



FRAE FRAS

Residential Fan Coil Unit

TECHNICAL LEAFLET

FRAE

Residential Fan Coil Unit



Range includes 5 air flow rates (from 75 to 645 m³/h) and 2 versions (standard with casing and for concealed installation), each one equipped with 2 row coil.

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

FRAE includes the version with vertical casing for wall installation and the version for concealed installation; the version with vertical casing 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 FRAE 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.

The CB-Touch EASY or CB-Touch advanced controls 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 the construction site during installation.

Radiant panel (FRAE-MVR-CB-T / FRAE-MV-R-CB-TES 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.

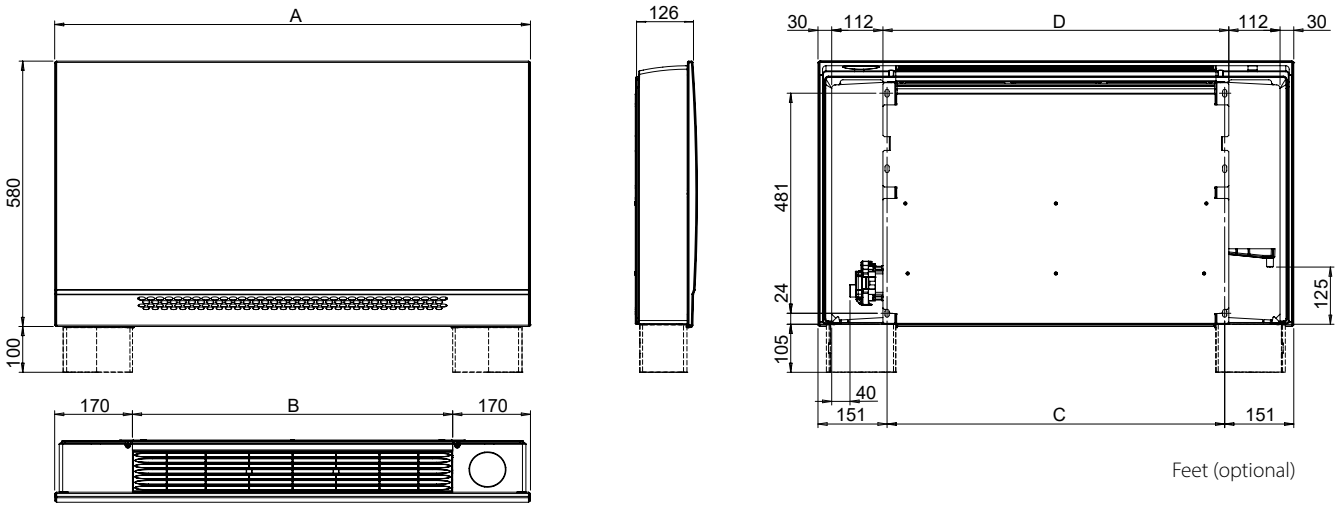
Valves: The versions without valves or with mounted valves are available for all sizes.

The available valves are of 2 way and 3 way type.

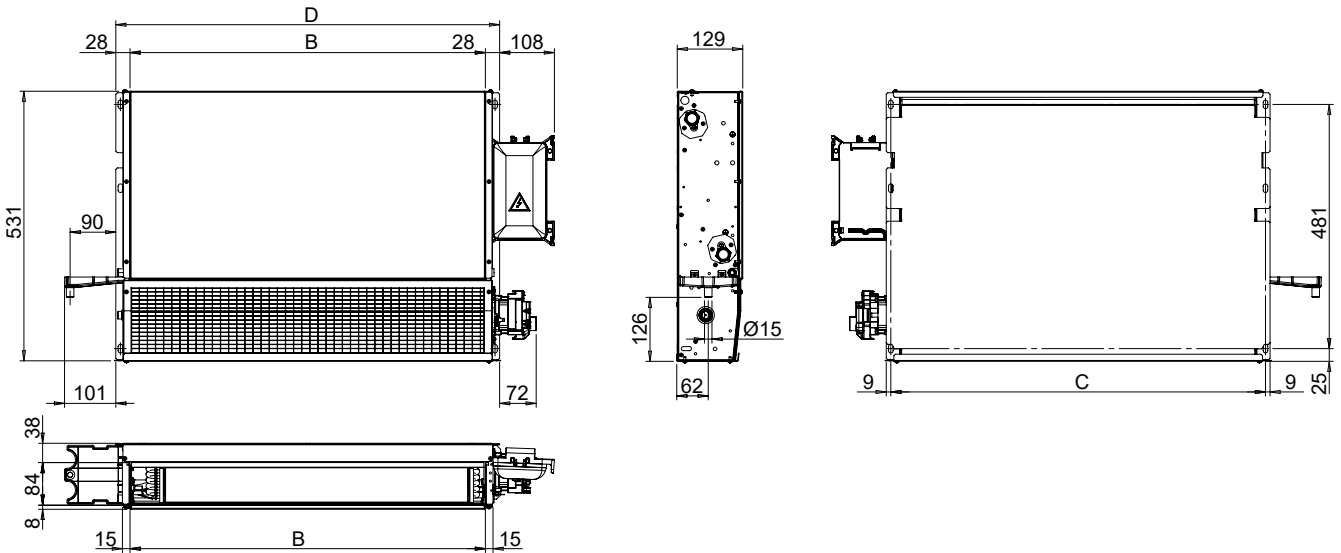
The valves can be ordered separately and easily installed on the basic units without valves.

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.

MV / MV-R standard version with casing

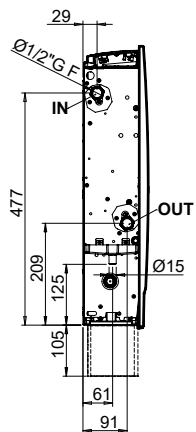


IV version for concealed installation

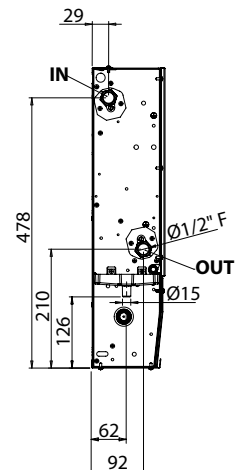


Coil connections

MV / MV-R version



IV version



Dimension (mm)

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

Weight (kg)

Model	Weight with packaging					Weight without packaging				
	10	20	30	40	50	10	20	30	40	50
MV version	11,6	14,9	18,5	21,9	25,7	10,1	13,2	16,4	19,6	23,0
MV-R version	12,1	16,1	20,3	24,9	29,4	10,5	14,2	18,1	27,5	26,6
IV version	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	FRAE 10						FRAE 20						FRAE 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		
Air flow	m ³ /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) ⁽¹⁾	dB(A)	22	24	27	31	36	41	21	24	29	33	38	43	23	25	30	34	38	44

Model	FRAE 40						FRAE 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		
Air flow	m ³ /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) ⁽¹⁾	dB(A)	24	28	32	36	42	46	25	29	33	37	42	46

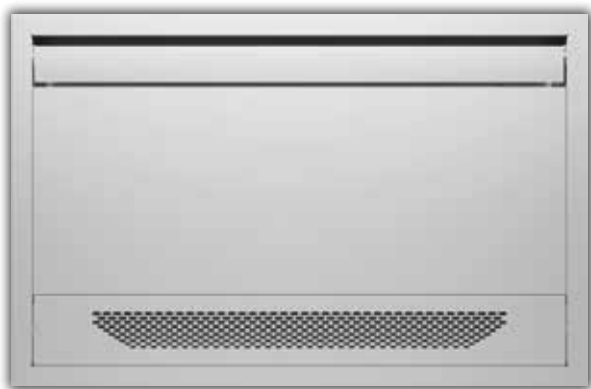
(E) Eurovent certified performance (MIN-MED-MAX speed)

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

Radiant panel heating emission

Model	Ph* kW
FRAE--MV-R10	0,06
FRAE--MV-R20	0,09
FRAE--MV-R30	0,12
FRAE--MV-R40	0,15
FRAE--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 FRAE 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:

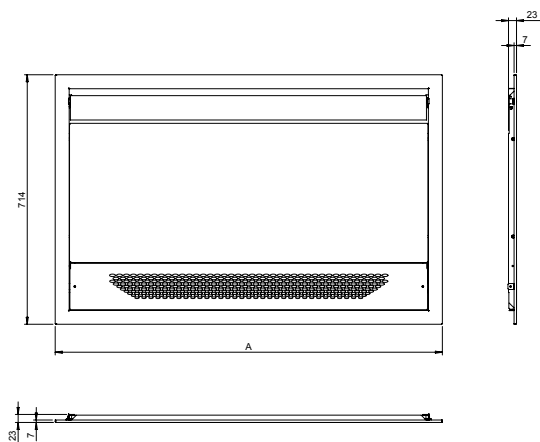
- the closing frame;
- the air supply louvre;
- the front panel;
- the air intake grid.

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.

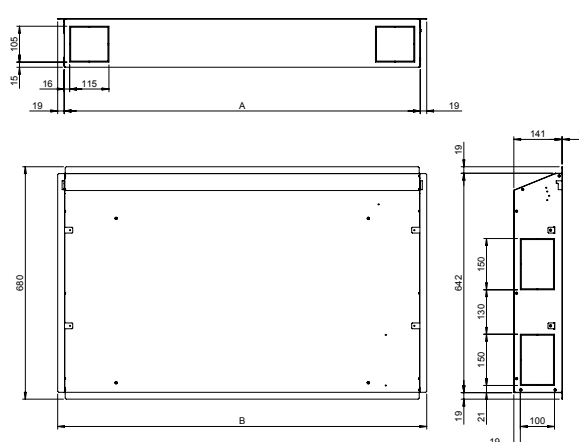
The recessed box is made of galvanized steel with openings for the electrical and hydraulic connections.

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	
CB-Touch EASY	Automatic speed touch EASY control with electronic thermostat and seasonal/ventilation mode selection (to be used with UP-Touch EASY power unit only)
CB-Touch	Automatic speed on board touch control with electronic thermostat and ventilation/summer/winter switch (to be used with UP-Touch power unit only)
UP-Touch EASY	UP-Touch power unit kit supplied with separate packaging, for CB-Touch EASY on board control
UP-Touch	UP-Touch power unit supplied with separate packaging, for CB-Touch on board control

Wall controls

MV / MV-R and IV version	
T-AUTO	Automatic speed wall control with electronic thermostat and summer/winter switch (to be used with UP-Touch power unit only) ⁽¹⁾
IR-MB2S	Wall control with LCD color display (to be used with UP-Touch power unit or MB board only) ⁽¹⁾
UP-Touch	UP-Touch power unit supplied with separate packaging, for T-AUTO and IR-MB2S wall controls

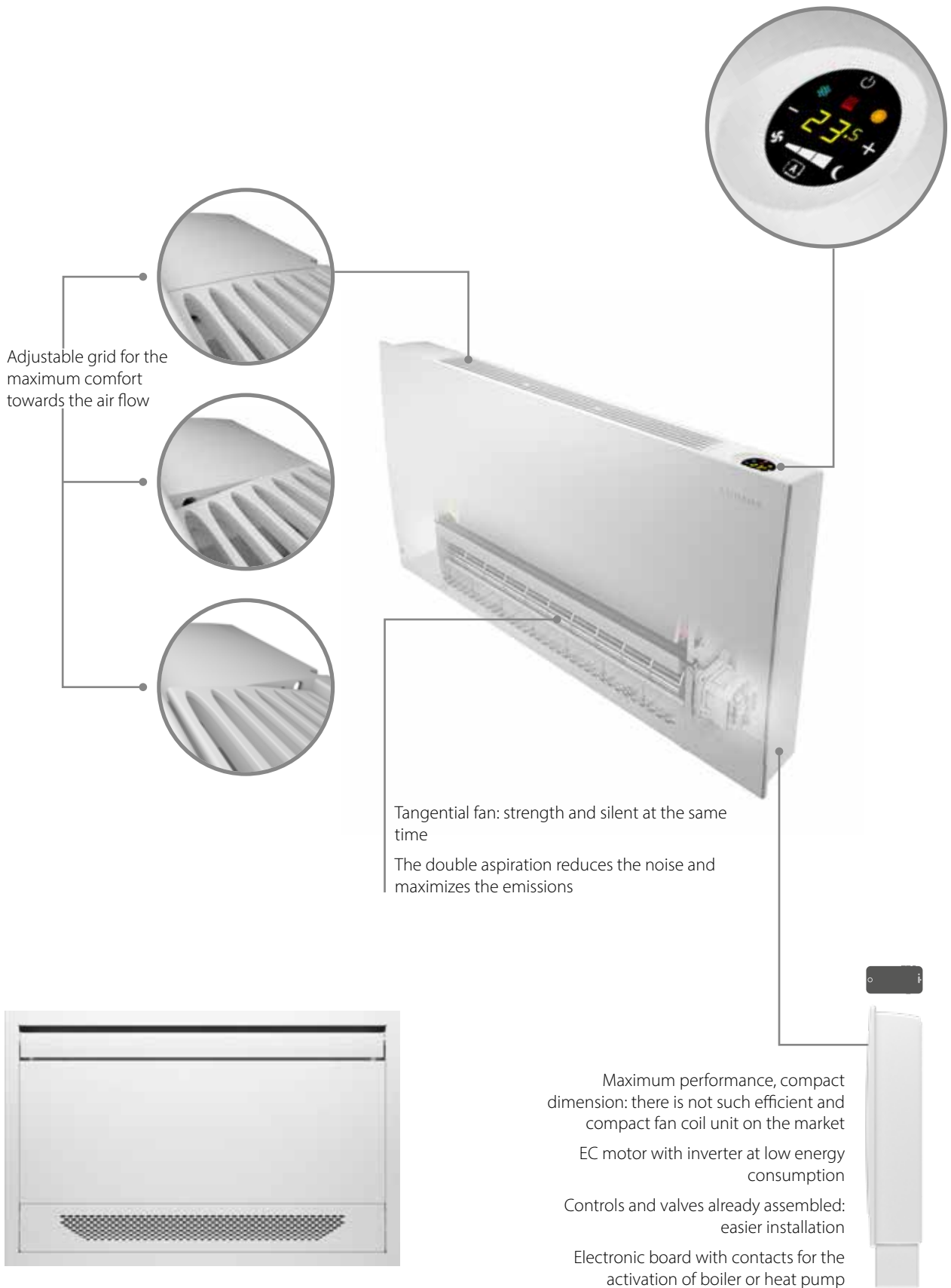
Controls for MB board or UP-Touch power unit ⁽²⁾

MB-CF-M	MB electronic board fitted on the unit
MB-CF-A	MB electronic board supplied with separate packaging
IR-MB2S	Wall control with LCD color display (to be used with UP-Touch power unit or MB board only) ⁽¹⁾
TODS	TODS multifunction control panel up until 60 units (to be used with UP-Touch power unit or MB board only) ⁽¹⁾

⁽¹⁾ T-AUTO and IR-MB2S controls not to be used with UP-Touch EASY power unit

⁽²⁾ To the UP-Touch power unit max. 15 units can be connected

Management system for a network of fan coils with MB electronic board	
Router-S	Router for BMS systems not provided by Trane
ROB-A	Relay output board



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

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

Available also into the recessed box version and with Kit Breeze

FRAE

FRAS

Residential fan coil unit



This range includes 4 sizes (from 40 to 400 m³/h) and 2 versions (standard with casing and for concealed installation), each one equipped with a 2 row coil.

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

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

FRAS 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.

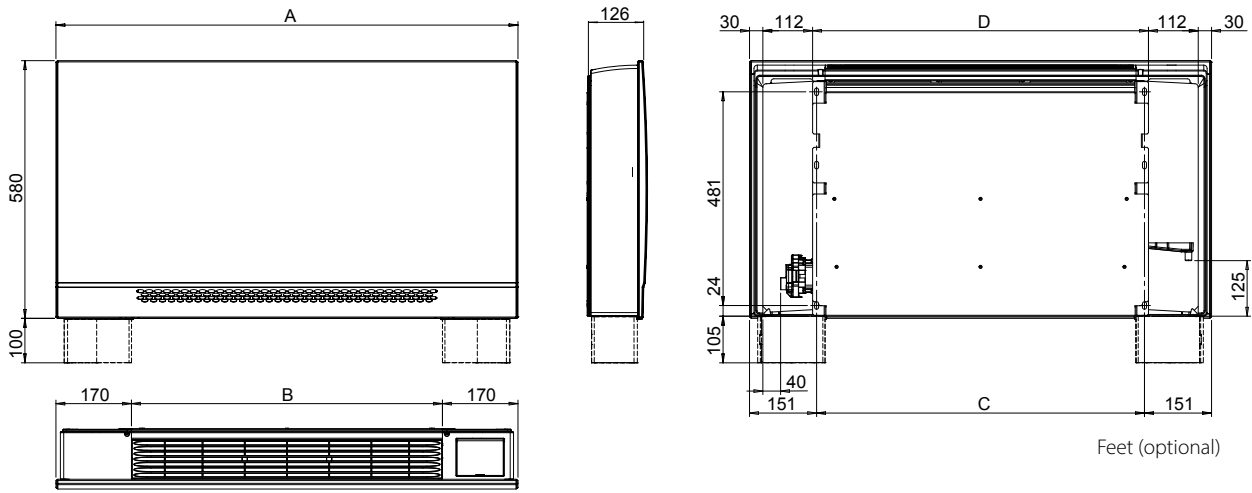
The standard hydraulic connections are only on the left side facing the unit. It is not possible to connect hydraulically on the right side.

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

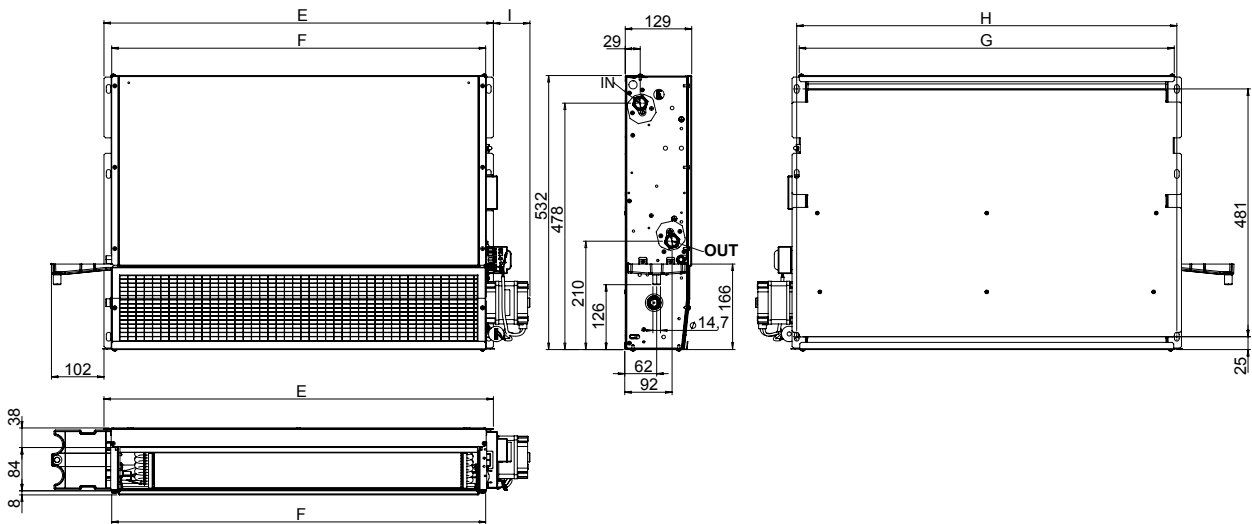
The available valves are 2 or 3 ways. The valves can be ordered separately and easily installed on the basic units without valves.

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.

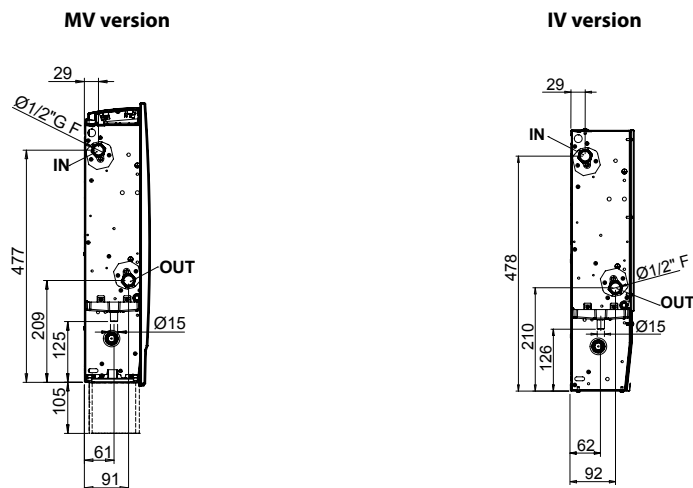
Standard version with casing - MV



Version for concealed installation - IV



Coil connections



Dimensions (mm)

MV version

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

IV version

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

Weight (kg)

Model	Weight with packaging				Weight without packaging			
	10	20	30	40	10	20	30	40
MV version	12,5	16,0	19,5	22,5	11,0	14,5	17,5	21,0
IV version	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	FRAS 10						FRAS 20						FRAS 30						
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	
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 ³ /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) ⁽¹⁾	dB(A)	20	26	29	34	35	40	21	27	29	35	37	41	23	28	31	36	39	43

Model	FRAS 40						
	1	2	3	4	5	6	
Inverter power	MIN		MED		MAX		
Eurovent certified performances	-	(E)	-	(E)	-	(E)	
Air flow	m ³ /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) ⁽¹⁾	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 m³ room and a reverberation time of 0.5 sec

CB-T-FRAS control fitted on board



Wall controls

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

Controls for MB board

MB-CF-M	MB electronic board fitted on the unit
MB-CF-S	MB electronic board supplied with separate packaging
IR-MB2S	Wall control with LCD color display (to be used with MB board only)
TODS	TODS multifunction control panel (to be used with MB board only)

Management system for a network of fan coils with MB electronic board	
Router-S	Router for BMS systems not provided by Trane
SIOS	Relay output board

Accessories



Kit Breeze accessory

accessory available also for FRAS-IV (see FRAE dedicated page)

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



TRANE
TECHNOLOGIES

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