



# Carisma Whisper CFF-ECM CFF

Residential Fan Coil Unit

TECHNICAL LEAFLET

# Carisma Whisper CFF-ECM

## Residential Fan Coil Unit



Range includes 5 air flow rates (from 75 to 645 m<sup>3</sup>/h) and 2 versions (standard with casing and for concealed installation), each one equipped with 2 row coil.

The Carisma Whisper CFF-ECM fan coil unit combines a reduced dimension with a modern aesthetic, while maintaining great performances in terms of sound and consumption.

Carisma Whisper CFF-ECM includes the MV version for wall installation and the IV version for concealed installation; the MV version combines a reduced dimension, until 126 mm depth only, with a modern aesthetic that perfectly suits with any kind of furnishing, while maintaining great performances in terms of sound and consumption.

The Carisma CFF-ECM range is equipped with a synchronous inverter driven BLAC brushless and sensorless electronic motor with permanent magnets, controlled by an inverter board designed and developed in Italy. The air flow can be varied continuously with a 1-10 V signal.

The extreme efficiency, also at a low speed, makes possible a great reduction in electric consumption with absorption values, under normal operating conditions, that are no greater than 5 Watt.

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

A basic CB-E control and a CB-Touch advanced control with Bluetooth and Wi-Fi features allow the management via APP and moreover make this fan coil unit the ideal solution for the air-conditioning of all residential ambients.



**Outer casing:** made of galvanized steel and with plastic outer casing. The air diffuser, that is placed over the top of the unit, is of adjustable type. White RAL 9003 color.

**Inner casing:** made of 1 mm galvanized steel, a rear panel and two lateral sides insulated with 3 mm polyolefin (PO) foam B-s2-d0 EN 13501-1.

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

**Fan assembly:** made of plastic tangential fan with anti-vibration fins. The fan hub, dynamically and statically balanced, is directly secured onto the motor shaft.

**Synchronous brushless electronic motor:** with three phase permanent magnet 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 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 Ø 1/2 inch BSP internal connections. The coil has Ø 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.

**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.**

## Radiant panel (CFF-ECM-MV-R-CB-T version)

The casing front panel is equipped with electric heating panel at low energy consumption, that allows to heat the room successfully by reducing the fan operation, thanks to the irradiation contribution.

**Valves:** The versions without valves or with mounted valves are available for all sizes. The available valves are: 2 way and 3 way. The valves can be ordered separately and easily installed on the basic units without valves.

**Condensate collection tray:** made of plastic (ABS UL94 HB) and fixed to the internal structure. The outside diameter of the condensate discharge pipe is Ø 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.



(\*)

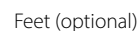
## Sabiana BLE

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.

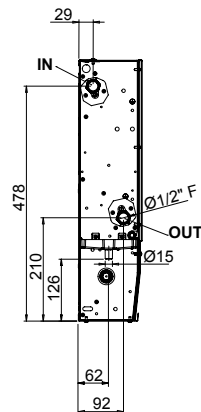
Free and easy to configure and use, it needs only a smartphone with a Bluetooth connection (version 4.0 or later versions).

(\*) See availability function on controls.

### Standard version with casing - MV / MV-R



## Version for concealed installation - IV

**MV / MV-R version**

## Dimension (mm)

Model	10	20	30	40	50
<b>A</b>	640	840	1040	1240	1440
<b>B</b>	300	500	700	900	1100
<b>C</b>	338	538	738	938	1138
<b>D</b>	356	556	756	956	1156

## Weight (kg)

Model	Weight with packaging					Weight without packaging				
	10	20	30	40	50	10	20	30	40	50
<b>MV version</b>	11,6	14,9	18,5	21,9	25,7	10,1	13,2	16,4	19,6	23,0
<b>MV-R version</b>	12,1	16,1	20,3	24,9	29,4	10,5	14,2	18,1	27,5	26,6
<b>IV version</b>	10,1	13,6	17,3	20,9	24,9	8,5	11,7	15,1	18,5	22,1

## Water content (litres)

Model	10	20	30	40	50
	0,4	0,7	1,1	1,4	1,7

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

**Temperatura aria:** +20 °C  
**Temperatura acqua:** +45 °C E.W.T. +40 °C L.W.T.

Model	CFF-ECM 10						CFF-ECM 20						CFF-ECM 30					
	1	2	3,5	5	7,5	10	1	2	3,5	5	7,5	10	1	2	3,5	5	7,5	10
Inverter power		MIN		MED		MAX		MIN		MED		MAX		MIN		MED		MAX
Eurovent certified performances	-	(E)	-	(E)	-	(E)	-	(E)	-	(E)	-	(E)	-	(E)	-	(E)	-	(E)
Air flow m <sup>3</sup> /h	75	90	110	130	170	205	125	145	175	205	255	305	190	225	270	315	395	470
Cooling total emission (E) kW	0,40	0,48	0,58	0,66	0,80	0,92	0,67	0,83	1,01	1,15	1,39	1,62	0,92	1,08	1,56	1,91	2,30	2,61
Cooling sensible emission (E) kW	0,30	0,36	0,44	0,52	0,64	0,75	0,50	0,62	0,76	0,88	1,08	1,28	0,67	0,79	1,15	1,41	1,72	1,99
Heating emission (E) kW	0,55	0,60	0,68	0,78	0,96	1,10	0,97	1,01	1,16	1,32	1,57	1,81	1,52	1,62	1,85	2,10	2,53	2,90
Dp Cooling (E) kPa	4,9	6,0	7,5	9,1	12,0	14,7	3,1	3,6	4,3	4,9	6,1	7,4	4,5	5,4	8,6	11,5	15,2	18,6
Dp Heating (E) kPa	6,1	6,7	8,0	9,6	13,0	16,2	3,7	3,9	4,4	5,0	6,1	7,3	7,1	7,7	9,2	11,0	14,6	18,2
Motor power input (E) W	3,2	3,5	4,2	5,2	7,4	10,3	3,7	4,0	4,9	6,3	9,5	14,0	4,1	4,8	6,3	8,6	14,1	21,6
Sound power (Lw) (E) dB(A)	31	33	36	40	45	50	30	33	38	42	47	52	32	34	39	43	47	53
Sound pressure (Lp) <sup>(1)</sup> dB(A)	22	24	27	31	36	41	21	24	29	33	38	43	23	25	30	34	38	44

Model	CFF-ECM 40						CFF-ECM 50					
	1	2	3,5	5	7,5	10	1	2	3,5	5	7,5	10
Inverter power		MIN		MED		MAX		MIN		MED		MAX
Eurovent certified performances	-	(E)	-	(E)	-	(E)	-	(E)	-	(E)	-	(E)
Air flow m <sup>3</sup> /h	220	260	320	380	480	575	255	300	365	430	535	645
Cooling total emission (E) kW	1,14	1,45	2,06	2,50	2,97	3,36	1,44	1,95	2,55	2,92	3,37	3,81
Cooling sensible emission (E) kW	0,82	1,05	1,48	1,80	2,17	2,49	1,04	1,40	1,82	2,10	2,47	2,83
Heating emission (E) kW	1,79	1,91	2,23	2,58	3,13	3,62	2,19	2,25	2,61	3,00	3,60	4,20
Dp Cooling (E) kPa	7,3	10,2	17,3	23,7	31,7	39,1	4,6	6,4	9,1	11,2	13,9	16,9
Dp Heating (E) kPa	11,7	12,9	16,3	20,6	28,3	36,2	6,4	6,6	8,0	9,7	12,8	16,2
Motor power input (E) W	4,7	5,4	7,2	9,9	16,4	25,4	5,3	6,1	8,2	11,4	19,0	29,5
Sound power (Lw) (E) dB(A)	33	37	41	45	51	55	34	38	42	46	51	55
Sound pressure (Lp) <sup>(1)</sup> dB(A)	24	28	32	36	42	46	25	29	33	37	42	46

(E) Eurovent certified performance

(1) The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m<sup>3</sup> room and a reverberation time of 0.5 sec

## Radiant panel heating emission

Model	Ph* kW
CFF-ECM-MV-R10	0,06
CFF-ECM-MV-R20	0,09
CFF-ECM-MV-R30	0,12
CFF-ECM-MV-R40	0,15
CFF-ECM-MV-R50	0,18

\*Additional emission once the panel is activated



The kit is available in **3 sizes** and allows the **wall** installation of the recessed Carisma Whisper IV version (20 - 30 - 40) fan coil units.

**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:

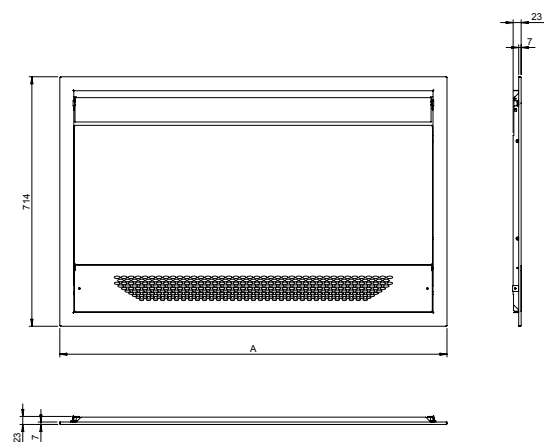
- the closing frame;
- the air supply louvre;
- the front panel;
- the air intake grid.

**The air supply louvre** is made of extruded aluminium and painted with epoxy polyester coat, dried in a furnace at 180 °C , colour RAL 9003.

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

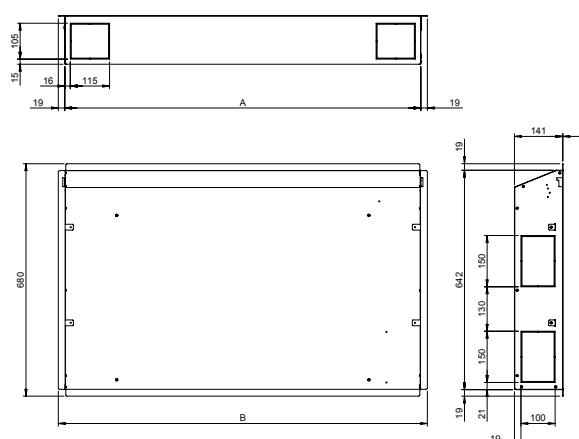
**The recessed box** is made of galvanized steel with openings for the electrical and hydraulic connections.

## Aesthetic frame dimensions



Size	A mm
20	908
30	1108
40	1308

## Recessed box dimensions



Size	A mm	B mm
20	842	880
30	1042	1080
40	1242	1280

## On board controls

MV / MV-R version	
<b>CB-E</b>	Manual speed switch on board control (to be used with UP-ECO only)
<b>UP-ECO</b>	UP-ECO power unit supplied with separate packaging, for CB-E on board control
<b>CB-Touch</b>	Automatic speed on board touch control with electronic thermostat and ventilation/summer/winter switch (to be used with UP-Touch only)
<b>UP-Touch</b>	UP-Touch power unit supplied with separate packaging, for CB-Touch on board control



## Wall controls

MV / MV-R and IV version	
<b>WM-AU</b>	Automatic speed wall control with electronic thermostat and summer/winter switch (to be used with UP-Touch only)
<b>T-MB2</b>	Wall control with LCD color display and WiFi (to be used with UP-Touch only)
<b>UP-Touch</b>	UP-Touch power unit supplied with separate packaging, for WM-AU and T-MB2 wall controls
<b>WM-503-AC-EC</b>	Automatic speed control with electronic thermostat to be mounted in the 503 box (to be used with UP-503-AC-EC only)
<b>UP-503-AC-EC</b>	Power unit UP-503 not fitted on the unit, for WM-503-AC-EC remote control (to be used with Kit 503-KNX only)

## Controls for MB board

<b>MB-CF-M</b>	MB electronic board fitted on the unit
<b>MB-CF-S</b>	MB electronic board supplied with separate packaging
<b>T-MB2</b>	Wall control with LCD color display and WiFi (to be used with MB board only)
<b>PSM-DI</b>	PSM-DI multifunction control panel (to be used with MB board only)
<b>T-DI</b>	T-DI touch screen multifunction control panel (to be used with MB board only)
<b>SabWeb</b>	Web gateway for Sabiana Cloud (to be used with MB board only)

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

## Controls for KNX systems

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

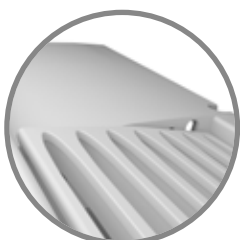
NOTE: for more detailed information about Controls and for the complete list of the main Accessories, see the dedicated pages.



Digital touch control manageable via Wi-Fi and Bluetooth® with the app available into the Android™ and IOS® version

Interfaced with Modbus e KNX home automation systems

Adjustable grid for the maximum comfort towards the air flow



Tangential fan: strength and silent at the same time

The double aspiration reduces the noise and maximizes the emissions



Available also into the recessed box version and with Kit Breeze

Maximum performance, compact dimension: there is not such efficient and compact fan coil unit on the market

EC motor with inverter at low energy consumption

Controls and valves already assembled: easier installation

Electronic board with contacts for the activation of boiler or heat pump



# Carisma Whisper CFF

## Residential fan coil unit



This range includes 4 sizes (from 40 to 400 m<sup>3</sup>/h) and 2 versions (standard with casing and for concealed installation), each one equipped with a 2 row coil.

The CFF range is perfect to meet all air-conditioning requirements of residential and work environments like offices, shops, restaurants and hotel rooms.

The Carisma Whisper CFF fan coil unit combines a reduced dimension with a modern aesthetic, while maintaining great performances in terms of sound and consumption.

Carisma Whisper CFF is available in the MV version for wall installation that combines a reduced dimension, until 126 mm depth only, with a modern aesthetic that perfectly suits with any kind of furnishing, while maintaining great performances in terms of sound and consumption.

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



**Outer casing:** made of galvanized steel and with plastic outer casing. The air diffuser, that is placed over the top of the unit, is of adjustable type. White RAL 9003.

**Inner casing:** made of 1 mm galvanized steel, a rear panel and two lateral sides insulated with 3 mm polyolefin (PO) foam (B-s2-d0 EN 13501-1).

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

**Fan assembly:** made of plastic tangential fan with anti-vibration fins. The fan hub, dynamically and statically balanced, is directly secured onto the motor shaft.

The **motor** is for single phase supply and has 6 speeds, 3 of which are connected. It is fitted on anti-vibration self-lubricating mountings and with capacitor permanently fitted, internal thermal protection with automatic reset. Protection IP 20, class B. The electric power supply required for the machine is therefore single-phase with voltage of 230 V and frequency of 50 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 Ø 1/2 inch BSP internal connections. The coil has Ø 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.

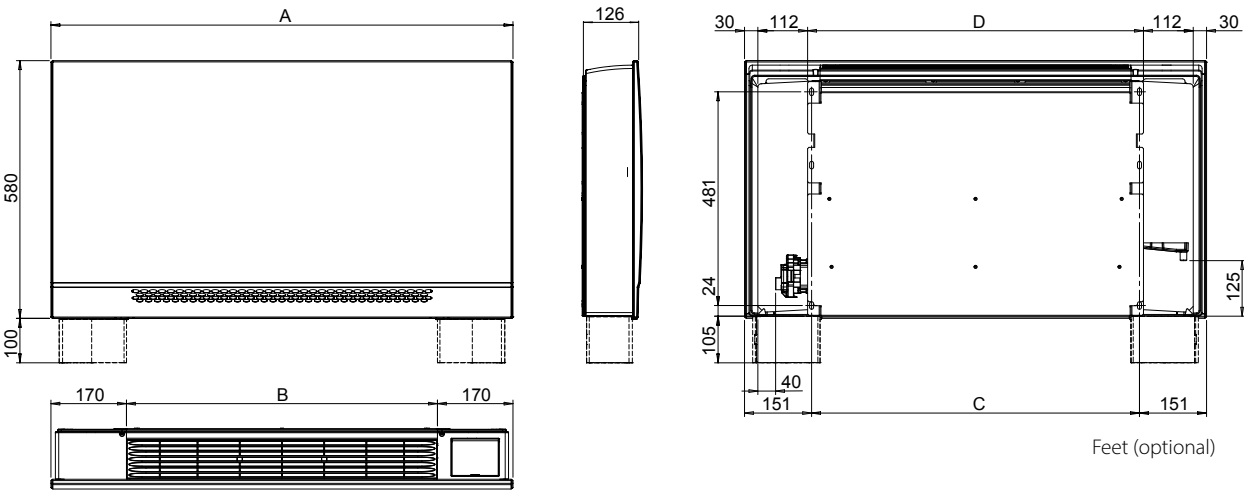
**The standard hydraulic connections are only on the left side facing the unit. It is not possible to connect hydraulically on the right side.**

**Valves:** the versions without valves or with mounted valves are available for all sizes.

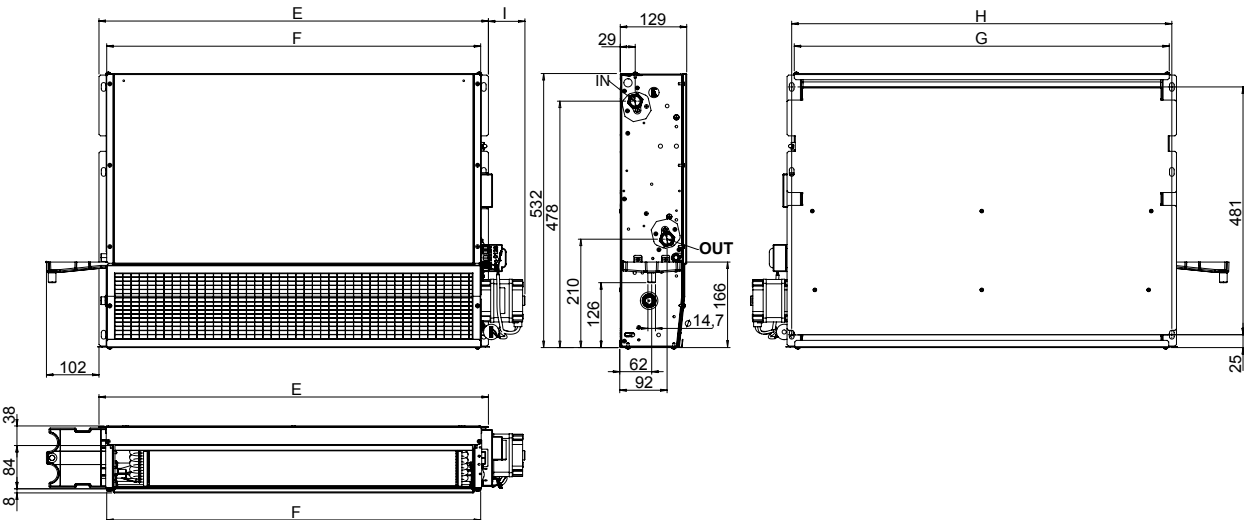
The available valves are 2 or 3 ways. The valves can be ordered separately and easily installed on the basic units without valves.

**Condensate collection tray:** made of plastic (ABS UL94 HB) and fixed to the internal structure. The outside diameter of the condensate discharge pipe is Ø 15 mm.

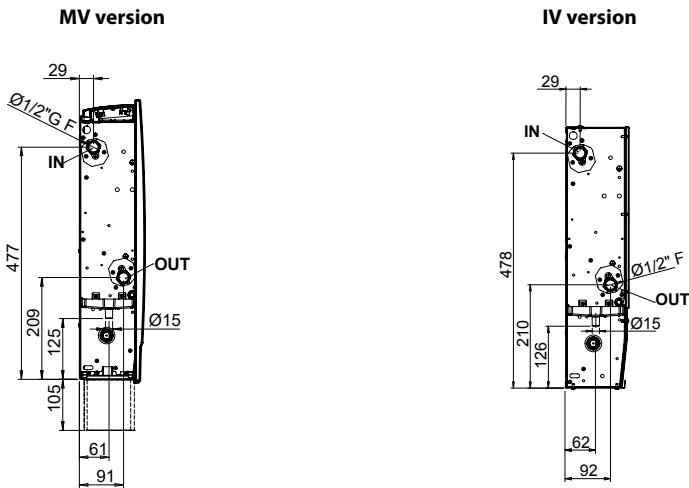
Standard version with casing - MV



Version for concealed installation - IV



Coil connections



## Dimensions (mm)

### MV version

Model	10	20	30	40
<b>A</b>	640	840	1040	1240
<b>B</b>	300	500	700	900
<b>C</b>	338	538	738	938
<b>D</b>	356	556	756	956

### IV version

Model	10	20	30	40
<b>E</b>	356	556	756	956
<b>F</b>	326	526	726	926
<b>G</b>	328	528	728	928
<b>H</b>	338	538	738	938
<b>I</b>	61	71	71	71

## Weight (kg)

Model	Weight with packaging				Weight without packaging			
	10	20	30	40	10	20	30	40
<b>MV version</b>	12,5	16,0	19,5	22,5	11,0	14,5	17,5	21,0
<b>IV version</b>	10,1	13,6	17,3	20,9	8,5	11,7	15,1	18,5

## Water content (litres)

Model	10	20	30	40
	0,4	0,7	1,1	1,4

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

**Temperatura aria:** +20 °C  
**Temperatura acqua:** +45 °C E.W.T. +40 °C L.W.T.

Model	CFF 10						CFF 20						CFF 30					
Inverter power	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
		MIN		MED		MAX		MIN		MED		MAX		MIN		MED		MAX
Eurovent certified performances	-	(E)	-	(E)	-	(E)	-	(E)	-	(E)	-	(E)	-	(E)	-	(E)	-	(E)
Air flow m <sup>3</sup> /h	58	75	102	126	135	165	110	151	170	210	225	280	150	180	200	290	320	378
Cooling total emission (E) kW	0,33	0,41	0,54	0,62	0,70	0,80	0,63	0,85	1,00	1,15	1,25	1,45	0,82	1,14	1,30	1,74	1,92	2,18
Cooling sensible emission (E) kW	0,24	0,30	0,41	0,48	0,55	0,64	0,46	0,63	0,75	0,88	0,96	1,14	0,59	0,82	0,93	1,27	1,41	1,62
Heating emission (E) kW	0,45	0,51	0,64	0,76	0,80	0,94	0,87	1,05	1,13	1,34	1,42	1,69	1,24	1,34	1,43	1,96	2,13	2,44
Dp Cooling (E) kPa	2,5	3,7	6,0	7,8	9,7	12,6	1,7	2,8	3,7	4,9	5,7	7,5	2,6	4,7	5,9	10,0	12,0	15,3
Dp Heating (E) kPa	3,5	4,5	6,7	9,2	10,1	13,3	2,2	3,1	3,5	4,8	5,4	7,3	4,4	5,0	5,6	10,0	11,5	14,7
Motor power input (E) W	8,0	10,0	12,0	15,0	17,0	31,0	9,0	12,0	13,0	18,0	20,0	34,0	11,0	14,0	15,0	20,0	22,0	39,0
Sound power (Lw) (E) dB(A)	29	35	38	43	44	49	30	36	38	44	46	50	32	37	40	45	48	52
Sound pressure (Lp) <sup>(1)</sup> dB(A)	20	26	29	34	35	40	21	27	29	35	37	41	23	28	31	36	39	43

Model	CFF 40					
Inverter power	1	2	3	4	5	6
		MIN		MED		MAX
Eurovent certified performances	-	(E)	-	(E)	-	(E)
Air flow m <sup>3</sup> /h	180	230	265	325	375	450
Cooling total emission (E) kW	1,14	1,51	1,75	2,11	2,35	2,79
Cooling sensible emission (E) kW	0,80	1,07	1,24	1,51	1,69	2,02
Heating emission (E) kW	1,51	1,72	1,90	2,26	2,55	2,96
Dp Cooling (E) kPa	5,7	9,6	12,5	17,5	21,3	29,2
Dp Heating (E) kPa	7,7	9,7	11,6	15,9	19,8	25,9
Motor power input (E) W	12,0	14,0	16,0	22,0	25,0	44,0
Sound power (Lw) (E) dB(A)	28	34	35	42	44	50
Sound pressure (Lp) <sup>(1)</sup> dB(A)	19	25	26	33	35	41

(E) Eurovent certified performance (MIN-MED-MAX speed)

(1) The sound pressure levels are 9 dB (A) lower than the sound power levels, apply to the reverberant field of a 100 m<sup>3</sup> room and a reverberation time of 0.5 sec

## CB-T-CFF control fitted on board



## Wall controls

MV and IV versions	
<b>WM-3V</b>	3 speed control
<b>WM-T</b>	3 speed control with electronic thermostat and manual summer/winter switch

## Controls for MB board

<b>MB-CF-M</b>	MB electronic board fitted on the unit
<b>MB-CF-S</b>	MB electronic board supplied with separate packaging
<b>T-MB2</b>	Wall control with LCD color display and WiFi (to be used with MB board only)
<b>PSM-DI</b>	PSM-DI multifunction control panel (to be used with MB board only)
<b>T-DI</b>	T-DI touch screen multifunction control panel (to be used with MB board only)
<b>SabWeb</b>	Web gateway for Sabiana Cloud (to be used with MB board only)

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

## Accessories



### Kit Breeze accessory

accessory available also for CFF-IV (see CFF-ECM dedicated page)



A company of Arbonia Group  
**ARBONIA** 

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Sabiana app



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#### **SABIANA SpA**

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