WFS
WFE

High Wall Fan Coil Unit

TECHNICAL LEAFLET

WFS

High Wall Fan Coil Unit

WFS is the high wall fan coil unit produced and manufactured in Italy in 4 sizes and many different models.

WFS 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 WFS in any environment in both residential and hotel with great satisfaction.

The high wall fan coil unit is **available with standard AC motors** 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 high whigh wall fan coil fan coil models perform very low electric consumption and extremely quite sound levels according to the request of today's new projects.

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:

Standard models	Models with electric heater
WFS without infra-red remote control and without valve	**WFS-EH** without infra-red remote control and without valve
WFS-2V without infra-red remote control with fitted 2 way valve	**WFS-EH-2V** without infra-red remote control with fitted 2 way valve
WFS-3V without infra-red remote control with fitted 3 way valve	**WFS-EH-3V** without infra-red remote control with fitted 3 way valve
WFS-IRA with infra-red remote control and without valve	**WFS-IRA-EH** with infra-red remote control and without valve
WFS-IRA-2V with infra-red remote control with fitted 2 way valve	**WFS-IRA-EH-2V** with infra-red remote control with fitted 2 way valve
WFS-IRA-3V with infra-red remote control with fitted 3 way valve	**WFS-IRA-EH-3V** with infra-red remote control with fitted 3 way valve.
WFS-MBA with MB board and without valve	**WFS-MBA-EH** with MB electronic board and without valve
WFS-MBA-2V with MB board with fitted 2 way valve	**WFS-MBA-EH-2V** with MB electronic board with fitted 2 way valve
WFS-MBA-3V with MB board with fitted 3 way valve	**WFS-MBA-EH-3V** with MB electronic 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 (not motorised flap) in WFS version, on the contrary it is adjusted by remote control in WFS-IRA version or with IR-MB2S wall control in WFS-MBA version (both with motorised flap).

Filter: washable-regenerable synthetic filter, readily accessible.

Fan assembly: made of plastic tangential fan.

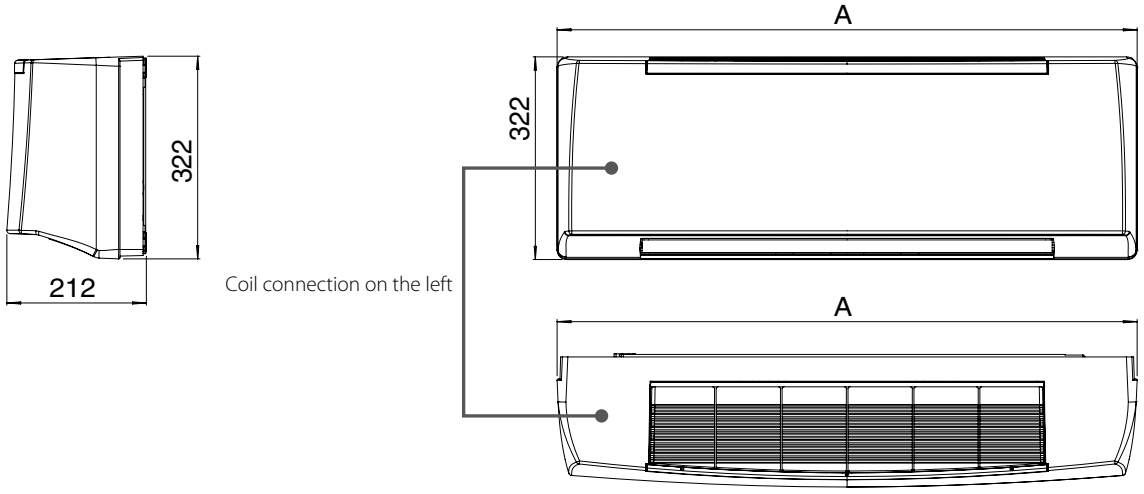
Electric motor: the motor is for single phase supply and has six speeds, three of which are connected, with capacitor.
The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings.
Internal thermal protection with automatic reset, protection IP 20, class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

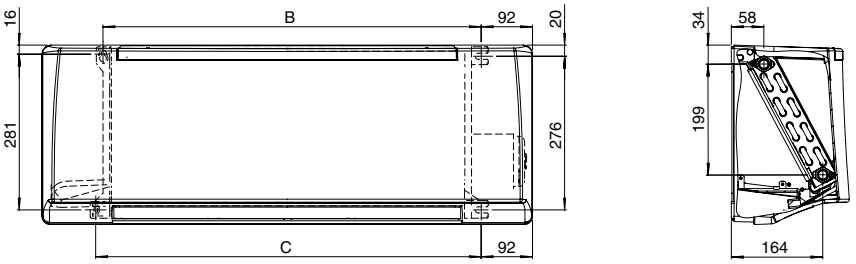
According to the control provided, the electrical heater can be used as an alternative or as a supplement to the hot water.
The heater is hermetically sealed and supplied inside the battery pipes and therefore can be only factory mounted.
The electric heaters of the **WFS** units are single phase 230V supply.
1000 Watt installed nominal power for the sizes 1 and 2 and 1500 Watt for the sizes 3 and 4.

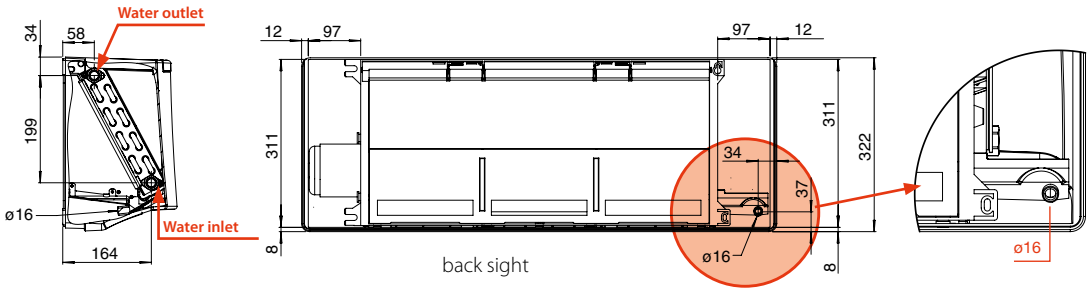
Condensate collection tray: made from polypropylene; the outside diameter of the condensate discharge pipe is 16 mm.

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	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

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	**51**	55	57	36	**43**	46	**51**	54	**57**
Sound pressure Lp **(*)**	dB(A)	**26**	**31**	36	**42**	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.

Controls for WFS versions

WFS version	
M-3V	3 speed control
T-TMO	3 speed control with electronic thermostat and manual summer/winter switch
T-REM	3 speed control with electronic thermostat and centralized/manual summer/winter switch
M-2T	Electromechanical thermostat with summer/winter switch (only for 2 pipe units)

Controls for WFS-IRA versions

WFS-IRA version	
KC-F	Connectivity kit "High Wall Connectivity Kit" (auxiliary board for Modbus connection + auxiliary board for IR-MB2S connection)
TODS	TODS multifunction control panel (to be used with connectivity kit only)

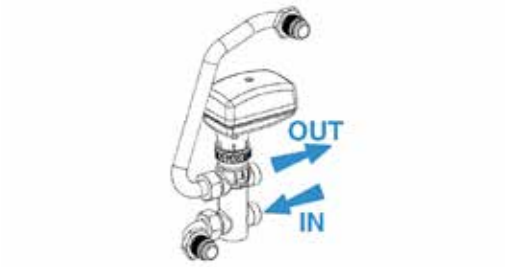
Controls for WFS-MBA versions

WFS-MBA versions	
IR-MB2S	IR-MB2S wall control with color LCD display
RT03-REC-AW	RT03-A infra-red remote control with receiver supplied with separate packaging
RT03-A	RT03-A infra-red remote control supplied with separate packaging
REC-AW	Receiver for RT03-A infra-red remote control supplied with separate packaging
TODS	TODS multifunction control panel up to 60 units

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

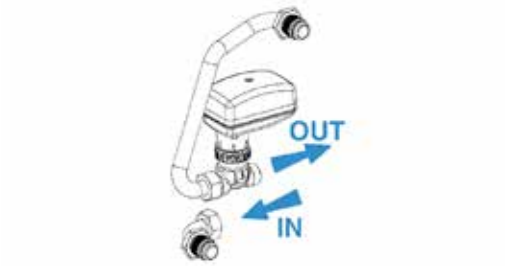
3 way valve

Control valve kit:
3 way valve, 230 V 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

WFE

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

WFE is the high wall fan coil unit produced and manufactured in Italy in 5 sizes and many different models.
WFE 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 WFE in any environment.
WFE 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 WFE models perform very low electric consumption and extremely quite sound levels according to the request of today's new projects.

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:

Standard versions	Versions with electronic heater
WFE-A without infra-red remote control and without valve	**WFE-A-EH** without infra-red remote control and without valve
WFE-A-2V without infra-red remote control with fitted 2 way valve;	**WFE-A-EH-2V** without infra-red remote control with fitted 2 way valve
WFE-A-3V without infra-red remote control with fitted 3 way valve	**WFE-A-EH-3V** without infra-red remote control with fitted 3 way valve
WFE-IRA with infra-red remote control and without valve	**WFE-IRA-EH** with infra-red remote control and without valve
WFE-IRA-2V with MB board with fitted 2 way valve	**WFE-IRA-EH-2V** with infra-red remote control with fitted 2 way valve
WFE-IRA-3V with infra-red remote control with fitted 3 way valve	**WFE-IRA-EH-3V** with infra-red remote control with fitted 3 way valve
WFE-MBA with MB board and without valve	**WFE-MBA-EH** with MB electronic board and without valve
WFE-MBA-2V with MB board with fitted 2 way valve	**WFE-MBA-EH-2V** with MB electronic board with fitted 2 way valve
WFE-MBA-3V with MB board with fitted 3 way valve	**WFE-MBA-EH-3V** with MB electronic 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 (not motorised flap) in WFE-A version, on the contrary it is adjusted by remote control in WFE-IRA version or with IR-MB2S wall control in WFE-MBA version (both with motorised flap).

Filter: washable-regenerable synthetic filter, readily accessible.

Fan assembly: made of plastic tangential fan.

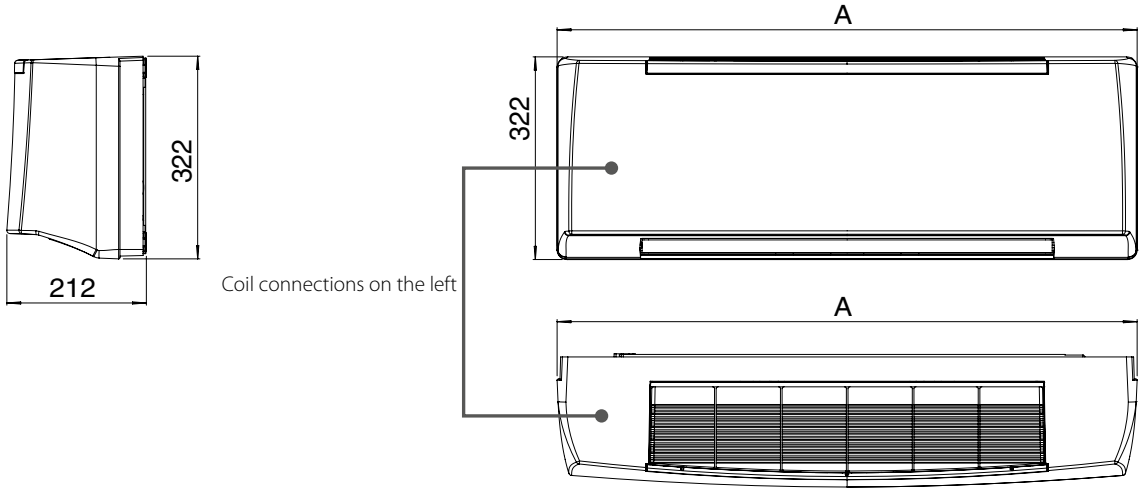
Electronic motor: three phase permanent magnet brushless electronic motor that is controlled with current reconstructed according to a **BLAC** sinusoidal wave.
The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a **switching system**, it generates a three-phase 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.

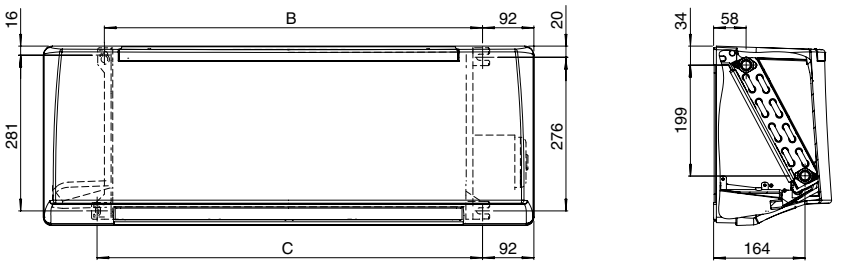
The heater is hermetically sealed and supplied inside the battery pipes and therefore can be only factory mounted.
The electric heaters of the **WFE** units are single phase 230 V supply.
1000 Watt installed nominal power for the sizes 1 and 2 and 1500 Watt for the sizes 3 and 4.

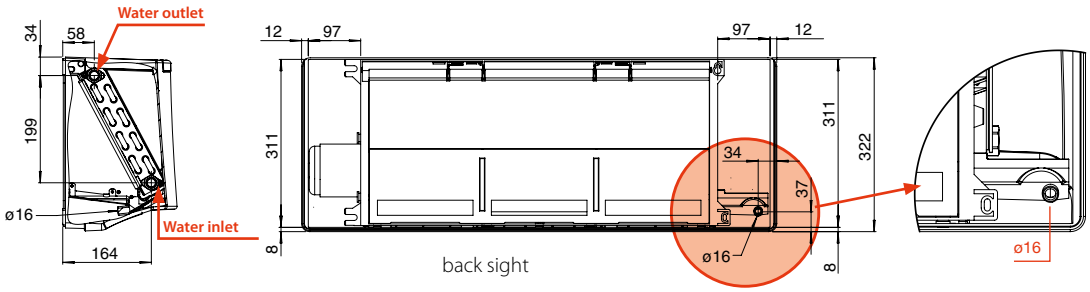
Condensate collection tray: made from polypropylene; the outside diameter of the condensate discharge pipe is 16 mm.

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

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		0						1				
Inverter Power **(V)**		1 **(E)**	2	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	**130**	148	230	**290**	340	**415**	**190**	240	**290**	355	**415**
Cooling total emission **(E)**	kW	**0,61**	0,86	1,28	**1,57**	1,78	**1,98**	**1,16**	1,38	**1,57**	1,80	**1,98**
Cooling sensible emission **(E)**	kW	**0,47**	0,66	0,90	**1,19**	1,38	**1,56**	**0,85**	1,03	**1,19**	1,39	**1,56**
Heating **(E)**	kW	**0,72**	1,05	1,48	**1,78**	2,15	**2,35**	**1,26**	1,53	**1,78**	2,09	**2,35**
Dp Cooling **(E)**	kPa	**1,4**	2,6	5,2	**7,7**	9,4	**11,2**	**5,0**	5,9	**7,7**	9,4	**11,2**
Dp Heating **(E)**	kPa	**1,6**	3,0	5,6	**7,5**	12,0	**12,4**	**4,0**	5,7	**7,5**	10,0	**12,4**
Fan **(E)**	W	**3**	4	7	**9**	10	**15**	**6**	7	**9**	11	**15**
Sound power Lw **(E)**	dB(A)	**26**	30	38	**46**	49	**52**	**35**	39	**46**	48	**52**
Sound pressure Lp **(*)**	dB(A)	**17**	21	29	**37**	40	**43**	**26**	30	**37**	39	**43**

Model		2					3				
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	**260**	315	**375**	440	**510**	**270**	345	**420**	520	**620**
Cooling total emission **(E)**	kW	**1,46**	1,66	**1,86**	2,05	**2,24**	**1,82**	2,19	**2,52**	2,92	**3,27**
Cooling sensible emission **(E)**	kW	**1,09**	1,27	**1,45**	1,63	**1,81**	**1,30**	1,59	**1,85**	2,17	**2,48**
Heating **(E)**	kW	**1,63**	1,90	**2,18**	2,46	**2,74**	**1,83**	2,24	**2,63**	3,11	**3,57**
Dp Cooling **(E)**	kPa	**6,9**	8,2	**10,1**	12,0	**14,1**	**10,7**	14,8	**19,0**	24,8	**30,4**
Dp Heating **(E)**	kPa	**6,4**	8,4	**10,8**	13,4	**16,3**	**8,7**	12,5	**16,6**	22,5	**28,8**
Fan **(E)**	W	**7**	9	**12**	16	**22**	**6**	8	**11**	15	**20**
Sound power Lw **(E)**	dB(A)	**40**	44	**47**	51	**55**	**37**	42	**45**	49	**53**
Sound pressure Lp **(*)**	dB(A)	**31**	35	**38**	42	**46**	**28**	33	**36**	40	**44**

Model		4				
Inverter Power **(V)**		1 **(E)**	3	5 **(E)**	7,5	10 **(E)**
Speed		**MIN**		**MED**		**MAX**
Air flow	m^3/h	**375**	465	**550**	665	**770**
Cooling total emission **(E)**	kW	**2,33**	2,71	**3,03**	3,41	**3,72**
Cooling sensible emission **(E)**	kW	**1,69**	2,00	**2,27**	2,61	**2,89**
Heating **(E)**	kW	**2,40**	2,85	**3,26**	3,76	**4,20**
Dp Cooling **(E)**	kPa	**16,5**	21,6	**26,6**	32,9	**38,7**
Dp Heating **(E)**	kPa	**14,1**	19,3	**24,4**	31,7	**38,6**
Fan **(E)**	W	**9**	12	**16**	22	**30**
Sound power Lw **(E)**	dB(A)	**43**	46	**49**	53	**57**
Sound pressure Lp **(*)**	dB(A)	**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.

Wall controls for WFE-A versions

WFE-A version	
T-ECM	Continuous fan speed control with electronic thermostat, summer/winter switch and liquid crystal display

Controls for WFE-IRA version

WFE-IRA version	
KC-F	Connectivity kit "High Wall Connectivity Kit" (auxiliary board for Modbus connection + auxiliary board for IR-MB2S connection)
TODS	TODS multifunction control panel up to 60 units (to be used with connectivity kit only)

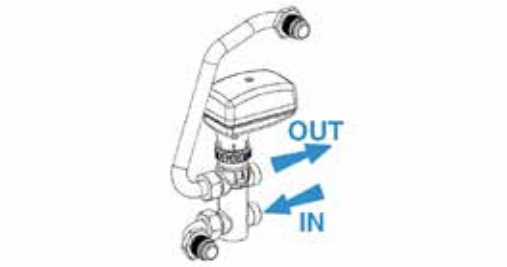
Controls for WFE-MBA versions

WFE-MBA version	
IR-MB2S	IR-MB2S wall control with LCD color display
RT03-REC-AW	RT03-A infra-red remote control with receiver supplied with separate packaging
RT03-A	RT03-A infra-red remote control supplied with separate packaging
REC-AW	Receiver for RT03-A infra-red remote control supplied with separate packaging
TODS	TODS multifunction control panel up to 60 units

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

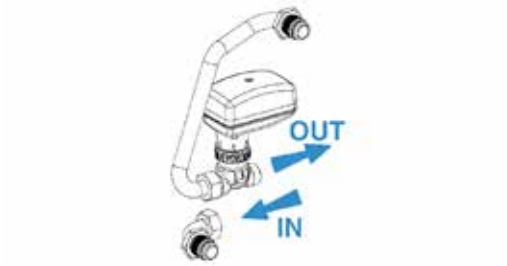
3 way valve

Control valve kit:
3 way valve, 230 V 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

05/2024

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