



Carisma CRT-ECM

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

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Range includes **5 air flow rates** (from 95 to 900 m³/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.

(*) See availability function on controls.

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 institute.

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 B-s2-d0 EN 13501-1.

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 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 B-s2-d0 EN 13501-1.

The outside diameter of the condensate discharge pipe is 15 mm.



(*)

Sabiana WiFi

Sabiana WiFi is the App for the control at a distance of your Sabiana system of climatisation. Free and easy to use, it needs only a wireless network and a smartphone with internet connection.

Using the "Cloud" it allows to manage, program and supervise the status of Your air conditioners wherever You are.



(*)

Sabiana BLE

Sabiana BLE is the new App for Android™ and iOS systems to set, manage and control Your climatisation system via Bluetooth Low Energy (BLE) transmission.

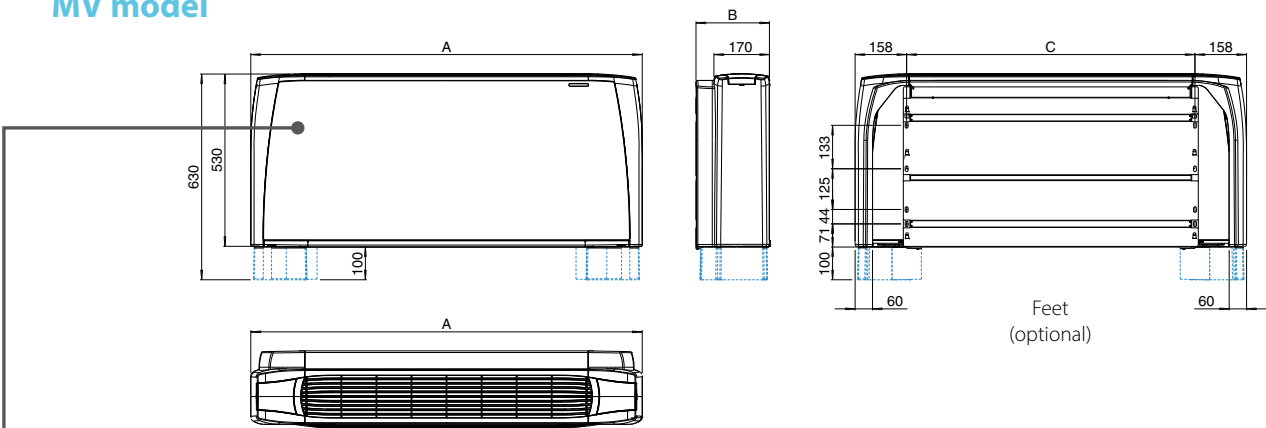
Free and easy to configure and use, it needs only a smartphone with a Bluetooth connection (version 4.0 or later versions).

(*) See availability function on controls.

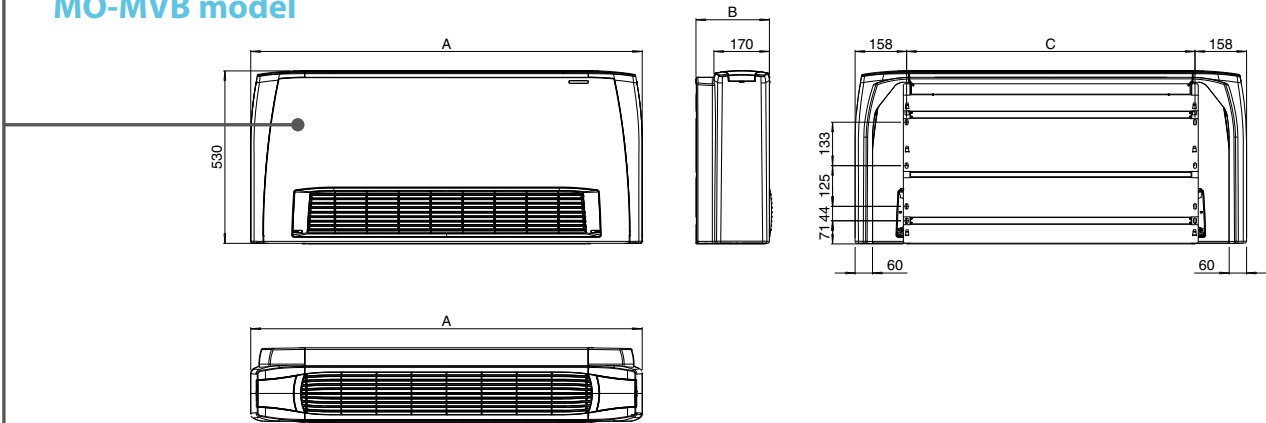
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DIMENSIONS, WEIGHT, WATER CONTENT

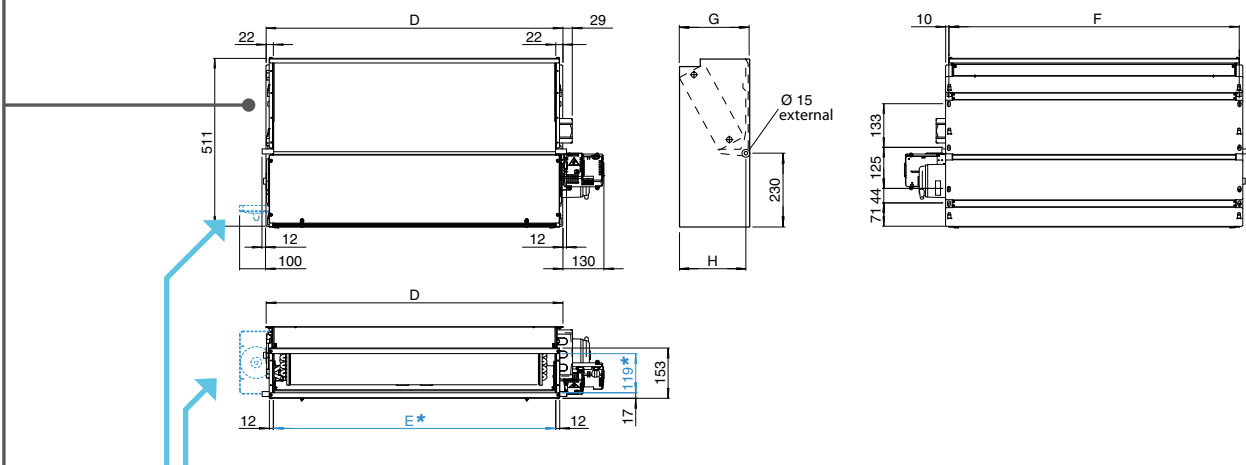
MV model



MO-MVB model



IV-IO model

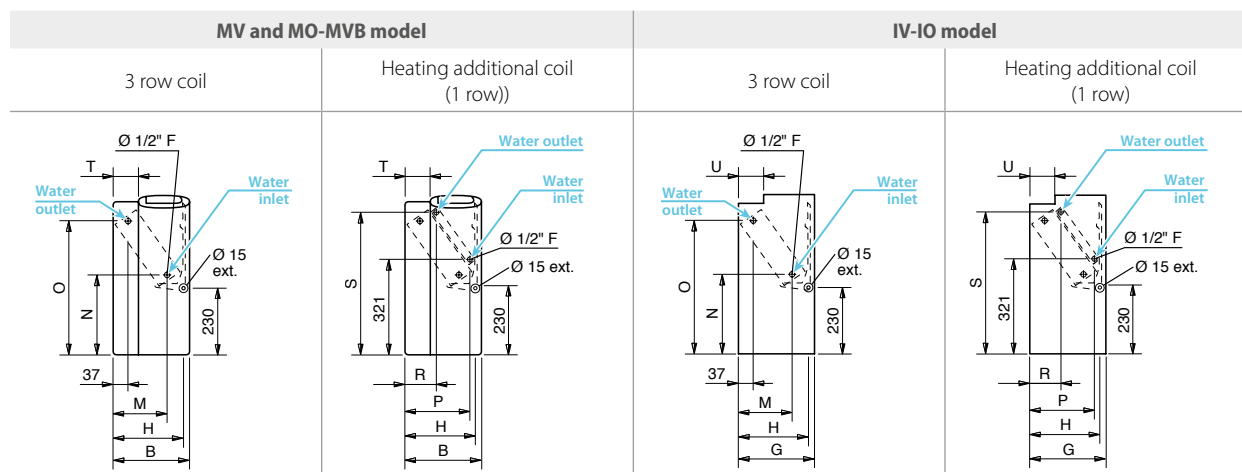


Auxiliary condensate tray (optional)

Coil connections on the left

* Supply frame dimension = E x 119 mm

Coil connections



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

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 °C E.W.T. +40 °C L.W.T.

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	0,75	0,98	0,85	1,10	1,40	1,37	1,87	2,36	1,82	2,61	3,46	2,47	3,56	4,63
Cooling sensible emission (E)	kW	0,44	0,62	0,85	0,66	0,87	1,14	1,02	1,42	1,83	1,36	2,00	2,71	1,84	2,72	3,61
Heating (E)	kW	0,69	0,96	1,29	1,00	1,30	1,68	1,51	2,08	2,65	2,02	2,91	3,92	2,64	3,84	5,11
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	1,0	1,7	2,9	2,4	3,8	5,9	7,2	12,7	19,8	4,8	9,1	15,4	8,9	17,3	28,5
Fan (E)	W	4,0	6,0	10,0	4,0	6,0	12,0	5,0	8,0	16,0	6,0	11,0	26,0	7,0	15,0	38,0
Sound power (E)	dB(A)	33	39	48	36	43	49	33	42	49	35	46	53	37	48	56
Sound pressure (*)	dB(A)	24	30	39	27	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: +65 °C E.W.T. +55 °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	0,71	0,94	0,78	1,01	1,33	1,25	1,70	2,20	1,68	2,43	3,32	2,25	3,28	4,31
Cooling sensible emission (E)	kW	0,40	0,59	0,80	0,60	0,80	1,08	0,93	1,29	1,71	1,25	1,84	2,59	1,67	2,49	3,33
Heating (E)	kW	0,54	0,95	0,95	0,83	1,07	1,37	1,37	1,78	2,21	1,79	2,42	3,21	2,34	3,23	4,14
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	0,5	1,4	1,4	1,3	2,0	3,1	4,0	6,4	9,5	1,3	2,2	3,6	2,4	4,2	6,5
Fan (E)	W	4,0	6,0	10,0	4,0	6,0	12,0	5,0	8,0	16,0	6,0	11,0	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 m³ 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
CB-T-ECM-IAQ	Continuous fan speed control with electronic thermostat and summer/winter switch (version with electrostatic filter)
CB-Touch-M	Automatic speed touch control, fitted on the unit, with electronic thermostat and seasonal/ventilation mode selection (to be used with UP-Touch-M only)
CB-Touch-S	Automatic speed touch control, not fitted on the unit, with electronic thermostat and seasonal/ventilation mode selection (to be used with UP-Touch-S only)
UP-Touch-M	Power unit for CB-Touch-M control, fitted on the unit
UP-Touch-S	Power unit for CB-Touch-S control, not fitted on the unit



Electronic wall 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-MB2	Wall control with LCD color display and WiFi (to be used with UPM-AU or UP-AU only)
WM-503-AC-EC	Automatic speed control with electronic thermostat to be mounted in the 503 box (to be used with UP-503-AC-EC only)
WM-S-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and LCD display
UPM-AU	UP-AU power unit for WM-AU and T-MB2 remote controls, fitted on the unit
UP-AU	UP-AU power unit for WM-AU and T-MB2 remote controls, not fitted on the unit
UP-503-AC-EC	UP-503-AC-EC power unit for WM-503-AC-EC remote control, not fitted on the unit

Electronic controls for MB board

MV, MO-MVB and IV-IO models	
MB-ECM-M	MB electronic board fitted on the unit
MB-ECM-S	MB electronic board supplied with separate packaging
T-MB2	Wall control with LCD color display and WiFi (to be used with MB board only)
T-MB2-M	T-MB2 control fitted on the unit, for MV/MVB models (to be used with MB board only)
T-MB2-S	T-MB2 control supplied with separate packaging, for MV/MVB models (to be used with MB board only)
RS-RT03	Infra-red remote control with receiver supplied with separate packaging (to be used with MB board only)
RT03 / RR03	Infra-red remote control supplied with separate packaging (to be used with MB board only)
RT04	Infra-red remote control supplied with separate packaging (to be used with MB board only) - Available from April 2025
RS	Receiver for infra-red remote control supplied with separate packaging (to be used with MB board only)
PSM-DI	PSM-DI multifunction control panel (to be used with MB board only)
T-DI	T-DI touch screen multifunction control panel (to be used with QCV-MB control panel only)
SabWeb	Web gateway for Sabiana Cloud (to be used with QCV-MB control panel only)

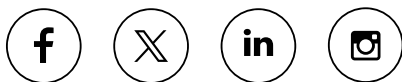
Sabianet management system for a network of fan coils	
Sabianet	Hardware/software supervisory system (to be used with MB board only)
Router-S	Router for Sabianet (default) or for BMS systems not provided by Sabiana
SIOS	Relay output board for Sabianet

Controls for KNX systems

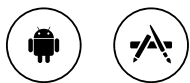
KNX systems	
WM-KNX	Wall control with electronic thermostat and summer/winter switch (to be used with UP-KNX and PL mounting plate only)
UP-KNX	UP-KNX power unit supplied with separate packaging
PL-503-B	Mounting plate for rectangular box
PL-QUA-B	Mounting plate for rectangular box

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

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01/2025



SABIANA SpA

Società a socio unico

Via Piave 53 - 20011 Corbetta (MI) Italia

T. +39 02 97203 1 r.a. - F. +39 02 9777282

info@sabiana.it

www.sabiana.it

Management and Direction ARBONIA AG



Sabiana 2 and Sabiana 3 - Operative unit "via Virgilio 2 - Magenta (MI)"
Sabiana 4 - Operative unit "via Zanella 27 - Corbetta (MI)"