39	48
Weight **M**		kg	24,41				27,05			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 4T 1400-130-330				CFP-ECM 4T 1400-175-350			
Casing length **L**	mm	**1400**				**1400**			
Casing width **T**	mm	**330**				**350**			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow **QV**	m^3/h	132	236	323	362	258	357	440	571
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	1491	2616	3649	4009	2584	3521	4438	5772
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	890	1560	2176	2391	1541	2100	2647	3442
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	671	1176	1641	1803	1162	1583	1996	2595
Sound power L_w	dB(A)	30	38	49	56	35	41	48	57
Sound pressure L_p **(*)**	dB(A)	21	29	40	47	26	32	39	48
Weight **M**	kg	24,41				27,05			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

CFP-ECM 4T version

Casing length 1700 mm
Casing height 130 mm / 175 mm

4 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 4T 1700-130-330				CFP-ECM 4T 1700-175-350			
Casing length **L**		mm	**1700**				**1700**			
Casing width **T**		mm	**330**				**350**			
Fan motor drive signal EC		V	3	5	7	10	3	5	7	10
Air flow **QV**		m^3/h	179	323	432	442	360	515	625	830
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	445	1168	1576	1600	1001	1552	1937	2754
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	366	806	1151	1256	800	1144	1478	1846
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	324	638	911	978	711	1138	1511	1947
Sound power L_w		dB(A)	32	39	50	55	41	47	53	63
Sound pressure L_p **(*)**		dB(A)	23	30	41	46	32	38	44	54
Weight **M**		kg	30,46				34,8			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 4T 1700-130-330				CFP-ECM 4T 1700-175-350			
Casing length **L**	mm	**1700**				**1700**			
Casing width **T**	mm	**330**				**350**			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow **QV**	m^3/h	179	323	432	442	360	515	625	830
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	2079	3655	4890	5247	3767	5134	6471	8415
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	1240	2180	2917	3129	2247	3062	3859	5019
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	935	1643	2199	2359	1694	2309	2910	3784
Sound power L_w	dB(A)	32	39	50	55	41	47	53	63
Sound pressure L_p **(*)**	dB(A)	23	30	41	46	32	38	44	54
Weight **M**	kg	30,46				34,8			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

CFP-ECM 4T version

Casing length 2000 mm
Casing height 130 mm / 175 mm

4 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 4T 2000-130-330				CFP-ECM 4T 2000-175-350			
Casing length **L**		mm	**2000**				**2000**			
Casing width **T**		mm	**330**				**350**			
Fan motor drive signal EC		V	3	5	7	10	3	5	7	10
Air flow **QV**		m³/h	211	391	519	613	422	634	793	1050
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	523	1416	1897	2218	1174	1913	2418	3482
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	431	977	1386	1740	939	1410	1844	2333
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	382	773	1096	1355	835	1403	1886	2461
Sound power L_w		dB(A)	32	40	51	59	39	45	51	62
Sound pressure L_p **(*)**		dB(A)	23	31	42	50	30	36	42	53
Weight **M**		kg	35,7				40,5			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 4T 2000-130-330				CFP-ECM 4T 2000-175-350			
Casing length **L**	mm	**2000**				**2000**			
Casing width **T**	mm	**330**				**350**			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow **QV**	m³/h	211	391	519	613	422	634	793	1050
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	2407	4282	6071	7562	4809	6554	8260	10742
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	1435	2554	3621	4510	2868	3909	4926	6407
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	1082	1926	2730	3400	2162	2947	3714	4830
Sound power L_w	dB(A)	32	40	51	59	39	45	51	62
Sound pressure L_p **(*)**	dB(A)	23	31	42	50	30	36	42	53
Weight **M**	kg	35,7				40,5			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

CFP-ECM 4T version

Casing length 2500 mm
Casing height 130 mm / 175 mm

4 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 4T 2500-130-330				CFP-ECM 4T 2500-175-350			
Casing length **L**		mm	**2500**				**2500**			
Casing width **T**		mm	**330**				**350**			
Fan motor drive signal EC		V	3	5	7	10	3	5	7	10
Air flow **QV**		m^3/h	284	539	697	738	530	806	1009	1351
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	704	1950	2545	2670	1475	2431	3075	4482
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	580	1346	1859	2094	1179	1792	2346	3003
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	514	1065	1471	1631	1048	1783	2399	3168
Sound power L_w		dB(A)	33	41	52	58	35	42	49	60
Sound pressure L_p **(*)**		dB(A)	24	32	43	49	26	33	40	51
Weight **M**		kg	44,56				49,04			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 4T 2500-130-330				CFP-ECM 4T 2500-175-350			
Casing length **L**	mm	**2500**				**2500**			
Casing width **T**	mm	**330**				**350**			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow **QV**	m^3/h	284	539	697	738	530	806	1009	1351
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	3243	5847	8207	9425	6198	8447	10646	13844
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	1934	3487	4895	5621	3696	5038	6349	8257
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	1458	2629	3690	4238	2787	3798	4787	6225
Sound power L_w	dB(A)	33	41	52	58	35	42	49	60
Sound pressure L_p **(*)**	dB(A)	24	32	43	49	26	33	40	51
Weight **M**	kg	44,56				49,04			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

CFP-ECM 4T version

Casing length 3000 mm
Casing height 130 mm / 175 mm

4 pipe system.
The rated thermal emissions are in conformity with the 16430 Directive and referred to the following operating conditions:

COOLING
Entering air temperature: +27°C d.b.
R.H.: 50 %

Model			CFP-ECM 4T 3000-130-330				CFP-ECM 4T 3000-175-350			
Casing length **L**		mm	**3000**				**3000**			
Casing width **T**		mm	**330**				**350**			
Fan motor drive signal EC		V	3	5	7	10	3	5	7	10
Air flow **QV**		m^3/h	365	693	810	855	721	1098	1373	1840
Cooling sensible emission: ΔTm 17,5 K – 7/12 °C	(Sensible emission)	W	905	2506	3094	3122	2004	3310	4187	6104
Cooling sensible emission: ΔTm 12,5 K – 12/17 °C	(Sensible emission)	W	746	1729	2281	2427	1602	2440	3194	4091
Cooling sensible emission: ΔTm 10,0 K – 16/18 °C	(Sensible emission)	W	661	1369	1804	1891	1425	2427	3266	4315
Sound power L_w		dB(A)	33	41	52	57	36	43	49	60
Sound pressure L_p **(*)**		dB(A)	24	32	43	48	27	34	40	51
Weight **M**		kg	53,74				62,6			

HEATING
Entering air temperature: +20°C

Model		CFP-ECM 4T 3000-130-330				CFP-ECM 4T 3000-175-350			
Casing length **L**	mm	**3000**				**3000**			
Casing width **T**	mm	**330**				**350**			
Fan motor drive signal EC	V	3	5	7	10	3	5	7	10
Air flow **QV**	m^3/h	365	693	810	855	721	1098	1373	1840
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	4007	7286	9908	10898	8349	11378	14341	18650
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	2390	4345	5909	6500	4979	6786	8553	11123
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	1802	3276	4455	4900	3754	5116	6448	8386
Sound power L_w	dB(A)	33	41	52	57	36	43	49	60
Sound pressure L_p **(*)**	dB(A)	24	32	43	48	27	34	40	51
Weight **M**	kg	53,74				62,6			

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

Carisma Floor CRP-ECM

Trench Convector

for Heating only

Carisma Floor CRP-ECM trench convectors represent a combination of innovative aesthetics and functionality in an heating system.

They are designed to efficiently **heat and ventilate** buildings with large windows or doors.

The wide range of models includes **solutions which can be customised** depending on architectural requirements with diffusion grids in a variety of materials and colours.

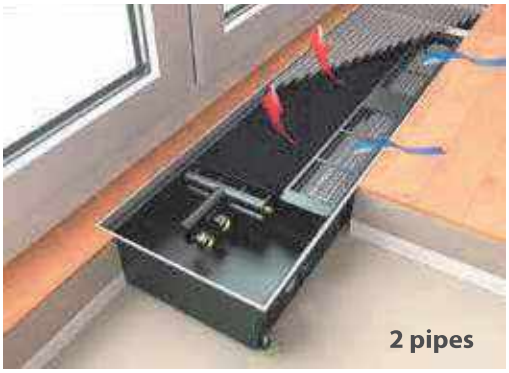
All the units are supplied with low energy consumption electronic motors.

A large variety of control and regulation accessories is available.

Floor trench convectors are used **inside private homes, on verandas, in public offices and buildings and in exhibition and commercial areas**.

TECHNICAL CHARACTERISTICS

Walkable floor casing, in galvanised steel sheet, coated with Anthracite grey (RAL 7016) powder paint, with external height adjustable system preassembled with an antivibrating device.



Coil consisting of copper pipes and aluminium fins, painted Anthracite grey (RAL 7016) and housed, with acoustic decoupling, in transversal galvanised and painted steel frame. Euroconus connection, front or ambient side, with connection nut (int. thread ¾") and air venting.

Tangential fan, protective cover, 24V EC motors freely adjustable (0 – 10 V) pre-wired and ready for connection.

Aluminium roll-up grid consisting of stable profiles, anodised in natural colours, with 20 x 6 mm slats.
Grid with overall height of 20 mm and free 70% transversal section, inserted in floor casing and acoustically insulated by rubber gaskets. Perimeter listel with finish of cover grid.

Mounting cover with a **protective profile** of the perimeter listels to protect the fan coils during installation.

Standard models
5 Widths: 185, 210, 260, 310 and 360 mm.
1 Height: 110 mm.
12 Lengths: 1250, 1500, 1750, 2000, 2250, 2500, 2750, 3000, 3250, 3500, 3750 and 4000 mm.
Aluminium roll-up grid.

Identifications and models

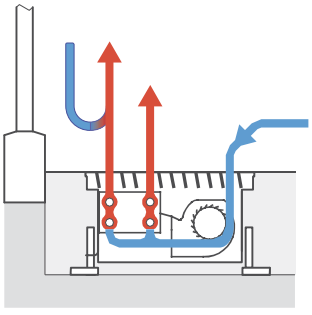
Dimension			Dimension		
Casing Lenght L (mm)	Casing Height H (mm)	Model	Casing Lenght L (mm)	Casing Height H (mm)	Model
1250	185	**CRP-ECM 1250-110-185**	2750	185	**CRP-ECM 2750-110-185**
	210	**CRP-ECM 1250-110-210**		210	**CRP-ECM 2750-110-210**
	260	**CRP-ECM 1250-110-260**		260	**CRP-ECM 2750-110-260**
	310	**CRP-ECM 1250-110-310**		310	**CRP-ECM 2750-110-310**
	360	**CRP-ECM 1250-110-360**		360	**CRP-ECM 2750-110-360**
1500	185	**CRP-ECM 1500-110-185**	3000	185	**CRP-ECM 3000-110-185**
	210	**CRP-ECM 1500-110-210**		210	**CRP-ECM 3000-110-210**
	260	**CRP-ECM 1500-110-260**		260	**CRP-ECM 3000-110-260**
	310	**CRP-ECM 1500-110-310**		310	**CRP-ECM 3000-110-310**
	360	**CRP-ECM 1500-110-360**		360	**CRP-ECM 3000-110-360**
1750	185	**CRP-ECM 1750-110-185**	3250	185	**CRP-ECM 3250-110-185**
	210	**CRP-ECM 1750-110-210**		210	**CRP-ECM 3250-110-210**
	260	**CRP-ECM 1750-110-260**		260	**CRP-ECM 3250-110-260**
	310	**CRP-ECM 1750-110-310**		310	**CRP-ECM 3250-110-310**
	360	**CRP-ECM 1750-110-360**		360	**CRP-ECM 3250-110-360**
2000	185	**CRP-ECM 2000-110-185**	3500	185	**CRP-ECM 3500-110-185**
	210	**CRP-ECM 2000-110-210**		210	**CRP-ECM 3500-110-210**
	260	**CRP-ECM 2000-110-260**		260	**CRP-ECM 3500-110-260**
	310	**CRP-ECM 2000-110-310**		310	**CRP-ECM 3500-110-310**
	360	**CRP-ECM 2000-110-360**		360	**CRP-ECM 3500-110-360**
2250	185	**CRP-ECM 2250-110-185**	3750	185	**CRP-ECM 3750-110-185**
	210	**CRP-ECM 2250-110-210**		210	**CRP-ECM 3750-110-210**
	260	**CRP-ECM 2250-110-260**		260	**CRP-ECM 3750-110-260**
	310	**CRP-ECM 2250-110-310**		310	**CRP-ECM 3750-110-310**
	360	**CRP-ECM 2250-110-360**		360	**CRP-ECM 3750-110-360**
2500	185	**CRP-ECM 2500-110-185**	4000	185	**CRP-ECM 4000-110-185**
	210	**CRP-ECM 2500-110-210**		210	**CRP-ECM 4000-110-210**
	260	**CRP-ECM 2500-110-260**		260	**CRP-ECM 4000-110-260**
	310	**CRP-ECM 2500-110-310**		310	**CRP-ECM 4000-110-310**
	360	**CRP-ECM 2500-110-360**		360	**CRP-ECM 4000-110-360**

Note: the 185 dimension is not available for the A3-A4 side connections.

Operating principle

Forced heating convection

The cold air is suctioned from the ambient and heated by the coil. The heated air rises, creating a shield to cold air among the window and the ambient.



Casing lenght 1250 mm
Casing height 110 mm

2 pipe system.
The rated thermal emissions are referred to the following operating conditions:

HEATING (winter mode)
Air temperature: +20°C

Model CRP-ECM		1250-110-185					1250-110-210				
Casing lenght **L**	mm	**1250**					**1250**				
Casing width **T**	mm	**185**					**210**				
Fan motor drive signal EC	V	0	3	5	8	10	0	3	5	8	10
Air flow **QV**	m^3/h	–	57	101	171	252	–	57	101	171	252
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	148	529	725	962	1082	194	572	803	1065	1214
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	54	316	432	574	645	90	341	479	635	724
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	32	238	326	433	486	60	257	361	479	546
Sound power L_w	dB(A)	–	27	30	40	46	–	27	30	40	46
Sound pressure L_p **(*)**	dB(A)	–	18	21	31	37	–	18	21	31	37
Exponent **n**	–	1,93	1,00	1,00	1,00	1,00	1,48	1,00	1,00	1,00	1,00
Weight **M**	kg	12,6					13,5				

Model CRP-ECM		1250-110-260					1250-110-310				
Casing lenght **L**	mm	**1250**					**1250**				
Casing width **T**	mm	**260**					**310**				
Fan motor drive signal EC	V	0	3	5	8	10	0	3	5	8	10
Air flow **QV**	m^3/h	–	57	101	171	252	–	57	101	171	252
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	264	694	1015	1319	1520	295	827	1094	1542	1722
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	128	414	605	787	906	140	493	653	920	1027
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	86	312	457	593	683	93	372	492	693	774
Sound power L_w	dB(A)	–	27	30	40	46	–	27	30	40	46
Sound pressure L_p **(*)**	dB(A)	–	18	21	31	37	–	18	21	31	37
Exponent n	–	1,40	1,00	1,00	1,00	1,00	1,41	1,00	1,00	1,00	1,00
Weight **M**	kg	15,4					11,1				

Model CRP-ECM		1250-110-360				
Casing lenght **L**	mm	**1250**				
Casing width **T**	mm	**360**				
Fan motor drive signal EC	V	0	3	5	8	10
Air flow **QV**	m^3/h	–	57	101	171	252
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	326	976	1340	1695	1984
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	155	582	799	1011	1183
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	103	439	602	762	892
Sound power L_w	dB(A)	–	27	30	40	46
Sound pressure L_p **(*)**	dB(A)	–	18	21	31	37
Exponent n	–	1,44	1,00	1,00	1,00	1,00
Weight **M**	kg	19,6				

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

Casing lenght 2000 mm
Casing height 110 mm

2 pipe system.
The rated thermal emissions are referred to the following operating conditions:

HEATING (winter mode)
Air temperature: +20°C

Model CRP-ECM		2000-110-185					2000-110-210				
Casing lenght **L**	mm	**2000**					**2000**				
Casing width **T**	mm	**185**					**210**				
Fan motor drive signal EC	V	0	3	5	8	10	0	3	5	8	10
Air flow **QV**	m^3/h	–	114	202	342	504	–	57	101	171	252
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	290	1053	1443	1918	2156	382	1136	1598	2121	2418
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	107	628	861	1144	1286	178	677	953	1265	1442
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	62	473	649	862	969	117	511	719	954	1087
Sound power L_w	dB(A)	–	29	33	43	49	–	29	33	43	49
Sound pressure L_p **(*)**	dB(A)	–	20	24	34	40	–	20	24	34	40
Exponent n	–	1,93	1,00	1,00	1,00	1,00	1,48	1,00	1,00	1,00	1,00
Weight **M**	kg	20,1					21,7				

Model CRP-ECM		2000-110-260					2000-110-310				
Casing lenght **L**	mm	**2000**					**2000**				
Casing width **T**	mm	**260**					**310**				
Fan motor drive signal EC	V	0	3	5	8	10	0	3	5	8	10
Air flow **QV**	m^3/h	–	114	202	342	504	–	114	202	342	504
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	519	1378	2020	2627	3027	580	1643	2177	3072	3431
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	252	822	1205	1567	1805	274	980	1299	1832	2046
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	170	619	908	1181	1361	182	739	979	1381	1543
Sound power L_w	dB(A)	–	29	33	43	49	–	29	33	43	49
Sound pressure L_p **(*)**	dB(A)	–	20	24	34	40	–	20	24	34	40
Exponent n	–	1,40	1,00	1,00	1,00	1,00	1,41	1,00	1,00	1,00	1,00
Weight **M**	kg	24,6					27,7				

Model CRP-ECM		2000-110-360				
Casing lenght **L**	mm	**2000**				
Casing width **T**	mm	**360**				
Fan motor drive signal EC	V	0	3	5	8	10
Air flow **QV**	m^3/h	–	114	202	342	504
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	641	1941	2667	3376	3953
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	305	1157	1591	2014	2358
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	203	873	1199	1516	1778
Sound power L_w	dB(A)	–	29	33	43	49
Sound pressure L_p **(*)**	dB(A)	–	20	24	34	40
Exponent n	–	1,44	1,00	1,00	1,00	1,00
Weight **M**	kg	31,2				

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

Casing lenght 2750 mm
Casing height 110 mm

2 pipe system.
The rated thermal emissions are referred to the following operating conditions:

HEATING (winter mode)
Air temperature: +20°C

Model CRP-ECM		2750-110-185					2750-110-210				
Casing lenght **L**	mm	**2750**					**2750**				
Casing width **T**	mm	**185**					**210**				
Fan motor drive signal EC	V	0	3	5	8	10	0	3	5	8	10
Air flow **QV**	m^3/h	–	171	303	513	756	–	171	303	513	756
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	433	1576	2162	2873	3230	569	1700	2393	3177	3623
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	160	940	1289	1714	1926	265	1014	1427	1895	2161
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	93	709	972	1292	1452	174	764	1076	1428	1629
Sound power L_w	dB(A)	–	31	35	45	51	–	31	35	45	51
Sound pressure L_p **(*)**	dB(A)	–	22	26	36	42	–	22	26	36	42
Exponent n	–	1,93	1,00	1,00	1,00	1,00	1,48	1,00	1,00	1,00	1,00
Weight **M**	kg	27,7					29,9				

Modello CRP-ECM		2750-110-260					2750-110-310				
Casing lenght **L**	mm	**2750**					**2750**				
Casing width **T**	mm	**260**					**310**				
Fan motor drive signal EC	V	0	3	5	8	10	0	3	5	8	10
Air flow **QV**	m^3/h	–	171	303	513	756	–	171	303	513	756
Heating sensible emission: ΔTm 50,0 K – 75/65 °C	W	774	2062	3025	3935	4535	865	2459	3260	4602	5139
Heating sensible emission: ΔTm 30,0 K – 55/45 °C	W	375	1230	1804	2347	2704	409	1466	1944	2745	3065
Heating sensible emission: ΔTm 22,5 K – 45/40°C	W	253	927	1360	1769	2039	272	1106	1466	2069	2311
Sound power L_w	dB(A)	–	31	35	45	51	–	31	35	45	51
Sound pressure L_p **(*)**	dB(A)	–	22	26	36	42	–	22	26	36	42
Exponent n	–	1,40	1,00	1,00	1,00	1,00	1,41	1,00	1,00	1,00	1,00
Weight **M**	kg	33,8					38,1				

Model CRP-ECM		2750-110-360				
Lunghezza canale **L**	mm	**2750**				
Larghezza canale **T**	mm	**360**				
Tensione di comando motore EC	V	0	3	5	8	10
Portata aria **QV**	m^3/h	–	171	303	513	756
Riscaldamento: ΔTm 50,0 K – 75/65 °C	W	956	2905	3995	5058	5923
Riscaldamento: ΔTm 30,0 K – 55/45 °C	W	454	1733	2382	3016	3532
Riscaldamento: ΔTm 22,5 K – 45/40°C	W	303	1306	1796	2274	2663
Potenza sonora L_w	dB(A)	–	31	35	45	51
Pressione sonora L_p **(*)**	dB(A)	–	22	26	36	42
Exponent n	–	1,44	1,00	1,00	1,00	1,00
Peso **M**	kg	42,9				

(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

NOTE: for lenghts that are different from 1250, 2000 and 2750 mm, please see the Technical Guide.

VM/VS

Front connections valve kit (CFP-ECM only)
Consisting of:
- Lower valve body with k_v factory preset:
  - –DN 15 external thread with euroconus ¾"
  - –M30 x 1,5
  - –Galvanised, protective cap.
- Adjustable return lockshield:
  - –DN 15 external thread with euroconus ¾"
  - –Galvanised.

VM/VS

Side connection valve kit
Consisting of:
- Lower valve body with k_v factory preset:
  - –DN 15 external thread with euroconus ¾"
  - –M30 x 1,5
  - –Galvanised, protective cap.
- Adjustable return lockshield:
  - –DN 15 external thread with euroconus ¾"
  - –Galvanised.

VS-A1-A2-OF

ON-OFF valve (for CFP-ECM only)
ON-OFF 2-way valve not fitted, with actuator 230V (to be used with MB board only), frontal connections A1-A2

VS-A3-A4-OF

ON-OFF valve (for CFP-ECM only)
ON-OFF 2-way valve not fitted, with actuator 230V (to be used with MB board only), side connections A3-A4

ATT-24V

Thermoelectric actuator
Power supply: 24 V DC.
Control signal: 0-10V DC.
Absorption: 2 W.
Absorbed current: 80 mA.
Max inrush current: 350 mA (max. 2 min).
Protection rating: IP 54.
Adjustment stroke: 4mm.
Including VA80 valve adaptor and 5 m connection cable.
Normally closed in absence of current.

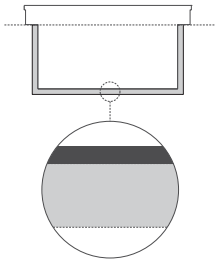
CVSG

Empty casing
The range and minimum and special lengths of the casings vary for the different models.
Dimensions:
- Heights: 110, 130, 155 mm
- Widths: 185, 210, 260, 310, 330, 360 mm
- Variable lengths: 200–3000 mm

Material: galvanised steel painted Anthracite grey (RAL 7016 opaque) with natural anodised aluminium casing.

ACCESSORIES

TS **Casing sound absorbtion lining**
4 mm sound absorbtion lining installed in the factory on the outer surface of the casing.



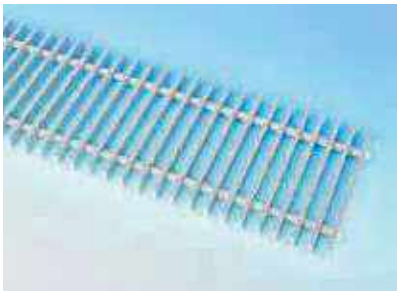
FVM **Air intake filter**
Intake filter PPI 30 dark 3 mm thick.

Top Grills

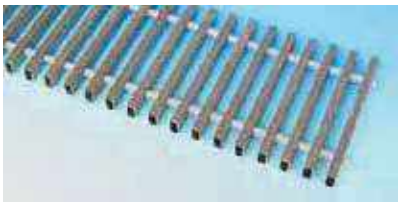
They are attractively shaped, solid and robust. There are pratically no limits to how they can be integrated into the architectural design of the room. It is possible to choose between various profile forms, materials, colours and surface finishings. The grills can be easily removed for cleaning and then returned to their original positions.

GAA **Flexible aluminium roll-up grille**
Dimension:
- Length up to 3000 mm
- Height: 20 mm
- Bar width: 6 mm
- Bar spacing: 14 mm
- Open cross-section: 70%

Anodised in natural or colour, powder-coated in RAL colours (Bronze, Dark Silver, Brass, Black).
Cut surfaces in aluminium colour if linear grille is in two pieces.
Aluminium profiles.



GAI **Stainless steel roll-up grille**
Dimension:
- Length up to 3000 mm
- Height: 20 mm
- Bar width: 10 mm
- Bar spacing: 16 mm
- Open cross-section: 60%

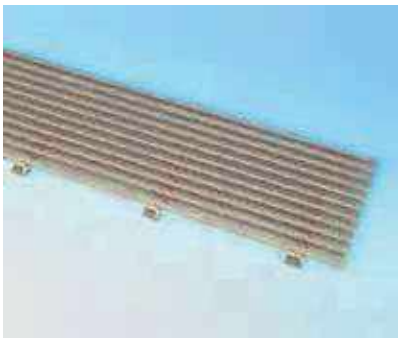


GLE **Wooden roll-up grille**
Dimension:
- Length up to 3000 mm
- Height: 20 mm
- Bar width: 12 mm
- Bar spacing: 16 mm
- Open cross-section: 55%

Light oak, ash and beech oiled versions.

GLA **Aluminium linear grille**
Dimension:
- Length up to 3000 mm
- Height: 20 mm
- Bar width: 6 mm
- Bar spacing: 10 mm
- Open cross-section: 60%

Anodised in natural or colour, powder-coated in RAL colours (Bronze, Dark Silver, Brass, Black).
Longitudinal profile bars are fixedly connected to aluminium angle profiles by means of a pressure process every 200-300 mm. Aluminium profiles.



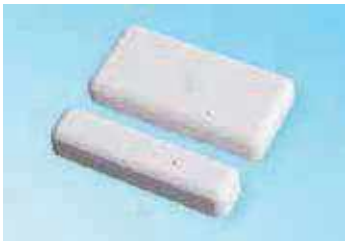
Management system with TAD digital ambient thermostat

TAD	**Digital ambient thermostat** Programmable ambient thermostat, including fan control. With large LCD display to control up to 6 trench convectors. Energy-saving backlighting. Configurable timing program. Heating/cooling control. Power supply via BUS cable. Colour similar to RAL 9010.	
LPV-100-24	**Power supply** 24VDC 4.2A (190x52x37 mm)	
SRM	**SRM regulation and control board, fitted on the unit (for CFP-ECM only)** It must be coupled to TAD digital ambient thermostat.	
KNX	**KNX board** To be integrated in a Sabiana control card for KNX network connection. 1 single board necessary for integrated group of trench convectors (up to 6).	
STAR	**Air temperature sensor** NTC 10 K ambient temperature sensor with plastic cap, including 3 m cable + installation material.	
STAC-2	**Minimum probe** To detect supply temperature, including 2 m cable + installation material.	
STAC-5	**Minimum probe** To detect supply temperature, including 5 m cable + installation material.	
LPR	**Dew point detector (for CFP-ECM only)** 24 V DC power supply. Max absorbed current 3 mA. Application range: from 10% to 100% R.H. Including cable gland and board connector.	

Management system with TAD digital ambient thermostat

LCF

Contact detector for windows
(must be coupled to transmission receiver)
Power supply: 13 V lithium battery type CR2032.
- Transmission type: X2D protocol.
- Transmission frequency 868 MHz.
- Signal coverage up to 300 m (in open field).
- Protection rating IP 40



SPR

Presence sensor
(must be coupled to transmission receiver)
230 V power supply with phase and neutral.
Transmission frequency 868 MHz.
1 - 2 channels depending on function.
3 pre-installed cables to connect switches, ON/OFF buttons.
1 wired phase inlet for detector or button.
Up to 16 two-way receivers and an optional number of one-way receivers.
Operating temperature: from -5 °C to 40 °C.

RTR

Transmission receiver
For window contact detectors and presence sensors.
Power supply by control card.
Up to 2x20 recordable emitters.
Signal coverage up to 100m (open field).

Management system with MB board

MB-CFP **Regulation and control board, not fitted on the unit (for CFP-ECM only)**
It must be coupled to TAD digital ambient thermostat.

T-MB **Wall control**
(to be used with MB-CFP board only)

PSM-DI **Multifunction control panel**
(to be used with MB-CFP board only)

T2 **T2 accessory for units with MB-CFP board, without valves**
NTC probe (to be used as Change-over) to be coupled to MB-CFP board and to be placed on the water supply pipe.

Sabianet **Sabianet management system**
For MB version only.

Router-S **Router for Sabianet** (default) or for BMS systems not provided by Sabiana.

SIOS **8 Relay output board for Sabianet**

Further special models

Angle models

Available with all models and all casing sizes.
The α angle can vary from 50° to 320°.
When placing the order, you must supply a detailed drawing or a shape.
Feasibility only after technical inspection.
The trench convector must be transportable.

Curved models

Minimum curvature radius R: 1000 mm.
When placing the order, you must supply a detailed drawing or a shape.
Feasibility only after technical inspection.
The trench convector must be transportable.

Models with column

Available with all models and all casing sizes.
When placing the order, you must supply a detailed drawing or a shape.
Feasibility only after technical inspection.
The trench convector must be transportable.

SkyStar SK

Cassette fan coil unit with asynchronous motor

Innovating and beautiful design, **seven different sizes**, high control flexibility, easy maintenance: the **SkyStar chilled water Cassette** is the result of an extended technical and design development aimed at achieving the highest level in terms of performance, silent operation and control possibilities.

The air diffuser has an highly attractive aesthetical appearance, very innovative, and is also able to offer the best air distribution performance thanks to in-depth computer studies and laboratory tests.

The 4 smaller sizes are designed to fit into **600x600 mm false ceiling** standard modules. The 3 bigger sizes have a **dimension of 800x800 mm** which allows the best outcome in terms of quietness and of price/performance ratio for these high capacity models.

In addition to temperature and speed standard controls, **automatic** speed selection is also available.

More than one unit can be connected to a single control, and the unit control panel can be installed in a remote position that **facilitates** the maintenance operation.

All the SkyStar units can be supplied in **MB version**. This version allows a wide range of controls, including the infra-red remote control, which can manage one single unit or several units by using the **Modbus RTU - RS 485** communication protocol.

The units can be connected to the most common automatic building management systems.

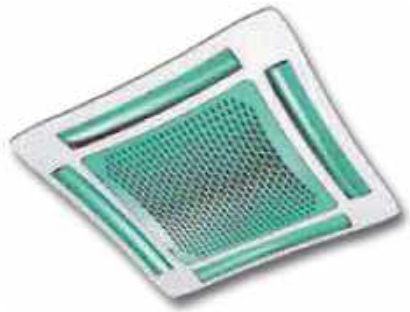
Air diffusers

Intake grid, frame and adjustable air distribution louvers on each side, made from ABS.

HTA version
white ABS, RAL 9003

HTB version
intake grid, frame and louvers in a colour of choice

HTC version
intake grid and louvers in a colour of choice, plus white ABS frame RAL 9003



HTD version
louvers in a colour of choice, while the grid and frame are made from ABS, RAL 9003

MD-600 / MD-800 version
metal diffuser painted in RAL 9003 white colour to perfectly fit into the false ceiling standard modules without overlapping parts

Casing: made of galvanized steel with internal thermal insulation with polyolefin (PO) foam (class M1) and external anti-condensate lining.

Control panel: made of an external metallic box with control electronic board and easily accessible terminal board.

Fan assembly: the fan assembly, which is mounted on anti-vibrating supports, is extremely silent.
The radial fan has been designed to optimise performance, using wing profile blades with a shape that reduces turbulence, increasing efficiency and reducing noise.
The single air inlet radial fan is connected to a 6 speed electric motor with single phase 230 V / 50 Hz supply, class B insulation and integrated Klixon thermal contact for motor protection.
The units are supplied with 3 standard speeds connected and it is possible to change them on site if necessary.
Coil: made of copper tubes with bonded aluminium fins for maximum transfer contact. The coils have 1, 2 or 3 rows for 2 pipe models and 2+1 rows for 4 pipe models (the heating row is on the inside part of the coil).

For 4 pipe systems two versions are available:

- **SK 04, SK 14, SK 24, SK 34, SK 44, SK 54, SK 64** supply an higher heating emission;
- **SK 26, SK 36, SK 56, SK 66** supply an higher cooling emission.

The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

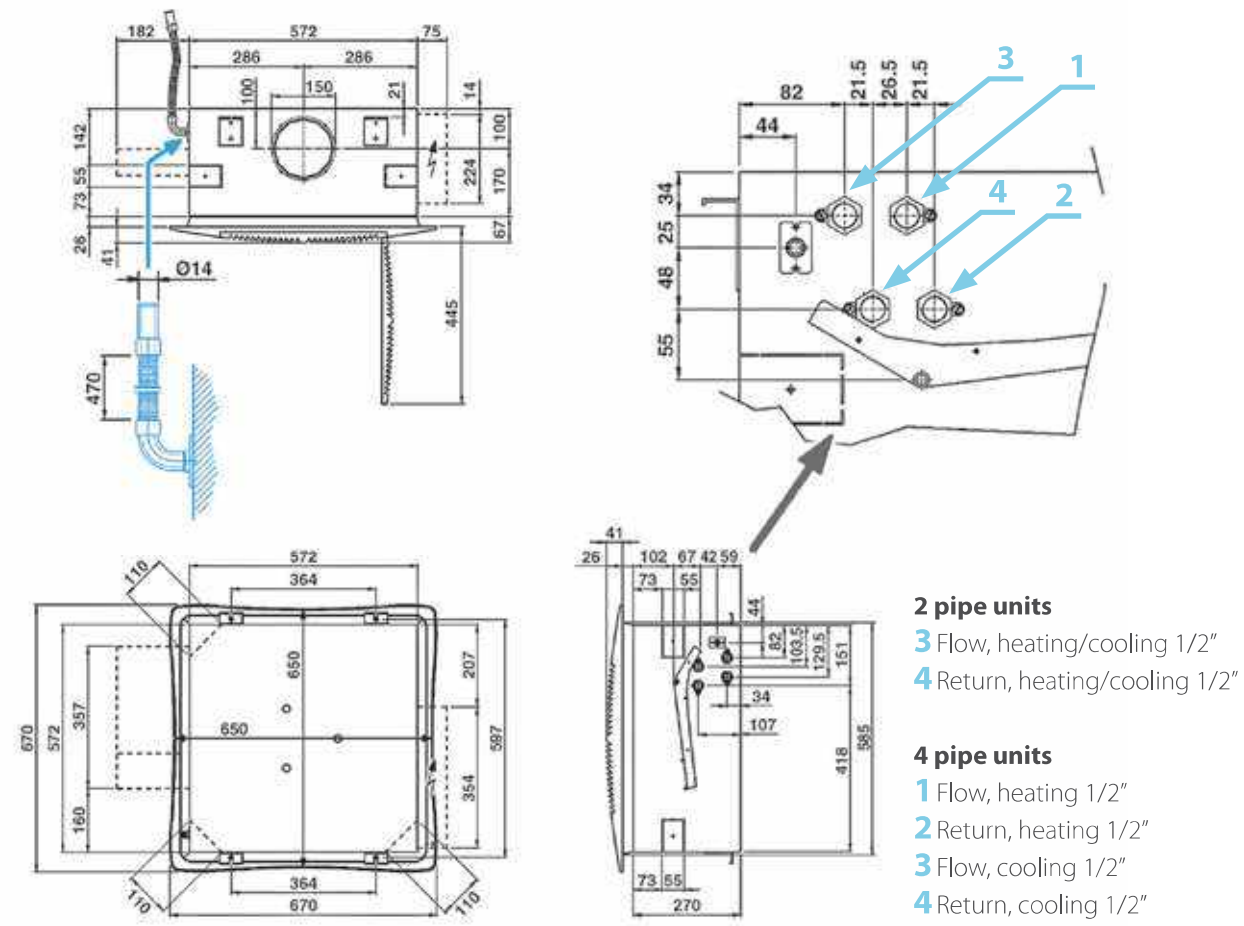
Condensate collection tray: high density ABS polystyrene foam condensate tray, shaped in order to optimize the air diffusion, fire retardant rating B1 to DIN 4102.

Air filter: synthetic washable filter, easily removable.

Condensate pump: float switch centrifugal pump with 650 mm of maximum head, built into the unit and wired to the control panel on the outside of the casing.

Valve set: two or three way valves for ON/OFF operation, with pipe mounting kit and thermostatic actuator.

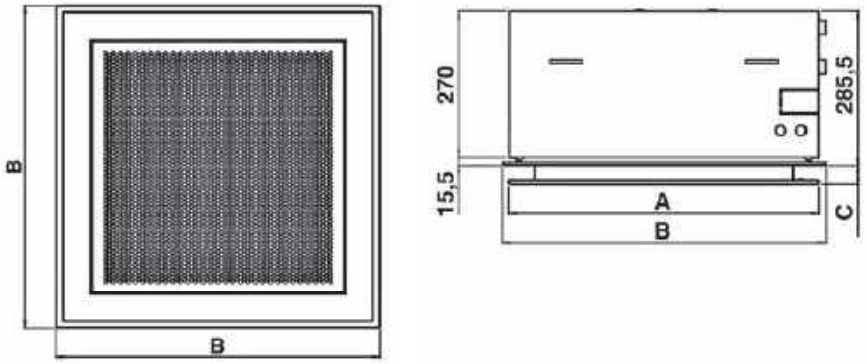
SK 02-04 / SK 12-14 / SK 22-24-26 / SK 32-34-36
(Version 600 x 600)



2 pipe units
3 Flow, heating/cooling 1/2"
4 Return, heating/cooling 1/2"

4 pipe units
1 Flow, heating 1/2"
2 Return, heating 1/2"
3 Flow, cooling 1/2"
4 Return, cooling 1/2"

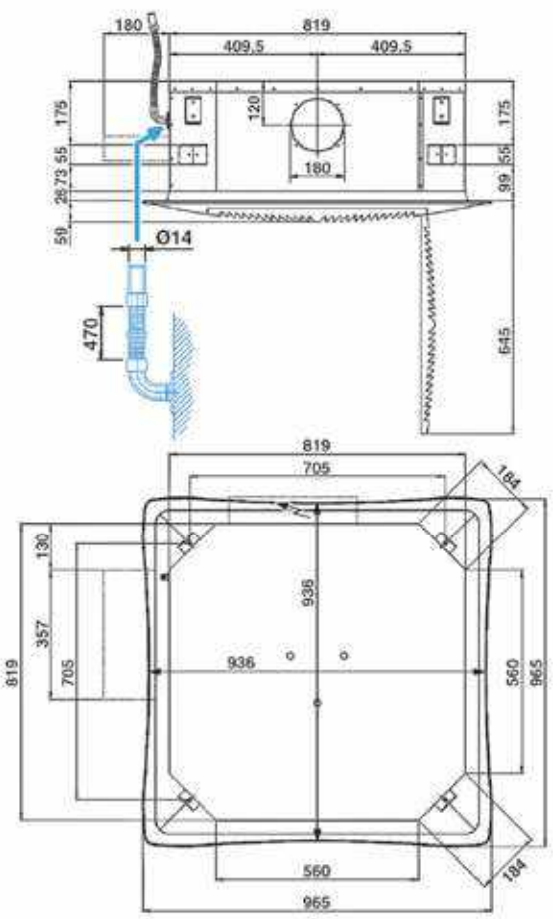
MD-600 / MD-800 metal diffuser

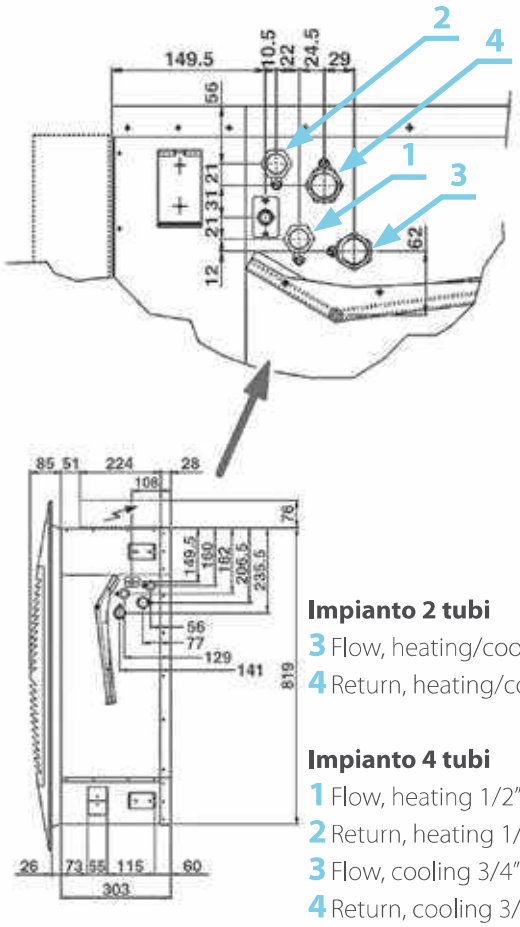


Size	A (mm)	B (mm)	C (mm)
MD-600	574	599	34,5
MD-800	845	880	45,5

Model	Unit		Diffuser		Packed unit dimensions (mm)			
	Weight packed unit	Weight unpacked unit	Weight packed unit	Weight unpacked unit				
	kg	kg	kg	kg	A	B	C	D
SK 02 - 12	28	22	6	3	790	350	750	150
SK 04 - 14	30	24						
SK 22 - 24 - 26								
SK 32 - 34 - 36								

SK 42-44 / SK 52-54-56 / SK 62-64-66
(Version 800 x 800)

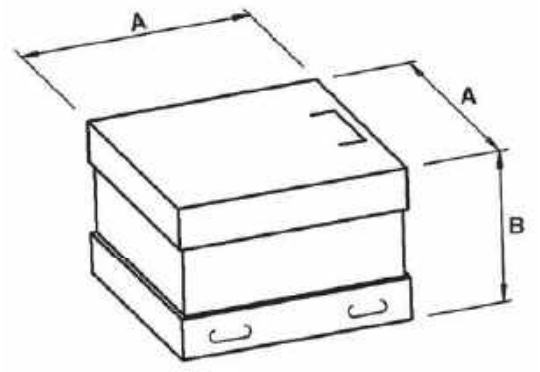




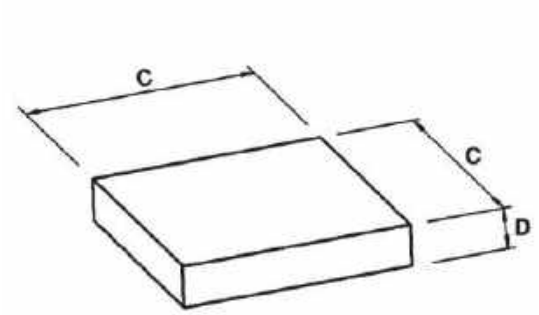
Impianto 2 tubi
3 Flow, heating/cooling 3/4"
4 Return, heating/cooling 3/4"

Impianto 4 tubi
1 Flow, heating 1/2"
2 Return, heating 1/2"
3 Flow, cooling 3/4"
4 Return, cooling 3/4"

Unit



Diffuser



Model	Unit		Diffuser		Packed unit dimensions (mm)			
	Weight packed unit	Weight unpacked unit	Weight packed unit	Weight unpacked unit				
	kg	kg	kg	kg	A	B	C	D
SK 42	44	36	10	6	1050	400	1000	200
SK 44	47	39						
SK 52 - 54 - 56								
SK 62 - 64 - 66								

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2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27°C d.b. +19°C w.b.
Water temperature: +7°C E.W.T. +12°C L.W.T.

HEATING (winter mode)
Entering air temperature: +20°C
Water temperature: +45°C E.W.T. +40°C L.W.T.

Model		SK 02			SK 12			SK 22			SK 32		
Speed		1	2	3	1	2	3	1	2	3	1	2	3
Air flow	m^3/h	310	420	610	310	420	520	320	500	710	430	610	880
Cooling total emission **(E)**	kW	1,25	1,60	1,92	1,82	2,31	2,64	2,23	3,30	4,26	2,91	3,82	4,93
Cooling sensible emission **(E)**	kW	0,99	1,29	1,58	1,33	1,72	2,00	1,55	2,35	3,11	2,05	2,75	3,65
Heating **(E)**	kW	1,38	1,80	2,24	1,85	2,42	2,80	2,12	3,28	4,37	2,85	3,85	5,15
Heating - Water 70-60°C	kW	2,80	3,66	4,56	4,19	4,91	5,68	4,83	6,96	9,25	6,10	8,25	10,63
Dp Cooling **(E)**	kPa	4,5	7,0	10,0	4,9	7,6	9,7	6,4	13,0	20,9	7,5	12,4	19,7
Dp Heating **(E)**	kPa	4,4	7,2	10,7	4,3	6,9	9,0	2,8	6,1	10,2	6,2	10,6	17,8
Sound power Lw **(E)**	dB(A)	33	40	49	33	40	45	33	45	53	41	49	59
Sound pressure Lp **(*)**	dB(A)	24	31	40	24	31	36	24	36	44	32	40	50
Fan **(E)**	W	25	32	57	25	32	44	25	44	68	32	57	90
	A	0,11	0,15	0,27	0,11	0,15	0,20	0,11	0,20	0,32	0,15	0,27	0,45
Water content	l	0,8	0,8	0,8	1,4	1,4	1,4	2,1	2,1	2,1	2,1	2,1	2,1
Dimensions	mm	575 x 575 x 275											

Model		SK 42			SK 52			SK 62		
Speed		1	2	3	1	2	3	1	2	3
Air flow	m^3/h	630	820	1140	710	970	1500	710	1280	1820
Cooling total emission **(E)**	kW	4,18	4,86	6,08	5,27	6,72	9,39	5,27	8,36	10,93
Cooling sensible emission **(E)**	kW	3,00	3,53	4,51	3,42	4,42	6,36	3,67	6,00	8,08
Heating **(E)**	kW	4,27	5,03	6,50	4,92	6,40	9,23	5,12	8,55	11,72
Heating - Water 70-60°C	kW	8,61	10,16	13,14	10,25	13,43	19,76	10,25	17,26	23,68
Dp Cooling **(E)**	kPa	10,9	14,3	21,6	9,4	14,7	26,9	9,4	21,8	35,6
Dp Heating **(E)**	kPa	7,0	9,4	15,0	7,1	11,4	22,0	7,6	19,2	33,8
Sound power Lw **(E)**	dB(A)	33	40	48	34	40	53	34	48	58
Sound pressure Lp **(*)**	dB(A)	24	31	39	25	31	44	25	39	49
Fan **(E)**	W	33	48	77	42	63	120	42	95	170
	A	0,15	0,23	0,36	0,18	0,28	0,53	0,18	0,42	0,74
Water content	l	3,0	3,0	3,0	4,0	4,0	4,0	4,0	4,0	4,0
Dimensions	mm	820 x 820 x 303								

(E) = Eurovent certified performance.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

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4 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27°C d.b. +19°C w.b.
Water temperature: +7°C E.W.T. +12°C L.W.T.

HEATING (winter mode)
Entering air temperature: +20°C
Water temperature: +65°C E.W.T. +55°C L.W.T.

Model		SK 04			SK 14			SK 24			SK 26			SK 34			SK 36		
Speed		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Air flow	m^3/h	310	420	610	310	420	520	310	500	710	320	500	710	430	610	880	430	610	880
Cooling total emission **(E)**	kW	1,49	1,93	2,27	1,83	2,33	2,66	1,83	2,61	3,27	2,07	3,02	3,86	2,33	2,96	3,72	2,69	3,47	4,44
Cooling sensible emission **(E)**	kW	1,13	1,52	1,84	1,32	1,68	1,94	1,32	1,94	2,49	1,47	2,20	2,88	1,72	2,23	2,88	1,94	2,56	3,37
Dp Cooling **(E)**	kPa	6,0	10,0	13,5	4,6	6,9	8,8	4,6	8,8	13,4	4,0	7,0	10,5	7,2	11,2	17,0	6,0	9,0	14,0
Heating **(E)**	kW	1,72	2,23	2,66	2,13	2,66	3,04	2,13	3,04	3,86	1,73	2,71	2,91	2,61	3,33	4,19	2,14	2,66	3,29
Dp Riscaldamento **(E)**	kPa	5,2	8,3	11,4	4,6	6,8	8,7	4,6	8,7	13,3	2,6	4,6	6,7	6,4	9,9	15,0	3,9	5,7	8,4
Sound power Lw **(E)**	dB(A)	33	40	49	33	40	45	33	45	53	33	45	53	41	49	59	41	49	59
Sound pressure Lp **(*)**	dB(A)	24	31	40	24	31	36	24	36	44	24	36	44	32	40	50	32	40	50
Fan **(E)**	W	25	32	57	25	32	44	25	44	68	25	44	68	32	57	90	32	57	90
	A	0,11	0,15	0,27	0,11	0,15	0,20	0,11	0,20	0,32	0,11	0,20	0,32	0,15	0,27	0,45	0,15	0,27	0,45
Cooling water content	l	1,0	1,0	1,0	1,4	1,4	1,4	1,4	1,4	1,4	1,7	1,7	1,7	1,4	1,4	1,4	1,7	1,7	1,7
Heating water content	l	0,6	0,6	0,6	0,7	0,7	0,7	0,7	0,7	0,7	0,5	0,5	0,5	0,7	0,7	0,7	0,5	0,5	0,5
Dimensions	mm	575 x 575 x 275																	

Model		SK 44			SK 54			SK 56			SK 64			SK 66		
Speed		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Air flow	m^3/h	630	820	1140	710	970	1500	710	970	1500	710	1280	1820	710	1225	1730
Cooling total emission **(E)**	kW	4,11	4,98	6,26	4,48	5,60	7,59	4,95	6,27	8,65	4,48	6,84	8,72	4,95	7,75	9,69
Cooling sensible emission **(E)**	kW	2,93	3,60	4,61	3,21	4,09	5,71	3,49	4,49	6,37	3,21	5,09	6,67	3,49	5,64	7,26
Dp Cooling **(E)**	kPa	8,8	12,5	18,9	10,3	15,4	26,9	9,0	14,0	25,0	10,3	22,1	34,7	9,0	20,0	32,0
Heating **(E)**	kW	5,21	6,33	8,02	5,69	7,15	9,66	4,59	5,63	7,50	5,69	8,80	11,16	4,59	6,78	9,48
Dp Riscaldamento **(E)**	kPa	7,9	11,2	17,2	9,3	14,0	24,0	4,9	7,0	11,8	9,3	20,3	31,2	4,9	9,9	15,0
Sound power Lw **(E)**	dB(A)	33	40	48	34	40	53	34	40	53	34	48	58	34	48	58
Sound pressure Lp **(*)**	dB(A)	24	31	39	25	31	44	25	31	44	25	39	49	25	39	49
Fan **(E)**	W	33	48	77	42	63	120	42	63	120	42	95	170	42	95	170
	A	0,15	0,23	0,36	0,18	0,28	0,53	0,18	0,28	0,53	0,18	0,42	0,74	0,18	0,42	0,74
Cooling water content	l	3,0	3,0	3,0	3,0	3,0	3,0	3,6	3,6	3,6	3,0	3,0	3,0	3,6	3,6	3,6
Heating water content	l	1,4	1,4	1,4	1,4	1,4	1,4	1,1	1,1	1,1	1,4	1,4	1,4	1,1	1,1	1,1
Dimensions	mm	820 x 820 x 303														

(E) = Eurovent certified performance.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

SK-MB

All the SkyStar units can be supplied in MB version. This version allows a wide range of controls, including the infra-red remote control, which can manage one single unit or several units by using the Modbus RTU - RS 485 communication protocol.

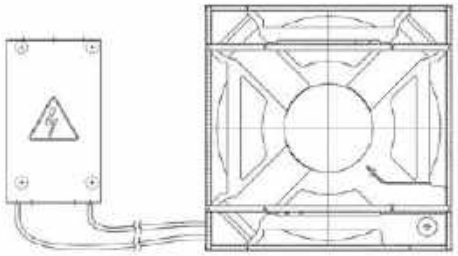
SK-E

The Cassette 2 pipe models are available with electric heater that is controlled in place of the heating coil valve.
The electric heater is controlled in place of the hot water valve and not as integration to it.
The electric heater is hermetically sealed and supplied inside the coil pipes and therefore can be only factory mounted.
The electric heaters of the units are for single phase 230V supply.

Model	Emission
SK 12-E	1500 W
SK 22-E / SK 32-E	2500 W
SK 42-E / SK 52-E / SK 62-E	3000 W

Unit with remote electric board

On request the Skystar cassettes are available with electric control panel reachable from below and with the electric board that can be placed in a remote position.



MCT

The **MCT** version has been designed for all environments where false ceilings are not featured or cannot be constructed.
The cover cabinet fits perfectly to the air intake and outlet diffuser, maintaining the appealing design that defines the SkyStar series.
The water fittings can be turned to point upwards.
The **MCT** series includes 7 models, with an installation height of up to 5 m, thanks to the highly flexible adjustment of the air distribution louvers.
All the technical specifications described on the previous pages remain the same, while keeping in mind that the **MCT** series features one coil only (two pipe systems), there is no possibility of fresh air intake, there is no possibility of additional electric heater.
The **MCT** version features a special casing delivered in separate packaging; this must only be fitted after having installed the SkyStar unit and completed the water and electrical connections.

3 way ON-OFF valves
with micrometric lockshield valve

Valve set, 3 ways, ON-OFF, with thermoelectric actuator.
The set includes connection pipes and holders.

SK 02-04 / 12-14 / 22-24-26 / 32-34-36

SK 42-44 / 52-54-56 / 62-64-66

2 way ON-OFF valves
with micrometric lockshield valve

Valve set, 2 ways, ON-OFF, with thermoelectric actuator.
The set includes connection pipes and holders.

SK 02-04 / 12-14 / 22-24-26 / 32-34-36

SK 42-44 / 52-54-56 / 62-64-66

3 way ON-OFF valves
with simplified kit

Valve set, 3 ways, ON-OFF, with thermoelectric actuator.
The set includes connection pipes.

SK 02-04 / 12-14 / 22-24-26 / 32-34-36

SK 42-44 / 52-54-56 / 62-64-66

2 way ON-OFF valves
with simplified kit

Valve set, 2 ways, ON-OFF, with thermoelectric actuator.
The set includes connection pipes.

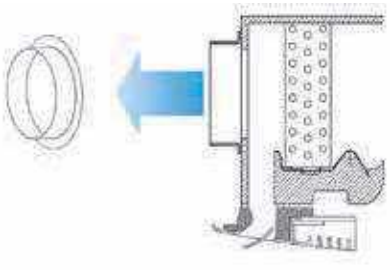
SK 02-04 / 12-14 / 22-24-26 / 32-34-36

SK 42-44 / 52-54-56 / 62-64-66

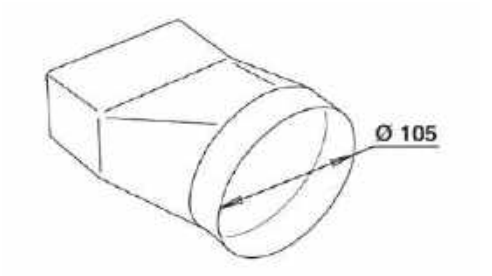
V20VSK **Balancing valves independent from the system pressure**

(for main and additional coil)

CDA **Air distribution connection**

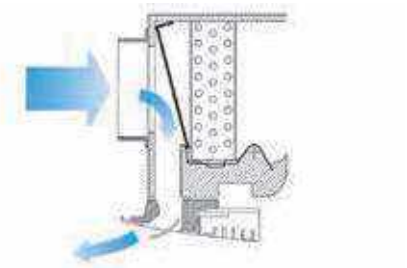


CAP **Fresh air connection**



PRT **Fresh air kit**

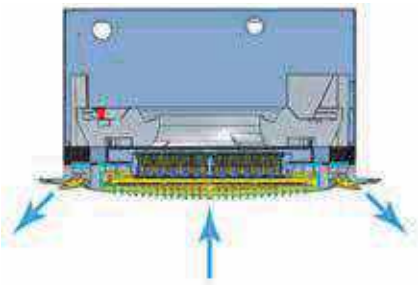
This is used to introduce fresh air into the environment directly through the diffuser.



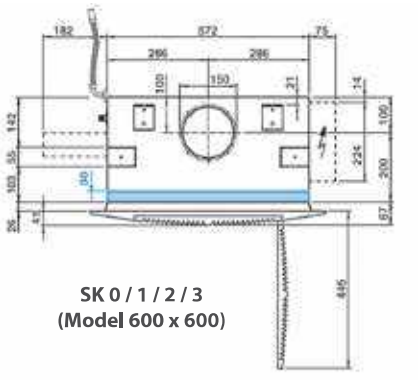
IAQ accessory

CRYSTALL AIR QUALITY SABIANA

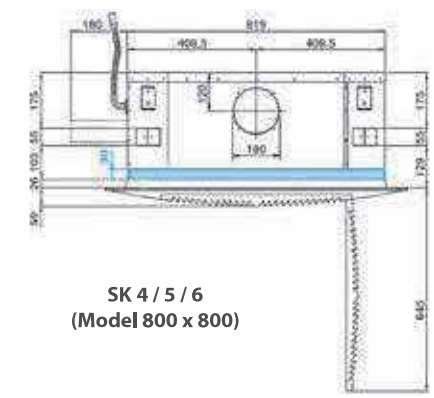
SK / SK-ECM Cassette can be equipped with the innovative plate type electrostatic filter, **Crystall**, combining air treatment and purifying in a single product.
The electronic filter is **patented and certified** according to Standard UNI 11254.



Dimensions



SK 0 / 1 / 2 / 3
(Model 600 x 600)



SK 4 / 5 / 6
(Model 800 x 800)

Wall electronic controls

SK version	
WM-3V	3 speed control
WM-T	3 speed control with electronic thermostat and manual summer/winter switch
WM-TQR	3 speed control with electronic thermostat and centralized/manual summer/winter switch
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-503	Automatic speed control with electronic thermostat to be mounted in the 503 box (to be used with UP-503 only)
T2T	Electromechanical thermostat with summer/winter switch (only for 2 pipe units)
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit
UP-503	Power unit for WM-503 remote controls, not fitted on the unit

Electronic controls

SK-MB version	
T-MB	Wall control (to be used with SK-MB version only)
RCS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with SK-MB version only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with SK-MB version only)
RCS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with SK-MB version only)
RS	Receiver for RT03 infra-red remote control, MD-600 and MD-800 metal diffuser supplied with separate packaging (to be used with SK-MB version only)
PSM-DI	Multifunction control (to be used with SK-MB version only)

Sabianet management system for a network of fan coils	
Sabianet	Sabianet (to be used with SK-MB version only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for wall round or square box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

SkyStar SK-ECM

Cassette Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board

The **SkyStar SK-ECM** series, available in **5 models**, uses an innovative brushless synchronous permanent magnet electronic motor controlled by an inverter board that is directly installed on the unit.

The air flow can be varied **continuously** with a 1-10 V signal from Sabiana controls or by independent controllers (programmable controllers with a 1-10 V output). The extreme efficiency, also at a low speed, makes it possible to greatly reduce the electric consumption (more **than 75% less** in comparison to a traditional motor) with absorption values, under normal operating conditions, that are **no greater than 10 Watt** in the entire range.

The brushless motor is characterised by a constant synchronous speed, independently of the applied load, that depends only on the motor power supply frequency, which is modulated by the inverter.

It consumes less because:

- The motor always works at its point of maximum efficiency.
- In the brushless motor, the rotor's permanent magnets generate the magnetising power autonomously.
- The motor always operates at the synchronous speed, as a result there are no induced currents that reduce efficiency

The main advantages are

- Large reduction in energy consumption, thanks to an optimal response to the thermal load of the environment during every moment of the day.
- Operating silence at all rotation speeds.
- Ability to operate at any rotation speed.

All the **SkyStar SK-ECM** units can be supplied in **MB version**. This version allows a wide range of controls, including the infra-red remote control, which can manage one single unit or several units by using the **Modbus RTU - RS 485** communication protocol.

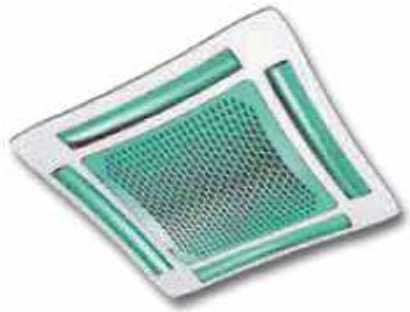
Air diffusers

Intake grid, frame and adjustable air distribution louvers on each side, made from ABS.

HTA version
white ABS, RAL 9003

HTB version
intake grid, frame and louvers in a colour of choice

HTC version
intake grid and louvers in a colour of choice, plus white ABS frame RAL 9003



HTD version
louvers in a colour of choice, while the grid and frame are made from ABS, RAL 9003

MD-600 / MD-800 version
metal diffuser painted in RAL 9003 white colour to perfectly fit into the false ceiling standard modules without overlapping parts

Casing: made from galvanized steel with internal thermal insulation with polyolefin (PO) foam (class M1) and external anti-condensate lining.

Control equipment:
SK-ECM version: it consists of the pump control circuit board and the inverter circuit board.
SK-ECM-MB version: it consists of the MB board (that integrates pump control) and the inverter board.

Fan assembly: the fan assembly, which is mounted on anti-vibrating supports, is extremely silent.
The radial fan has been designed to optimise performance, using wing profile blades with a shape that reduces turbulence, increasing efficiency and reducing noise.
The fans are connected to a three phase permanent magnet brushless electronic motor that is controlled with reconstructed current according to a **BLAC** sinusoidal wave.
The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply.
The electric power supply required for the machine is therefore single-phase with voltage of **230 - 240 V** and frequency of **50 - 60 Hz**.

Coil: made of copper tubes with bonded aluminium fins for maximum transfer contact. The coils have 2 or 3 rows for 2 pipe models and 2+1 rows for 4 pipe models (the heating row is on the inside part of the coil).

For 4 pipe systems two versions are available

- **SK 14, SK 44** supply an higher heating emission
- **SK 26, SK 36, SK 56** supply an higher cooling emission.

The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion

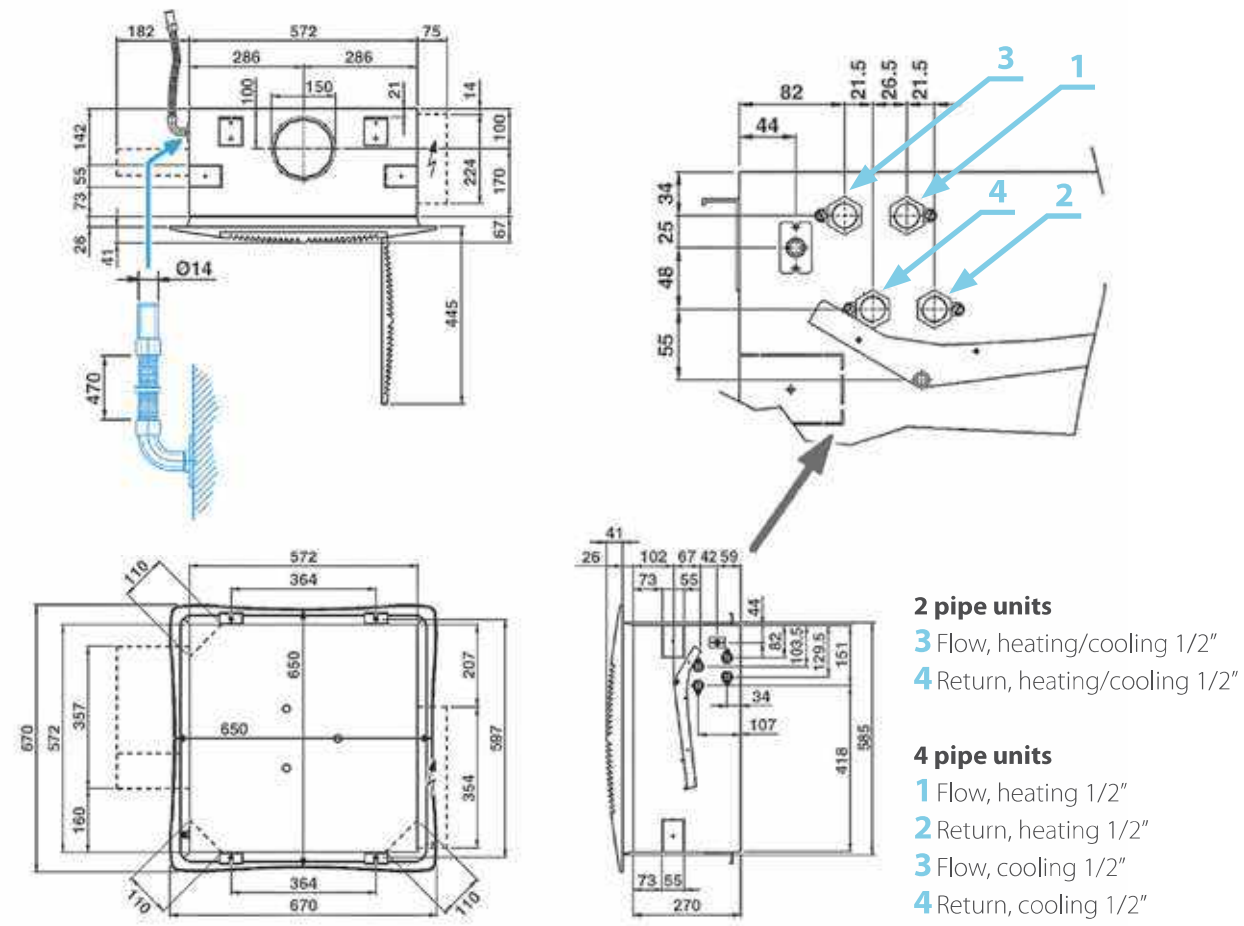
Condensate collection tray: ihigh density ABS polystyrene foam condensate tray, shaped in order to optimize the air diffusion, fire retardant rating B1 to DIN 4102.

Air filter: synthetic washable filter, easily removable.

Condensate pump: float switch centrifugal pump with 650 mm of maximum head, built into the unit and wired to the control panel on the outside of the casing

Valve set:: two or three way valves for ON/OFF operation, with pipe mounting kit
and thermostatic actuator.

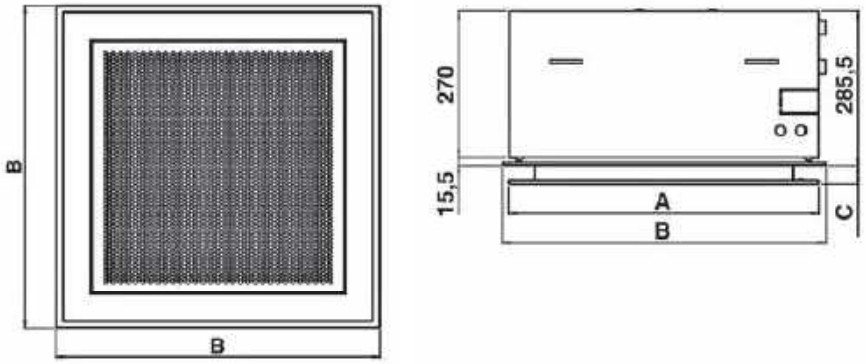
SK 12-14 / SK 22-26 / SK 32-36
(Version 600 x 600)



2 pipe units
3 Flow, heating/cooling 1/2"
4 Return, heating/cooling 1/2"

4 pipe units
1 Flow, heating 1/2"
2 Return, heating 1/2"
3 Flow, cooling 1/2"
4 Return, cooling 1/2"

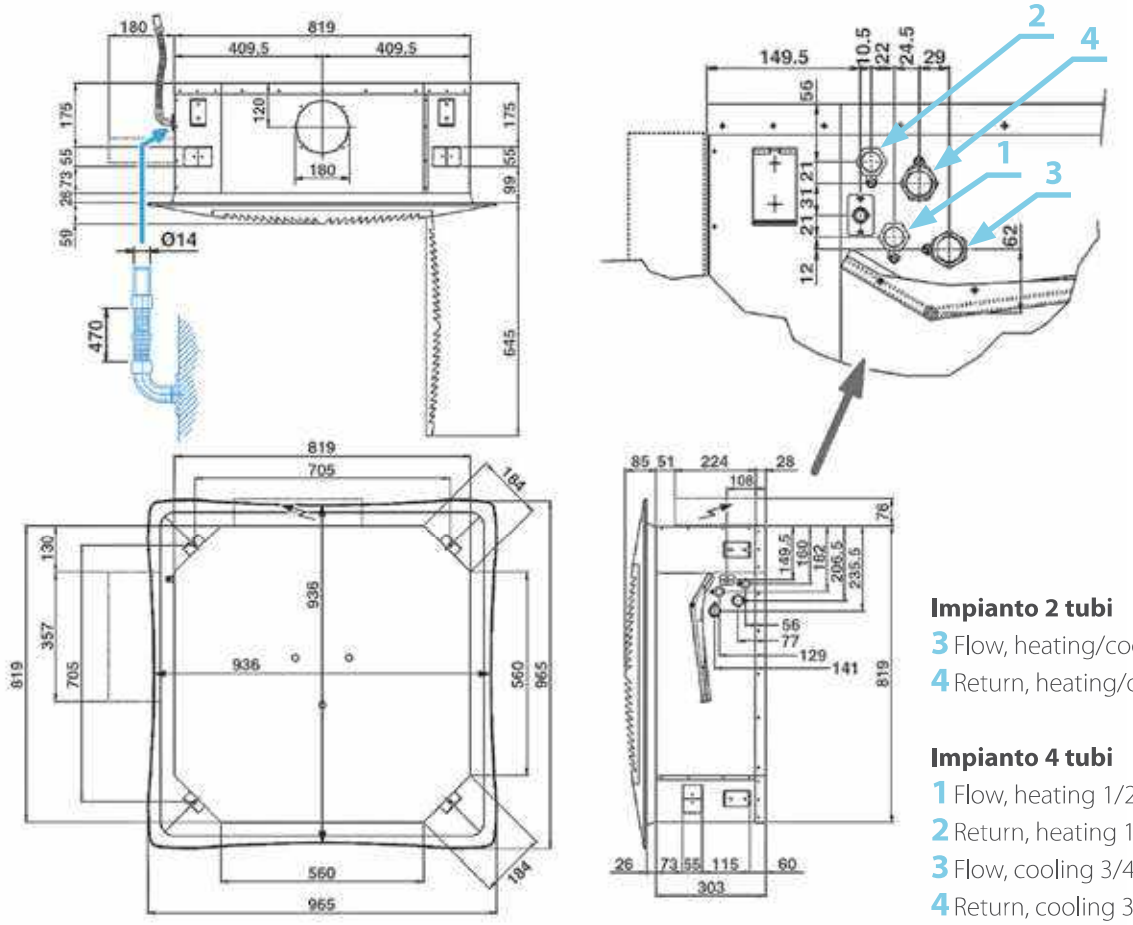
MD-600 / MD-800 metal diffuser



Size	A (mm)	B (mm)	C (mm)
MD-600	574	599	34,5
MD-800	845	880	45,5

Model	Unit		Diffuser		Packed unit dimensions (mm)			
	Weight packed unit	Weight unpacked unit	Weight packed unit	Weight unpacked unit				
	kg	kg	kg	kg	A	B	C	D
SK 12	28	22	6	3	790	350	750	150
SK 14	30	24						
SK 22 - 26								
SK 32 - 36								

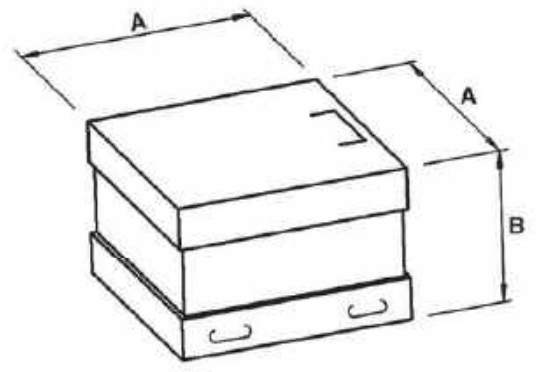
SK 42-44 / SK 52-56
(Version 800 x 800)



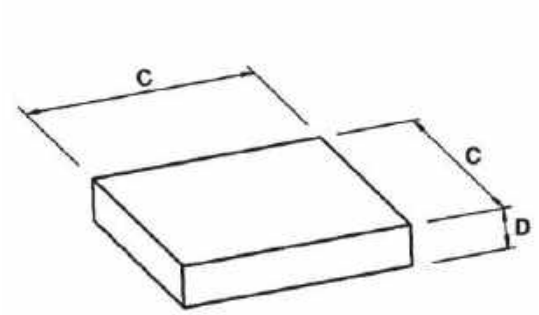
Impianto 2 tubi
3 Flow, heating/cooling 3/4"
4 Return, heating/cooling 3/4"

Impianto 4 tubi
1 Flow, heating 1/2"
2 Return, heating 1/2"
3 Flow, cooling 3/4"
4 Return, cooling 3/4"

Unit



Diffuser



Model	Unit		Diffuser		Packed unit dimensions (mm)			
	Weight packed unit	Weight unpacked unit	Weight packed unit	Weight unpacked unit				
	kg	kg	kg	kg	A	B	C	D
SK 42	44	36	10	6	1050	400	1000	200
SK 44	47	39						
SK 52 - 56								

www.eurovent-certification.com

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27°C d.b. +19°C w.b.
Water temperature: +7°C E.W.T. +12°C L.W.T.

HEATING (winter mode)
Entering air temperature: +20°C
Water temperature: +45°C E.W.T. +40°C L.W.T.

Model		SK–ECM 12			SK–ECM 22			SK–ECM 32			SK–ECM 42			SK–ECM 52		
Inverter Power **(V)**		1	5	10	1	5	10	1	5	10	1	5	10	1	5	10
Speed		**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**
Air flow	m^3/h	310	380	535	310	445	710	360	610	880	630	870	1165	710	1130	1770
Cooling total emission **(E)**	kW	1,84	2,16	2,73	2,24	3,04	4,30	2,55	3,85	4,96	4,20	5,13	6,30	5,28	7,69	10,69
Cooling sensible emission **(E)**	kW	1,35	1,60	2,07	1,57	2,16	3,15	1,80	2,79	3,68	3,02	3,75	4,69	3,68	5,50	7,83
Heating **(E)**	kW	1,85	2,22	2,87	2,12	2,98	4,36	2,46	3,85	5,15	4,27	5,30	6,70	4,90	7,34	10,56
Heating - Water 70-60 °C	kW	3,75	4,51	5,82	4,28	6,01	8,81	4,96	7,79	10,42	8,61	10,72	13,54	9,87	14,82	21,37
Dp Cooling **(E)**	kPa	4,9	6,6	10,1	4,6	11,0	15,1	5,9	12,4	19,7	10,9	15,6	22,7	9,4	18,5	33,0
Dp Heating **(E)**	kPa	4,3	5,9	9,4	3,6	6,6	13,2	4,7	10,6	17,8	9,6	14,2	21,6	7,0	14,6	28,1
Fan **(E)**	W	5	8	16	5	11	31	7	21	62	10	17	33	10	32	108
Sound power Lw **(E)**	dB(A)	33	39	47	33	43	54	37	50	60	33	39	48	34	47	57
Sound pressure Lp **(*)**	dB(A)	24	30	38	24	34	45	28	41	51	24	30	39	25	38	48
Water content	l	1,4	1,4	1,4	2,1	2,1	2,1	2,1	2,1	2,1	3,0	3,0	3,0	4,0	4,0	4,0
Dimensions	mm	575 x 575 x 275									820 x 820 x 303					

4 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27°C d.b. +19°C w.b.
Water temperature: +7°C E.W.T. +12°C L.W.T.

HEATING (winter mode)
Entering air temperature: +20°C
Water temperature: +65°C E.W.T. +55°C L.W.T.

Model		SK–ECM 14			SK–ECM 26			SK–ECM 36			SK–ECM 44			SK–ECM 56		
Inverter Power **(V)**		1	5	10	1	5	10	1	5	10	1	5	10	1	5	10
Speed		**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**	**MIN**	**MED**	**MAX**
Air flow	m^3/h	310	380	535	310	445	710	360	610	880	630	870	1165	710	1130	1770
Cooling total emission **(E)**	kW	1,85	2,17	2,75	2,09	2,81	3,90	2,37	3,51	4,47	4,29	5,29	6,48	4,97	7,14	9,76
Cooling sensible emission **(E)**	kW	1,34	1,59	2,06	1,49	2,03	2,92	1,70	2,60	3,40	3,07	3,82	4,80	3,51	5,17	7,29
Heating **(E)**	kW	2,13	2,51	3,18	1,73	2,20	2,91	1,92	2,66	3,29	5,41	6,65	8,24	4,58	6,27	8,33
Dp Cooling **(E)**	kPa	4,6	6,2	9,5	3,3	5,6	10,3	4,1	8,4	13,1	9,4	13,6	19,8	8,8	17,0	30,1
Dp Heating **(E)**	kPa	4,6	6,1	9,4	2,6	4,1	6,7	3,2	5,7	8,4	8,5	12,3	18,1	4,9	8,6	14,3
Fan **(E)**	W	5	8	16	5	11	31	7	21	62	10	17	33	10	32	108
Sound power Lw **(E)**	dB(A)	33	39	47	33	43	54	37	50	60	33	39	48	34	47	57
Sound pressure Lp **(*)**	dB(A)	24	30	38	24	34	45	28	41	51	24	30	39	25	38	48
Cooling water content	l	1,4	1,4	1,4	1,7	1,7	1,7	1,7	1,7	1,7	3,0	3,0	3,0	3,6	3,6	3,6
Heating water content	l	0,7	0,7	0,7	0,5	0,5	0,5	0,5	0,5	0,5	1,4	1,4	1,4	1,1	1,1	1,1
Dimensions	mm	575 x 575 x 275									820 x 820 x 303					

(E) = Eurovent certified performance.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

OTHER AVAILABLE VERSIONS

SK-ECM-MB

All the SkyStar ECM units can be supplied in MB version.

This version allows a wide range of controls, including the infra-red remote control, which can manage one single unit or several units by using the Modbus RTU - RS 485 communication protocol.

SK-ECM-E

The Cassette 2 pipe models are available with electric heater that is controlled in place of the heating coil valve.
The electric heater is controlled in place of the hot water valve and not as integration to it.
The electric heater is hermetically sealed and supplied inside the coil pipes and therefore can be only factory mounted.
The electric heater of the units are for single phase 230V supply.

ECM Model	Emission
SK 12-E	1500 W
SK 22-E / SK 32-E	2500 W
SK 42-E / SK 52-E	3000 W

MCT

The **MCT** version has been designed for all environments where false ceilings are not featured or cannot be constructed.
The cover cabinet fits perfectly to the air intake and outlet diffuser, maintaining the appealing design that defines the SkyStar series.
The water fittings can be turned to point upwards.
The **MCT** series includes 7 models, with an installation height of up to 5 m, thanks to the highly flexible adjustment of the air distribution louvers.
All the technical specifications described on the previous pages remain the same, while keeping in mind that the **MCT** series features one coil only (two pipe systems), there is no possibility of fresh air intake, there is no possibility of additional electric heater.
The **MCT** version features a special casing delivered in separate packaging; this must only be fitted after having installed the SkyStar unit and completed the water and electrical connections.

3 way ON-OFF valves
with micrometric lockshield valve

Valve set, 3 ways, ON-OFF, with thermoelectric actuator.
The set includes connection pipes and holders.

SK 12-14 / 22-26 / 32-36

SK 42-44 / 52-56

2 way ON-OFF valves
with micrometric lockshield valve

Valve set, 2 ways, ON-OFF, with thermoelectric actuator.
The set includes connection pipes and holders.

SK 12-14 / 22-26 / 32-36

SK 42-44 / 52-56

3 way ON-OFF valves
with simplified kit

Valve set, 3 ways, ON-OFF, with thermoelectric actuator.
The set includes connection pipes.

SK 12-14 / 22-26 / 32-36

SK 42-44 / 52-56

2 way ON-OFF valves
with simplified kit

Valve set, 2 ways, ON-OFF, with thermoelectric actuator.
The set includes connection pipes.

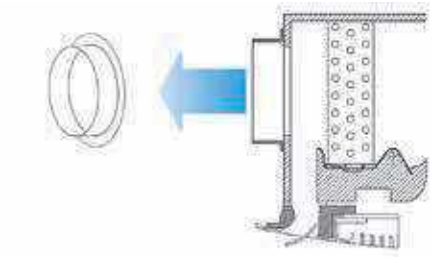
SK 12-14 / 22-26 / 32-36

SK 42-44 / 52-56

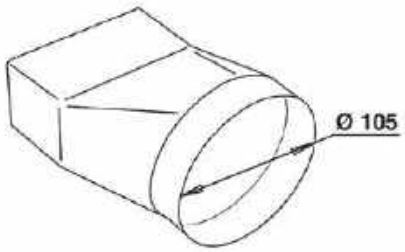
V20VSK **Balancing valves independent from the system pressure**

(for main and additional coil)

CDA **Air distribution connection**

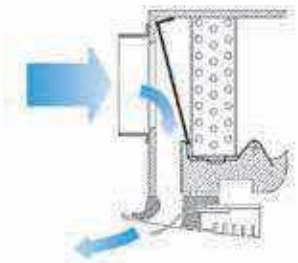


CAP **Fresh air connection**



PRT **Fresh air kit**

This is used to introduce fresh air into the environment directly through the diffuser.



Wall electronic controls

SK-ECM version	
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and liquid crystal display
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Electronic controls

SK-ECM-MB version	
T-MB	Wall control (to be used with SK-ECM-MB version only)
RCS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with SK-ECM-MB version only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with SK-ECM-MB version only)
RCS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with SK-ECM-MB version only)
RS	Receiver for RT03 infra-red remote control, MD-600 and MD-800 metal diffuser supplied with separate packaging (to be used with SK-ECM-MB version only)
PSM-DI	Multifunction control (to be used with SK-ECM-MB version only)

Sabianet management system for a network of fan coils	
Sabianet	Sabianet (to be used with SK-ECM-MB version only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for wall round or square box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

SkyStar Jumbo ECM

Fan Coil Unit Cassette with electronic motor and inverter board

Innovating and beautiful design, perfect to meet all air-conditioning requirements of wide environments, **4 different versions**, high control flexibility, easy maintenance: the new cassette fan coil unit **SkyStar Jumbo ECM** is the result of an extended technical and design development aimed at achieving the highest level in terms of performance, silent operation and control possibility.

The range **SkyStar Jumbo ECM** uses an innovative brushless synchronous permanent magnet electric motor controlled by an inverter board that is directly installed on the unit.

The air flow can be varied **continuously** with a 1-10 V signal from **Sabiana** controls or by independent controllers (programmable controllers with a 1-10 V output).The extreme efficiency, also at a low speed, makes possible a great reduction in electric consumption (more than **75% less** in comparison to a traditional motor) with absorption values, under normal operating conditions, that are **no greater than 20 Watt** in the entire range.

The brushless motor is characterised by a constant synchronous speed, independently of the applied load, that depends only on the motor power supply frequency, which is modulated by the inverter.

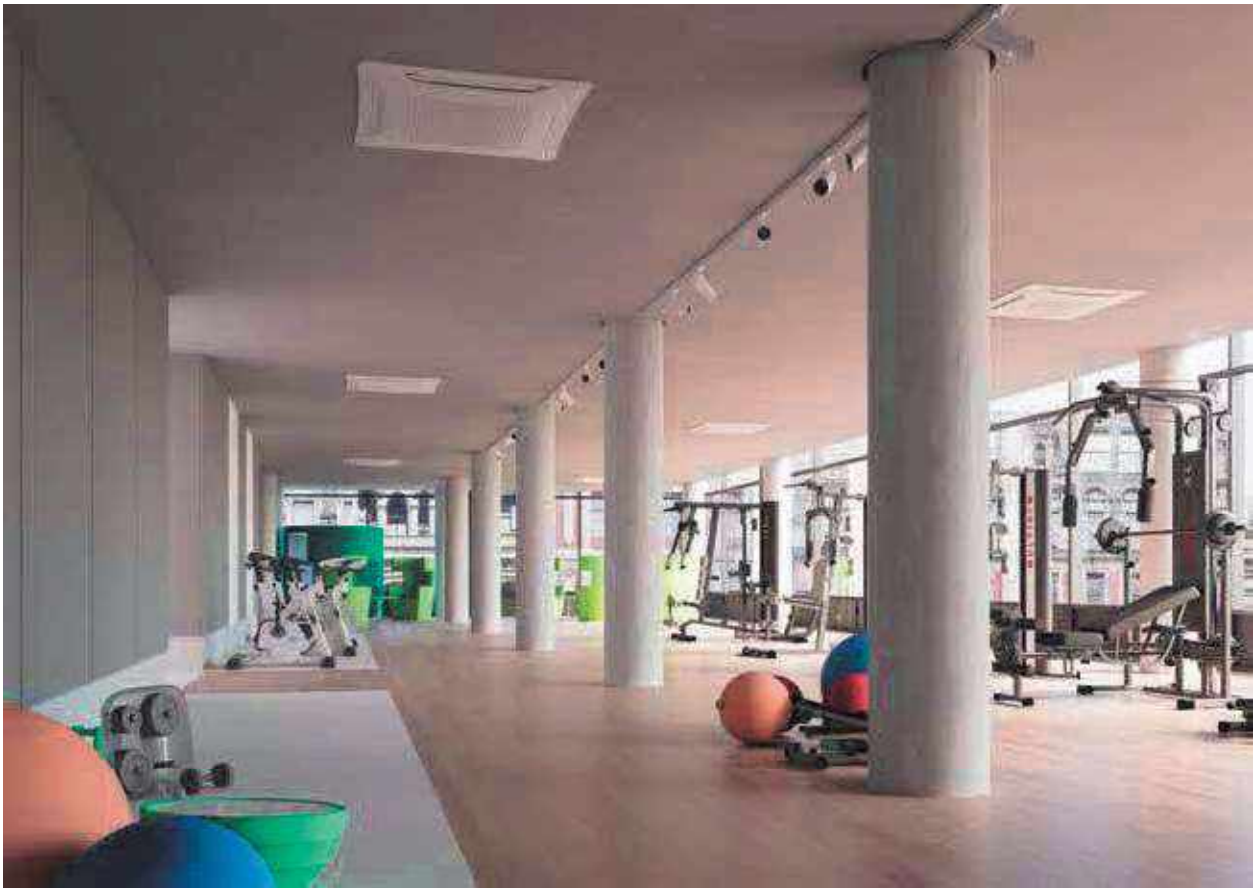
It consumes less because:

- The motor always works at its point of maximum efficiency.
- In the brushless motor, the rotor's permanent magnets generate the magnetising power autonomously.
- The motor always operates at the synchronous speed, as a result there are no induced currents that reduce efficiency.

The main advantages are:

- Large reduction in energy consumption, thanks to an optimal response to the thermal load of the environment during every moment of the day.
- Operating silence at all rotation speeds.
- Ability to operate at any rotation speed.

All the units **SkyStar Jumbo ECM** can be supplied in **MB** version. This version includes a wide range of controls, including the infra-red remote control, which allow managing one single unit or several units by using the Bus communication protocol.
In the MB version it is possible to control at the same time the (motorized) outlet louvers with the infra-red remote-control or with the T-MB wall control.



SkyStar Jumbo ECM | TECHNICAL FEATURES

Casing: is made of galvanized steel with internal thermal insulation with polyolefin (PO) foam (class M1) and external anti-condensate lining.

Control panel:
SK-ECM / SK-ECM-E version:
it consists of the pump control circuit board and the inverter circuit board.
SK-ECM-MB / SK-ECM-MB-E version:
it consists of the MB electronic board (that integrates pump control) and the inverter board.
The diffusion louvers are adjustable with the infra-red remote control or with T-MB wall control.

Fan assembly: secured on anti-vibration mountings, is particularly silent.
The radial fan has been designed to optimise performance, using wing profile blades with a shape that reduces turbulence, increasing efficiency and reducing noise.
The fans are connected to a three phase permanent magnet brushless electronic motor that is controlled with reconstructed current according to a BLAC sinusoidal wave.
The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a switching system, it generates a three-phase frequency modulated, wave form power supply.
The electric power supply required for the machine is therefore single-phase with voltage of 230 - 240 V and frequency of 50 - 60 Hz.

Coil: made of copper tubes with bonded aluminium fins for maximum transfer contact. 3 row coil for 2 pipe models and 2,5 + 1/2 row coil for 4 pipe models (the heating row is on the inside part of the coil).
The heat exchanger is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

Condensate collection tray: high density polystyrene foam condensate tray, shaped in order to optimize the air diffusion. Fire retardant rating B1 to DIN 4102.

Filter: easy access to the filter that is available in both versions, the G0 filter (synthetic regenerable washable) and in the **F7 filter** (to change at the end of its life-cycle).

Condensate pump: float switch centrifugal pump with 650 mm of maximum head, integral to the unit and wired to the control panel on the outside of the casing.

Valve set: two or three way valves for ON/OFF operation, with pipe mounting kit and ball valves.

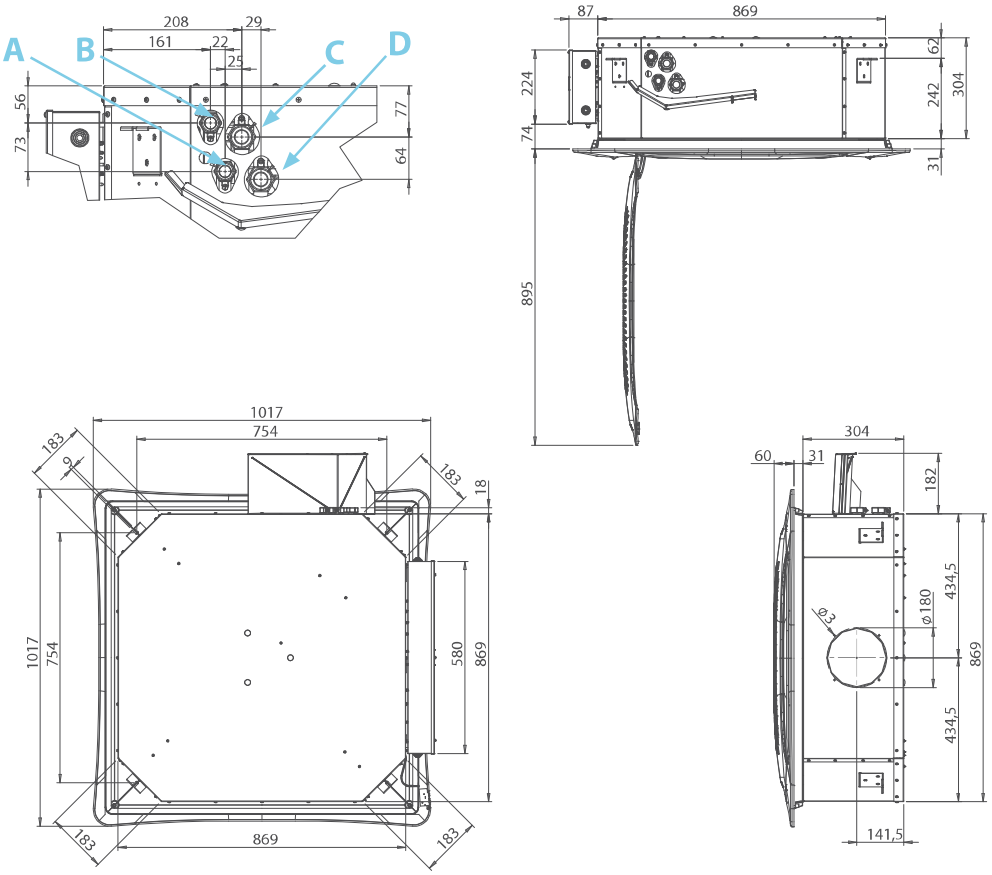
Air intake and distribution grids

Intake grids, frame and adjustable air distribution louvers on each side, made of ABS.

HTA version
in white ABS, RAL 9003

HTB version
in ABS one single color to choose

SK 72-76 / SK 82-86



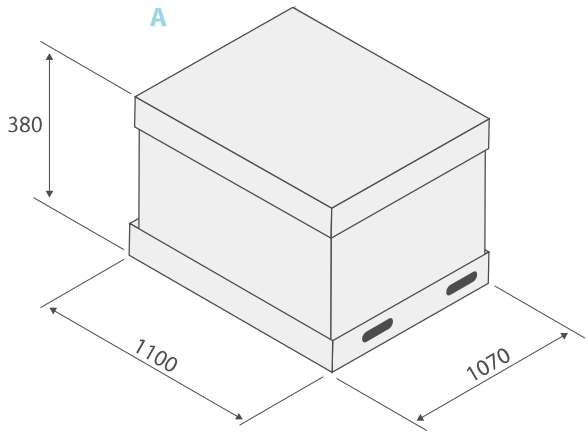
2 pipe unit

A Flow, heating/cooling 1"
B Return, heating/cooling 1"

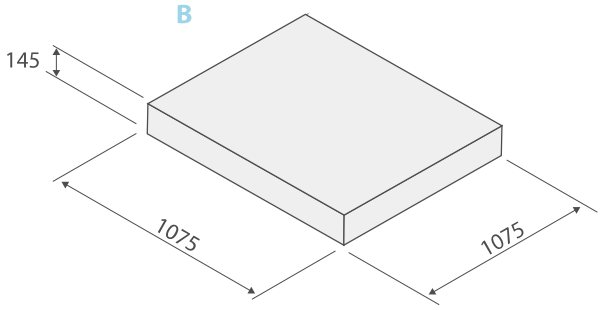
2 pipe unit

A Flow, cooling 1"
B Return, cooling 1"
C Flow, heating 3/4"
D Return, heating 3/4"

Unit



Diffuser



Model	SK-ECM 72	SK-ECM 76	SK-ECM 82	SK-ECM 86
Weight with packaging kg	52			
Weight without packaging kg	42			

Model	SK-ECM 72	SK-ECM 76	SK-ECM 82	SK-ECM 86
Weight with packaging kg	9,4			
Weight without packaging kg	7,5			

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2 pipe unit. The following standard rating conditions are used:

COOLING
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING
Entering air temperature: +20 °C d.b.
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model		SK-ECM 72					SK-ECM 82				
Speed		1	3	5	7,5	10	1	3	5	7,5	10
		MIN		**MED**		**MAX**	**MIN**		**MED**		**MAX**
Air flow	mc/h	790	1040	1290	1600	1905	1025	1340	1650	2060	2480
Cooling total emission **(E)**	kW	6,36	7,95	9,43	11,10	12,60	7,86	9,72	11,38	13,35	15,13
Cooling sensible emission **(E)**	kW	4,45	5,65	6,77	8,09	9,31	5,58	7,00	8,30	9,88	11,41
Heating **(E)**	kW	6,18	7,93	9,59	11,55	13,39	7,82	9,91	11,86	14,29	16,40
Dp Cooling **(E)**	kPa	6,6	9,8	13,4	18,0	22,7	9,6	14,1	18,8	25,2	31,8
Dp Heating **(E)**	kPa	5,4	8,4	11,8	16,5	21,5	8,2	12,5	17,3	24,2	31,0
Motor power input **(E)**	W	13	22	35	59	93	21	38	64	113	183
Sound power Lw **(E)**	dB(A)	38	44	49	54	58	44	50	55	60	64
Sound pressure **(*)**	dB(A)	29	35	40	45	49	35	41	46	51	55
Water content	l	4,6					4,6				
Dimensions	mm	816x816x303									

4 pipe unit. The following standard rating conditions are used:

COOLING
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING
Entering air temperature: +20 °C d.b.
Water temperature: +65 °C E.W.T. +55 °C L.W.T.

Model		SK-ECM 76					SK-ECM 86				
Speed		1	3	5	7,5	10	1	3	5	7,5	10
		MIN		**MED**		**MAX**	**MIN**		**MED**		**MAX**
Air flow	mc/h	790	1040	1290	1600	1905	1025	1340	1650	2060	2440
Cooling total emission **(E)**	kW	6,07	7,53	8,86	10,35	11,61	7,45	9,10	10,59	12,30	13,59
Cooling sensible emission **(E)**	kW	4,33	5,46	6,53	7,74	8,87	5,40	6,73	7,96	9,44	10,68
Heating **(E)**	kW	6,01	7,27	8,40	9,63	10,55	7,19	8,62	9,80	11,05	12,17
Dp Cooling **(E)**	kPa	7,0	10,3	13,8	18,3	22,6	10,1	14,5	19,1	25,2	30,4
Dp Heating **(E)**	kPa	7,2	10,2	13,2	16,9	19,9	10,0	13,8	17,4	21,6	25,7
Motor power input **(E)**	W	13	22	35	59	93	21	38	64	113	183
Sound power Lw **(E)**	dB(A)	38	44	49	54	58	44	50	55	60	64
Sound pressure **(*)**	dB(A)	29	35	40	45	49	35	41	46	51	55
Cooling water content	l	3,6					3,6				
Heating water content	l	1,2					1,2				
Dimensions	mm	816x816x303									

(E) = EUROVENT certified performance
(*) = The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

AVAILABLE VERSIONS

SK-ECM-MB

All the **SkyStar Jumbo ECM** units can be supplied in **MB** version.

This version includes a wide range of controls, including the infra-red remote control, which allows managing one single unit or several units by using the Bus communication protocol.

SK-ECM-E
SK-ECM-MB-E

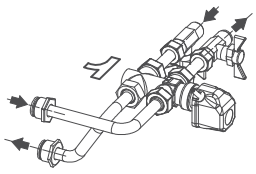
The 2 pipe model Cassette units are available with electric heater. The electric heater is controlled in place of the hot water valve and not as integration to it.

The electric heaters are hermetically sealed and supplied inside the coil pipes and therefore can be only factory mounted. The electric heaters of the unit can be for 230Vac 1Ph 50-60Hz or 400Vac 3Ph 50-60Hz supply.

ECM model	Power installed
All models	3000 W

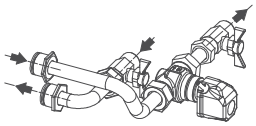
ON-OFF 3-way-valves
with thermoelectric actuator and ball valve

Water flow regulation kit with ON-OFF 3-way-valves with thermoelectric actuator.
The kit includes the connection pipes and the ball valves.



ON-OFF 2-way-valves
with thermoelectric actuator and ball valve

Water flow regulation kit with ON-OFF 2-way-valves with thermoelectric actuator.
The kit includes the connection pipes and the ball valves.

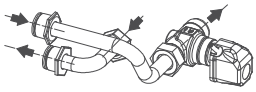


ON-OFF 3-way-valves
with thermoelectric actuator and simplified kit

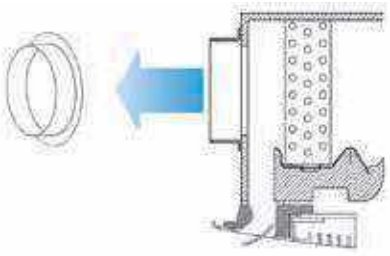
Water flow regulation kit with ON-OFF 3-way-valves with thermoelectric actuator.
The kit includes the connection pipes.

ON-OFF 2-way-valves
with thermoelectric actuator and simplified kit

Water flow regulation kit with ON-OFF 2-way-valves with thermoelectric actuator.
The kit includes the connection pipes.

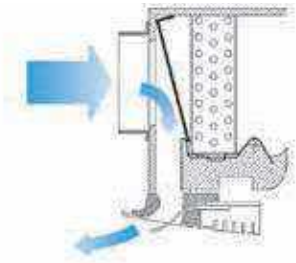


CDA **Air distribution connection**



PRT **Fresh air kit**

This is used to introduce fresh air into the environment directly through the diffuser.



Wall controls

SK-ECM version	
WM-AU	Automatic 3 speed progressive switch with electronic thermostat and Summer/Winter switch. (To use with UPM-AU or with UP AU only)
T-MB	T-MB wall control (To use with UPM-AU or with UP-AU only)
WM-S-ECM	Control with automatic continuous speed control, with electronic thermostat, Summer/Winter switch and LCD display
UPM-AU	UP-AU power unit fitted on the unit, for WM-AU e T-MB remote controls
UP-AU	UP-AU power unit not fitted on the unit, for WM-AU e T-MB remote controls

Electronic controls

SK-ECM-MB version	
T-MB	Wall control (to use with SK-ECM-MB version only)
RT03	RT03 infra-red remote control with separate packaging (to use with SK-ECM-MB version only)
PSM-DI	Multifunction control panel to control until 60 multifunction units (to use with SK-ECM-MB version only)

Hardware/software supervisory system for a network of more Fan Coil units	
Sabianet	Sabianet (to use with SK-ECM-MB version only)
Router-S	Router for Sabianet (default) or for BMS systems, not provided by Sabiana
SIOS	8 relay output board for Sabianet

NOTE: All the Controls and the principal Accessories are described in detail at the dedicated pages.

Carisma Coanda

One Way Cassette Fan Coil Unit with Asynchronous Motor

The **Carisma Coanda** one way Cassette fan coil units are available in **3 sizes**.

Thanks to the particular air handling section, the units generate an airflow **with a "coanda" effect**.

The unit is suitable for installation in a suspended ceiling.

Air intake is from the bottom while the air supply is parallel to the ceiling, through practical and functional intake and outlet grids.

The "coanda" effect creates **excellent circulation of the air** inside the room.

Every unit can be supplied with 1 coil (2 pipe system) and possibly an electric heating element, or with 2 coils (4 pipe system) with one or two rows heating coil, for low temperature hot water.
Fresh air may be mixed with room air.

A **condensate pump** may also be supplied as an accessory.

In addition to the conventional temperature and speed control systems, there is also the possibility of **automatic** speed selection and to control operation of each unit through a single remote control with central supervisor software installed on a PC **(called Sabianet)**.

Carisma Coanda | TECHNICAL CHARACTERISTICS

Casing: made from 1 mm galvanized steel insulated with 6 mm polyolefin (PO) foam (class M1).

Diffuser with intake grid: in prepainted metal sheet in RAL 9003 colour with intake grid that can be opened for inspection and maintenance of the air filter.

Air filter: polypropylene cellular fabric regenerating filter.

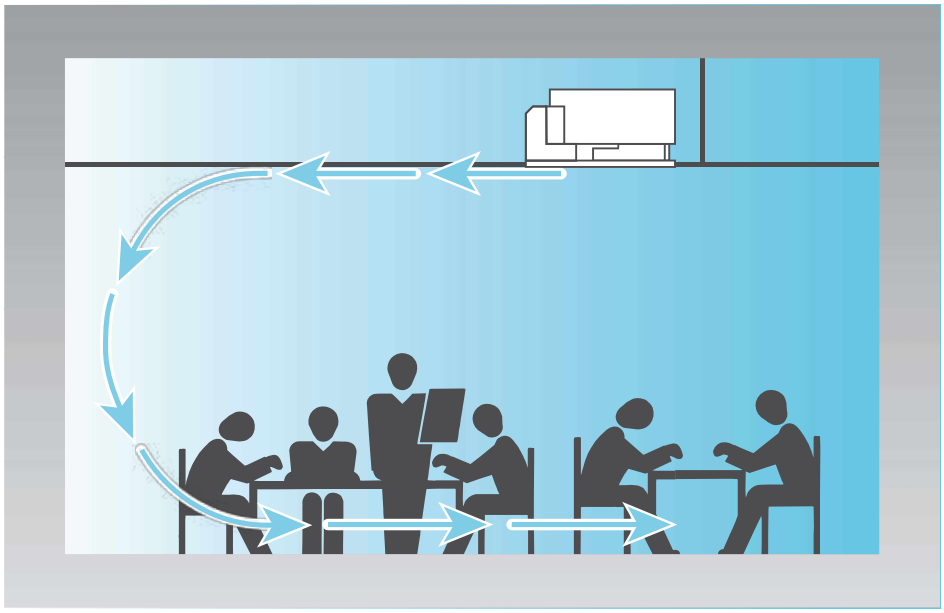
Fan assembly: the fans have aluminium or plastic blades directly keyed on the motor with double aspiration and they are dynamically and statically balanced during manufacture in order to have an extremely quiet operation.

Electric motor: the motor is wired for single phase and has **six speeds, three of which are connected**, with capacitor. The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings. Internal thermal protection with automatic reset, protection IP 20, class B.

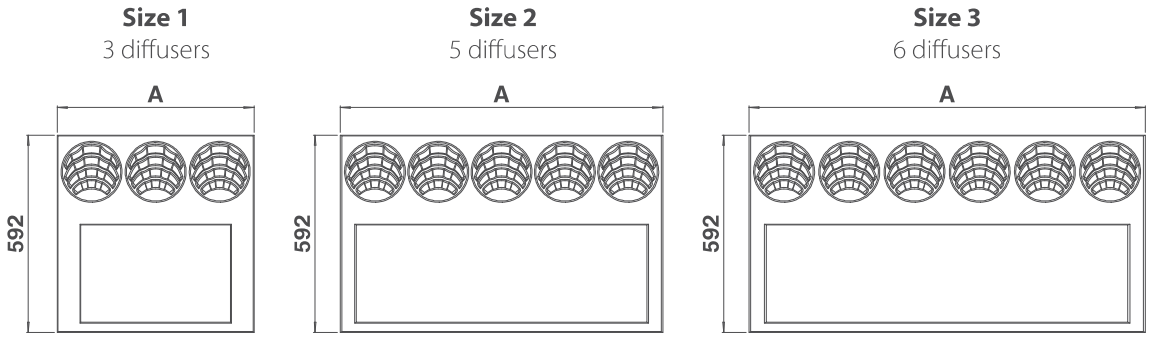
Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process.
The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain.
The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.
The connection side cannot be changed on site.

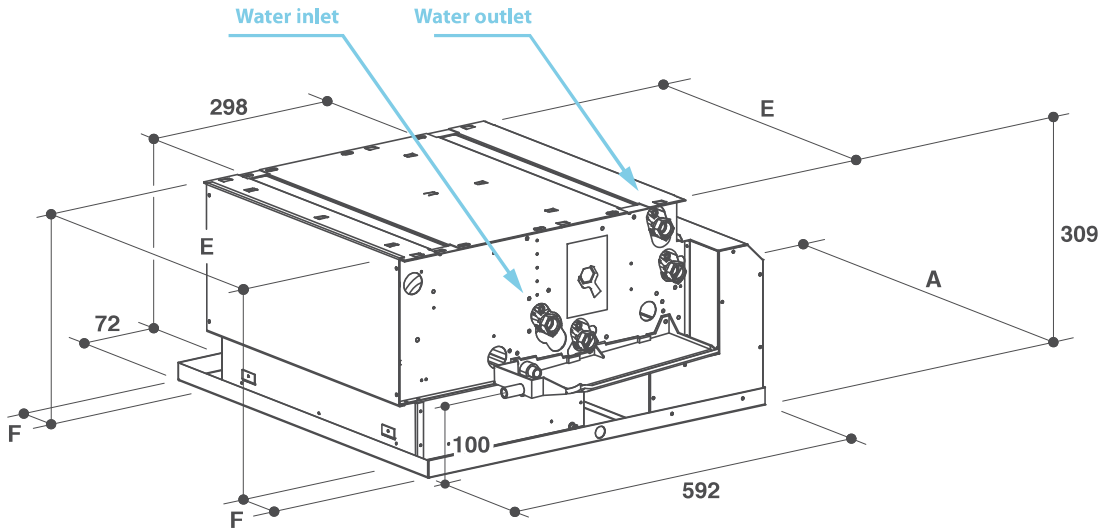
Condensate collection tray: made from plastic with an **"L"**-shape fitted on the inner casing; the tray is insulated with 3 mm polyolefin (PO) foam (class M1).
The outside diameter of the condensate discharge pipe is 15 mm

Round diffuser: the units are supplied with round diffusers suitably designed to generate an airflow with "coanda" effect.
The direction of diffuser air flow can be adjusted on site.



The "coanda" effect creates excellent circulation of the air inside the room.





Dimension (mm)

Model	1	2	3
A	592	970	1192
E	454	884	1099
F	78,0	43,0	46,5
W	750	1130	1350

Weight (kg)

		Weight with packaging			Weight without packaging		
Model		1	2	3	1	2	3
ROWS	3	18	34	44	16	33	42
	3+1	20	40	51	19	38	48
	3+2	23	46	58	22	43	54
	4	20	37	48	18	35	45
	4+1	23	42	54	21	40	51

Water content (litres)

Model		1	2	3
ROWS	3	0,6	1,3	1,7
	4	0,8	1,7	2,4
	+1	0,2	0,4	0,5
	+2	0,4	0,8	1,0

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Units with 3 and 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T.

Model		CCN 13						CCN 23						CCN 33					
Speed		1 (E)	2 (E)	3	4	5 (E)	6	1 (E)	2 (E)	3	4 (E)	5	6	1 (E)	2	3 (E)	4 (E)	5	6
		MIN	MED			MAX		MIN	MED		MAX			MIN		MED	MAX		
Air flow	m³/h	**140**	**180**	220	245	**280**	305	**200**	**240**	305	**380**	470	560	**290**	360	**440**	**540**	620	680
Cooling total emission (E)	kW	**0,86**	**1,04**	1,23	1,32	**1,45**	1,54	**1,35**	**1,59**	1,94	**2,33**	2,75	3,15	**1,94**	2,34	**2,80**	**3,28**	3,68	3,97
Cooling sensible emission (E)	kW	**0,64**	**0,79**	0,95	1,02	**1,13**	1,21	**0,98**	**1,16**	1,43	**1,73**	2,07	2,40	**1,41**	1,71	**2,07**	**2,45**	2,76	2,99
Heating (E)	kW	**0,91**	**1,12**	1,34	1,45	**1,62**	1,75	**1,33**	**1,59**	1,96	**2,38**	2,86	3,29	**1,91**	2,32	**2,80**	**3,34**	3,77	4,07
Heating - Water 70-60 °C	kW	**1,84**	**2,26**	2,71	2,94	**3,29**	3,54	**2,68**	**3,20**	3,95	**4,79**	5,77	6,64	**3,85**	4,67	**5,65**	**6,73**	7,61	8,20
Dp Cooling (E)	kPa	**2,4**	**3,3**	4,5	5,1	**6,1**	6,8	**2,9**	**3,9**	5,5	**7,6**	10,3	13,1	**6,4**	8,8	**12,1**	**16,2**	19,8	22,7
Dp Heating (E)	kPa	**2,1**	**3,0**	4,2	4,8	**5,9**	6,7	**2,3**	**3,1**	4,5	**6,4**	8,8	11,3	**5,1**	7,1	**9,9**	**13,5**	16,8	19,1
Fan (E)	W	**16**	**22**	32	38	**49**	66	**24**	**27**	34	**44**	57	71	**27**	33	**42**	**59**	72	84
Sound power (E)	dB(A)	**35**	**41**	46	49	**52**	55	**33**	**36**	42	**48**	54	57	**35**	41	**46**	**52**	55	57
Sound pressure (*)	dB(A)	**26**	**32**	37	40	**43**	46	**24**	**27**	33	**39**	45	48	**26**	32	**37**	**43**	46	48

Model		CCN 14						CCN 24						CCN 34					
Speed		1 (E)	2 (E)	3	4	5 (E)	6	1 (E)	2 (E)	3	4 (E)	5	6	1	2 (E)	3	4 (E)	5 (E)	6
		MIN	MED			MAX		MIN	MED		MAX				MIN		MED	MAX	
Air flow	m³/h	**140**	**180**	220	245	**280**	305	**200**	**240**	305	**380**	470	560	290	**360**	440	**540**	**620**	680
Cooling total emission (E)	kW	**0,95**	**1,17**	1,40	1,52	**1,69**	1,80	**1,42**	**1,69**	2,09	**2,53**	3,03	3,51	2,02	**2,46**	2,96	**3,50**	**3,95**	4,28
Cooling sensible emission (E)	kW	**0,69**	**0,86**	1,04	1,13	**1,26**	1,36	**1,02**	**1,21**	1,51	**1,84**	2,22	2,59	1,45	**1,78**	2,15	**2,57**	**2,91**	3,17
Heating (E)	kW	**0,95**	**1,18**	1,43	1,56	**1,74**	1,88	**1,41**	**1,69**	2,12	**2,60**	3,17	3,71	1,97	**2,40**	2,92	**3,40**	**3,97**	4,33
Heating - Water 70-60 °C	kW	**1,92**	**2,37**	2,89	3,14	**3,52**	3,80	**2,82**	**3,40**	4,25	**5,22**	6,37	7,46	3,96	**4,83**	5,87	**7,04**	**8,00**	8,72
Dp Cooling (E)	kPa	**4,7**	**6,6**	9,2	10,6	**12,9**	14,6	**4,4**	**6,0**	8,6	**12,1**	16,8	21,7	4,7	**6,7**	9,3	**12,6**	**15,5**	17,9
Dp Heating (E)	kPa	**3,7**	**5,4**	7,7	8,9	**10,8**	12,4	**3,5**	**4,9**	7,2	**10,4**	14,7	19,4	3,7	**5,3**	7,4	**10,2**	**12,7**	14,8
Fan (E)	W	**16**	**22**	32	38	**49**	66	**24**	**27**	34	**44**	57	71	27	**33**	42	**59**	**72**	84
Sound power (E)	dB(A)	**35**	**41**	46	49	**52**	55	**33**	**36**	42	**48**	54	57	35	**41**	46	**52**	**55**	57
Sound pressure (*)	dB(A)	**26**	**32**	37	40	**43**	46	**24**	**27**	33	**39**	45	48	26	**32**	37	**43**	**46**	48

(E) = EUROVENT certified performance. **MIN-MED-MAX** = Standard connected speeds.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m³ room and a reverberation time of 0.5 sec.

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Units with 1 row additional coil

4 pipe units The following standard rating conditions are used:

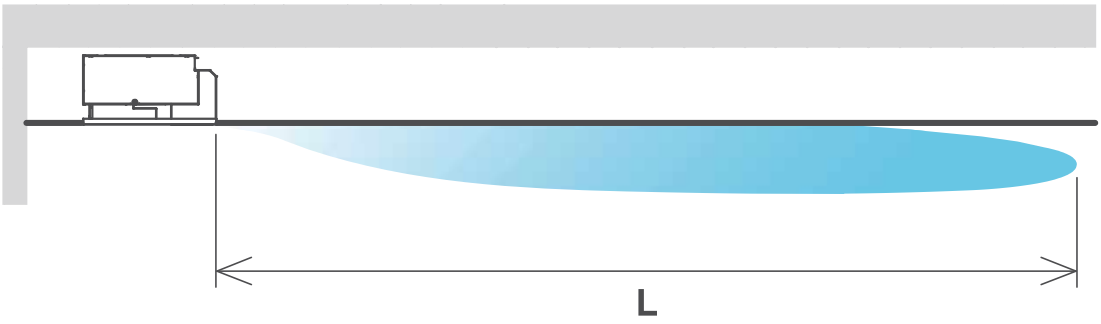
COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +65 °C E.W.T. +55 °C L.W.T.

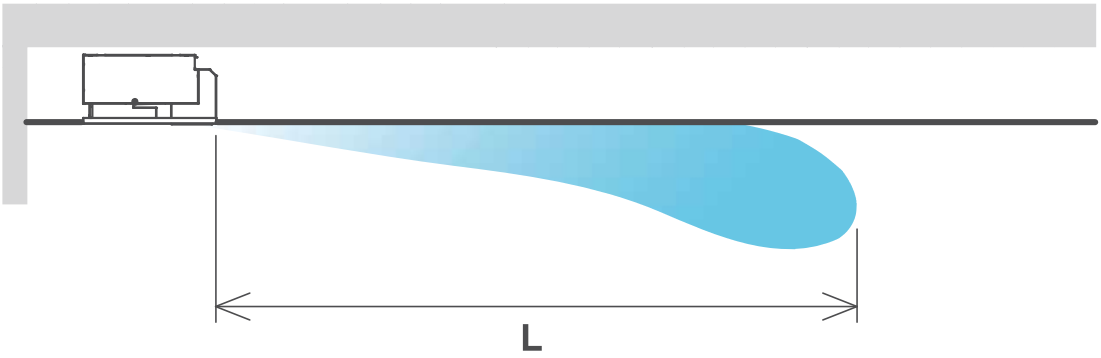
Model		CCN 13+1						CCN 23+1						CCN 33+1					
Speed		1 **(E)**	2 **(E)**	3	4	5 **(E)**	6	1 **(E)**	2 **(E)**	3	4 **(E)**	5	6	1 **(E)**	2	3 **(E)**	4 **(E)**	5	6
		MIN	**MED**			**MAX**		**MIN**	**MED**		**MAX**			**MIN**		**MED**	**MAX**		
Air flow	m^3/h	**140**	**180**	220	245	**280**	305	**200**	**240**	305	**380**	470	560	**290**	360	**440**	**540**	620	680
Cooling total emission (E)	kW	**0,86**	**1,04**	1,23	1,32	**1,45**	1,54	**1,35**	**1,59**	1,94	**2,33**	2,75	3,15	**1,94**	2,34	**2,80**	**3,28**	3,68	3,97
Cooling sensible emission (E)	kW	**0,64**	**0,79**	0,95	1,02	**1,13**	1,21	**0,98**	**1,16**	1,43	**1,73**	2,07	2,40	**1,41**	1,71	**2,07**	**2,45**	2,76	2,99
Heating (E)	kW	**0,81**	**0,95**	1,10	1,17	**1,28**	1,36	**1,31**	**1,50**	1,77	**2,06**	2,39	2,69	**1,86**	2,17	**2,52**	**2,89**	3,19	3,41
Dp Cooling (E)	kPa	**2,4**	**3,3**	4,5	5,1	**6,1**	6,8	**2,88**	**3,87**	5,50	**7,56**	10,26	13,07	**6,4**	8,8	**12,1**	**16,2**	19,8	22,7
Dp Heating (E)	kPa	**1,3**	**1,7**	2,2	2,5	**2,9**	3,2	**0,73**	**0,94**	1,25	**1,63**	2,11	2,61	**1,6**	2,1	**2,7**	**3,5**	4,1	4,7
Fan (E)	W	**16**	**22**	32	38	**49**	66	**24**	**27**	34	**44**	57	71	**27**	33	**42**	**59**	72	84
Sound power (E)	dB(A)	**35**	**41**	46	49	**52**	55	**33**	**36**	42	**48**	54	57	**35**	41	**46**	**52**	55	57
Sound pressure (*)	dB(A)	**26**	**32**	37	40	**43**	46	**24**	**27**	33	**39**	45	48	**26**	32	**37**	**43**	46	48

(E) = EUROVENT certified performance. **MIN-MED-MAX** = Standard connected speeds.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

C1 heating



C2 cooling



Model		CCN 1	CCN 2	CCN 3
Installation height (m)	**Min.**	2,6	2,6	2,6
	Max.	3,2	3,2	3,5

Model		CCN 1						CCN 2						CCN 3					
Speed		1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Air throw **L** (m)	**C1**	3,6	4,5	5,8	6,3	6,8	7,2	4	5	6,1	7	8	9	4,5	5,2	6,3	7,5	8,8	9,5
	C2	3	3,6	4,6	5	5,4	5,7	3,2	4	4,8	5,6	6,4	7,2	3,6	4,1	5	6	7	7,6

Other available versions

CCN-H The version CCN-H is available as a variant. It is equipped with a low air intake grid and a frontal air outlet grid that is mounted on a telescopic plenum. This version produces the same emissions as those of the CCN standard versions and it lets also the air intake from an ambient to an another one.

Wall electronic controls

Standard models	
WM-3V	3 speed control
WM-T	3 speed control with electronic thermostat and manual summer/winter switch
WM-TQR	3 speed control with electronic thermostat and centralized/manual summer/winter switch
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-503	Automatic speed control with electronic thermostat to be mounted in the 503 box (to be used with UP-503 only)
T2T	Electromechanical thermostat with summer/winter switch (only for 2 pipe units)
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit
UP-503	Power unit for WM-503 remote controls, not fitted on the unit

Electronic controls for MB boards

MB-M	MB electronic board fitted on the unit
MB-S	MB electronic board supplied with separate packaging
T-MB	Wall control (to be used with MB board only)
RS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Sabianet management system for a network of fan coils	
Sabianet	Sabianet (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Carisma Coanda-ECM

One Way Cassette Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board

The **Carisma Coanda-ECM** one way Cassette fan coil units are available in **3 sizes**.
Thanks to the particular air handling section, the units generate an airflow **with a "coanda" effect**.

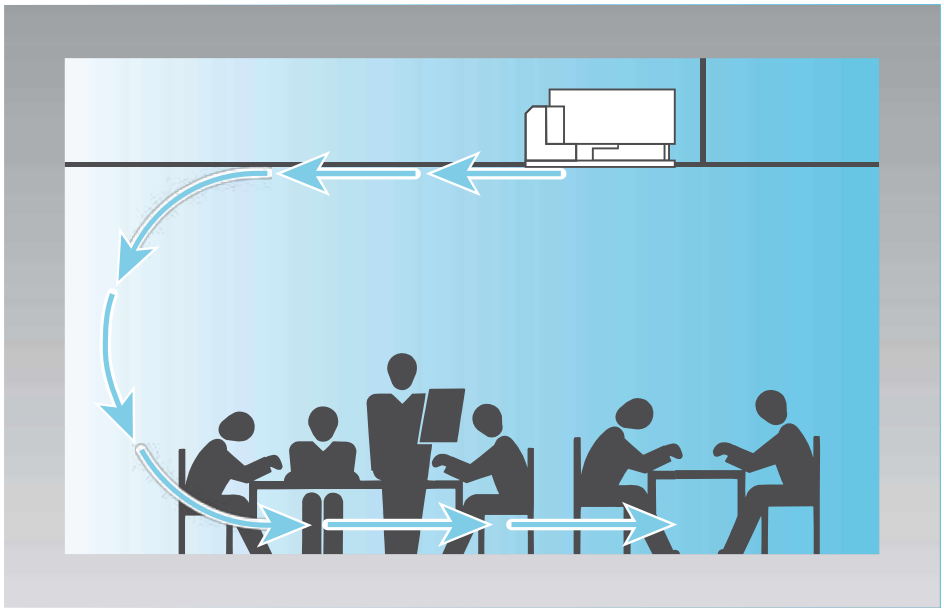
The variable flow rate enhances the product's main virtues: **excellent air circulation**, with a high degree of comfort, especially during the summer months.

Every unit is supplied with an electronic motor with extremely low energy consumption, **brushless** and **sensorless** type, controlled by an inverter board.
By continuously varying the air flow, the ambient temperature can be more precisely monitored and regulated, **saving over 50%** of the electricity used and reducing the average perceived noise level.

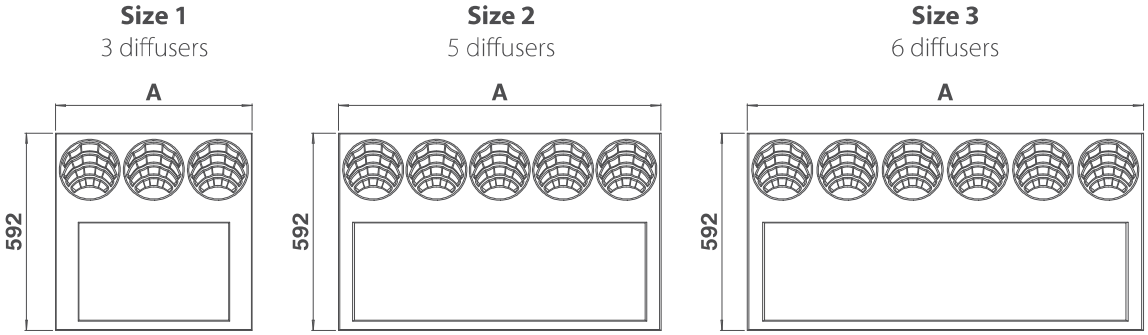
Every unit can be supplied with 1 coil (2 pipe system) and possibly an electric heating element, or with 2 coils (4 pipe system) with one or two rows heating coil, for low temperature hot water.
Fresh air may be mixed with room air.
A **condensate pump** may also be supplied as an accessory.

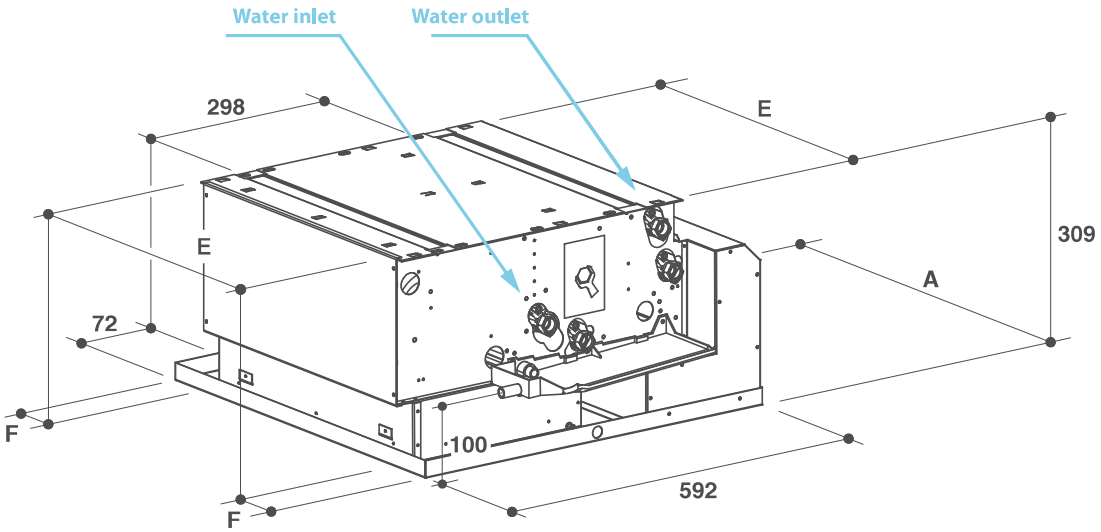
In addition to the conventional temperature and speed control systems, there is also the possibility to **control operation** of each unit through a single remote control with central supervisor software installed on a PC **(called Sabianet)**.

For the technical characteristics of the various components refer to Carisma COANDA Fan Coil Unit, except for Electronic motor:
Three phase permanent magnet brushless electronic motor that is controlled with current reconstructed according to a **BLAC** sinusoidal wave.
The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply.
The electric power supply required for the machine is therefore single-phase with voltage of **230 - 240 V** and frequency of **50 - 60 Hz**.



The "coanda" effect creates excellent circulation of the air inside the room.





Dimension (mm)

Model	1	2	3
A	592	970	1192
E	454	884	1099
F	78,0	43,0	46,5
W	750	1130	1350

Weight (kg)

		Weight with packaging			Weight without packaging		
Model		1	2	3	1	2	3
ROWS	3	18	34	44	16	33	42
	3+1	20	40	51	19	38	48
	3+2	23	46	58	22	43	54
	4	20	37	48	18	35	45
	4+1	23	42	54	21	40	51

Water content (litres)

Model		1	2	3
ROWS	3	0,6	1,3	1,7
	4	0,8	1,7	2,4
	+1	0,2	0,4	0,5
	+2	0,4	0,8	1,0

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Units with 3 and 4 row coil

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

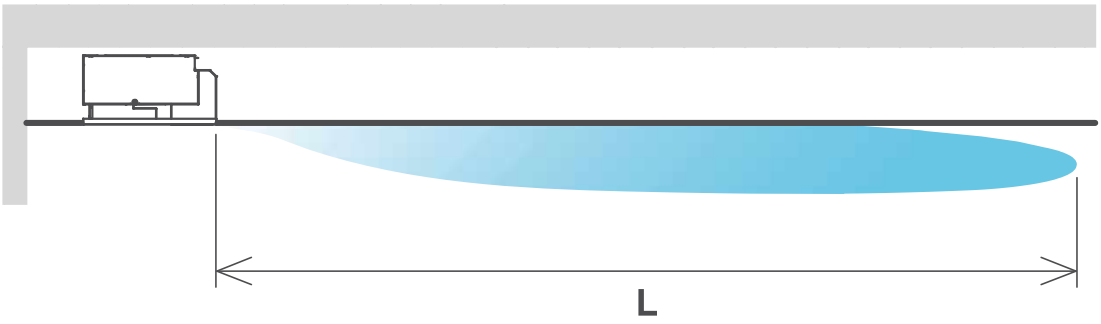
HEATING (winter mode)
Entering air temperature: +20 °C
Water temperature: +45 °C E.W.T. +40 °C L.W.T

Model		CCN-ECM 13					CCN-ECM 23					CCN-ECM 33				
Inverter Power **(V)**		1 **(E)**	3	5 **(E)**	7,5	10 **(E)**	1 **(E)**	3	5 **(E)**	7,5	10 **(E)**	1 **(E)**	3	5 **(E)**	7,5	10 **(E)**
Speed		**MIN**		**MED**		**MAX**	**MIN**		**MED**		**MAX**	**MIN**		**MED**		**MAX**
Air flow	m^3/h	**130**	165	**205**	250	**295**	**215**	295	**370**	450	**540**	**275**	345	**430**	525	**620**
Cooling total emission **(E)**	kW	**0,81**	0,99	**1,17**	1,35	**1,53**	**1,45**	1,90	**2,29**	2,71	**3,12**	**1,86**	2,30	**2,76**	3,25	**3,71**
Cooling sensible emission **(E)**	kW	**0,61**	0,75	**0,90**	1,05	**1,21**	**1,06**	1,41	**1,71**	2,05	**2,37**	**1,36**	1,69	**2,04**	2,42	**2,79**
Heating **(E)**	kW	**0,85**	1,05	**1,26**	1,47	**1,70**	**1,43**	1,90	**2,32**	2,78	**3,21**	**1,82**	2,26	**2,74**	3,27	**3,77**
Heating - Water 70-60 °C	kW	**1,72**	2,12	**2,54**	2,98	**3,44**	**2,88**	3,82	**4,67**	5,60	**6,49**	**3,65**	4,54	**5,53**	6,59	**7,61**
Dp Cooling **(E)**	kPa	**2,1**	3,0	**4,0**	5,2	**6,5**	**3,2**	5,2	**7,3**	9,8	**12,6**	**5,8**	8,4	**11,7**	15,7	**19,8**
Dp Heating **(E)**	kPa	**1,9**	2,7	**3,7**	4,9	**6,4**	**2,6**	4,3	**6,1**	8,4	**10,9**	**4,6**	6,8	**9,6**	13,0	**16,8**
Fan **(E)**	W	**8**	11	**14**	21	**29**	**8**	11	**16**	24	**37**	**10**	13	**19**	29	**42**
Sound power **(E)**	dB(A)	**35**	41	**46**	51	**55**	**34**	40	**46**	52	**56**	**36**	42	**48**	54	**58**
Sound pressure **(*)**	dB(A)	**26**	32	**37**	42	**46**	**25**	31	**37**	43	**47**	**27**	33	**39**	45	**49**

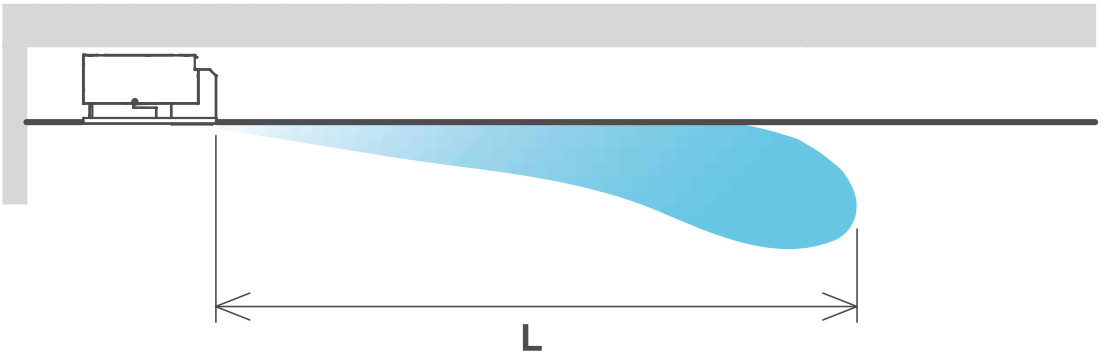
Model		CCN-ECM 14					CCN-ECM 24					CCN-ECM 34				
Inverter Power **(V)**		1 **(E)**	3	5 **(E)**	7,5	10 **(E)**	1 **(E)**	3	5 **(E)**	7,5	10 **(E)**	1 **(E)**	3	5 **(E)**	7,5	10 **(E)**
Speed		**MIN**		**MED**		**MAX**	**MIN**		**MED**		**MAX**	**MIN**		**MED**		**MAX**
Air flow	m^3/h	**130**	165	**205**	250	**295**	**215**	295	**370**	450	**540**	**275**	345	**430**	525	**620**
Cooling total emission **(E)**	kW	**0,90**	1,11	**1,33**	1,55	**1,78**	**1,54**	2,04	**2,49**	2,98	**3,46**	**1,94**	2,41	**2,92**	3,46	**3,98**
Cooling sensible emission **(E)**	kW	**0,66**	0,81	**0,98**	1,16	**1,35**	**1,11**	1,48	**1,82**	2,19	**2,56**	**1,40**	1,75	**2,13**	2,54	**2,94**
Heating **(E)**	kW	**0,89**	1,10	**1,34**	1,58	**1,85**	**1,52**	2,05	**2,53**	3,07	**3,62**	**1,87**	2,34	**2,85**	3,42	**3,97**
Heating - Water 70-60 °C	kW	**1,78**	2,22	**2,68**	3,19	**3,69**	**3,04**	4,11	**5,08**	6,17	**7,27**	**3,75**	4,70	**5,74**	6,89	**8,00**
Dp Cooling **(E)**	kPa	**4,1**	5,9	**8,1**	10,9	**13,9**	**5,0**	8,2	**11,6**	15,9	**20,8**	**4,3**	6,4	**8,9**	12,1	**15,5**
Dp Heating **(E)**	kPa	**3,3**	4,8	**6,7**	9,2	**11,8**	**4,0**	6,8	**9,9**	13,9	**18,5**	**3,4**	5,0	**7,1**	9,8	**12,7**
Fan **(E)**	W	**8**	11	**14**	21	**29**	**8**	11	**16**	24	**37**	**10**	13	**19**	29	**42**
Sound power **(E)**	dB(A)	**35**	41	**46**	51	**55**	**34**	40	**46**	52	**56**	**36**	42	**48**	54	**58**
Sound pressure **(*)**	dB(A)	**26**	32	**37**	42	**46**	**25**	31	**37**	43	**47**	**27**	33	**39**	45	**49**

(E) = EUROVENT certified performance.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

C1 heating



C2 cooling



Model		CCN 1	CCN 2	CCN 3
Installation height (m)	**Min.**	2,6	2,6	2,6
	Max.	3,2	3,2	3,5

Model		CCN 1						CCN 2						CCN 3					
Speed		1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Air throw **L** (m)	**C1**	3,6	4,5	5,8	6,3	6,8	7,2	4	5	6,1	7	8	9	4,5	5,2	6,3	7,5	8,8	9,5
	C2	3	3,6	4,6	5	5,4	5,7	3,2	4	4,8	5,6	6,4	7,2	3,6	4,1	5	6	7	7,6

Other available versions

CCN-ECM-H

The version CCN-ECM-H is available as a variant. It is equipped with a low air intake grid and a frontal air outlet grid that is mounted on a telescopic plenum.
This version produces the same emissions as those of the CCN-ECM standard versions and it lets also the air intake from an ambient to an another one.

Wall electronic controls

Versione Standard	
WM-AU	Automatic speed control with electronic thermostat and summer/winter switch (to be used with UPM-AU or UP-AU only)
T-MB	Wall control (to be used with UPM-AU or UP-AU only)
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and liquid crystal display
UPM-AU	Power unit for WM-AU and T-MB remote controls, fitted on the unit
UP-AU	Power unit for WM-AU and T-MB remote controls, not fitted on the unit

Electronic controls for MB boards

MB-ECM-M	MB electronic board fitted on the unit
MB-ECM-S	MB electronic board supplied with separate packaging
T-MB	Wall control (to be used with MB board only)
RS-RT03	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RS	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Sabianet management system for a network of fan coils	
Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX system

KNX Systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Carisma Fly

High Wall Fan Coil Unit

Carisma Fly is the high wall fan coil unit **designed and manufactured in Italy** by Sabiana, in 4 sizes and many different models.

Fly is easy to install like a standard fan coil: without decreasing the emission and without any extra frame, 2 way or 3 way valves and condensate pump can be mounted into the casing.

The **modern and appealing** design of the unit in RAL 9003 colour allows the use of Fly in any environment.

Fly is **available with standard AC motors or low energy EC motors** and in the following versions:

with wired wall control, infra-red remote control, MB electronic board for Modbus management and electric heating coil.

The units are for 2 pipe installations only.

All the Fly models perform very low electric consumption and extremely quite sound levels according to the request of today's new projects.

TECHNICAL CHARACTERISTICS

Versions: all versions are available without valves, with 2 way valve or with 3 way valve fitted in the unit.
There are four sizes available in the following versions:

CVP	without infra-red remote control and without valve;
CVP-2V	without infra-red remote control with fitted 2 way valve;
CVP-3V	without infra-red remote control with fitted 3 way valve.
CVP-T	with infra-red remote control and without valve;
CVP-T-2V	with infra-red remote control with fitted 2 way valve;
CVP-T-3V	with infra-red remote control with fitted 3 way valve.
CVP-MB	with MB board and without valve;
CVP-MB-2V	with MB board with fitted 2 way valve;
CVP-MB-3V	with MB board with fitted 3 way valve.

Casing: made of auto-extinguishing ABS UL94 HB plastic RAL 9003 with high specifications and great resistance to aging. The diffusion flap is adjusted manually in CVP model, with remote control in CVP-T model and with T-MB control in CVP-MB model.

Filter: washable-regenerable synthetic filter, readily accessible.

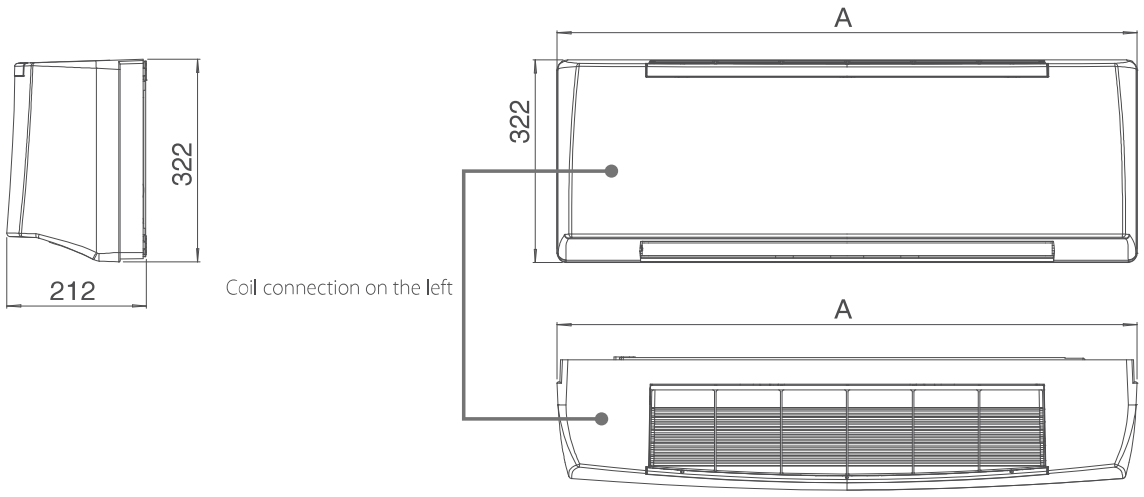
Fan assembly: made of plastic tangential fan.

Electric motor: the motor is for single phase supply and has six speeds, three of which are connected, with capacitor.
The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings.
Internal thermal protection with automatic reset, protection IP 20, class B.
The speeds connected in the factory are indicated by "MIN, MED and MAX" in the following tables.

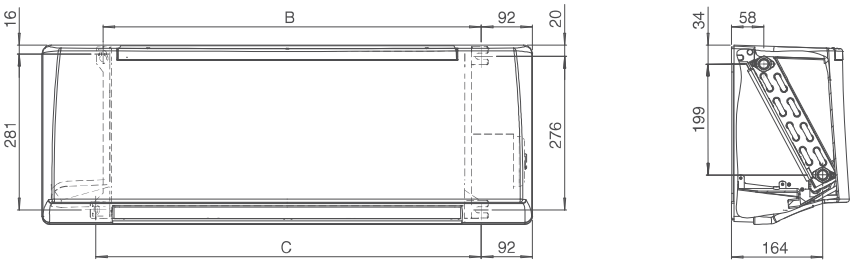
Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process.
The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain.
The heat exchanger is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.
The connections are on the left side facing the unit only.

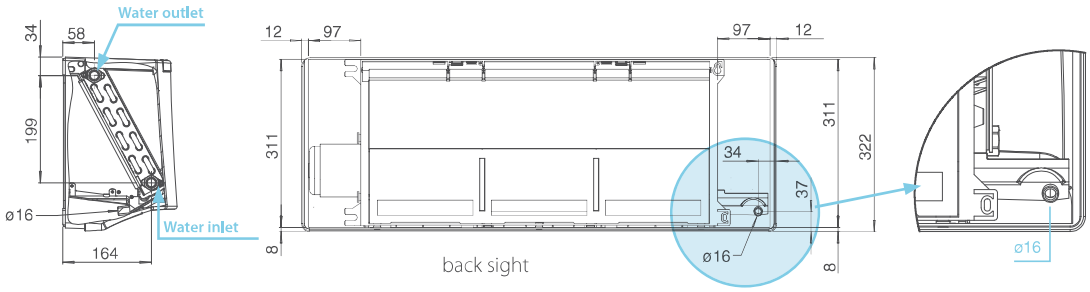
Condensate collection tray: made from polypropylene; the outside diameter of the condensate discharge pipe is 16mm.

Installation template: a cardboard installation template is supplied with every unit to help the mounting on the wall.



Mounting dimensions





Model	Weight without valves Kg	Weight with valves Kg	Water content Litres	A mm	B mm	C mm
1	10	11	0,85	880	678	691
2	10	11	0,85	880	678	691
3	13	14	1,28	1185	983	996
4	13	14	1,28	1185	983	996

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2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)
Entering air temperature: +20°C
Water temperature: +45°C E.W.T. +40°C L.W.T.

Model		1						2					
Speed		1 **(E)**	2 **(E)**	3	4 **(E)**	5	6	1 **(E)**	2	3 **(E)**	4	5 **(E)**	6
		MIN	**MED**		**MAX**			**MIN**		**MED**		**MAX**	
Air flow	m^3/h	**205**	**270**	340	**375**	470	500	**250**	305	**365**	400	**480**	545
Cooling total emission **(E)**	kW	**1,23**	**1,49**	1,74	**1,85**	2,13	2,20	**1,42**	1,62	**1,82**	1,93	**2,16**	2,32
Cooling sensible emission **(E)**	kW	**0,91**	**1,13**	1,34	**1,44**	1,70	1,77	**1,06**	1,23	**1,41**	1,51	**1,73**	1,89
Heating **(E)**	kW	**1,34**	**1,68**	2,02	**2,18**	2,58	2,71	**1,58**	1,85	**2,13**	2,29	**2,62**	2,88
Dp Cooling **(E)**	kPa	**4,8**	**6,8**	9,0	**10,1**	12,9	13,8	**6,2**	7,9	**9,8**	10,8	**13,2**	15,1
Dp Heating **(E)**	kPa	**4,5**	**6,8**	9,4	**10,8**	14,7	15,9	**6,1**	8,1	**10,4**	11,8	**15,1**	17,8
Fan **(E)**	W	**12**	**14**	17	**18**	24	30	**12**	14	**18**	20	**24**	32
Sound power Lw **(E)**	dB(A)	**35**	**41**	46	**48**	52	53	**39**	43	**47**	49	**53**	55
Sound pressure Lp **(*)**	dB(A)	**26**	**32**	37	**39**	43	44	**30**	34	**38**	40	**44**	46

Model		3						4					
Speed		1 **(E)**	2 **(E)**	3	4 **(E)**	5	6	1	2 **(E)**	3	4 **(E)**	5	6 **(E)**
		MIN	**MED**		**MAX**				**MIN**		**MED**		**MAX**
Air flow	m^3/h	**280**	**375**	480	**545**	730	780	300	**440**	500	**610**	675	**790**
Cooling total emission **(E)**	kW	**1,87**	**2,30**	2,75	**3,00**	3,59	3,73	1,97	**2,60**	2,83	**3,23**	3,43	**3,76**
Cooling sensible emission **(E)**	kW	**1,33**	**1,67**	2,03	**2,24**	2,77	2,90	1,41	**1,91**	2,10	**2,44**	2,62	**2,93**
Heating **(E)**	kW	**1,89**	**2,37**	2,93	**3,23**	4,04	4,24	2,00	**2,73**	3,02	**3,53**	3,80	**4,28**
Dp Cooling **(E)**	kPa	**11,2**	**16,2**	22,5	**26,3**	36,4	39,1	14,1	**23,0**	27,2	**34,0**	38,5	**45,1**
Dp Heating **(E)**	kPa	**9,1**	**13,8**	20,1	**24,1**	35,9	39,2	12,7	**22,2**	26,7	**35,2**	40,4	**49,8**
Fan **(E)**	W	**16**	**21**	26	**29**	38	46	17	**23**	27	**32**	35	**48**
Sound power Lw **(E)**	dB(A)	**35**	**40**	45	**48**	55	57	36	**43**	46	**51**	54	**57**
Sound pressure Lp **(*)**	dB(A)	**26**	**31**	36	**39**	46	48	27	**34**	37	**42**	45	**48**

(E) = EUROVENT certified performance. **MIN-MED-MAX** = Standard connected speeds.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

Fly models with electric heater

All versions are available without valves, with 2 way valve or with 3 way valve fitted in the unit.
There are four sizes available in the following versions:

CVP-E	without infra-red remote control and without valve;
CVP-E-2V	without infra-red remote control with fitted 2 way valve;
CVP-E-3V	without infra-red remote control with fitted 3 way valve.
CVP-T-E	with infra-red remote control and without valve;
CVP-T-E-2V	with infra-red remote control with fitted 2 way valve;
CVP-T-E-3V	with infra-red remote control with fitted 3 way valve.
CVP-MB-E	with MB electronic board and without valve;
CVP-MB-E-2V	with MB electronic board with fitted 2 way valve;
CVP-MB-E-3V	with MB electronic board with fitted 3 way valve.

According to the control provided, the electrical heater can be used as an alternative or as a supplement to the hot water.
The heater is hermetically sealed and supplied inside the battery pipes and therefore can be only factory mounted.
The electric heaters of the **Fly** units are single phase 230V supply.

Wall electronic controls

CVP version	
WM-3V	3 speed control
WM-T	3 speed control with electronic thermostat and manual summer/winter switch
WM-TQR	3 speed control with electronic thermostat and centralized/manual summer/winter switch
T2T	Electromechanical thermostat with summer/winter switch (only for 2 pipe units)

Electronic controls for MB boards

CVP-MB version	
T-MB	Wall control (to be used with MB board only)
RM-RT03-F	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RS-F	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

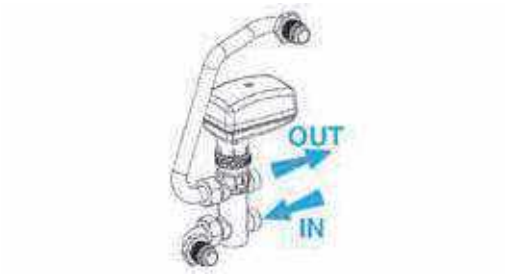
Sabianet management system for a network of fan coils	
Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

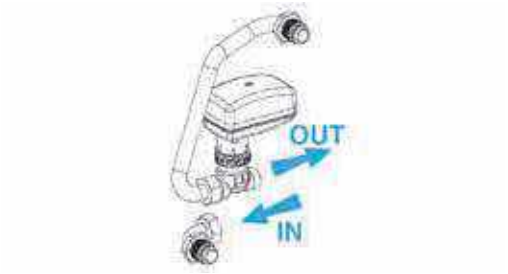
3 way valve

Control valve kit:
3 way valve, 230V ON-OFF,
with electric motor and mounting kit
with micrometric lockshield valve.



2 way valve

Control valve kit:
2 way valve, ON-OFF,
with electric motor and mounting kit.



Condensate drain pump

Wall or concealed installation kit

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Carisma Fly-ECM

High Wall Fan Coil Unit with EC Brushless Electronic Motor and Inverter Board

Carisma Fly is the high wall fan coil unit **designed and manufactured in Italy** by Sabiana, in 4 sizes and many different models.

Fly is easy to install like a standard fan coil: without decreasing the emission and without any extra frame, 2 way or 3 way valves and condensate pump can be mounted into the casing.

The **modern and appealing** design of the unit in RAL 9003 colour allows the use of Fly in any environment.

Fly is **available with low energy EC motors** and in the following versions:

with infra-red remote control, MB electronic board for Modbus management and electric heating coil.

The units are for 2 pipe installations only.

All the Fly models perform very low electric consumption and extremely quite sound levels according to the request of today's new projects.

TECHNICAL CHARACTERISTICS

Versions: all versions are available without valves, with 2 way valve or with 3 way valve fitted in the unit.
There are four sizes available in the following versions:

CVP-ECM	without infra-red remote control and without valve;
CVP-ECM-2V	without infra-red remote control with fitted 2 way valve;
CVP-ECM-3V	without infra-red remote control with fitted 3 way valve.
CVP-ECM-T	with infra-red remote control and without valve;
CVP-ECM-T-2V	with MB board with fitted 2 way valve;
CVP-ECM-T-3V	with infra-red remote control with fitted 3 way valve.
CVP-ECM-MB	with MB board and without valve;
CVP-ECM-MB-2V	with MB board with fitted 2 way valve;
CVP-ECM-MB-3V	with MB board with fitted 3 way valve.

Casing: made of auto-extinguishing ABS UL94 HB plastic RAL 9003 with high specifications and great resistance to aging. The diffusion flap is adjusted manually in CVP-ECM model, with remote control in CVP-ECM-T model and with T-MB control in CVP-ECM-MB model.

Filter: washable-regenerable synthetic filter, readily accessible.

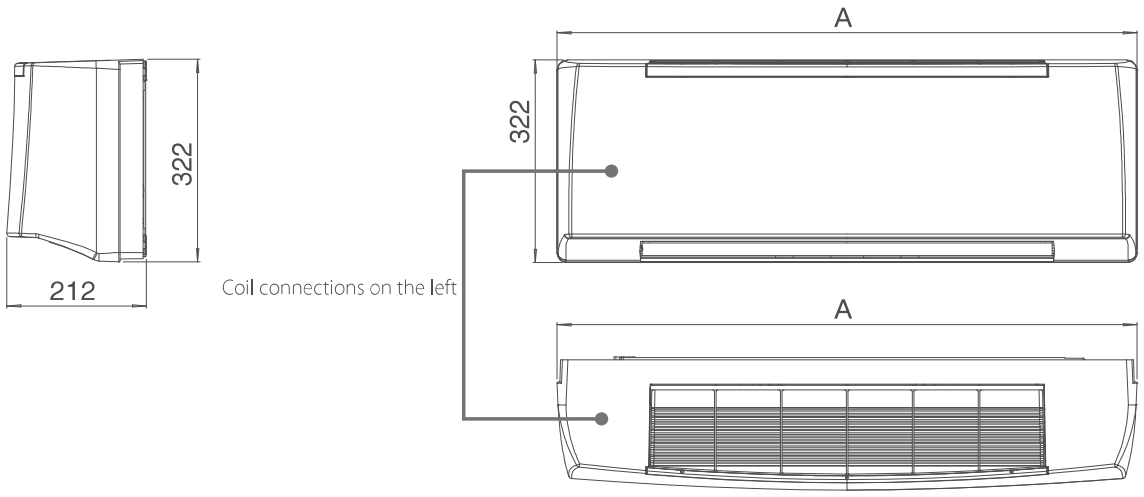
Fan assembly: made of plastic tangential fan.

Electronic motor: three phase permanent magnet brushless electronic motor that is controlled with current reconstructed according to a **BLAC** sinusoidal wave.
The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase frequency modulated, wave form power supply.
The electric power supply required for the machine is therefore single-phase with voltage of **230 - 240 V** and frequency of **50 - 60 Hz**.

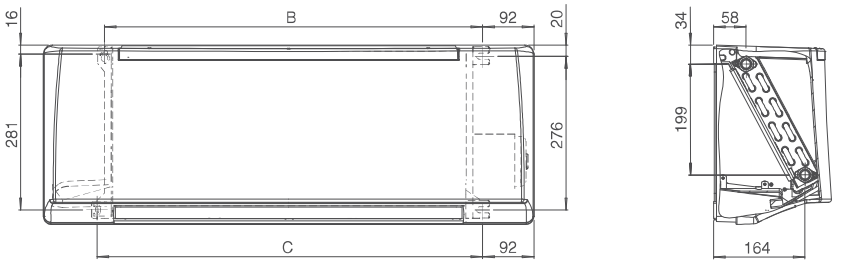
Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process.
The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain.
The heat exchanger is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.
The connections are on the left side facing the unit only.

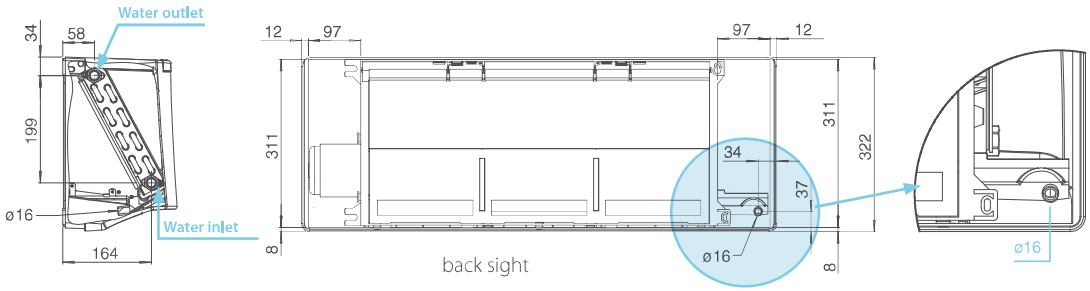
Condensate collection tray: made from polypropylene; the outside diameter of the condensate discharge pipe is 16 mm.

Installation template: a cardboard installation template is supplied with every unit to help the mounting on the wall.



Mounting dimensions





Model	Weight without valves Kg	Weight with valves Kg	Contenuto acqua Litres	A mm	B mm	C mm
1	10	11	0,85	880	678	691
2	10	11	0,85	880	678	691
3	13	14	1,28	1185	983	996
4	13	14	1,28	1185	983	996

CERTIFICATION

www.eurovent-certification.com

2 pipe units. The following standard rating conditions are used:

COOLING (summer mode)
Entering air temperature: +27 °C d.b. +19 °C w.b.
Water temperature: +7 °C E.W.T. +12 °C L.W.T.

HEATING (winter mode)
Entering air temperature: +20°C
Water temperature: +45°C E.W.T. +40°C L.W.T.

Model		1					2				
Inverter Power **(V)**		1 **(E)**	3	5 **(E)**	7,5	10 **(E)**	1 **(E)**	3	5 **(E)**	7,5	10 **(E)**
Speed		**MIN**		**MED**		**MAX**	**MIN**		**MED**		**MAX**
Air flow	m^3/h	**190**	240	**290**	355	**415**	**260**	315	**375**	440	**510**
Cooling total emission **(E)**	kW	**1,16**	1,38	**1,57**	1,80	**1,98**	**1,46**	1,66	**1,86**	2,05	**2,24**
Cooling sensible emission **(E)**	kW	**0,85**	1,03	**1,19**	1,39	**1,56**	**1,09**	1,27	**1,45**	1,63	**1,81**
Heating **(E)**	kW	**1,26**	1,53	**1,78**	2,09	**2,35**	**1,63**	1,90	**2,18**	2,46	**2,74**
Dp Cooling **(E)**	kPa	**5,0**	5,9	**7,7**	9,4	**11,2**	**6,9**	8,2	**10,1**	12,0	**14,1**
Dp Heating **(E)**	kPa	**4,0**	5,7	**7,5**	10,0	**12,4**	**6,4**	8,4	**10,8**	13,4	**16,3**
Fan **(E)**	W	**6**	7	**9**	11	**15**	**7**	9	**12**	16	**21**
Sound power Lw **(E)**	dB(A)	**35**	39	**46**	48	**52**	**40**	44	**47**	51	**55**
Sound pressure Lp **(*)**	dB(A)	**26**	30	**37**	39	**43**	**31**	35	**38**	42	**46**

Model		3					4				
Inverter Power **(V)**		1 **(E)**	3	5 **(E)**	7,5	10 **(E)**	1 **(E)**	3	5 **(E)**	7,5	10 **(E)**
Speed		**MIN**		**MED**		**MAX**	**MIN**		**MED**		**MAX**
Air flow	m^3/h	**270**	345	**420**	520	**620**	**375**	465	**550**	665	**770**
Cooling total emission **(E)**	kW	**1,82**	2,19	**2,52**	2,92	**3,27**	**2,33**	2,71	**3,03**	3,41	**3,72**
Cooling sensible emission **(E)**	kW	**1,30**	1,59	**1,85**	2,17	**2,48**	**1,69**	2,00	**2,27**	2,61	**2,89**
Heating **(E)**	kW	**1,83**	2,24	**2,63**	3,11	**3,57**	**2,40**	2,85	**3,26**	3,76	**4,20**
Dp Cooling **(E)**	kPa	**10,7**	14,8	**19,0**	24,8	**30,4**	**16,5**	21,6	**26,6**	32,9	**38,7**
Dp Heating **(E)**	kPa	**8,7**	12,5	**16,6**	22,5	**28,8**	**14,1**	19,3	**24,4**	31,7	**38,6**
Fan **(E)**	W	**6**	8	**11**	15	**20**	**9**	12	**16**	22	**30**
Sound power Lw **(E)**	dB(A)	**37**	42	**45**	49	**53**	**43**	46	**49**	53	**57**
Sound pressure Lp **(*)**	dB(A)	**28**	33	**36**	40	**44**	**34**	37	**40**	44	**48**

(E) = EUROVENT certified performance. **MIN-MED-MAX** = Standard connected speeds.
(*) = The sound pressure levels are 9 dB(A) lower than the sound power levels and apply to the reverberant field of a 100 m^3 room and a reverberation time of 0.5 sec.

Versioni Fly-ECM con resistenza elettrica

all versions are available without valves, with 2 way valve or with 3 way valve fitted in the unit.
There are four sizes available in the following versions:

CVP-ECM-E	without infra-red remote control and without valve;
CVP-ECM-E-2V	without infra-red remote control with fitted 2 way valve;
CVP-ECM-E-3V	without infra-red remote control with fitted 3 way valve.
CVP-ECM-T-E	with infra-red remote control and without valve;
CVP-ECM-T-E-2V	with infra-red remote control with fitted 2 way valve;
CVP-ECM-T-E-3V	with infra-red remote control with fitted 3 way valve.
CVP-ECM-MB-E	with MB electronic board and without valve;
CVP-ECM-MB-E-2V	with MB electronic board with fitted 2 way valve;
CVP-ECM-MB-E-3V	with MB electronic board with fitted 3 way valve.

The heater is hermetically sealed and supplied inside the battery pipes and therefore can be only factory mounted.
The electric heaters of the **Fly-ECM** units are single phase 230V supply.

Electronic controls for MB boards

CVP-ECM-MB version	
T-MB	Wall control (to be used with MB board only)
RS-RT03-F	RT03 infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03	RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
RS-F	Receiver for RT03 infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	Multifunction control (to be used with MB board only)

Wall control	
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and liquid crystal display

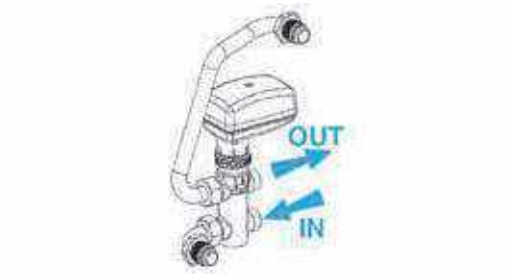
Sabianet management system for a network of fan coils	
Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

KNX systems	
UP-KNX	UP-KNX power unit supplied with separate packaging
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX only and PL mounting plate)
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

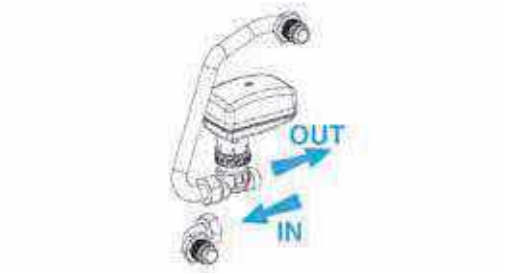
3 way valve

Control valve kit:
3 way valve, 230V ON-OFF,
with electric motor and mounting kit
with micrometric lockshield valve.



2 way valve

Control valve kit:
2 way valve, ON-OFF,
with electric motor and mounting kit.



Condensate drain pump

Wall or concealed installation kit

NOTE: for more information about Controls and for full list of main Accessories, please see the dedicated pages.

Built-in electronic controls

for Fan Coils with Asynchronous Motor

for Carisma CRC - CRT - CRR versions with casing

CB

CB-T

CB-C

CB-AUT

CB-IAQ

CB-R-IAQ

CB-AUT-IAQ

Functions	Identification						
	CB	CB-T	CB-C	CB-AUT	CB-IAQ	CB-R-IAQ	CB-AUT-IAQ
ON-OFF switch	✔	✔	✔	✔	✔	✔	✔
ON-OFF switch for Crystall electrostatic filter or electric heater					✔	✔	✔
Manual 3 speed switch	✔	✔	✔	✔	✔	✔	✔
Manual/Automatic 3 speed selection				✔			✔
Summer/Winter switch		✔		✔		✔	✔
Remote centralized Summer/Winter switch or by an automatic change-over fitted on the water pipe			✔	✔		✔	✔
Automatic Summer/Winter switch with neutral zone for 4 pipe installation with 2 valves				✔			✔
Room thermostat for fan control (ON-OFF)		✔	✔	✔		✔	✔
Room thermostat for 1 valve control (2 pipe installation)		✔	✔	✔		✔	✔
Room thermostat for 2 valve control (4 pipe installation)		✔	✔	✔		✔	✔
Simultaneous thermostatic control of the valves and fan				✔			✔
Room thermostat for chilled water valve (SUMMER) and electric heater (WINTER) control (in winter only the electric heater is working)		✔	✔	✔		✔	✔
Room thermostat for fan and electric heater control (not for Crystall)				✔		✔	✔
Installation of electronic low temperature cut-out thermostat (TME)			✔			✔	
Installation of bimetallic low temperature cut-out thermostat (TMM)		✔					
Installation of electronic low temperature cut-out thermostat (NTC)				✔			✔

Wall electronic controls

for Fan Coils with Asynchronous Motor

for all Carisma - SkyStar - Maestro Range

WM-AU

WM-T

WM-TQR

T-MB

WM-503

T2T

WM-3V

Functions	Identification						
	WM-3V	WM-T	WM-TQR	WM-AU	WM-503	T-MB	T2T
ON-OFF switch	✔	✔	✔	✔	✔	✔	✔
ON-OFF switch for Crystall electrostatic filter or electric heater			✔	✔		✔	
Manual 3 speed switch	✔	✔	✔	✔	✔	✔	✔
Manual/Automatic 3 speed selection				✔	✔	✔	
Summer/Winter switch		✔	✔	✔	✔	✔	✔
Remote centralized Summer/Winter switch or by an automatic change-over fitted on the water pipe			✔	✔		✔	
Automatic Summer/Winter switch with neutral zone for 4 pipe installation with 2 valves				✔	✔	✔	
Room thermostat for fan control (ON-OFF)		✔	✔	✔	✔	✔	✔
Room thermostat for 1 valve control (2 pipe installation)		✔	✔	✔	✔	✔	✔
Room thermostat for 2 valve control (4 pipe installation)		✔	✔	✔	✔	✔	
Simultaneous thermostatic control of the valves and fan		✔	✔	✔	✔	✔	✔
Room thermostat for chilled water valve (SUMMER) and electric heater (WINTER) control (in winter only the electric heater is working)		✔	✔	✔	✔	✔	
Room thermostat for fan and electric heater control (not for Crystall)			✔	✔		✔	
Installation of bimetallic low temperature cut-out thermostat (TMM)		✔					
Installation of electronic low temperature cut-out thermostat (NTC)			✔	✔	✔	✔	

NOTA: WM-AU and T-MB controls can be used with UP-AU power unit only, whereas the WM-503 control can be used with the UP-503 power unit only.

Controls for Fan Coil Units

with Asynchronous Motor and with EC Brushless Electronic Motor and Inverter Board

for all the Carisma and SkyStar Range

All Carisma and SkyStar units can be supplied with a microprocessor management and control unit with **infra-red remote control** with liquid crystal display combined with the **MB board**.

RT03 infra-red remote control

The **infra-red remote control** allows setting by a remote position the fan coil operation parameters.

The RT03 infra-red remote control features the following functions:
- Switch the unit ON and OFF.
- Temperature set.
- Set the fan speed (low, medium, high or autofan).
- Set the operation mode (fan only, cooling, heating; auto for 4 pipe systems with mode selection depending on the air temperature).
- Time setting.
- 24 hours ON/OFF program.

T-MB control

Control with display that allows controlling one or more units. The control is equipped with internal sensor to detect the room temperature, which can be defined as a priority compared to the return air sensor on the fan coil.

The T-MB control features the following functions:
- Switch the unit ON and OFF.
- Temperature set.
- Modify the set point (when used as a +/- 3° variation of the set point configured from Sabianet supervisory program or PSM-DI).
- Set the fan speed (low, medium, high or autofan).
- Set the operation mode (fan only, cooling, heating; auto for 4 pipe systems with mode selection depending on the air temperature).
- Time setting.
- Weekly ON/OFF program.
- Display and change of the fan coil operation parameters.

Another option available for the serial communication between the units is the possibility to connect up to 60 Carisma and SkyStar units in series (the maximum length of the connection cable must not exceed 800 m) and manage them with just one **wall mounted intelligent PSM-DI controller**.

The wall mounted controller can be used to set the operating mode for each individual unit connected, display the operating conditions of each individual unit, and set the ON/OFF time sets for each day of the week.
If **more than 60 units need to be connected, two or more** wall mounted intelligent controllers must be used.
Each unit must have a **MB board**.

PSM-DI panel

Multifunction control panel with Asynchronous Motor
and with EC Brushless Electronic Motor and Inverter Board

Sabianet

management system for a network of fan coils

for all the Carisma and SkyStar Range

Sabianet is a centralised control system for networks of MB fan coils, based on software that runs **on Linux operating system** (the program is provided pre-installed on a PC). The Sabianet software **offers a practical and economical solution** for managing the fan coils, with the simple click of the mouse.

The main characteristics include simplicity of use, an extremely complete and functional weekly program, and the possibility to access the historical operating data for each individual unit connected.

pc

Sabianet screenshot

MB board for all the Carisma and SkyStar Range

The MB boards, besides being used with **T-MB** controls, with infra-red remote control units, with **PSM-DI** and with the units managed with **Sabianet** software, can also be interfaced with BSM supervisory systems that use **Modbus** communication protocol.

KNX bus system

The KNX bus system is a building automation standard for controlling, managing and monitoring a wide range of products for:

- heating, cooling, ventilation
- lighting
- alarm systems
- audio and video systems
- electricity and gas

Since 2016, Sabiana is a certified member of the KNX association and the certified products can be added to this system in compliance with the tests carried out at KNX laboratories.

KNX devices

The Sabiana WM-KNX room thermostat controls and adjusts the temperature of a room or area in a building. In combination with one or several UP-KNX power units, the thermostat is able to control the operation of terminal units such as fan coils. The appliance consists of an LCD display with adjustable backlight and a sensor for measuring the room temperature.

WM-KNX is suitable for installation in a recessed wall box.

Recessed thermostat
WM-KNX
Code 9066679

with rectangular plate

With square plate

Power unit
UP-KNX
Code 9066680

Electronic controls

for Fan Coil Units with EC Brushless Electronic Motor and Inverter Board

CB-T-ECM
for CRC–ECM and CRT–ECM versions

CB-T-ECM-IAQ
for CRC–ECM version

WM-AU
for CRC–ECM, CRT–ECM, CRS–ECM, CCN–ECM and SK–ECM versions

T-MB
for CRC–ECM, CRT–ECM, CRS–ECM, CCN–ECM and SK–ECM versions

WM-S-ECM
for CRC–ECM, CRT–ECM, CRS–ECM, CCN–ECM and SK–ECM versions

for all the Carisma ECM and SkyStar ECM Range	
RT03 infra-red remote control	for the characteristics, see previous pages
T-MB wall mounted control	
PSM-DI multifunction control	
Sabianet management system for a network of fan coils	
Controls for KNX systems	

Functions	Identification				
	built-in		wall		
	CB-T-ECM	CB-T-ECM-IAQ	WM-AU	T-MB	WM-S-ECM
ON-OFF switch	✔	✔	✔	✔	✔
Room thermostat for chilled water valve (SUMMER) and electric heater (WINTER) control (in winter only the electric heater is working)		✔	✔	✔	
Manual 3 speed switch or automatic continuous speed control	✔	✔	✔	✔	✔
Summer/Winter switch	✔	✔	✔	✔	✔
Continuous speed control based on the difference between ambient temperature and Set temperature (speed switch in Auto position)	✔	✔	✔	✔	✔
Remote centralized Summer/Winter switch or by an automatic change-over fitted on the water pipe			✔	✔	
Room thermostat for fan control (ON-OFF)	✔	✔	✔	✔	✔
Room thermostat for 1 valve control (2 pipe installation)	✔	✔	✔	✔	✔
Room thermostat for 2 valve control (4 pipe installation)	✔	✔	✔	✔	✔
Simultaneous thermostatic control of the valves and fan	✔	✔	✔	✔	✔
Room thermostat for fan and electric heater control (not for Crystall)		✔	✔	✔	
Installation of electronic low temperature cut-out thermostat (NTC)	✔	✔	✔	✔	✔

Accessories

for Carisma range

CRC/CRC-ECM - CRT-ECM - CRR-ECM - CRSL/CRSL-ECM - CCN/CCN-ECM

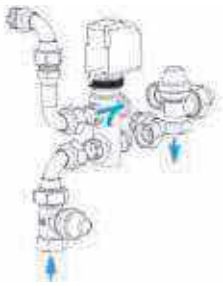
All Sabiana Carisma fan coils, whether with **Asynchronous Motor** or with **Electronic Motor and Inverter**, can be equipped with a **very large series of Accessories**, such as, to name only the most common, numerous types of regulating valves, sturdy support feet, rear cover panel for installing against glass, additional electrical resistances, auxiliary condensation drain pump, outdoor air intake louvre, inlet and outlet ducts and grills for ducted installations.

Accessories		Identification				
		CRC CRC-ECM	CRT-ECM	CRR-ECM	CRSL CRSL-ECM	CCN CCN-ECM
Main coil 3 way valve	**VBP**	✔	✔	✔	✔	✔
Additional coil 3 way valve	**VBA**	✔	✔		✔	✔
Simplified kit for 3 way valve for main and additional coil (concealed model only)	**VS**	✔	✔		✔	✔
3 way double valve kit for 4 tube installation and single coil	**V3M4X2 V3S4X2**	✔	✔		✔	✔
2 way valve for main and additional coil	**V2**	✔	✔	✔	✔	✔
Balancing valves independent from the system pressure for main and additional coil	**V20 VBP V20 VBA**	✔	✔		✔	✔
Electric heater (not available with Crystall filter)	**BEL**	✔	✔		✔	✔
Extension condensate collection tray to cover valve assembly (for vertical units)	**BSV**	(MV-MVB-IV)	(MV-MVB-IV)	✔	✔	
Extension condensate collection tray to cover valve assembly (for MO horizontal units)	**BSO**	(MO)	(MO)			✔
Extension condensate collection tray to cover valve assembly (for IO horizontal units)	**BSI-C**	(IO)	(IO)		✔	
Condensate pump (for vertical units)	**DRPV-C**	(MV-MVB-IV)	(MV-MVB-IV)		✔	
Condensate pump (for horizontal units)	**DRPO-C**	(MO)	(MO)			
Condensate pump (for horizontal units)	**DRPI-C**	(IO)	(IO)		✔	
Plastic condensate drain pipe with fast connection	**SCR**	✔	✔		✔	✔
Feet	**PAP**	✔	✔	✔		
Aluminium low intake grid	**GAP**	✔	✔			
Frontal intake kit	**KAF**	(IV-IO)	(IV-IO)		✔	
Rear closing panel (for vertical units)	**PCV**	(MV-MVB)	(MV-MVB)			
Bottom closing panel (for horizontal units)	**PCO**	(MO)	(MO)			
Fresh air mixing damper (mounted on the unit)	**SAEM**	(MV)	(MV)			
Fresh air mixing damper (not mounted)	**SAE**	(IV-IO)	(IV-IO)			
Belimo motor (not available with ECM range)	**BESAE**	(MV-IV-IO)				
Straight inlet flange	**FRD**	✔	✔		✔	
90° inlet flange	**FR 90**	✔			✔	
Air inlet grid (to be used with FR 90 90° inlet flange)	**GRAP**	✔			✔	
Air inlet grid (to be used with FRD straight inlet flange)	**GRAG**	✔	✔		✔	
Straight outlet flange	**FMD**	✔	✔		✔	
90° outlet flange	**FM 90**	✔			✔	
Air outlet grid	**BMA**	✔	✔		✔	
Air inlet spigot plenum	**PRC**	✔			✔	
Spigot diffuser	**PMC**	✔			✔	
Air inlet grid with filter (to be fitted to the FR 90 90° inlet flange)	**GRAFP**	✔				
Air inlet grid with filter (to be fitted to the FRD straight inlet flange)	**GRAFG**	✔				
Condensate drain pump	**PCC**					✔
Fresh air connection	**FRC**	✔				✔
Hotel fan kit (frontal return and supply)	**CHK**	(IO)				
Silencer plenum	**BXS**	IV-IO			✔	

Accessories | FOR CARISMA RANGE

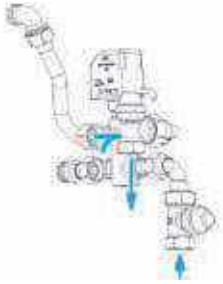
VBP **Main coil 3 way valve**

Control valve kit:
3 way valve, ON-OFF,
with electric motor and mounting kit
with micrometric lockshield valve.



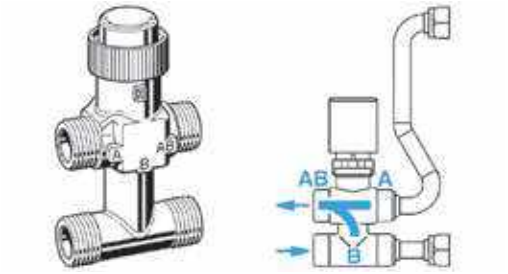
VBA **Additional coil 3 way valve**

Control valve kit:
3 way valve, ON-OFF,
with electric motor and mounting kit
with micrometric lockshield valve



VS **Simplified kit**
for 3 way valve
for main and additional coil
(concealed model only)

3 way valve, (ON-OFF)
with electric motor and mounting kit.
Valve with flat connection without micrometric lockshield valve..



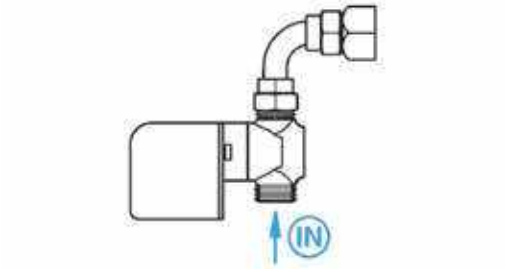
V3M4X2 (mounted)
V3S4X2 (not mounted)

3 way double valve kit
for 4 tube installation and single coil
The kit consists of:

- 2 special 3 way valves
- 2 230 Volt ON-OFF actuators with internal safety micro switch
- insulated pipe kit
- external valve insulation sleeve.

V2 **2 way valve**
for main and additional coil

Control valve kit:
2 way valve, ON-OFF,
with electric motor and mounting kit

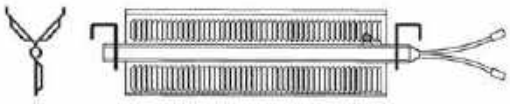


V20VBP **Balancing valves independent from the system pressure for main coil**

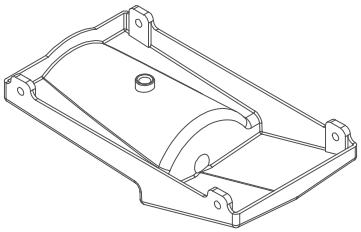
V20VBA **Balancing valves independent from the system pressure for additional coil**

BEL **Electric heater**
(not available with Crystall filter)

1 PHASE 230V
Electric heater with integral: safety thermostat and relay control..

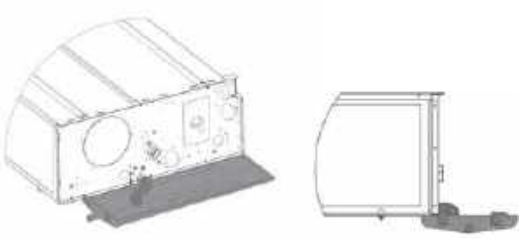


BSV **Extension condensate collection tray to cover valve assembly**
(for vertical units)



BSO **Extension condensate collection tray to cover valve assembly**
(for MO horizontal units)

BSI-C **Extension condensate collection tray to cover valve assembly**
(for IO horizontal units)



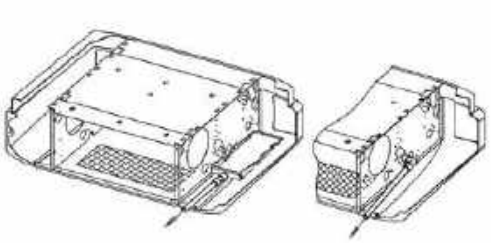
Accessories | FOR CARISMA RANGE

DRPV-C **Condensate pump**
(for vertical units)

DRPO-C **Condensate pump**
DRPI-C (for horizontal units)

DRPO-C DRPI-C

SCR **Plastic condensate drain pipe with fast connection**
Allows correct condensate drain.



SCR **Plastic condensate drain pipe with fast connection**
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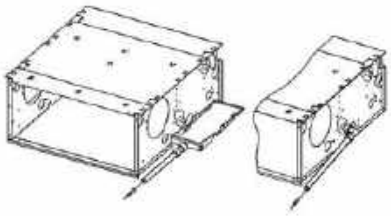
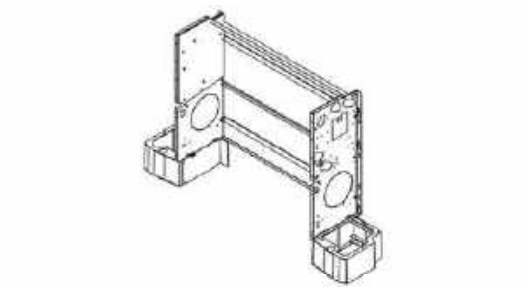


PAP **Feet**

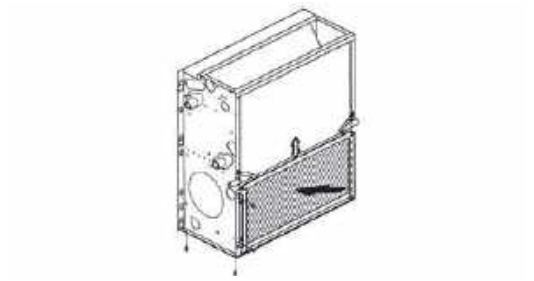


GAP **Aluminium low intake grid**

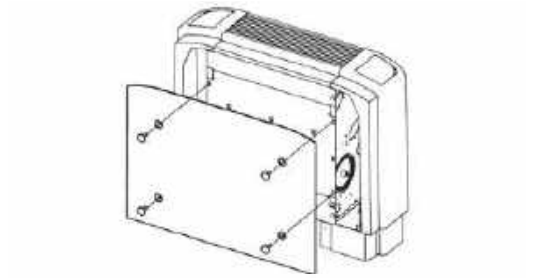
To be installed with PAP feet.

KAF **Frontal intake kit**

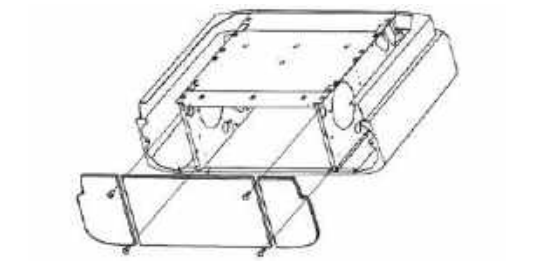
Bottom closing panel and filter sliding guide.



PCV **Rear closing panel**
(for vertical units)

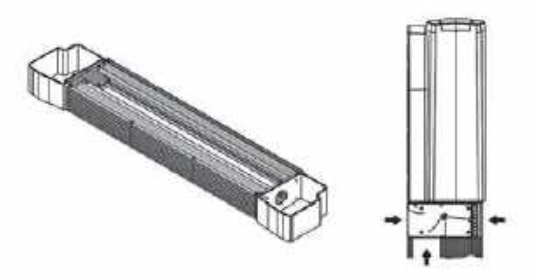


PCO **Bottom closing panel**
(for horizontal units)



SAEM **Fresh air mixing damper**

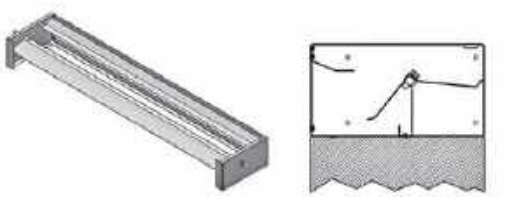
Mounted on the unit with feet and intake grid included.
Can be motorized on request.



Accessories | FOR CARISMA RANGE

SAE **Fresh air mixing damper**

Not mounted.
Can be motorized on request.



BESAE **Belimo motor**
(not available with ECM range)

Fitted on the unit for motorized working of the damper.
(available with "IAQ" control only)

FRD **Straight inlet flange**

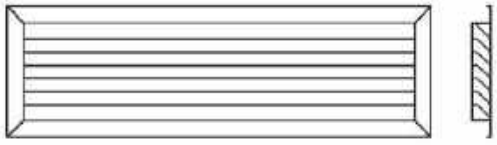
Can be used together with GRAG air inlet grid.
Made of galvanized steel.

FR 90 **90° inlet flange**

Can be used together with GRAP air inlet grid.
Made of galvanized steel.

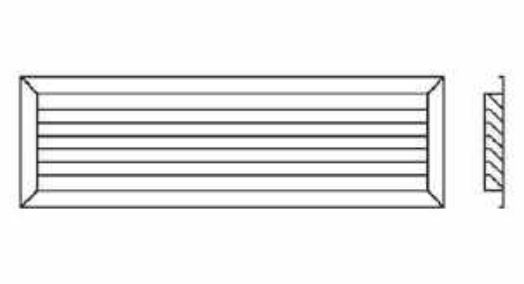
GRAP **Air inlet grid**

To be used with FR 90 90° inlet flange.
Made of anodized aluminium.



GRAG **Air inlet grid**

To be used with FRD straight inlet flange.
Made of anodized aluminium..



FMD **Straight outlet flange**

Made of galvanized steel.

CRC 1÷9 / CRT 1÷7 / CRS 1÷3

only CRS 4

FM 90 **90° outlet flange**

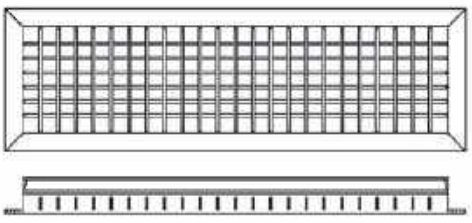
Made of galvanized steel insulated with polyethylene lining..

CRC 1÷9 / CRS 1÷3

only CRS 4

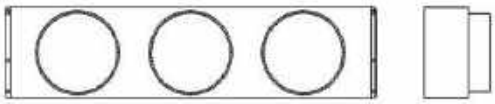
BMA **Air outlet grid**

Double louvre grid to be fitted to the duct, to the FMD straight outlet flange or to the FM 90 90° outlet flange.
Made of anodized aluminium.



PRC **Air inlet spigot plenum**

Made of galvanized steel insulated with polyethylene lining.



All the plenums are supplied with spigots for the connection of flexible ducts..

Accessories | FOR CARISMA RANGE

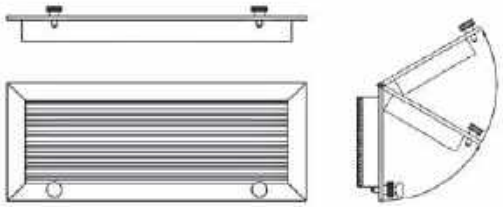
PMC **Spigot diffuser**

Made of galvanized steel insulated with polyethylene lininge.

All the plenums are supplied
with spigots
for the connection of flexible ducts.

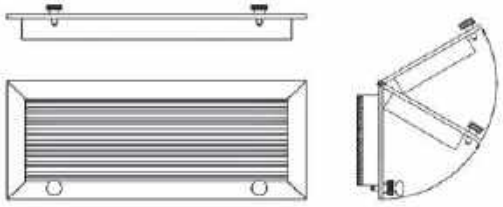
GRAFP **Air inlet grid with filter**

To be fitted to the FR 90 90° inlet flange.
Made of anodized aluminium.

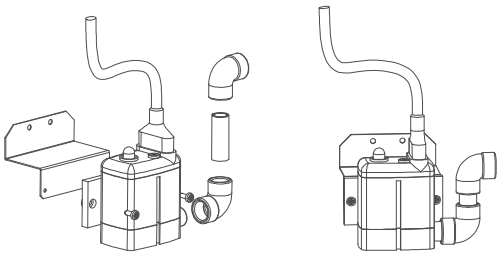


GRAFG **Air inlet grid with filter**

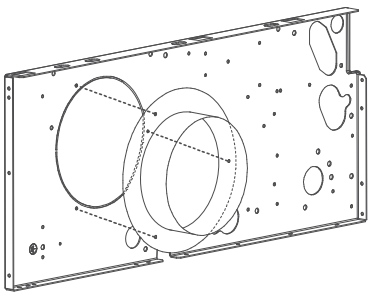
To be fitted to the FRD straight inlet flange.
Made of anodized aluminium.



PCC **Condensate drain pump**



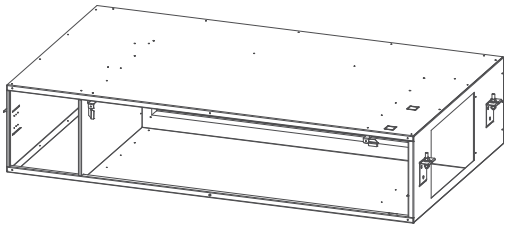
FRC **Fresh air connection**



CHK

Hotel fan kit
(frontal return and supply)

For concealed installation.



BXS

Silencer plenum
(for Carisma CRSL / CRSL-ECM and CRC / CRC-ECM, IV-IO models only)

Made of galvanised steel metal sheet, lined internally with a reinforced glass wool mat on both sides with a black glass coating.