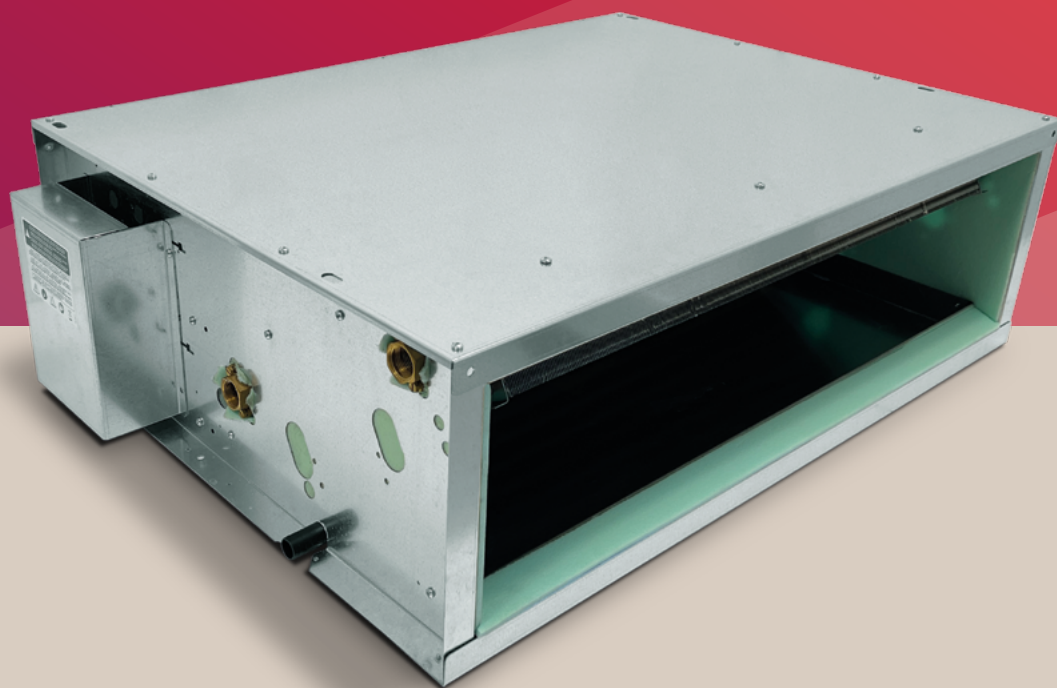




OPERA

Ductable air treatment unit



A GROUP S.p.A (Trademark VENTILCLIMA)
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OPERA OPERA-ECM	Concealed Ducted Fan Coil Unit	Technical Manual	25_04_01_01
			

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INTRODUCTION

GENERAL DESCRIPTION

The Opera series ducted fan coil unit is a hydronic terminal designed to operate with hot water for winter heating and chilled water for summer cooling.

Versions are available for horizontal or vertical installation, with bottom, rear, or front air return. Additionally, units can be supplied with a single-panel or double-panel casing, the latter providing further noise reduction. Thanks to a wide range of accessories, all installation requirements can be fully met.

High performance, compact overall dimensions, reduced depth, and low sound emission make this unit suitable for ducted HVAC applications in commercial environments such as offices, shops, shopping centers, and public spaces in general.

PLUS



Maximum Quiet Operation:

The double-inlet centrifugal fans ensure high airflow rates at low rotational speeds, minimizing sound emissions under all operating conditions.



High Performance:

Designed to optimize thermodynamic efficiency, the air-to-water heat exchanger delivers high cooling and heating capacities while minimizing fan power consumption and the longitudinal footprint of the fan coil unit.



High Energy Savings:

Significant energy savings are achieved especially with the ECM version, thanks to the use of a brushless motor with inverter technology, which provides a further reduction in power consumption.



Reduced Depth:

With a depth of only 275 mm across the entire single-panel range, installation is possible even when ceiling void space is limited.



Customizable configuration:

The full range of models and both airside and waterside accessories greatly simplifies the installation of the fan coil unit. The valves, available in a wide selection of configurations and actuator options, allow for further optimization of the fan coil unit's integration into the HVAC system.



Simplified maintenance:

In the horizontal versions, the electrical panel, hydraulic connections, and filter removal are all located on the same side. This allows routine maintenance to be carried out from a single access point. The optional foldable "book-type" filter also helps minimize the required lateral clearance.

CONSTRUCTION FEATURES

DESCRIPTION OF COMPONENTS

SUPPORTING FRAME (SINGLE-PANEL VERSION)

The unit's supporting frame is made of Z200 galvanized steel sheet, 1.0 mm thick. The structure is internally lined with 6-mm closed-cell anti-condensation insulation, certified according to DIN EN ISO 846 and rated Euroclass B-s2,d0 in accordance with EN 13501-1. On two opposite sides, mounting slots are formed on projecting flanges, properly shaped to facilitate installation.

SUPPORTING FRAME (DOUBLE-PANEL VERSION)

The unit's supporting frame consists of a double-panel construction in Z200 galvanized steel sheet, 1.0 mm thick, with a 15-mm rock wool layer inside for thermal and acoustic insulation.

On two opposite sides, mounting slots are formed on projecting flanges, properly shaped to facilitate installation.

CONDENSATE COLLECTION AND DRAINAGE

A main condensate drain pan, made of galvanized steel sheet, is located beneath the heat exchanger. The drain pan is sloped to minimize the risk of water stagnation and is externally lined with 3-mm closed-cell anti-condensation insulation, certified according to DIN EN ISO 846 and rated Euroclass B-s2,d0 according to EN 13501-1.

CONTROL VALVES

A wide range of valve configurations is available, including 2-way and 3-way valves, ON/OFF valves, modulating valves, and automatic balancing valves. All versions are supplied with fittings, gaskets, and either ball valves or Balancing valves.

HEAT EXCHANGER

Mounted to the main frame by its side plates, it is constructed of copper tubing with aluminum fins mechanically expanded onto the tubes. The side plates are made of Z200 galvanized steel.

The brass headers are equipped with female gas connections and accessible air-vent/drain valves.

Hydraulic connections are standard on the left side; right-side connections are available on request.

FILTER

Easily accessible, it can be removed laterally or from below (horizontal version) or from the front (vertical version). It consists of a galvanized steel frame housing a polypropylene mesh filter medium. Filtration class is ISO COARSE 30%; optional higher-grade filters are available. A foldable "book-type" filter is also available as an accessory to significantly reduce lateral clearance requirements. The filter is locked in place by elements that prevent accidental removal, ensuring user safety. If undamaged and not excessively dirty, the filter can be regenerated by vacuum cleaning, followed by washing with suitable products and drying.

FAN ASSEMBLY

Composed of double-inlet centrifugal fans with horizontally mounted ABS or aluminium impellers, statically and dynamically balanced. The single-phase asynchronous motor features overload protection, offers 5 fan speeds (3 pre-wired to the terminal block), and is directly coupled to the fans via elastic mounts for reduced noise.

ECM versions are equipped with advanced brushless motors with a 0–10 V control signal, ensuring precise and modulating airflow management while reducing energy consumption to match the actual load demand.

ECM fans operate at minimum speed at 1 V control signal and reach maximum speed at 10 V. To stop the fans, the control signal must be set to 0 V. Control values between 0–1 V or above 10 V are not permitted.

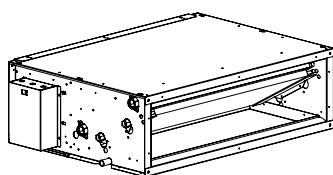
ECM motors from size 4 to size 9 incorporate a power-factor correction module, ensuring a power factor always greater than 0.9 (at maximum speed) and further reducing current draw.

25_04_01_01 Technical Manual Concealed Ducted Fan Coil Unit OPERA OPERA-ECM	CONSTRUCTION FEATURES DESCRIPTION OF COMPONENTS ELECTRICAL CONNECTIONS The electrical panel is located on the same side as the hydraulic connections for horizontal units, and on the opposite side for vertical units. It is easily accessible and made of Z200 galvanized steel, 0.8 mm thick. PACKAGING The unit is packaged in a dedicated cardboard box.
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2-PIPE AND 4-PIPE FAN COIL UNITS

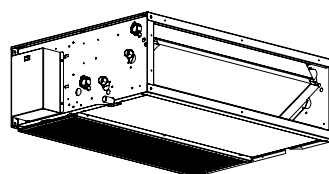
OPERA-H-R

Horizontal ducted fan coil unit
Single-panel construction
Rear air return



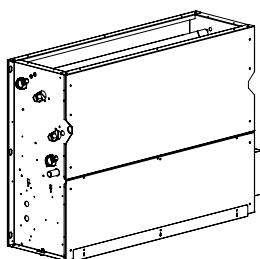
OPERA-H-F

Horizontal ducted fan coil unit
Single-panel construction
Bottom air return



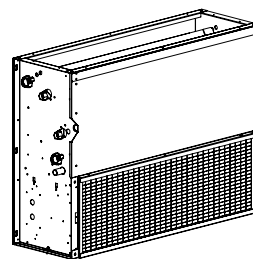
OPERA-V-R

Vertical ducted fan coil unit
Single-panel construction
Bottom air return



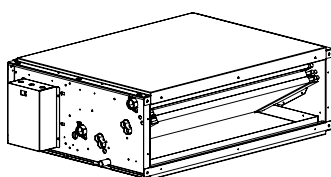
OPERA-V-F

Vertical ducted fan coil unit
Single-panel construction
Front air return



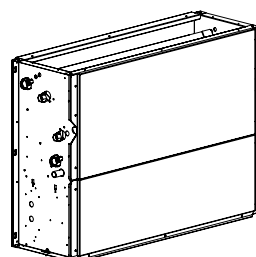
OPERA-DS-H-R

Horizontal ducted fan coil unit
Double-panel construction
Rear air return



OPERA-DS-V-R

Vertical ducted fan coil unit
Double-panel construction
Bottom air return

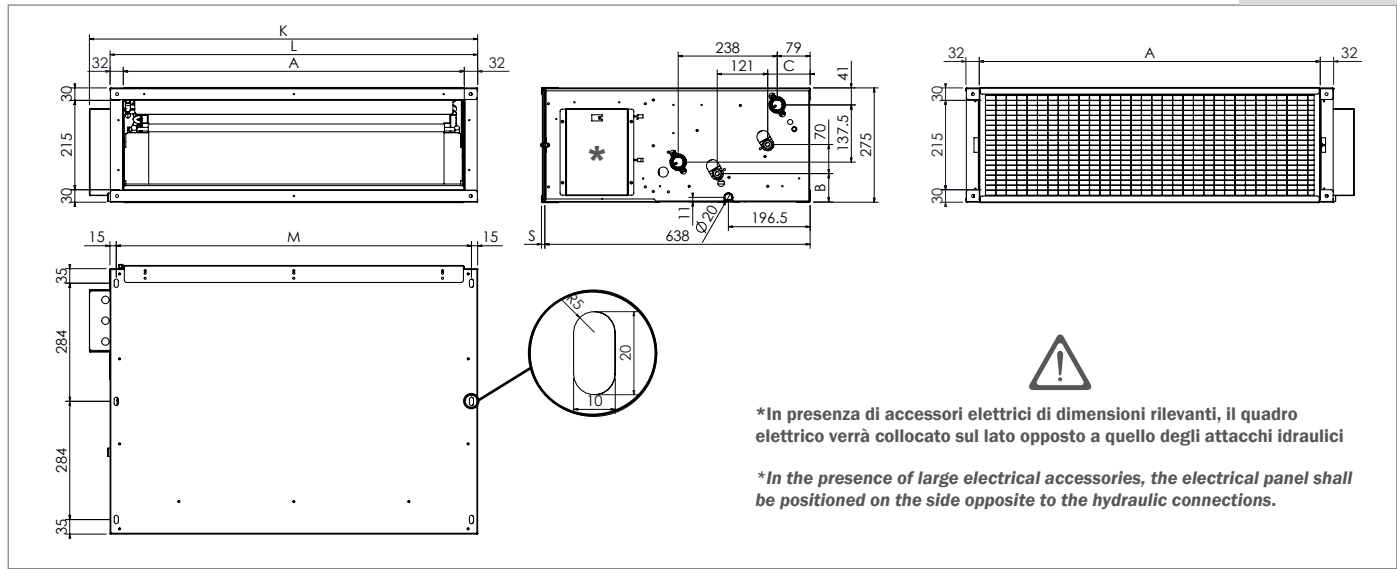


OVERALL DIMENSIONS

			MOD. H-R / H-F / V-R / V-F								
			1	2	3	4	5	6	7	8	9
Lunghezza / Lenght / Longueur / Länge / Longitud	L	mm	884	884	884	1294	1294	1294	1704	1704	1704
Altezza / Height / Hauteur / Höhe / Altura	H	mm	275	275	275	275	275	275	275	275	275
Profondità / Depth / Profondeur / Tiefe / Profundidad	P	mm	638	638	638	638	638	638	638	638	638
	A	mm	820	820	820	1230	1230	1230	1640	1640	1640
	B	mm	-	88	69	-	88	69	-	88	69
	C	mm	-	113	102	-	113	102	-	113	102
	K	mm	935	935	935	1345	1345	1345	1755	1755	1755
	M	mm	854	854	854	1264	1264	1264	1674	1674	1674
Filtro / Filter / Filtre / Filter / Filtro	S	6 mm	8	8	8	8	8	8	8	8	8
		12 mm	14	14	14	14	14	14	14	14	14

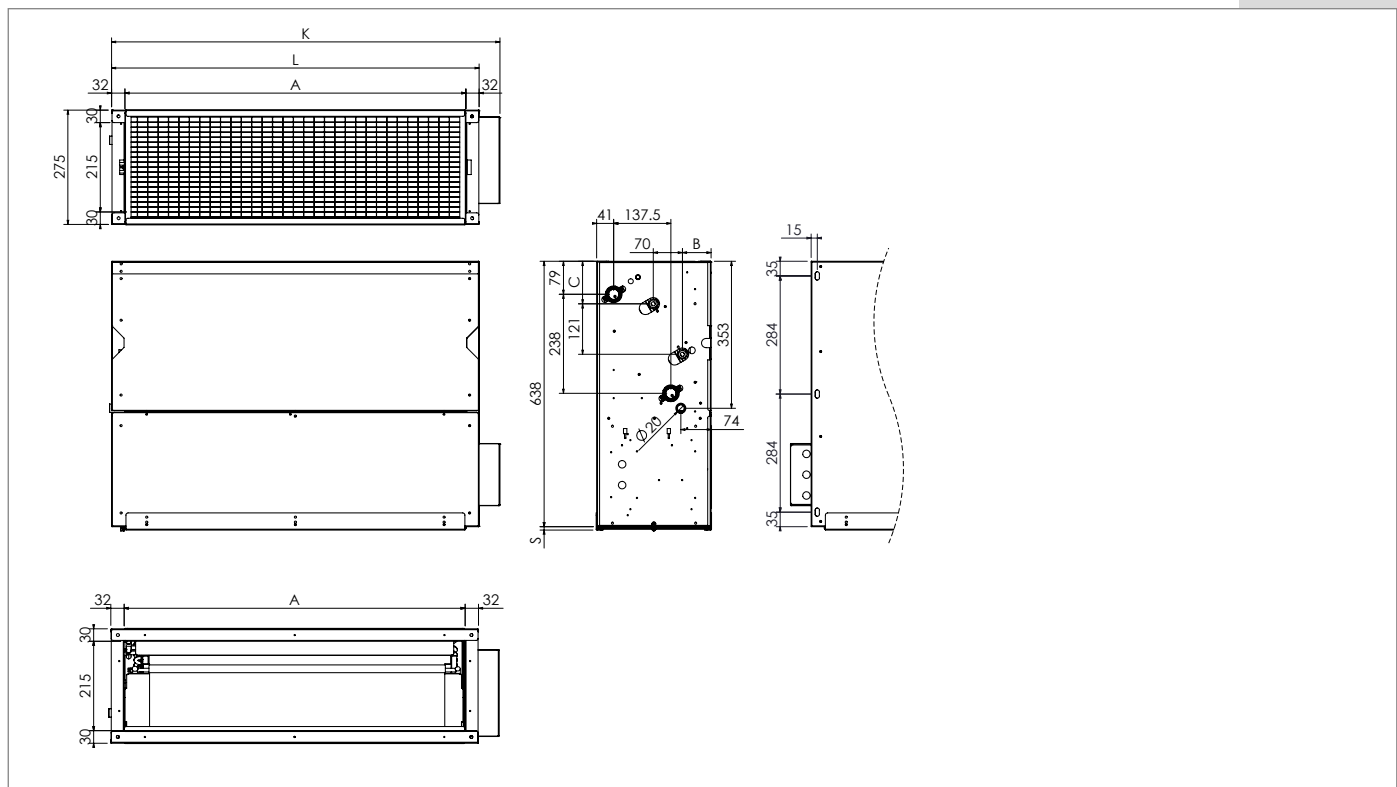
Unità orizzontale / Horizontal unit / Unité horizontale / Horizontales gerät / Unidad horizontal

MOD. H-R



Unità verticale / Vertical unit / Unité verticale / Vertikales gerät / Unidad vertical

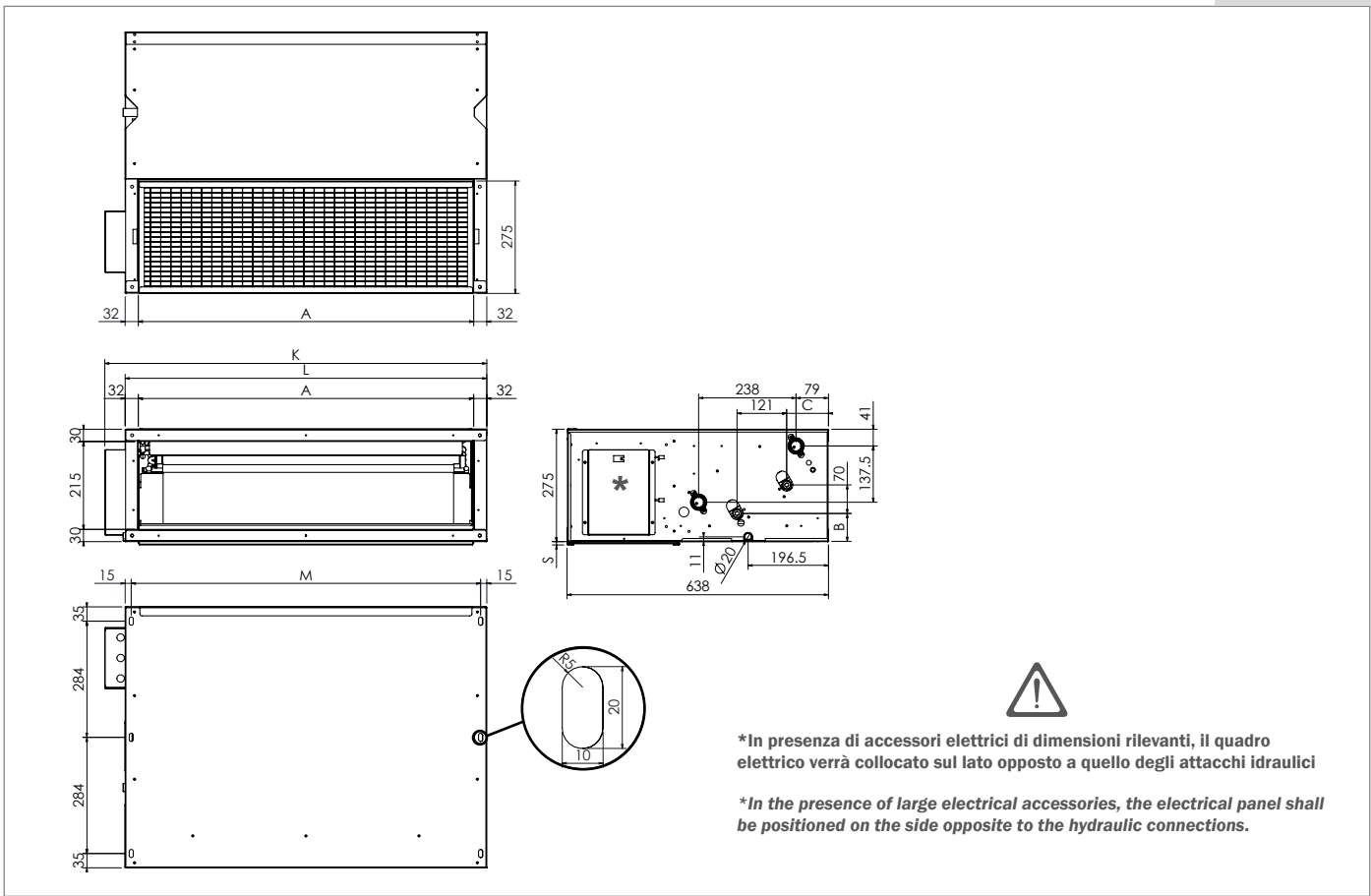
MOD. V-R



OVERALL DIMENSIONS

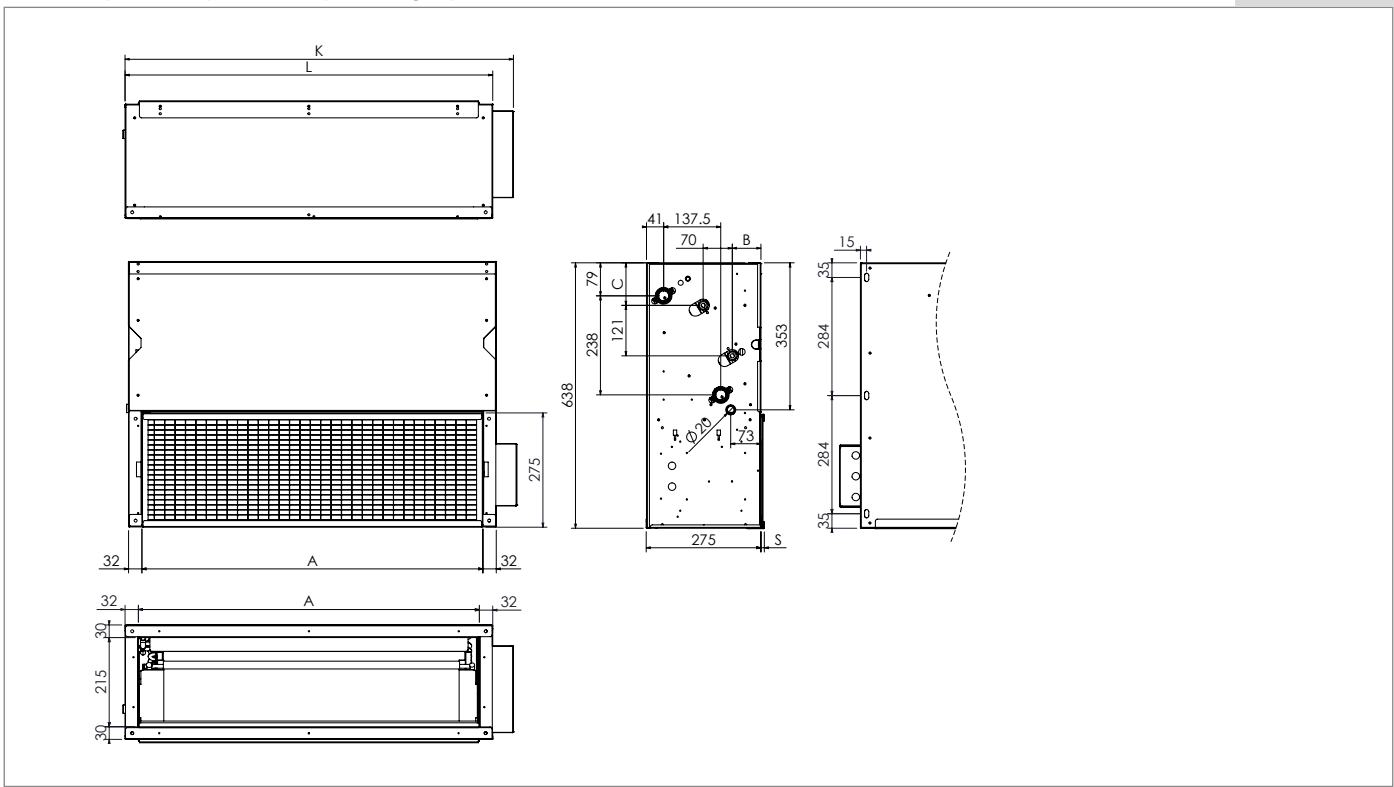
Unità orizzontale / Horizontal unit / Unité horizontale / Horizontales gerät / Unidad horizontal

MOD. H-F



Unità verticale / Vertical unit / Unité verticale / Vertikales gerät / Unidad vertical

MOD. V-F

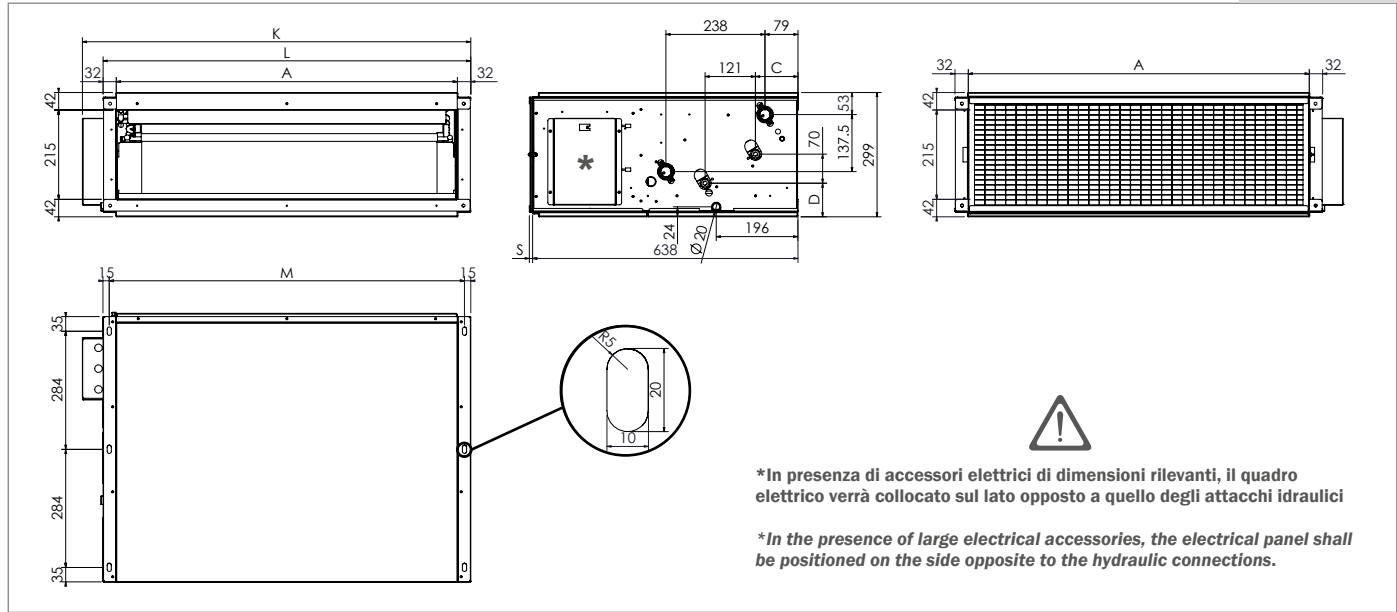


OVERALL DIMENSIONS

			MOD. DS-H-R / DS-V-R								
			1	2	3	4	5	6	7	8	9
Lunghezza / Length / Longueur / Länge / Longitud	L	mm	884	884	884	1294	1294	1294	1704	1704	1704
Altezza / Height / Hauteur / Höhe / Altura	H	mm	299	299	299	299	299	299	299	299	299
Profondità / Depth / Profondeur / Tiefe / Profundidad	P	mm	638	638	638	638	638	638	638	638	638
	A	mm	820	820	820	1230	1230	1230	1640	1640	1640
	C	mm	-	113	102	-	113	102	-	113	102
	D	mm	-	100	81	-	100	81	-	100	81
	K	mm	935	935	935	1345	1345	1345	1755	1755	1755
	M	mm	854	854	854	1264	1264	1264	1674	1674	1674
Filtro / Filter / Filtre / Filter / Filtro	S	6 mm	8	8	8	8	8	8	8	8	8
		12 mm	14	14	14	14	14	14	14	14	14

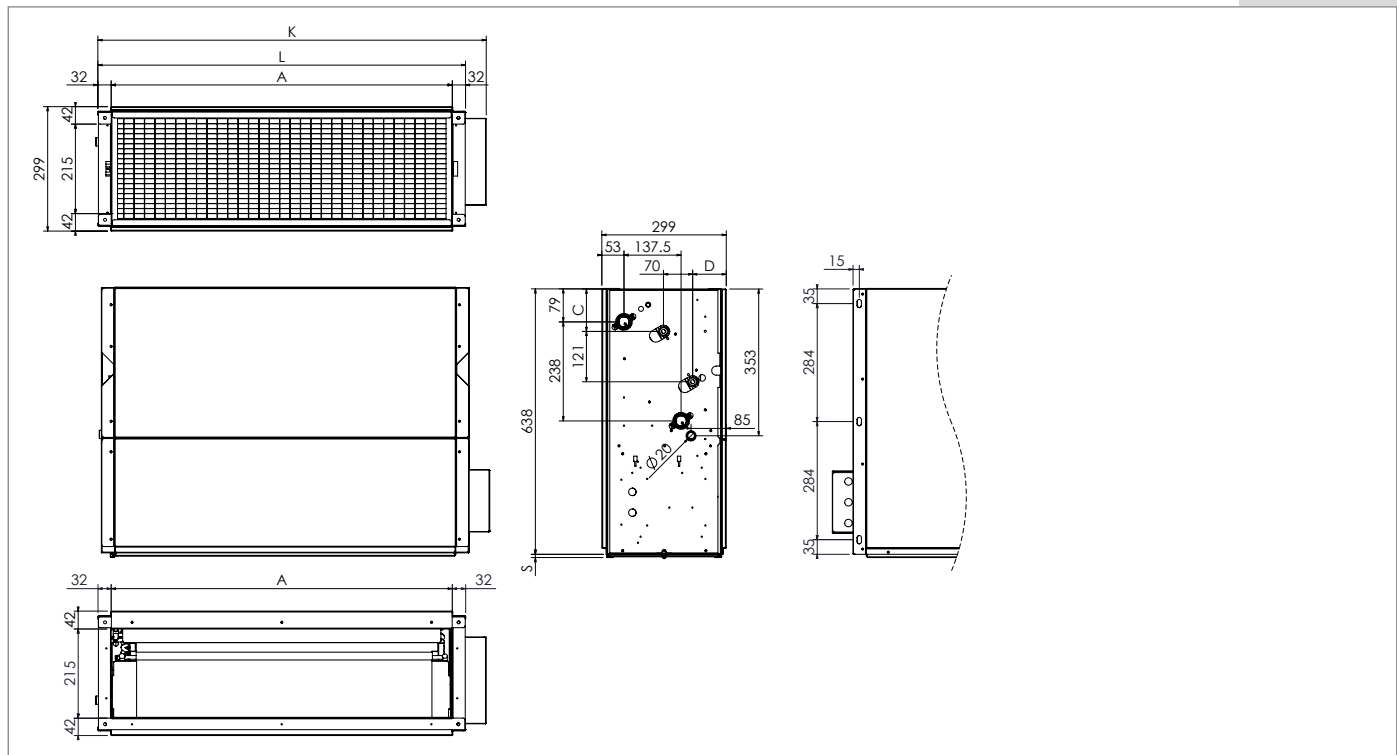
Unità orizzontale / Horizontal unit / Unité horizontale / Horizontales gerät / Unidad horizontal

MOD. DS-H-R



Unità verticale / Vertical unit / Unité verticale / Vertikales gerät / Unidad vertical

MOD. DS-V-R



CONSTRUCTION FEATURES

Construction Features			1	2	3	4	5	6	7	8	9
Number of Fans			1	1	1	2	2	2	3	3	3
Number of Motors			1	1	1	1	1	1	1	1	1
Main coil	Hydraulic Connections		3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
	Water Content	Liters	1,9	2,0	2,6	2,9	3,0	4,0	3,9	4,0	5,4
Auxiliary Coil	Hydraulic Connections		-	1/2"	1/2"	-	1/2"	1/2"	-	1/2"	1/2"
	Water Content	Liters	-	0,7	0,8	-	1,0	1,1	-	1,3	1,4

TECHNICAL DATA

2 tubi - pipes - tubes Leiter - tubos					1	2	3	4	5	6	7 (*)	8 (*)	9 (*)
 27 °C d.b. 19 °C w.b.	Potenza frigorifera totale Total cooling capacity Puissance frigorifique totale Kälteleistung gesamt Potencia frigorífica total	(E)	kW	5	6,23	6,88	7,90	10,48	11,88	12,90	15,68	18,67	22,48
			kW	4	5,89	6,54	7,49	9,93	11,01	12,12	15,05	18,13	21,44
			kW	3	5,47	5,99	6,83	8,92	9,94	10,54	14,66	17,54	20,65
			kW	2	4,92	5,39	6,07	7,50	8,12	8,74	13,75	16,33	19,14
	Potenza frigorifera sensibile Sensible cooling capacity Puissance frigorifique sensible Sensible Kälteleistung Potencia frigorífica total sensible	(E)	kW	1	4,31	4,67	5,19	6,01	6,50	6,71	12,46	14,84	17,15
			kW	5	4,82	5,26	5,71	8,21	9,24	9,67	12,88	14,97	17,08
			kW	3	4,15	4,48	4,85	6,78	7,44	7,69	11,76	13,74	15,45
			kW	2	3,67	3,97	4,26	5,55	5,95	6,23	10,95	12,63	14,14
	Portata acqua Water flow Débit d'eau Wassermenge Flujo de agua	(E)	kW	1	3,17	3,38	3,59	4,35	4,63	4,67	9,76	11,24	12,55
			l/h	5	1102	1214	1389	1857	2098	2270	2786	3302	3955
			l/h	4	1042	1154	1317	1754	1943	2132	2665	3198	3766
			l/h	3	968	1059	1202	1577	1754	1857	2597	3095	3628
 45/40 °C 20 °C	Perdite di carico lato acqua Water pressure drop Pertes charge côté eau Wasserseitiger Druckverlust Caídas de presión lado agua	(E)	l/h	2	870	953	1068	1326	1436	1541	2425	2872	3353
			l/h	1	764	827	915	1066	1152	1187	2201	2614	3009
			kPa	5	28,8	37,8	53,7	47,3	59,3	52,7	45,0	60,4	57,8
			kPa	4	26,0	34,1	48,9	42,7	51,5	47,1	41,6	57,0	52,9
	Potenza termica Heating capacity Puissance thermique Heizleistung Energía térmica	(E)	kPa	3	22,8	32,8	41,2	35,0	42,2	35,9	39,7	53,7	49,4
			kPa	2	19,2	24,6	33,3	25,0	29,4	25,7	35,0	47,0	42,9
			kPa	1	15,2	21,0	25,2	16,9	19,8	16,0	29,4	39,6	35,3
			kW	5	6,71	7,23	7,66	11,52	12,72	12,81	17,72	20,73	23,62
	Portata acqua Water flow Débit d'eau Wassermenge Flujo de agua	(E)	kW	4	6,28	6,82	7,19	10,67	11,49	11,88	16,75	19,47	22,16
			kW	3	5,80	6,21	6,53	9,47	10,22	10,26	16,14	18,76	21,25
			kW	2	5,12	5,50	5,74	7,72	8,24	8,36	14,85	17,17	19,36
			kW	1	4,44	4,71	4,86	6,10	6,45	6,34	13,34	15,36	17,15
	Perdite di carico lato acqua Water pressure drop Pertes charge côté eau Wasserseitiger Druckverlust Caídas de presión lado agua	(E)	l/h	5	1121	1212	1286	1926	2132	2150	2958	3474	3972
			l/h	4	1051	1144	1207	1788	1926	1995	2803	3267	3732
			l/h	3	970	1039	1095	1585	1713	1720	2700	3147	3577
			l/h	2	856	920	961	1291	1377	1400	2493	2889	3267
	Portata aria Air flow Débit d'air Luftstrom Flujo de aire	(E)	l/h	1	741	786	813	1016	1075	1058	2235	2579	2889
			kPa	5	26,7	31,3	41,5	47,1	57,3	45,2	41,8	55,1	58,9
			kPa	4	23,8	28,0	36,9	41,2	47,4	39,0	37,9	49,3	52,7
			kPa	3	20,8	23,3	30,7	32,7	36,9	28,7	35,4	46,1	48,8
	Pressione statica Static pressure Pression statique Statischer Druck Presión estática	(E)	kPa	2	16,4	18,7	24,3	21,8	24,9	19,8	30,7	39,5	41,5
			kPa	1	12,6	14,1	18,0	14,1	15,9	12,0	25,2	32,2	33,2
			m3/h	5	1125	1153	1088	1995	2097	1990	3640	3680	3640
			m3/h	4	1028	1065	1009	1808	1841	1797	3350	3390	3350
	Livello di potenza sonora aspirazione + radiata / Sound power level inlet + radiated / Niveaux de puissance acoustique aspiration + rayonné / Schalleistungspegel Austritt und Abgestrahlt / Nivel de potencia acústica de admisión + resonancia	(E)	m3/h	3	925	940	895	1529	1570	1495	3180	3210	3180
			m3/h	2	785	805	766	1170	1188	1157	2825	2850	2820
			m3/h	1	655	660	630	866	875	830	2420	2440	2420
			Pa	5	74	59	56	85	61	60	65	59	60
	Livello di potenza sonora mandata Sound power level outlet Niveaux de puissance acoustique soufflage Schalleistungspegel Austritt Nivel de potencia sonora de salida	(E)	Pa	4	61	50	50	64	50	50	56	50	50
			Pa	3	50	39	39	50	36	35	50	45	45
			Pa	2	36	26	26	29	21	21	40	35	35
			Pa	1	24	19	20	18	11	11	29	26	26
	Livello di pressione sonora aspirazione + radiata / Sound pressure level inlet + radiated / Niveau de pression acoustique aspiration + rayonné / Schalldruckpegel Eintritt und Abgestrahlt / Nivel de presión sonora de admisión + resonancia	(E)	dB(A)	5	64	63	63	67	66	66	68	67	67
			dB(A)	4	63	62	62	65	64	64	66	65	65
			dB(A)	3	60	59	59	61	60	60	62	61	61
			dB(A)	2	57	56	56	56	55	55	57	56	56
	Livello di pressione sonora mandata Sound pressure level outlet Niveau de pression acoustique soufflage Schalldruckpegel Austritt Nivel de presión sonora de salida	(E)	dB(A)	1	56	52	52	53	49	49	54	50	50
			dB(A)	5	63	62	62	66	65	65	67	66	66
			dB(A)	4	62	61	61	64	63	63	65	64	64
			dB(A)	3	59	58	58	60	59	59	61	60	60
	Livello di pressione sonora aspirazione + radiata / Sound pressure level inlet + radiated / Niveau de pression acoustique aspiration + rayonné / Schalldruckpegel Eintritt und Abgestrahlt / Nivel de presión sonora de admisión + resonancia	(E)	dB(A)	2	56	55	55	55	54	54	56	55	55
			dB(A)	1	55	51	51	52	48	48	53	49	49
			dB(A)	5	55	54	54	58	57	57	59	58	58
			dB(A)	4	54	53	53	56	55	55	57	56	56
	Livello di pressione sonora mandata Sound pressure level outlet Niveau de pression acoustique soufflage Schalldruckpegel Austritt Nivel de presión sonora de salida	(E)	dB(A)	3	51	50	50	52	51	51	53	52	52
			dB(A)	2	48	47	47	47	46	46	48	47	47
			dB(A)	1	47	43	43	44	40	40	45	41	41
			dB(A)	5	54	53	53	57	56	56	58	57	57
	Assorbimento elettrico motore Motor electrical consumption Consommation électrique du moteur Elektrischer Verbrauch des Motors Consumo eléctrico del motor	(E)	dB(A)	4	53	52	52	55	54	54	56	55	55
			dB(A)	3	50	49	49	51	50	50	52	51	51
			dB(A)	2	47	46	46	46	45	45	47	46	46
			dB(A)	1	46	42	42	43	39	39	44	40	40
	Max corrente motore Maximum motor current Courant maximal du moteur Maximaler Motorstrom Corriente máxima del motor	(E)	W	5	185	183	177	320	316	305	520	530	520
			W	4	169	173	170	273	290	279	447	470	460
			W	3	159	167	164	252	265	259	440	462	453
			W	2	141	148	145	215	226	220	352	370	360
		(E)	W	1	131	138	135	187	196	192	340	357	350
			A		1,00	1,00	1,00	1,90	1,90	1,90	2,70	2,70	2,70

(*) Unità al di fuori dal campo di applicazione del programma di certificazione Eurovent - Units outside the scope of the Eurovent certification programme - Unités hors du champ d'application du programme de certification Eurovent - Geräte außerhalb des Geltungsbereichs des Eurovent-Zertifizierungsprogramms - Unidades fuera del alcance del programa de certificación Eurovent.

- **Livello di pressione sonora:** considerata 9,0 dB(A) inferiore rispetto alla potenza sonora in una stanza di 100 m³ con un tempo di riverbero di 0,5 sec. / **Dati riferiti ad alimentazione:** ~230V / 1ph / 50Hz - **Sound pressure level:** 9,0 dB(A) lower than the sound power level for a room of 100 m³ with a reverberation time of 0,5 sec. / **Data relating to power supply:** ~230V / 1ph / 50Hz - **Niveau de pression sonore:** considéré de 9,0 dB(A) plus faible que le niveau de puissance acoustique d'une pièce de 100 m³, avec un temps de réverbération de 0,5 sec. / **Données relatives à l'alimentation électrique:** ~230V / 1ph / 50Hz - **Schalldruckpegel:** Schall-Druckpegel: 9,0 dB (A) unter dem Schalldruck in einem Raum von 100 m³ mit einer Nachhallzeit von 0,5 s. / **Unterstützte Stromversorgung:** ~230V / 1ph / 50Hz - **Nivel de presión sonora:** se considera 9,0 dB (A) inferior a la potencia acústica en una sala de 100 m³ con un tiempo de reverberación de 0,5 seg. / **Datos relativos al suministro eléctrico:** ~230V / 1ph / 50Hz

TECHNICAL DATA

4 tubi - pipes - tubes Leiter - tubos					1	2	3	4	5	6	7	8 (*)	9 (*)
 27 °C d.b. 19 °C w.b. 	Potenza frigorifera totale Total cooling capacity Puissance frigorifique totale Kälteleistung gesamt Potencia frigorífica total	(E)	kW	5	-	6,63	7,48	-	11,20	12,31	-	18,57	22,48
			kW	4	-	6,33	7,04	-	10,62	11,53	-	18,03	21,24
			kW	3	-	5,76	6,38	-	9,39	10,04	-	17,44	20,65
			kW	2	-	5,26	5,82	-	7,78	8,35	-	16,23	19,04
	Potenza frigorifera sensibile Sensible cooling capacity Puissance frigorifique sensible Sensible Kälteleistung Potencia frigorífica total sensible	(E)	kW	1	-	4,47	4,77	-	6,02	6,30	-	14,74	17,05
			kW	5	-	5,03	5,35	-	8,62	9,15	-	14,87	17,08
			kW	4	-	4,78	5,03	-	8,08	8,52	-	14,23	16,04
			kW	3	-	4,29	4,50	-	6,99	7,30	-	13,64	15,45
	Portata acqua Water flow Débit d'eau Wasseremenge Flujo de agua	(E)	kW	2	-	3,86	4,07	-	5,65	5,93	-	12,53	14,04
			kW	1	-	3,22	3,29	-	4,25	4,36	-	11,24	12,45
			l/h	5	-	1169	1316	-	1978	2167	-	3284	3955
			l/h	4	-	1116	1238	-	1874	2029	-	3181	3732
	Perdite di carico lato acqua Water pressure drop Pertes charge côté eau Wasserseitiger Druckverlust Caídas de presión lado agua	(E)	l/h	3	-	1018	1123	-	1659	1771	-	3078	3628
			l/h	2	-	929	1025	-	1376	1472	-	2855	3336
			l/h	1	-	791	843	-	1070	1116	-	2597	2992
			kPa	5	-	35,4	48,5	-	52,6	49,1	-	60,0	57,5
 20 °C 	Potenza termica Heating capacity Puissance thermique Heizleistung Energía térmica	(E)	kPa	4	-	33,0	43,5	-	47,6	43,4	-	56,7	51,7
			kPa	3	-	28,6	36,4	-	37,9	33,4	-	53,4	49,2
			kPa	2	-	24,3	30,9	-	27,0	23,9	-	46,6	42,3
			kPa	1	-	18,2	21,7	-	17,2	14,5	-	39,3	34,8
	Portata acqua Water flow Débit d'eau Wasseremenge Flujo de agua	(E)	kW	5	-	6,42	6,54	-	10,23	10,60	-	17,23	18,12
			kW	4	-	6,17	6,24	-	9,72	10,07	-	16,47	17,26
			kW	3	-	5,68	5,74	-	8,69	8,99	-	15,96	16,85
			kW	2	-	5,21	5,33	-	7,34	7,67	-	14,77	15,56
	Perdite di carico lato acqua Water pressure drop Pertes charge côté eau Wasserseitiger Druckverlust Caídas de presión lado agua	(E)	kW	1	-	4,53	4,55	-	5,98	6,18	-	13,56	14,25
			l/h	5	-	537	548	-	854	886	-	1436	1513
			l/h	4	-	517	523	-	812	843	-	1376	1444
			l/h	3	-	475	481	-	725	751	-	1333	1410
	Pressione statica Static pressure Pression statique Statischer Druck Presión estática	(E)	l/h	2	-	436	446	-	612	641	-	1238	1307
			l/h	1	-	378	380	-	497	515	-	1135	1195
			kPa	5	-	23,5	23,8	-	38,8	41,5	-	54,8	60,0
			kPa	4	-	21,7	21,7	-	35,1	37,7	-	50,8	55,2
Portata aria Air flow Débit d'air Luftstrom Flujo de aire	(E)	kPa	3	-	18,5	18,5	-	27,6	29,4	-	48,0	52,8	
		kPa	2	-	15,9	16,2	-	20,4	22,2	-	42,0	46,1	
		kPa	1	-	12,3	12,1	-	14,0	14,9	-	35,9	39,2	
		m3/h	5	-	1086	1004	-	1909	1850	-	3660	3620	
Livello di potenza sonora aspirazione + radiata / Sound power level inlet + radiated / Niveaux de puissance acoustique aspiration + rayonné / Schalleistungspegel Austritt und Abgestrahlt / Nivel de potencia acústica de admisión + resonancia	(E)	m3/h	4	-	1018	934	-	1751	1696	-	3370	3330	
		m3/h	3	-	885	815	-	1455	1405	-	3190	3170	
		m3/h	2	-	773	725	-	1113	1096	-	2830	2800	
		m3/h	1	-	620	570	-	795	770	-	2430	2400	
Livello di potenza sonora mandata Sound power level outlet Niveaux de puissance acoustique soufflage Schalleistungspegel Austritt Nivel de potencia sonora de salida	(E)	Pa	5	-	57	56	-	60	59	-	59	60	
		Pa	4	-	50	50	-	50	50	-	50	50	
		Pa	3	-	38	38	-	35	34	-	45	45	
		Pa	2	-	26	26	-	20	20	-	35	35	
Livello di pressione sonora aspirazione + radiata / Sound pressure level inlet + radiated / Niveau de pression acoustique aspiration + rayonné / Schalldruckpegel Eintritt und Abgestrahlt / Nivel de presión sonora de admisión + resonancia	(E)	Pa	1	-	19	19	-	10	10	-	26	26	
		dB(A)	5	-	64	64	-	67	67	-	68	68	
		dB(A)	4	-	63	63	-	65	65	-	66	66	
		dB(A)	3	-	60	60	-	61	61	-	62	62	
Livello di pressione sonora mandata Sound pressure level outlet Niveau de pression acoustique soufflage Schallleistungspegel Austritt Nivel de presión sonora de salida	(E)	dB(A)	2	-	57	57	-	56	56	-	57	57	
		dB(A)	1	-	53	53	-	50	50	-	51	51	
		dB(A)	5	-	63	63	-	66	66	-	67	67	
		dB(A)	4	-	62	62	-	64	64	-	65	65	
Livello di pressione sonora aspirazione + radiata / Sound pressure level inlet + radiated / Niveau de pression acoustique aspiration + rayonné / Schalldruckpegel Eintritt und Abgestrahlt / Nivel de presión sonora de admisión + resonancia	(E)	dB(A)	3	-	59	59	-	60	60	-	61	61	
		dB(A)	2	-	56	56	-	55	55	-	56	56	
		dB(A)	1	-	52	52	-	49	49	-	50	50	
		dB(A)	5	-	55	55	-	58	58	-	59	59	
Livello di pressione sonora mandata Sound pressure level outlet Niveau de pression acoustique soufflage Schallleistungspegel Austritt Nivel de presión sonora de salida	(E)	dB(A)	4	-	54	54	-	56	56	-	57	57	
		dB(A)	3	-	51	51	-	52	52	-	53	53	
		dB(A)	2	-	48	48	-	47	47	-	48	48	
		dB(A)	1	-	44	44	-	41	41	-	42	42	
Assorbimento elettrico motore Motor electrical consumption Consommation électrique du moteur Elektrischer Verbrauch des Motors Consumo eléctrico del motor	(E)	dB(A)	5	-	54	54	-	57	57	-	58	58	
		dB(A)	4	-	53	53	-	55	55	-	56	56	
		dB(A)	3	-	50	50	-	51	51	-	52	52	
		dB(A)	2	-	47	47	-	46	46	-	47	47	
Max corrente motore Maximum motor current Courant maximal du moteur Maximaler Motorstrom Corriente máxima del motor	(E)	dB(A)	1	-	43	43	-	40	40	-	41	41	
		W	5	-	173	168	-	300	295	-	530	520	
		W	4	-	164	158	-	277	269	-	470	460	
		W	3	-	156	150	-	263	256	-	462	453	
Max corrente motore Maximum motor current Courant maximal du moteur Maximaler Motorstrom Corriente máxima del motor	(E)	W	2	-	142	139	-	217	213	-	370	360	
		W	1	-	128	125	-	195	192	-	357	350	
		A	-	-	1,00	1,00	-	1,90	1,90	-	2,70	2,70	

(*) Unità al di fuori dal campo di applicazione del programma di certificazione Eurovent - Units outside the scope of the Eurovent certification programme - Unités hors du champ d'application du programme de certification Eurovent - Geräte außerhalb des Geltungsbereichs des Eurovent-Zertifizierungsprogramms - Unidades fuera del alcance del programa de certificación Eurovent.

- Livello di pressione sonora: considerata 9,0 dB(A) inferiore rispetto alla potenza sonora in una stanza di 100 m³ con un tempo di riverbero di 0,5 sec. / Dati riferiti ad alimentazione: ~230V / 1ph / 50Hz - Sound pressure level: 9,0 dB(A) lower than the sound power level for a room of 100 m³ with a reverberation time of 0,5 sec. / Data relating to power supply: ~230V / 1ph / 50Hz - Niveau de pression sonore: considéré de 9,0 dB(A) plus faible que le niveau de puissance acoustique d'une pièce de 100 m³, avec un temps de réverbération de 0,5 sec. / Données relatives à l'alimentation électrique: ~230V / 1ph / 50Hz - Schalldruckpegel: 9,0 dB (A) unter dem Schalldruck in einem Raum von 100 m³ mit einer Nachhallzeit von 0,5 s. / Unterstützte Stromversorgung: ~230V / 1ph / 50Hz - Nivel de presión sonora: se considera 9,0 dB (A) inferior a la potencia acústica en una sala de 100 m³ con un tiempo de reverberación de 0,5 seg. / Datos relativos al suministro eléctrico: ~230V / 1ph / 50Hz

TECHNICAL DATA

2 tubi - pipes - tubes
Leiter - tubos

Motore ECM - ECM motor Moteur ECM - ECM-Motor - Motor ECM				1	2	3	4	5	6	7 (*)	8 (*)	9 (*)	
 7/12 °C  27 °C d.b. 19 °C w.b.	Potenza frigorifera totale Total cooling capacity Puissance frigorifique totale Kälteleistung gesamt Potencia frigorífica total	(E)	kW	4	6,29	7,13	8,30	11,05	12,95	14,25	16,18	19,18	23,38
			kW	3	5,90	6,86	7,84	9,82	11,86	12,57	15,72	18,72	22,52
			kW	2	5,54	6,55	7,47	8,82	11,01	11,82	14,77	18,20	21,50
			kW	1	4,37	5,45	6,13	6,14	8,23	8,65	12,62	16,45	19,25
	Potenza frigorifera sensibile Sensible cooling capacity Puissance frigorifique sensible Sensible Kälteleistung Potencia frigorífica total sensible	(E)	kW	4	4,89	5,49	6,03	8,78	10,15	10,85	13,28	15,48	17,78
			kW	3	4,52	5,25	5,67	7,61	9,17	9,40	12,92	15,02	17,12
			kW	2	4,22	4,97	5,36	6,71	8,39	8,75	11,87	14,40	16,20
			kW	1	3,23	4,03	4,32	4,48	6,07	6,19	9,92	12,75	14,25
	Portata acqua Water flow Débit d'eau Wassermenge Flujo de agua	(E)	l/h	4	1111	1255	1457	1960	2287	2511	2872	3388	4110
			l/h	3	1033	1204	1371	1720	2081	2201	2786	3302	3955
			l/h	2	966	1145	1303	1537	1926	2064	2597	3198	3766
			l/h	1	757	946	1064	1061	1426	1499	2201	2872	3353
	Perdite di carico lato acqua Water pressure drop Pertes charge côté eau Wasserseitiger Druckverlust Caídas de presión lado agua	(E)	kPa	4	29,2	40,1	58,4	52,1	69,3	63,2	47,0	63,2	61,5
			kPa	3	25,7	37,2	52,3	41,2	58,5	49,9	44,5	60,4	57,4
			kPa	2	22,7	33,7	48,0	33,4	50,7	44,4	39,2	57,0	52,5
			kPa	1	14,9	24,3	33,1	16,8	29,0	24,4	29,1	47,0	42,6
 45/40 °C  20 °C	Potenza termica Heating capacity Puissance thermique Heizleistung Energía térmica	(E)	kW	4	6,82	7,50	8,04	12,35	13,95	14,35	18,32	21,32	24,52
			kW	3	6,15	7,12	7,49	10,38	12,44	12,33	17,68	20,68	23,58
			kW	2	5,71	6,70	7,07	9,08	11,29	11,49	16,03	19,40	22,10
			kW	1	4,30	5,35	5,63	5,91	8,01	7,98	13,18	17,05	19,25
	Portata acqua Water flow Débit d'eau Wassermenge Flujo de agua	(E)	l/h	4	1144	1260	1353	2064	2339	2407	3061	3577	4127
			l/h	3	1039	1200	1266	1754	2098	2081	2958	3474	3972
			l/h	2	966	1133	1197	1541	1909	1943	2700	3267	3732
			l/h	1	733	911	958	1011	1367	1360	2235	2889	3267
	Perdite di carico lato acqua Water pressure drop Pertes charge côté eau Wasserseitiger Druckverlust Caídas de presión lado agua	(E)	kPa	4	27,7	33,6	45,5	53,3	67,6	55,4	44,2	58,4	53,9
			kPa	3	23,3	30,8	40,3	39,8	55,6	42,6	41,5	55,4	50,3
			kPa	2	20,7	27,5	36,4	31,1	46,6	37,2	35,2	49,7	44,9
			kPa	1	12,4	18,4	24,1	14,0	24,6	18,8	25,1	39,8	35,4
	Portata aria Air flow Débit d'air Luftstrom Flujo de aire	(E)	m3/h	4	1155	1215	1160	2195	2390	2295	3810	3860	3825
			m3/h	3	1015	1136	1069	1757	2051	1900	3640	3680	3640
			m3/h	2	922	1052	997	1474	1815	1730	3180	3390	3350
			m3/h	1	644	795	763	860	1175	1120	2420	2850	2820
Pressione statica Static pressure Pression statique Statischer Druck Presión estática	(E)	Pa	4	79	67	68	111	87	88	72	65	65	
		Pa	3	61	59	56	64	61	60	65	59	60	
		Pa	2	50	50	50	50	50	50	50	50	50	
		Pa	1	24	26	26	17	21	21	29	35	35	
Livello di potenza sonora aspirazione + radiata / Sound power level inlet + radiated / Niveaux de puissance acoustique aspiration + rayonné / Schalleistungspegel Austritt und Abgestrahlt / Nivel de potencia acústica de admisión + resonancia	(E)	dB(A)	4	65	64	64	69	68	68	69	68	68	
		dB(A)	3	63	63	63	65	66	66	68	67	67	
		dB(A)	2	60	62	62	61	64	64	62	65	65	
		dB(A)	1	56	56	56	53	55	55	54	56	56	
Livello di potenza sonora mandata Sound power level outlet Niveaux de puissance acoustique soufflage Schalleistungspegel Austritt Nivel de potencia sonora de salida	(E)	dB(A)	4	64	63	63	68	67	67	68	67	67	
		dB(A)	3	62	62	62	64	65	65	67	66	66	
		dB(A)	2	59	61	61	60	63	63	61	64	64	
		dB(A)	1	55	55	55	52	54	54	53	55	55	
Livello di pressione sonora aspirazione + radiata / Sound pressure level inlet + radiated / Niveau de pression acoustique aspiration + rayonné / Schalldruckpegel Eintritt und Abgestrahlt / Nivel de presión sonora de admisión + resonancia	(E)	dB(A)	4	56	55	55	60	59	59	60	59	59	
		dB(A)	3	54	54	54	56	57	57	59	58	58	
		dB(A)	2	51	53	53	52	55	55	53	56	56	
		dB(A)	1	47	47	47	44	46	46	45	47	47	
Livello di pressione sonora mandata Sound pressure level outlet Niveau de pression acoustique soufflage Schalldruckpegel Austritt Nivel de presión sonora de salida	(E)	dB(A)	4	55	54	54	59	58	58	59	58	58	
		dB(A)	3	53	53	53	55	56	56	58	57	57	
		dB(A)	2	50	52	52	51	54	54	52	55	55	
		dB(A)	1	46	46	46	43	45	45	44	46	46	
Assorbimento elettrico motore Motor electrical consumption Consommation électrique du moteur Elektrischer Verbrauch des Motors Consumo eléctrico del motor	(E)	W	4	170	170	170	350	350	350	520	520	520	
		W	3	111	140	133	181	243	234	480	480	480	
		W	2	85	112	112	119	187	185	330	400	400	
		W	1	35	54	57	34	61	69	180	250	250	
Max corrente motore Maximum motor current Courant maximal du moteur Maximaler Motorstrom Corriente máxima del motor	(E)	A		1,30	1,30	1,30	2,00	2,00	2,00	3,40	3,40	3,40	
Tensione di controllo velocità (0/10V) Speed control voltage (0/10V) Tension de contrôle de vitesse (0/10V) Drehzahlregelspannung (0/10V) Voltaje de control de velocidad (0/10V)	(E)	V	4	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	10,0	
		V	3	8,3	9,2	9,1	7,4	8,4	8,2	9,5	9,5	9,5	
		V	2	7,2	8,2	8,3	6,3	7,6	7,5	8,0	8,6	8,6	
		V	1	4,4	5,6	5,9	3,5	4,7	4,9	6,0	7,0	7,0	

(*) Unità al di fuori dal campo di applicazione del programma di certificazione Eurovent - Units outside the scope of the Eurovent certification programme - Unités hors du champ d'application du programme de certification Eurovent - Geräte außerhalb des Geltungsbereichs des Eurovent-Zertifizierungsprogramms - Unidades fuera del alcance del programa de certificación Eurovent.

- **Livello di pressione sonora:** considerata 9,0 dB(A) inferiore rispetto alla potenza sonora in una stanza di 100 m³ con un tempo di riverbero di 0,5 sec. / **Dati riferiti ad alimentazione:** ~230V / 1ph / 50Hz - **Sound pressure level:** 9,0 dB(A) lower that the sound power level for a room of 100 m³ with a reverberation time of 0,5 sec. / **Data relating to power supply:** ~230V / 1ph / 50Hz - **Niveau de pression sonore:** considéré de 9,0 dB(A) plus faible que le niveau de puissance acoustique d'une pièce de 100 m³, avec un temps de réverbération de 0,5 sec. / **Données relatives à l'alimentation électrique:** ~230V / 1ph / 50Hz - **Schalldruckpegel:** Schall-Druckpegel: 9,0 dB (A) unter dem Schalldruck in einem Raum von 100 m³ mit einer Nachhallzeit von 0,5 s. / **Unterstützte Stromversorgung:** ~230V / 1ph / 50Hz - **Nivel de presión sonora:** se considera 9,0 dB (A) inferior a la potencia acústica en una sala de 100 m³ con un tiempo de reverberación de 0,5 seg. / **Datos relativos al suministro eléctrico:** ~230V / 1ph / 50Hz

TECHNICAL DATA

4 tubi - pipes - tubes
Leiter - tubos

Motore ECM - ECM motor Moteur ECM - ECM-Motor - Motor ECM				1	2	3	4	5	6	7	8 (*)	9 (*)	
 7/12 °C 27 °C d.b. 19 °C w.b. 	Potenza frigorifera totale Total cooling capacity Puissance frigorifique totale Kälteleistung gesamt Potencia frigorífica total	(E)	kW	4	-	6,90	7,83	-	12,45	13,85	-	19,08	23,28
			kW	3	-	6,56	7,43	-	11,16	12,07	-	18,62	22,52
			kW	2	-	6,33	7,03	-	10,61	11,41	-	18,10	21,30
			kW	1	-	5,22	5,80	-	7,61	8,33	-	16,35	19,15
	Potenza frigorifera sensibile Sensible cooling capacity Puissance frigorifique sensible Sensible Kälteleistung Potencia frigorífica total sensible	(E)	kW	4	-	5,28	5,66	-	9,75	10,45	-	15,48	17,68
			kW	3	-	4,97	5,33	-	8,57	8,92	-	14,92	17,12
			kW	2	-	4,79	5,03	-	8,04	8,44	-	14,30	16,10
			kW	1	-	3,84	4,08	-	5,54	5,94	-	12,65	14,15
	Portata acqua Water flow Débit d'eau Wassermenge Flujo de agua	(E)	l/h	4	-	1216	1376	-	2201	2442	-	3370	4093
			l/h	3	-	1150	1300	-	1960	2115	-	3284	3955
			l/h	2	-	1107	1228	-	1857	1995	-	3181	3732
			l/h	1	-	908	1008	-	1321	1446	-	2855	3336
Perdite di carico lato acqua Water pressure drop Pertes charge côté eau Wassersseitiger Druckverlust Caídas de presión lado agua	(E)	kPa	4	-	38,0	52,5	-	63,8	60,9	-	62,9	61,1	
		kPa	3	-	34,4	47,4	-	51,8	47,0	-	60,0	57,4	
		kPa	2	-	32,5	42,8	-	46,9	42,0	-	56,7	51,7	
		kPa	1	-	23,3	30,0	-	25,1	23,2	-	46,6	42,3	
 65/55 °C 20 °C 	Potenza termica Heating capacity Puissance thermique Heizleistung Energía térmica	(E)	kW	4	-	6,66	6,80	-	11,25	11,85	-	17,72	18,62
			kW	3	-	6,29	6,45	-	10,07	10,33	-	17,28	18,18
			kW	2	-	6,08	6,14	-	9,51	9,84	-	16,40	17,20
			kW	1	-	5,03	5,18	-	6,94	7,42	-	14,65	15,45
	Portata acqua Water flow Débit d'eau Wassermenge Flujo de agua	(E)	l/h	4	-	558	570	-	937	989	-	1479	1556
			l/h	3	-	530	543	-	845	868	-	1444	1522
			l/h	2	-	513	518	-	801	830	-	1376	1444
			l/h	1	-	427	440	-	591	631	-	1238	1307
	Perdite di carico lato acqua Water pressure drop Pertes charge côté eau Wassersseitiger Druckverlust Caídas de presión lado agua	(E)	kPa	4	-	25,1	25,5	-	45,9	50,6	-	56,9	63,0
			kPa	3	-	22,9	23,4	-	38,1	40,0	-	54,5	60,5
			kPa	2	-	21,4	21,4	-	34,3	36,6	-	49,9	55,1
			kPa	1	-	15,4	15,8	-	19,1	21,5	-	41,3	46,0
Portata aria Air flow Débit d'air Luftstrom Flujo de aire	(E)	m3/h	4	-	1155	1075	-	2250	2205	-	3840	3800	
		m3/h	3	-	1059	992	-	1875	1781	-	3660	3620	
		m3/h	2	-	1004	920	-	1717	1652	-	3370	3330	
		m3/h	1	-	749	711	-	1053	1068	-	2830	2800	
Pressione statica Static pressure Pression statique Statischer Druck Presión estática	(E)	Pa	4	-	66	68	-	86	89	-	65	65	
		Pa	3	-	57	56	-	60	58	-	59	60	
		Pa	2	-	50	50	-	50	50	-	50	50	
		Pa	1	-	26	26	-	20	20	-	35	35	
Livello di potenza sonora aspirazione + radia- ta / Sound power level inlet + radiated / Niveaux de puissance acoustique aspiration + rayonné / Schalleistungspegel Austritt und Abgestrahlt / Nivel de potencia acústica de admisión + resonancia	(E)	dB(A)	4	-	65	65	-	69	69	-	69	69	
		dB(A)	3	-	64	64	-	67	67	-	68	68	
		dB(A)	2	-	63	63	-	65	65	-	66	66	
		dB(A)	1	-	57	57	-	56	56	-	57	57	
Livello di potenza sonora mandata Sound power level outlet Niveaux de puissance acoustique soufflage Schalleistungspegel Austritt Nivel de potencia sonora de salida	(E)	dB(A)	4	-	64	64	-	68	68	-	68	68	
		dB(A)	3	-	63	63	-	66	66	-	67	67	
		dB(A)	2	-	62	62	-	64	64	-	65	65	
		dB(A)	1	-	56	56	-	55	55	-	56	56	
Livello di pressione sonora aspirazione + radia- ta / Sound pressure level inlet + radiated / Niveau de pression acoustique aspiration + rayonné / Schalldruckpegel Eintritt und Abgestrahlt / Nivel de presión sonora de admisión + resonancia	(E)	dB(A)	4	-	56	56	-	60	60	-	60	60	
		dB(A)	3	-	55	55	-	58	58	-	59	59	
		dB(A)	2	-	54	54	-	56	56	-	57	57	
		dB(A)	1	-	48	48	-	47	47	-	48	48	
Livello di pressione sonora mandata Sound pressure level outlet Niveau de pression acoustique soufflage Schalldruckpegel Austritt Nivel de presión sonora de salida	(E)	dB(A)	4	-	55	55	-	59	59	-	59	59	
		dB(A)	3	-	54	54	-	57	57	-	58	58	
		dB(A)	2	-	53	53	-	55	55	-	56	56	
		dB(A)	1	-	47	47	-	46	46	-	47	47	
Assorbimento elettrico motore Motor electrical consumption Consommation électrique du moteur Elektrischer Verbrauch des Motors Consumo eléctrico del motor	(E)	W	4	-	170	170	-	350	350	-	520	520	
		W	3	-	133	134	-	241	229	-	480	480	
		W	2	-	114	114	-	191	187	-	400	400	
		W	1	-	61	63	-	69	76	-	250	250	
Max corrente motore Maximum motor current Courant maximal du moteur Maximaler Motorstrom Corriente máxima del motor	(E)	A		-	1,30	1,30	-	2,00	2,00	-	3,40	3,40	
		V	4	-	10,0	10,0	-	10,0	10,0	-	10,0	10,0	
		V	3	-	9,1	9,2	-	8,3	8,1	-	9,5	9,5	
		V	2	-	8,4	8,5	-	7,6	7,5	-	8,6	8,6	
		V	1	-	6,1	6,3	-	4,9	5,1	-	7,0	7,0	

(*) Unità al di fuori dal campo di applicazione del programma di certificazione Eurovent - Units outside the scope of the Eurovent certification programme - Unités hors du champ d'application du programme de certification Eurovent - Geräte außerhalb des Geltungsbereichs des Eurovent-Zertifizierungsprogramms - Unidades fuera del alcance del programa de certificación Eurovent.

- Livello di pressione sonora: considerata 9,0 dB(A) inferiore rispetto alla potenza sonora in una stanza di 100 m³ con un tempo di riverbero di 0,5 sec. / **Data relating to power supply:** ~230V / 1ph / 50Hz - **Niveau de pression sonore:** considéré de 9,0 dB(A) plus faible que le niveau de puissance acoustique d'une pièce de 100 m³, avec un temps de réverbération de 0,5 sec. / **Données relatives à l'alimentation électrique:** ~230V / 1ph / 50Hz - **Schalldruckpegel:** Schall-Druckpegel: 9,0 dB (A) unter dem Schalldruck in einem Raum von 100 m³ mit einer Nachhallzeit von 0,5 s. / **Unterstützte Stromversorgung:** ~230V / 1ph / 50Hz - **Nivel de presión sonora:** se considera 9,0 dB (A) inferior a la potencia acústica en una sala de 100 m³ con un tiempo de reverberación de 0,5 seg. / **Datos relativos al suministro eléctrico:** ~230V / 1ph / 50Hz

(E) = Eurovent

25_04_01_01

Technical Manual

Concealed Ducted
Fan Coil Unit

OPERA | OPERA-ECM

TECHNICAL DATA

OPERATING LIMITS

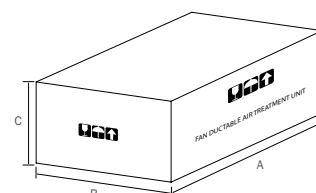
Limiti di funzionamento <i>Working limits</i>	1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9
Tensione di alimentazione / <i>Supply voltage</i>	230V (+/-10%) – 1ph – 50/60Hz
Temperatura aria ambiente / <i>Ambient air temperature</i>	Min. 5 °C – Max. 35 °C
Massima umidità aria ambiente / <i>Maximum ambient air humidity</i>	65%
Massima pressione di esercizio acqua / <i>Max water pressure</i>	8 Bar
Massima temperatura acqua / <i>Max water temperature</i>	80 °C
Minima temperatura acqua / <i>Min water temperature</i>	5 °C

- **Riscaldamento:** Per evitare fenomeni di stratificazione dell'aria ambiente, si consiglia di non alimentare l'unità con una temperatura acqua superiore ai 65 °C.
- **Raffreddamento:** Per evitare formazione di condensa sulle superfici esterne dell'unità, soprattutto in condizioni di elevata umidità ambiente, si raccomanda di interrompere il flusso dell'acqua refrigerata tramite una elettrovalvola quando il ventilatore non è in funzione.
- **Heating:** To avoid stratification of the ambient air, it is recommended not to supply the unit with a water temperature above 65 °C.
- **Cooling:** To avoid condensation forming on the external surfaces of the unit, especially in conditions of high ambient humidity, it is recommended to interrupt the flow of chilled water via a solenoid valve when the fan is not in operation.

WEIGHTS AND PACKAGING

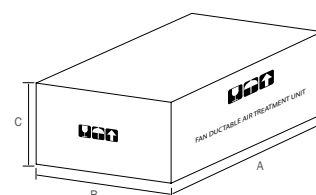
SINGOLA PANNELLATURA - SINGLE SKIN

	dimensioni <i>dimension</i>	peso netto <i>net weight</i>	peso lordo <i>gross weight</i>	bancale <i>palette</i>		
	[mm] (AxBxC)	[kg]	[kg]	L x P [mm]	[n.] unità - <i>units</i>	[kg] tot.
MOD. 1	1000 x 650 x 280	26	27	1100 x 800	5	155
MOD. 2	1000 x 650 x 280	29	30	1100 x 800	5	170
MOD. 3	1000 x 650 x 280	32	33	1100 x 800	5	185
MOD. 4	1410 x 650 x 280	39	40	1500 x 800	5	220
MOD. 5	1410 x 650 x 280	42	43	1500 x 800	5	235
MOD. 6	1410 x 650 x 280	45	46	1500 x 800	5	250
MOD. 7	1820 x 650 x 280	51	52	1900 x 800	5	280
MOD. 8	1820 x 650 x 280	56	57	1900 x 800	5	305
MOD. 9	1820 x 650 x 280	59	60	1900 x 800	5	320



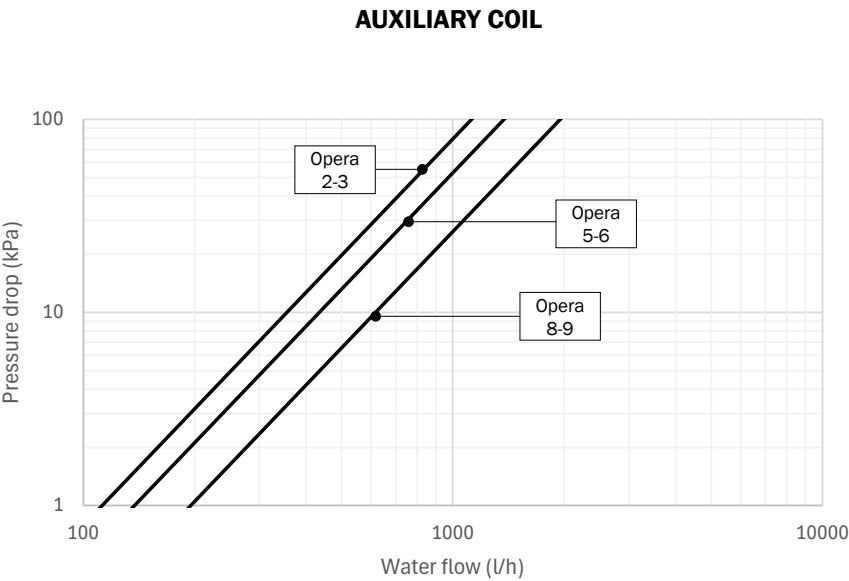
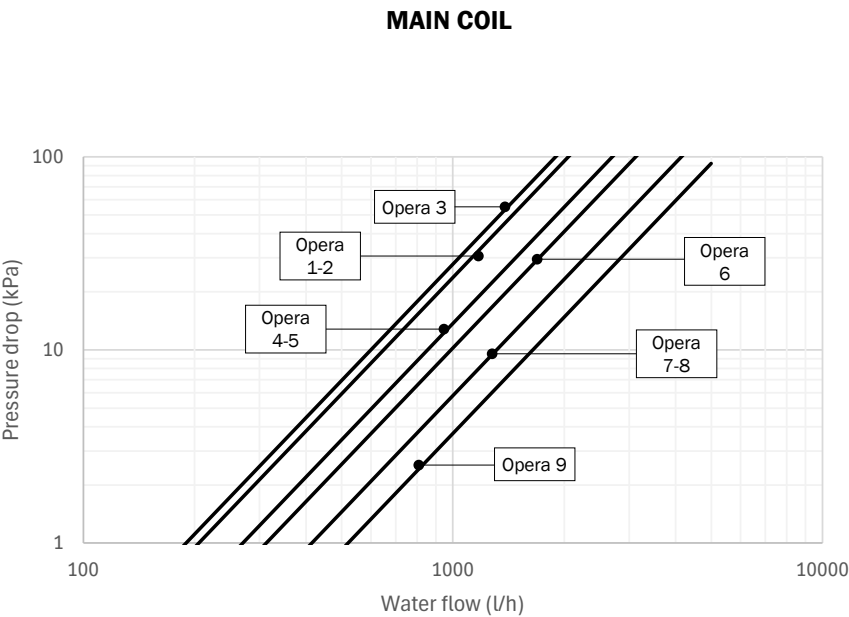
DOPPIA PANNELLATURA - DOUBLE SKIN

	dimensioni <i>dimension</i>	peso netto <i>net weight</i>	peso lordo <i>gross weight</i>	bancale <i>palette</i>		
	[mm] (AxBxC)	[kg]	[kg]	L x P [mm]	[n.] unità - <i>units</i>	[kg] tot.
MOD. DS 1	1000 x 650 x 310	41	42	1100 x 800	5	230
MOD. DS 2	1000 x 650 x 310	44	45	1100 x 800	5	245
MOD. DS 3	1000 x 650 x 310	47	48	1100 x 800	5	260
MOD. DS 4	1410 x 650 x 310	60	61	1500 x 800	5	325
MOD. DS 5	1410 x 650 x 310	63	64	1500 x 800	5	340
MOD. DS 6	1410 x 650 x 310	66	67	1500 x 800	5	355
MOD. DS 7	1820 x 650 x 310	78	79	1900 x 800	5	415
MOD. DS 8	1820 x 650 x 310	83	84	1900 x 800	5	440
MOD. DS 9	1820 x 650 x 310	86	87	1900 x 800	5	455



COIL WATER-SIDE PRESSURE DROP

The pressure drops refer to an average water temperature of 10°C for the Main coil and 60°C for the auxiliary coil.



TECHNICAL DATA

AIRFLOW/PRESSURE CURVES

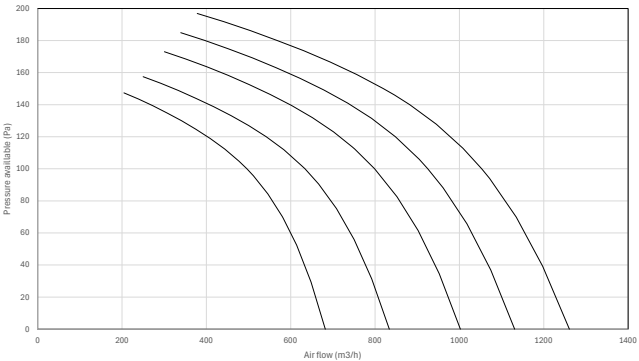
When the fan coil unit is connected to an air intake and/or distribution duct, pressure losses in the ducts cause a reduction in the fans' airflow. If the pressure losses are excessive, the unit's airflow may become too low, potentially damaging the electric motor driving the fans.

The maximum allowable static pressure for each fan coil speed corresponds to the operating point at 30% of the free-blower airflow at that speed.

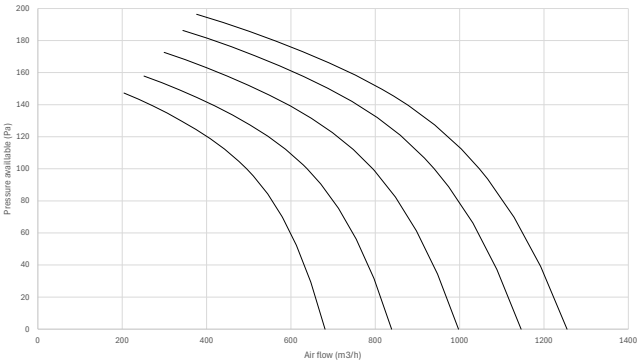
It is therefore recommended to operate the fan coil unit only at static pressure values below the maximum allowable limits.

2-Pipe

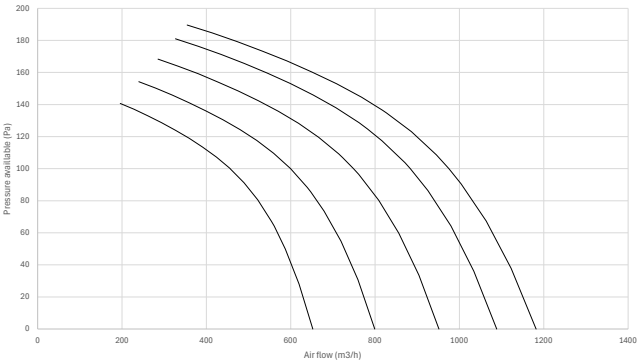
OPERA 1



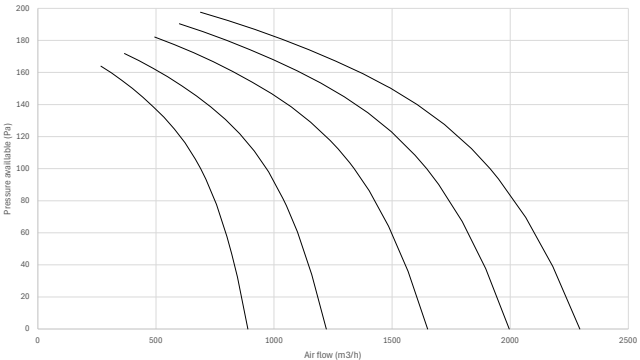
OPERA 2



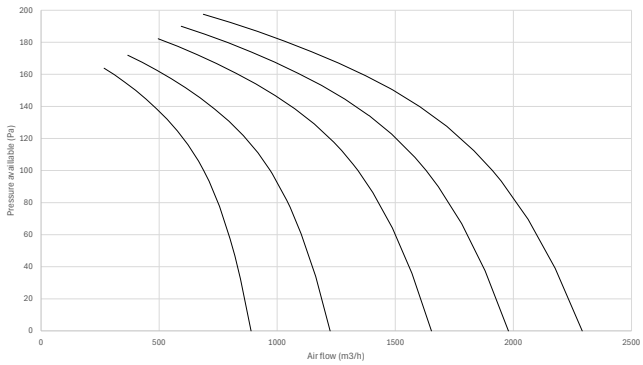
OPERA 3



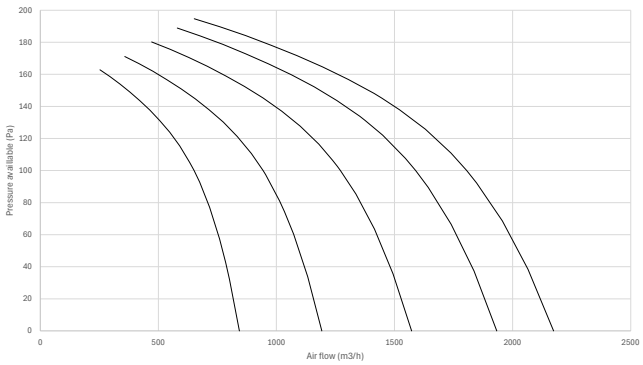
OPERA 4



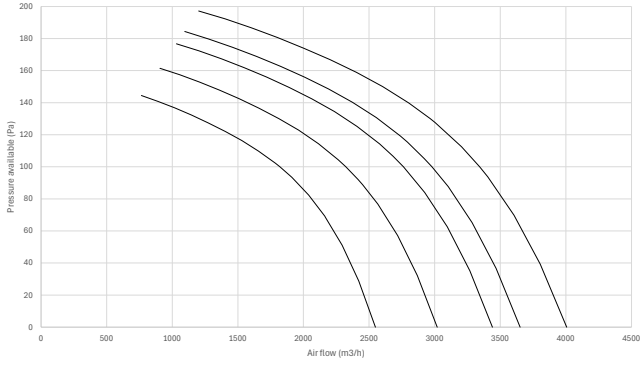
OPERA 5



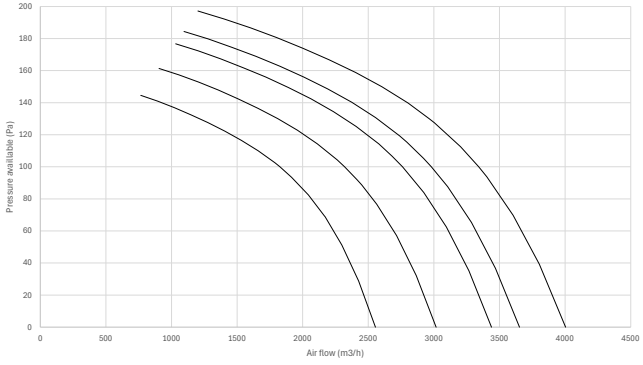
OPERA 6



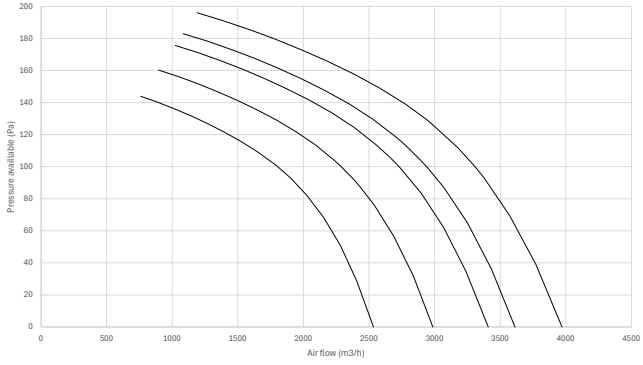
OPERA 7



OPERA 8



OPERA 9

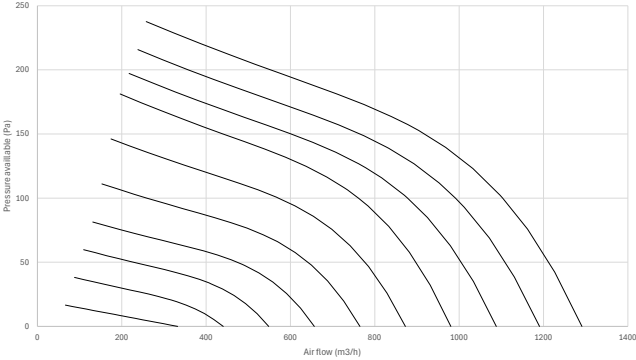


TECHNICAL DATA

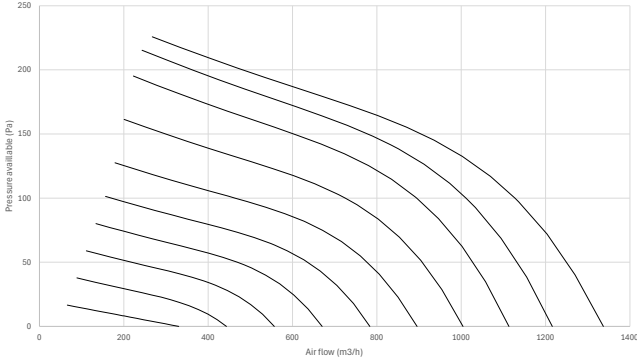
AIRFLOW/PRESSURE CURVES

2-Pipe

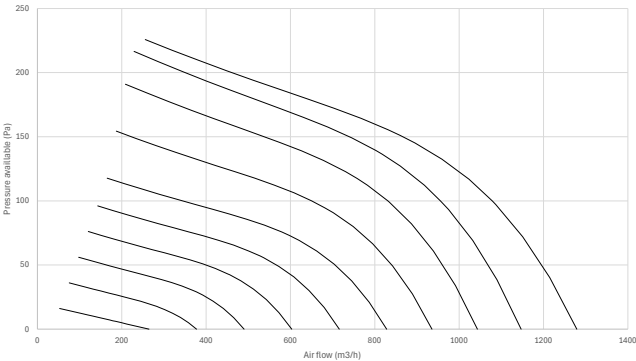
OPERA-ECM 1



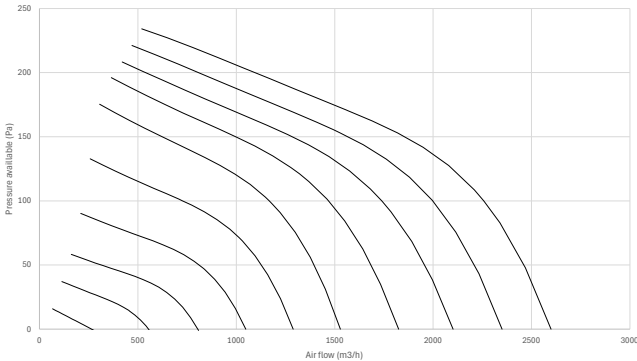
OPERA-ECM 2



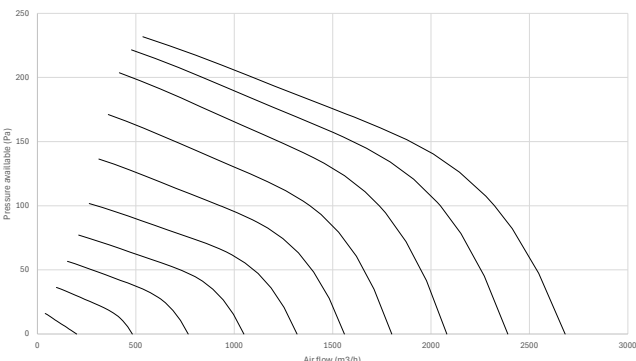
OPERA-ECM 3



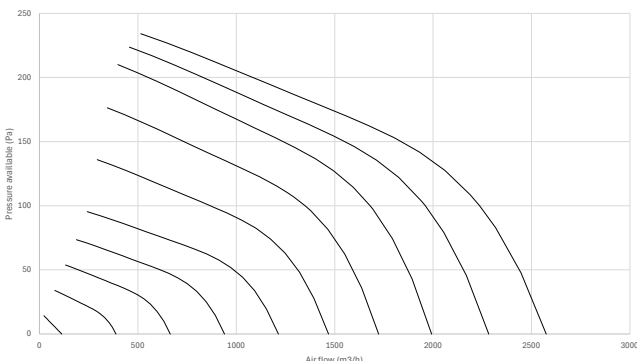
OPERA-ECM 4



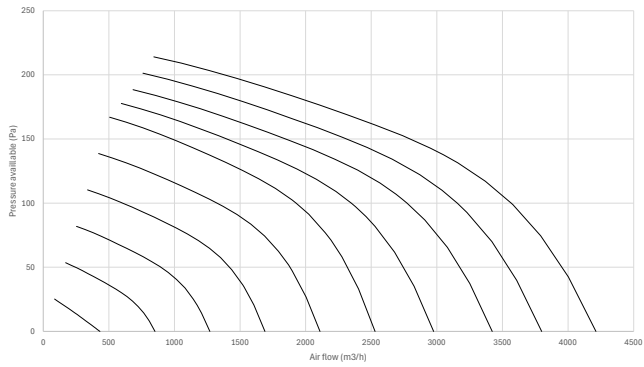
OPERA-ECM 5



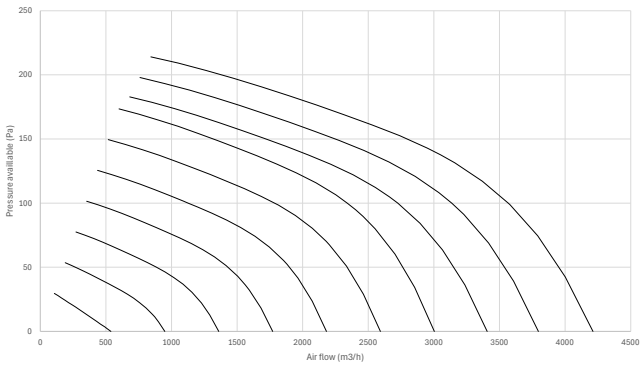
OPERA-ECM 6



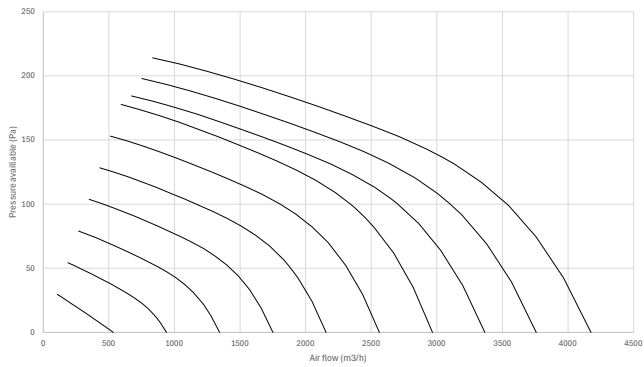
OPERA-ECM 7



OPERA-ECM 8



OPERA-ECM 9

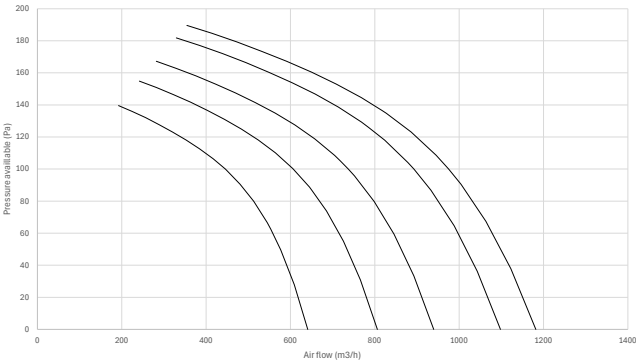


TECHNICAL DATA

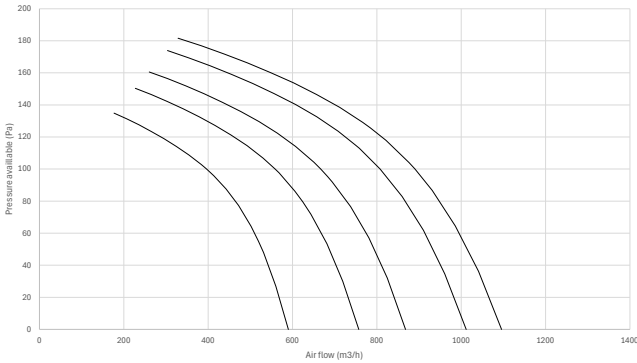
AIRFLOW/PRESSURE CURVES

4-Pipe

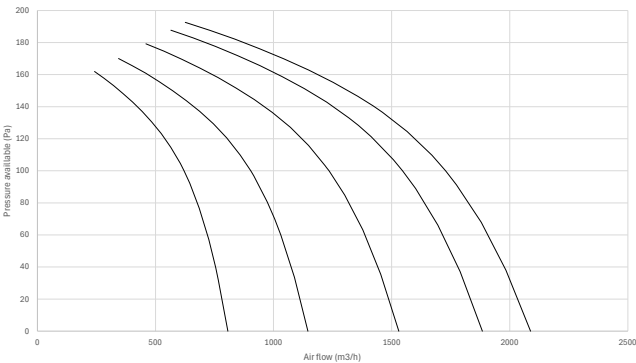
OPERA 2



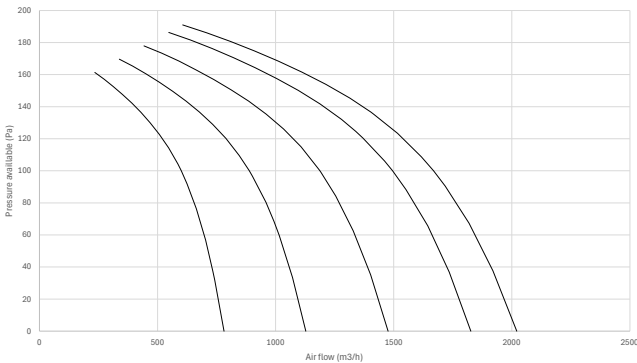
OPERA 3



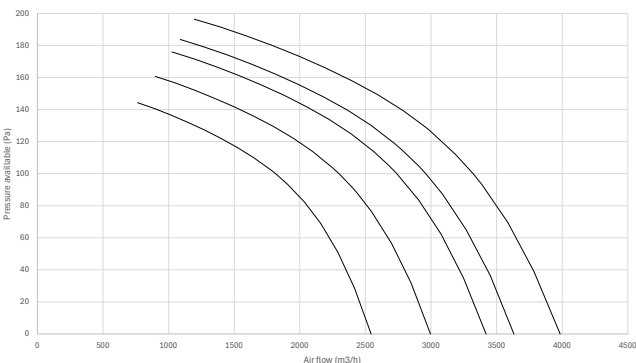
OPERA 5



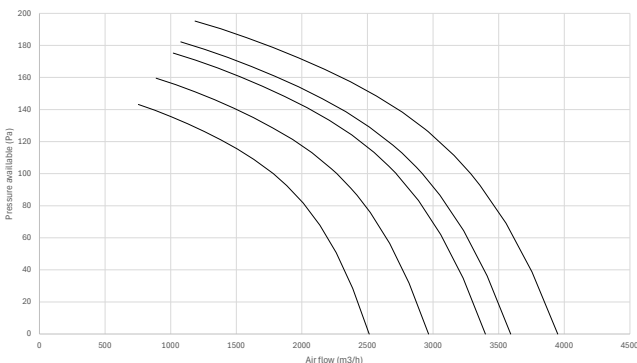
OPERA 6



OPERA 8

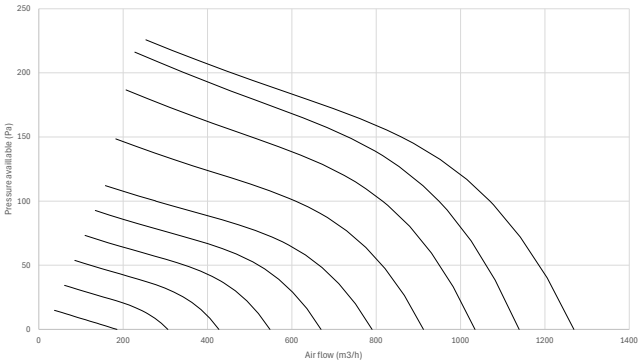


OPERA 9

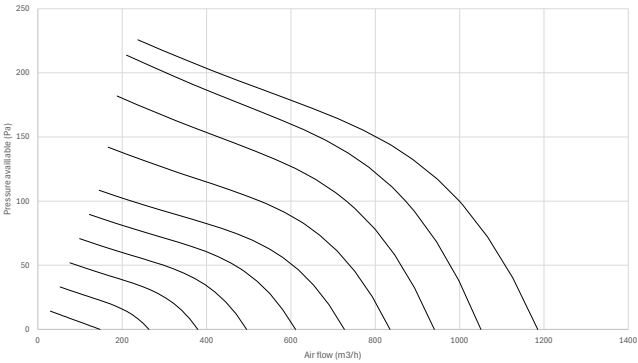


4-Pipe

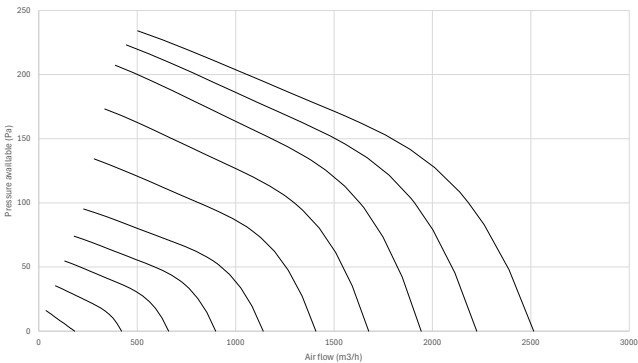
OPERA-ECM 2



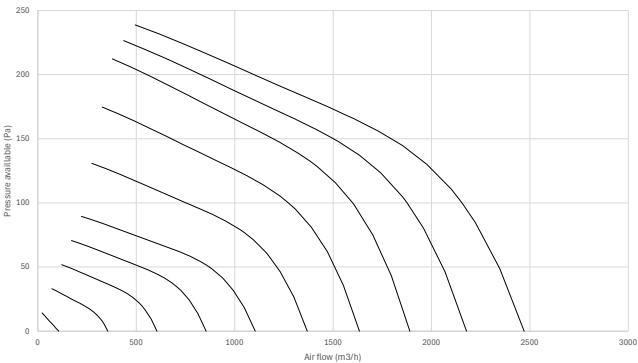
OPERA-ECM 3



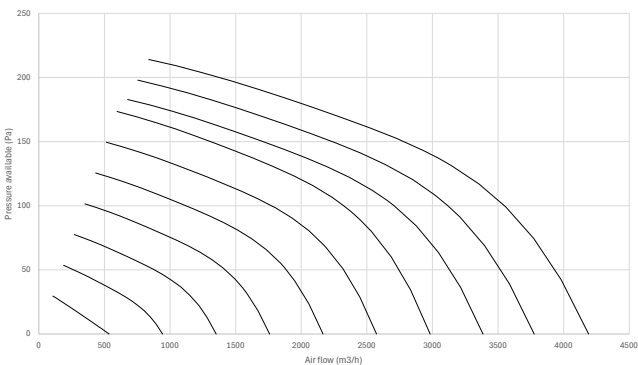
OPERA-ECM 5



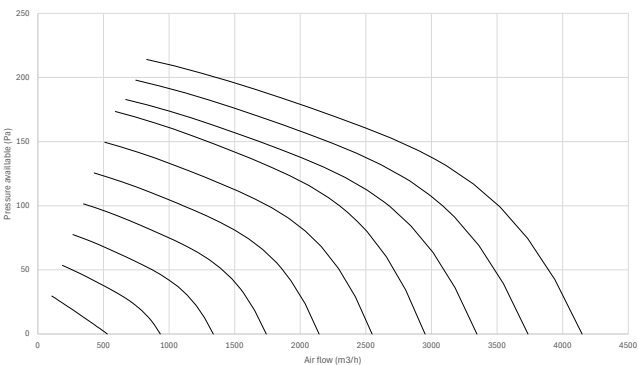
OPERA-ECM 6



OPERA-ECM 8



OPERA-ECM 9

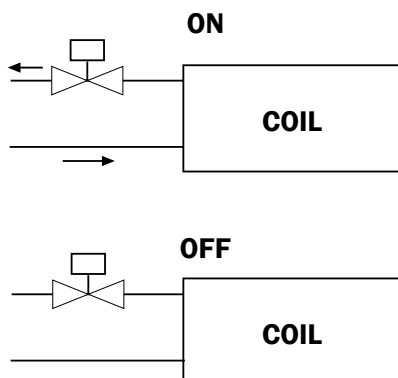


2- AND 3-WAY VALVE KITS

The 2-way and 3-way valve kits are available for both the Main coil and the auxiliary coil.

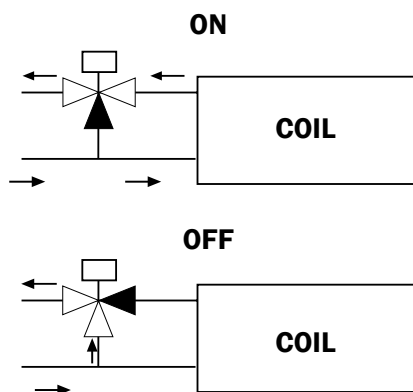
2-WAY VALVE KIT

Valve Operating Principle



3-WAY VALVE KIT

Valve Operating Principle



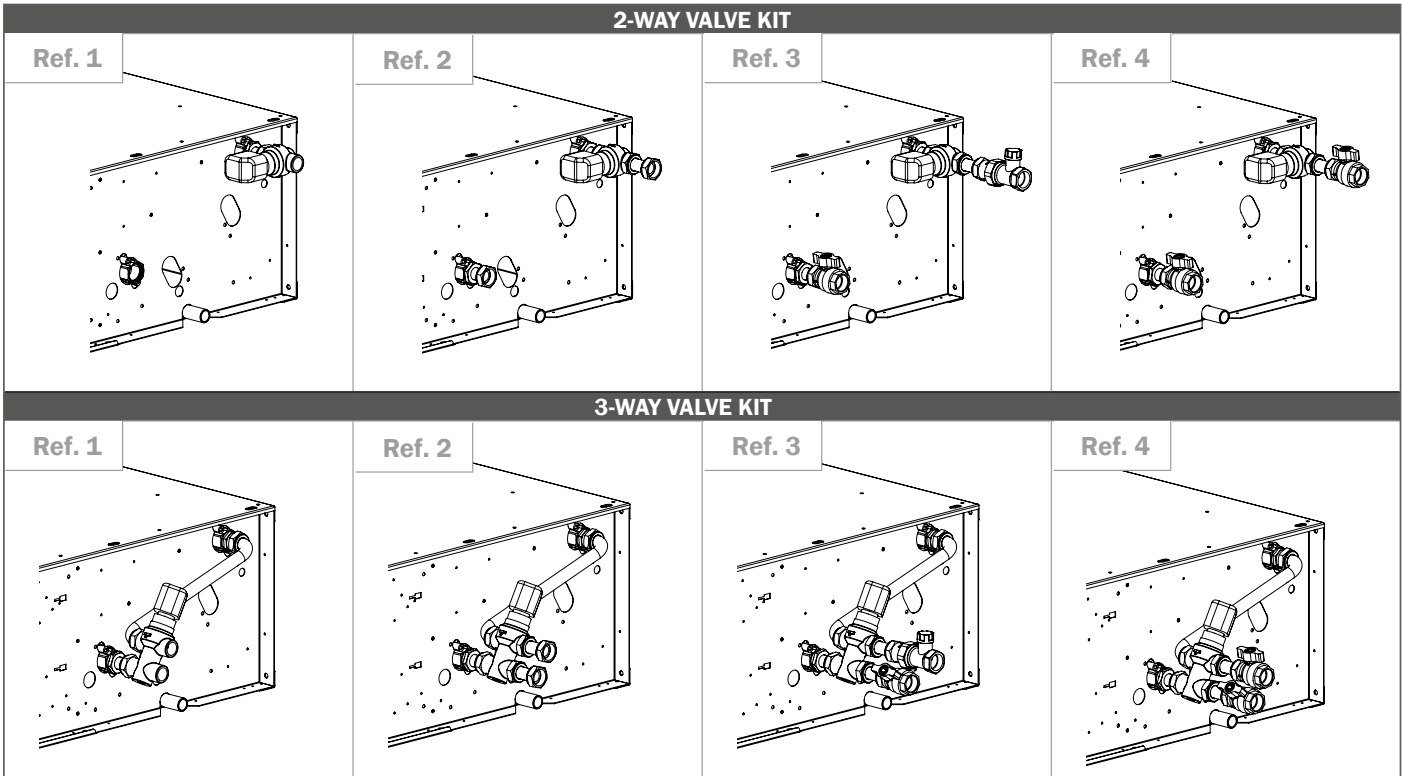
The valve body is made of brass or bronze, with hydraulic fittings in brass and connecting pipes in copper.

The 2-way and 3-way valves are equipped with a completely silent electric actuator, available in ON/OFF version with 230 V or 24 V power supply, or modulating version with 24 V power supply and 0–10 V control signal.

The basic kit includes the valve body, electric actuator, copper pipes, nuts, and gaskets for mounting to the fan coil unit. Valve kits are also available with copper pipes for connection to the system, ball valve and Balancing valve, or double ball valve.

VALVES

Ref. 1	Valve + Actuator
Ref. 2	Valve + actuator + copper tubes valve/system
Ref. 3	Valve + actuator + shut off valve + balancing valve
Ref. 4	Valve + actuator + 2 shut off valves



TECHNICAL DATA – 2- AND 3-WAY VALVE KITS (*)

Maximum Pressure	10 bar
Minimum Fluid Temperature	4 °C
Maximum Fluid Temperature	100 °C
Compatible Fluids	Water with glycol < 40%
Shutter Stroke	2.5 mm (sizes 1–6); 5.5 mm (sizes 7–9)
Bypass Leakage	< 0,02 % Kvs
Actuator Connection – Threaded Nut	M 30 x 1,5
Characteristic with Actuator	Normally Closed

TECHNICAL DATA – BALANCING VALVE (*)

Maximum Pressure	8 bar
Minimum Fluid Temperature	4 °C
Maximum Fluid Temperature	80 °C
Usable Fluids	Water with glycol < 30%

* Technical data refers to the valve kit or the Balancing valve only.

VALVES

ELECTRICAL DATA FOR 2-WAY AND 3-WAY VALVE ACTUATORS

230V ON/OFF ACTUATOR		1-7	8-9
Power Supply		230 V ac 50/60Hz	230 V ac 50/60Hz
Power Consumption in Operation		1,8W	5,3 VA
Initial Opening Time		90s	22s /mm
Protection Rating		IP54	IP 54
24V ON/OFF ACTUATOR		1-7	8-9
Power Supply		24V ac/dc 50/60Hz	24V ac 50/60Hz
Power Consumption in Operation		1,6W	4,0 VA
Initial Opening Time		3min	22s /mm
Protection Rating		IP54	IP 54
MODULATING ACTUATOR		1-7	8-9
Power Supply		24V ac/dc 50/60Hz	24V ac 50/60Hz
Action		Proportional	Proportional
Control		0/10V	0/10V
Control Signal Impedance		>100 kΩ	>100 kΩ
Power Consumption in Operation		2,5VA - 1,5W	4,0 VA
Stroke Time		8s/mm	22s /mm
Protection Rating		IP43	IP 54

HYDRAULIC DATA FOR VALVES AND BALANCING VALVES

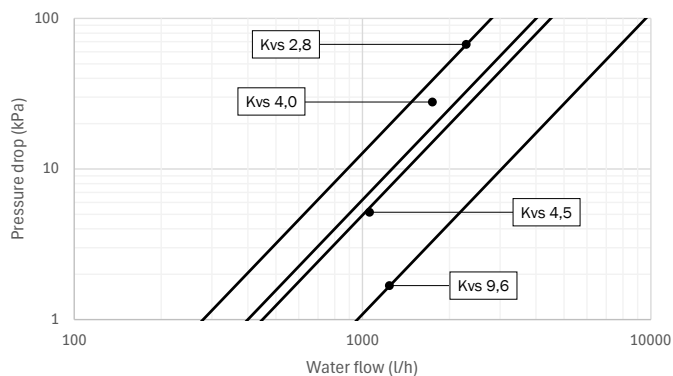
MAIN COIL											
			1	2	3	4	5	6	7	8	9
Valve Connection Diameter (Ø)			3/4"			1"			1"		
2-Way Valve	Kvs		4,0			4,5			9,6		
	Maximum Closing ΔP (bar)		1,0			0,7			1,4		
3-Way Valve	Kvs Straight way		4,0			4,5			9,6		
	Kvs by-pass		1,6			3,1			8,6		
	Maximum Closing ΔP (bar)		0,8			0,7			1,4		
Balancing Valves	Kvs		3,5			6,4			8,7		

AUXILIARY COIL										
			2	3	5	6	8	9		
Valve Connection Diameter (Ø)			3/4"				3/4"			
2-Way Valve	Kvs		2,8				4,0			
	Maximum Closing ΔP (bar)		1,5				1,0			
3-Way Valve	Kvs Straight Way		2,8				4,0			
	Kvs by-pass		1,8				1,6			
	Maximum Closing ΔP (bar)		1,0				0,8			
Balancing Valves	Kvs		3,5				3,5			

PRESSURE LOSSES IN VALVES AND BALANCING VALVE

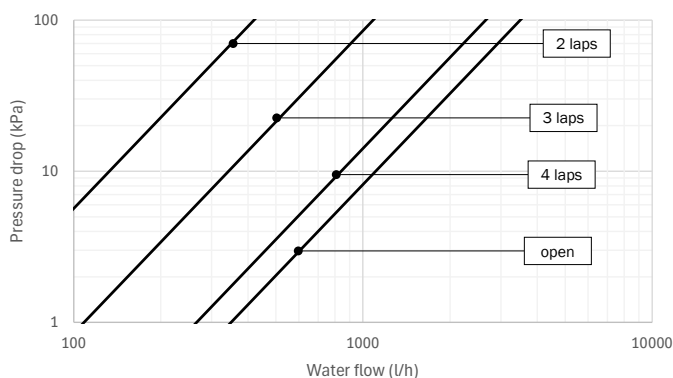
VALVE PRESSURE DROPS

Pressure drops of 2-way valves and 3-way valves (straight way)



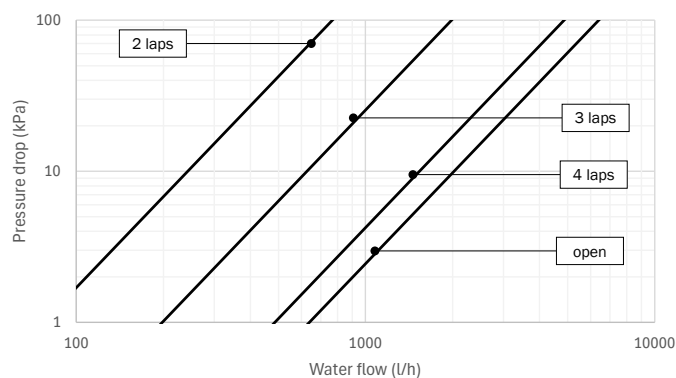
BALANCING VALVE PRESSURE DROPS

Pressure drop 3/4" Balancing valve Kvs 3.5



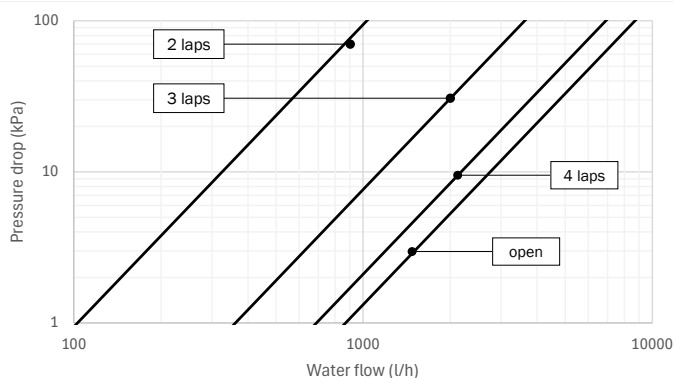
BALANCING VALVE PRESSURE DROPS

Pressure drops 1" Balancing valve Kvs 6.4



BALANCING VALVE PRESSURE DROPS

Pressure drop 1" Balancing valve Kvs 8.7



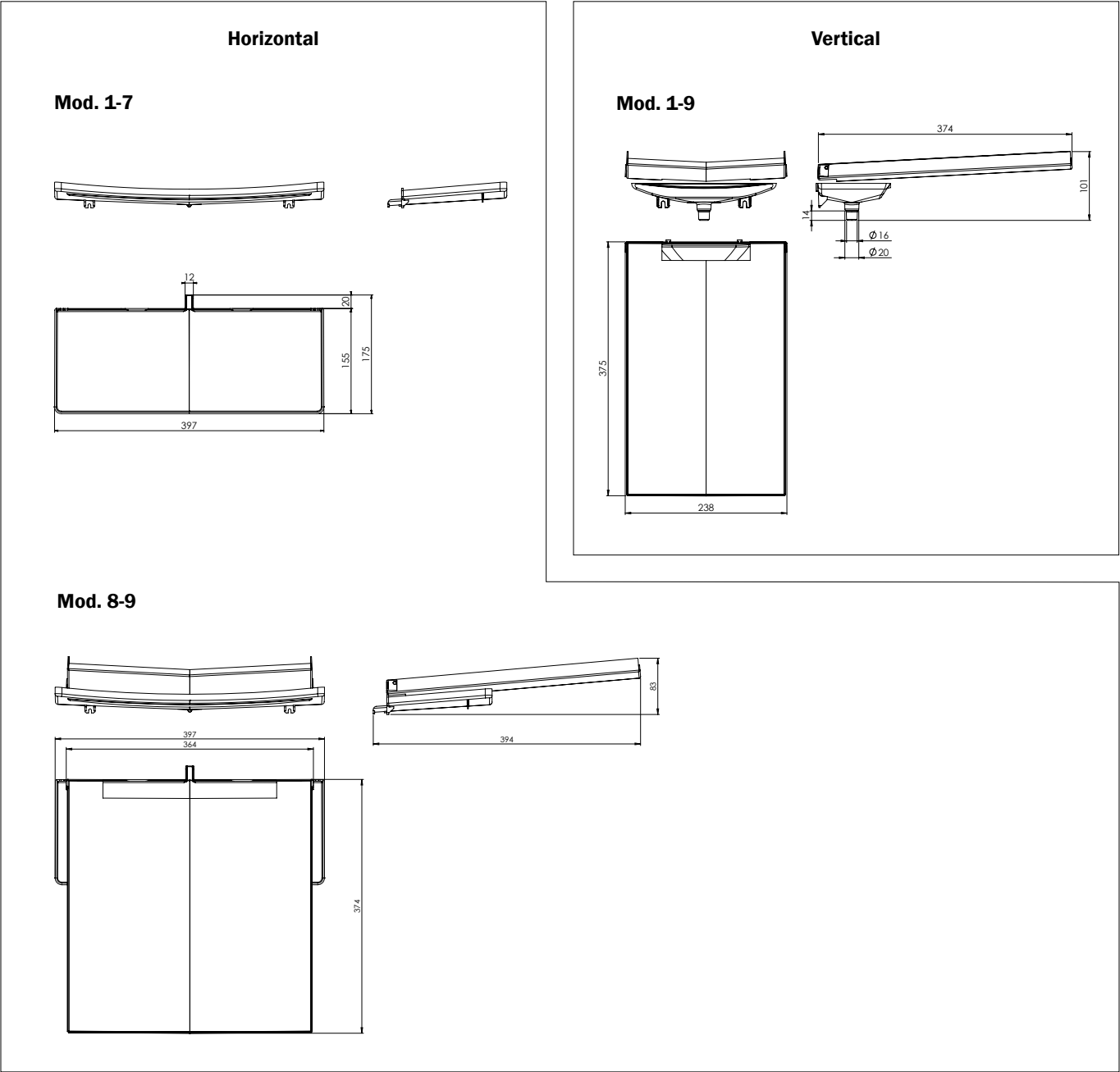
ACCESSORIES

AUXILIARY COIL

The auxiliary coil is added to the main coil to use the fan coil in 4-pipe systems with two separate hydraulic circuits for chilled water and hot water.
The auxiliary coil is only compatible with sizes 2-3-5-6-8-9.

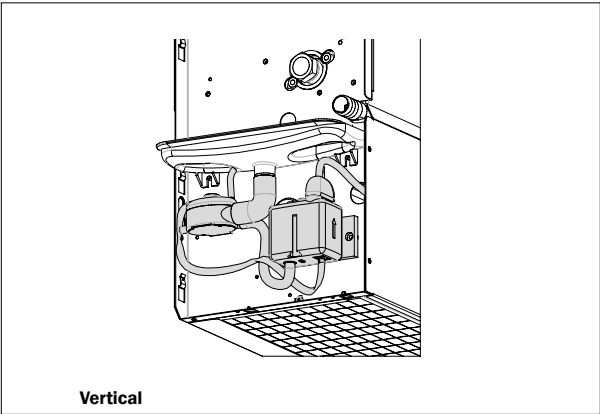
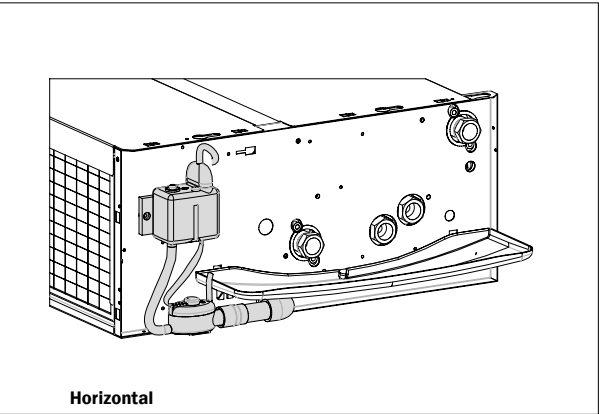
AUXILIARY CONDENSATION COLLECTION TRAY

The auxiliary condensate collection tray is made of ABS and/or metal and collects condensation drops that fall from the surfaces of the valve and the copper pipes connecting to the coil. If the valve kit also includes system pipes or a ball valve and Balancing valve or double ball valve, they will need to be insulated because they are located outside the auxiliary tray.

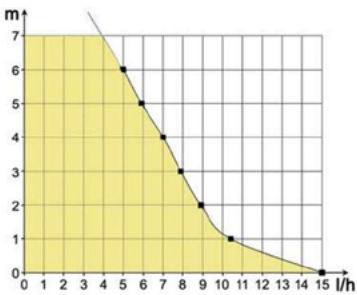


CONDENSATE DRAIN PUMP

The condensate drain pump is used when gravity drainage is not possible. The kit includes a float switch that automatically turns the pump on when there is water in the tank and turns it off when it has been completely drained. The float switch also has an alarm contact that can be used to close the chilled water solenoid valve if the condensate level in the tank is excessive.

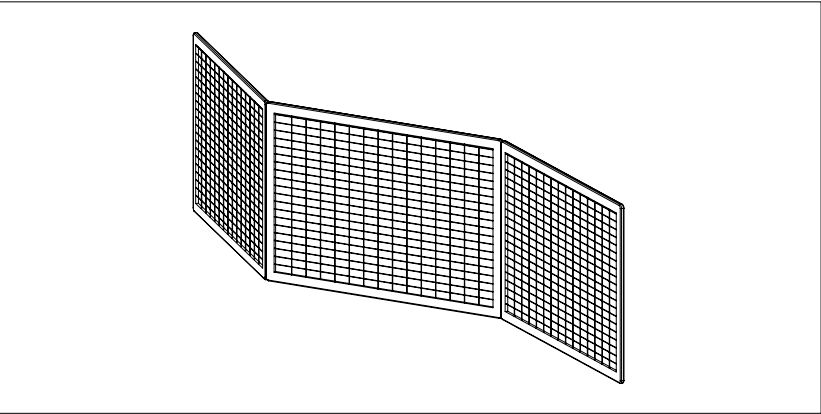


Power supply	230V – 1ph – 50/60Hz
Power consumption	19W
Maximum capacity	15 l/h
Maximum thrust height	10m
Maximum alarm contact current	3A
Protection rating	IP64
Thermal protection	YES
Operation	100%



BOOK-FOLDING AIR FILTER

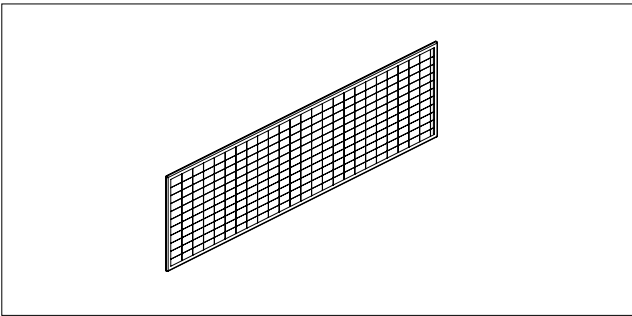
Air filter made of polypropylene filter media enclosed in a metal frame. It is interchangeable with the standard filter, having the same dimensions. Filtration class COARSE 30% according to ISO 16890 standard. It consists of 410 mm long foldable modules in a book-like design, allowing a reduction, compared to the standard filter, of the space required to remove the filter from the side.



ACCESSORIES

ISO COARSE 55% AIR FILTER

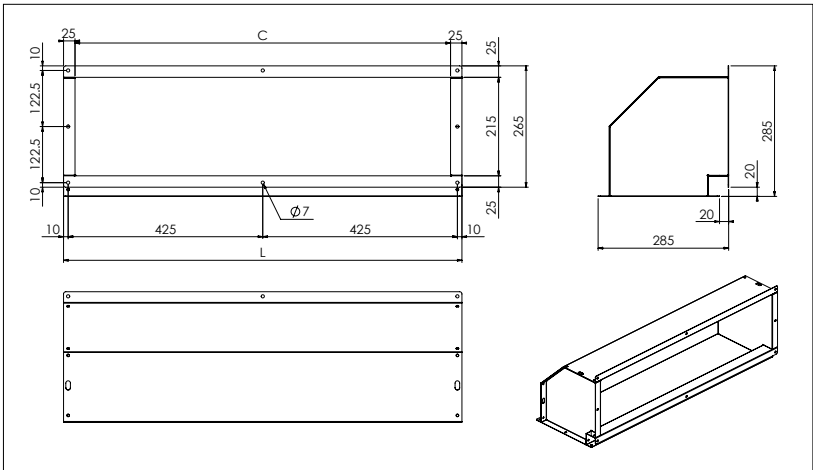
Air filter made of synthetic filter media enclosed in a 12 mm thick metal frame.
Filtration class COARSE 55% according to ISO 16890 standard.



90° PLENUM (RAM)

The 90° plenum is made of galvanized sheet metal and is available either insulated with anti-condensation material for supply air installation or uninsulated for return air installation.
For return air installation, it is not compatible with H-F and V-F versions.
This accessory cannot be connected directly to the fan coil unit's suction; the filter holder plenum accessory must be installed in between.

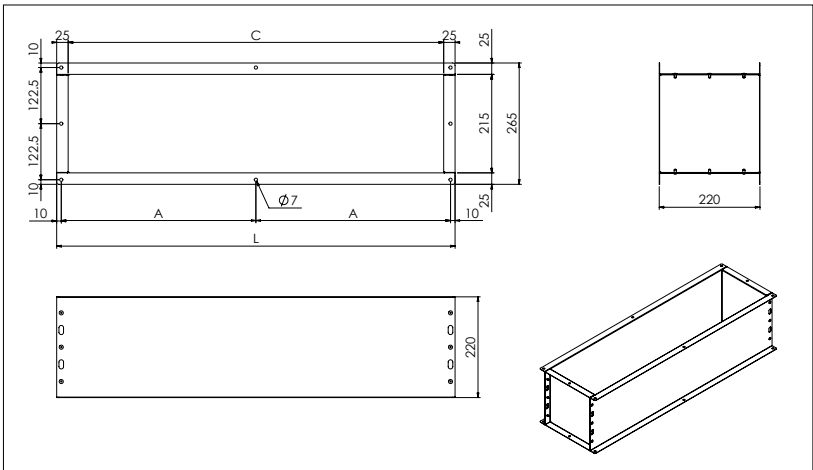
Model	L (mm)	A (mm)	C (mm)
1-2-3	870	425	820
4-5-6	1280	630	1230
7-8-9	1690	835	1640



STRAIGHT PLENUM (PAM)

The straight plenum is made of galvanized sheet metal and is available either insulated with anti-condensation material for supply air installation or uninsulated for return air installation.
For return air installation, it is not compatible with H-F and V-F versions.
This accessory cannot be connected directly to the fan coil unit's suction; the filter holder plenum accessory must be installed in between.

Model	L (mm)	A (mm)	C (mm)
1-2-3	870	425	820
4-5-6	1280	630	1230
7-8-9	1690	835	1640



FILTER HOLDER PLENUM FOR RETURN AIR DUCT

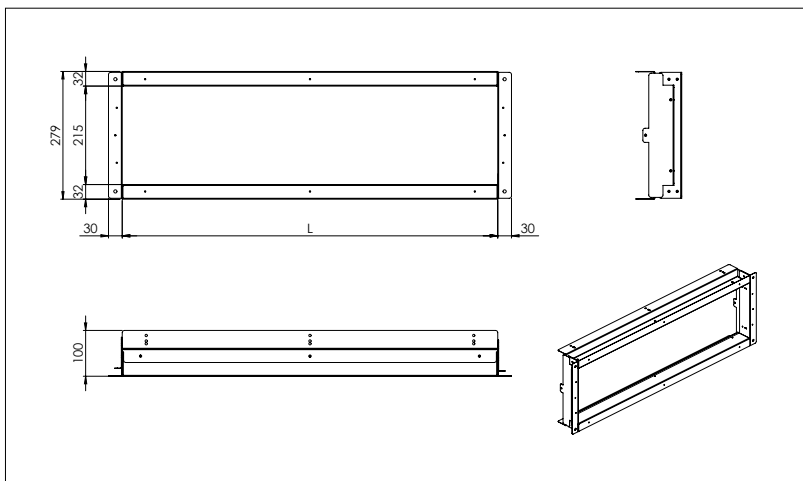
The filter holder plenum for the return air duct is made of galvanized sheet metal and is required to allow filter removal and motor cover panel access in installations where the suction must be ducted.

The filter holder plenum is therefore necessary whenever any air-handling accessory is installed on the suction side (straight plenum, 90° plenum, anti-vibration joint, suction collar) or whenever ducting is provided by the installer.

It is equipped with removable panels that allow the filter to be extracted either laterally or from below.

It is not compatible with H-F and V-F versions.

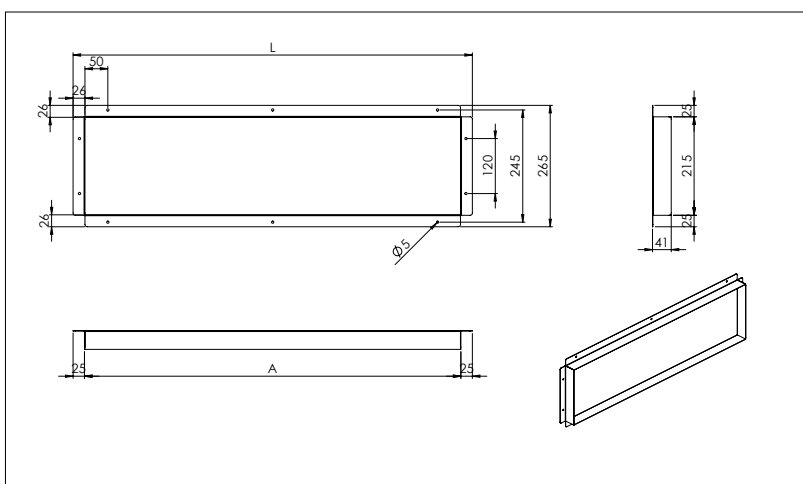
Model	L (mm)
1-2-3	820
4-5-6	1230
7-8-9	1640



STRAIGHT SUPPLY AND RETURN FLANGE

The structure of the fan coil unit and the filter holder plenum for the return air duct are suitable for connection to a duct with a flat flange. The straight flange is required when the duct does not have a flange and the connection is of the bayonet type. This accessory cannot be connected directly to the fan coil unit's suction; the filter holder plenum accessory must be installed in between.

Model	L (mm)	A (mm)
1-2-3	872	822
4-5-6	1282	1232
7-8-9	1692	1642



ACCESSORIES

PLENUM WITH CIRCULAR CONNECTIONS

The plenum with circular connection collars is made of galvanized sheet metal and is available either insulated with anti-condensation material for supply air installation or uninsulated for return air installation.

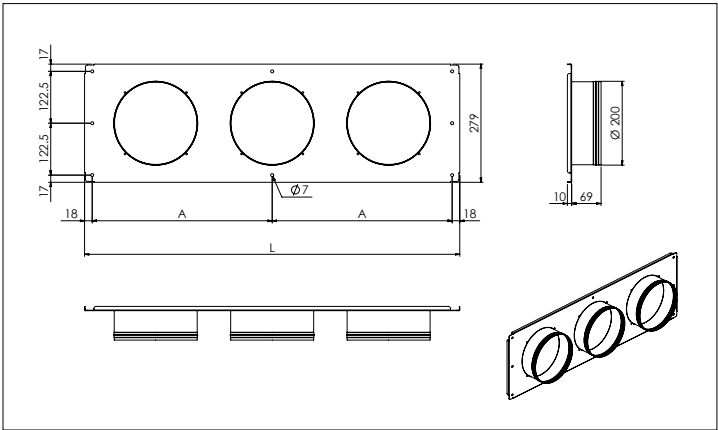
The circular connections are compatible with flexible ducting for air-handling systems.

For return air installation, it is not compatible with H-F and V-F versions.

This accessory cannot be connected directly to the fan coil unit's suction; the filter holder plenum accessory must be installed in between.

This accessory cannot be connected directly to the fan coil unit's supply; the straight plenum (PAM) or 90° plenum (RAM) accessory must be installed in between.

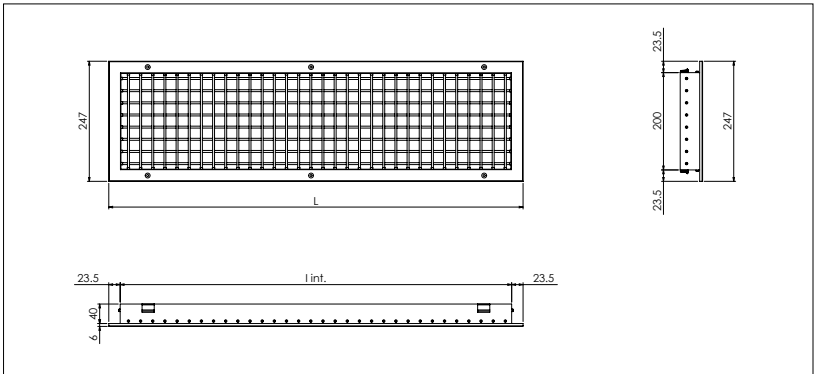
Model	L (mm)	A(mm)	Connections
1-2-3	886	425	3x $\phi 200$
4-5-6	1296	630	5x $\phi 200$
7-8-9	1706	835	6x $\phi 200$



SUPPLY AIR GRILLE

Supply air grille with double row of adjustable louvers, movable both horizontally and vertically. The grille is made of aluminum with an anodized finish and is equipped with holes for screw mounting (screws not included, to be selected according to the supporting material).

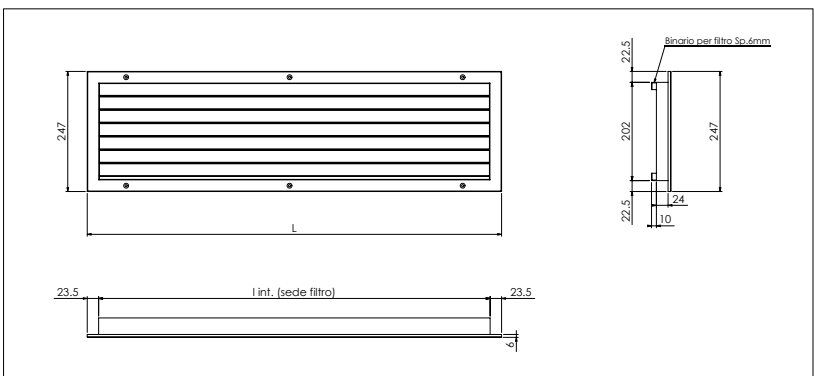
Model	L (mm)	I int.
1-2-3	855	808
4-5-6	1265	1218
7-8-9	1675	1628



RETURN AIR GRILLE

Return air grille with fixed horizontal louvers. The grille is made of aluminum with an anodized finish and is equipped with holes for screw mounting (screws not included, to be selected according to the supporting material). The grille includes an integrated filter, so it is necessary to remove either the filter supplied with the fan coil unit or the filter supplied with the return air grille.

Model	L (mm)	I int.
1-2-3	855	808
4-5-6	1265	1218
7-8-9	1675	1628



ACCESSORIES

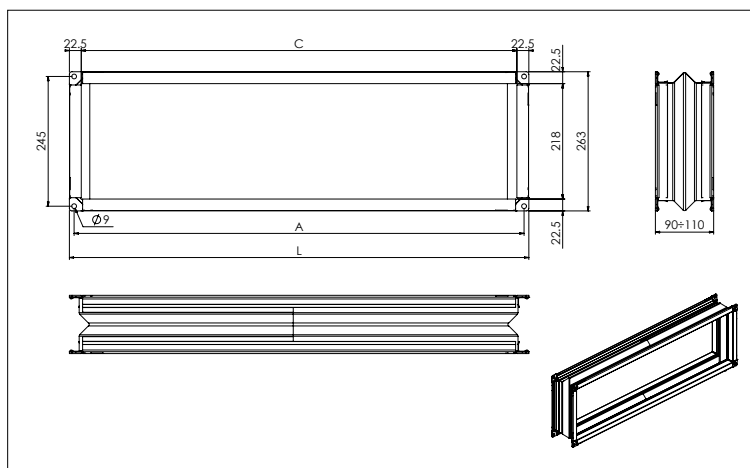
ANTI-VIBRATION JOINT (GAM)

The anti-vibration joint is made of two galvanized sheet metal flanges with an interposed fabric strip that dampens vibrations transmitted from the unit to the duct.

For return air installation, it is not compatible with H-F and V-F versions.

This accessory cannot be connected directly to the fan coil unit's suction; the filter holder plenum accessory must be installed in between.

Model	L (mm)	A (mm)	C (mm)
1-2-3	868	850	823
4-5-6	1278	1260	1233
7-8-9	1688	1670	1643



ELECTRIC HEATER (SRE)

The electric heater is used to heat the environment as a substitute for the hydronic coil. The kit includes aluminum heating elements, an automatic reset safety thermostat, a manual reset safety thermostat, a power relay, and all electrical wiring, already assembled and mounted at the factory, for complete operation of the device.

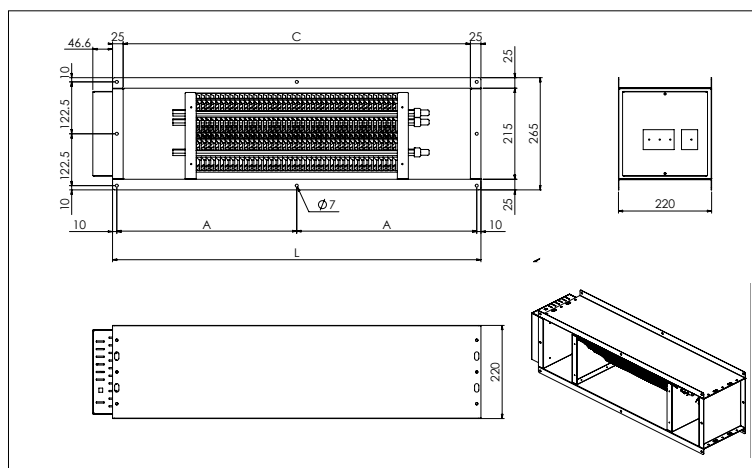
The following are not allowed:

- The simultaneous use of the electric heater and the hydronic heating coil;
- Operation of the electric heater when the ambient temperature exceeds 23 °C;
- Operation of the electric heater with airflow rates below:
 1. 700m³/h for OPERA 1-2-3
 2. 1100m³/h for OPERA 4-5-6
 3. 1600m³/h for OPERA 7-8-9

The controller used must have specific logic for managing the electric heater, including a post-ventilation function to cool down the heating elements.

Model	L (mm)	A (mm)	C (mm)	Power
1-2-3 A	870	425	820	4500 W
1-2-3 B	870	425	820	6000 W
4-5-6 A	1280	630	1230	7500 W
4-5-6 B	1280	630	1230	9600 W
7-8-9 A	1690	835	1640	9000 W
7-8-9 B	1690	835	1640	13200 W

Power Supply	400V - 3ph+N - 50/60Hz
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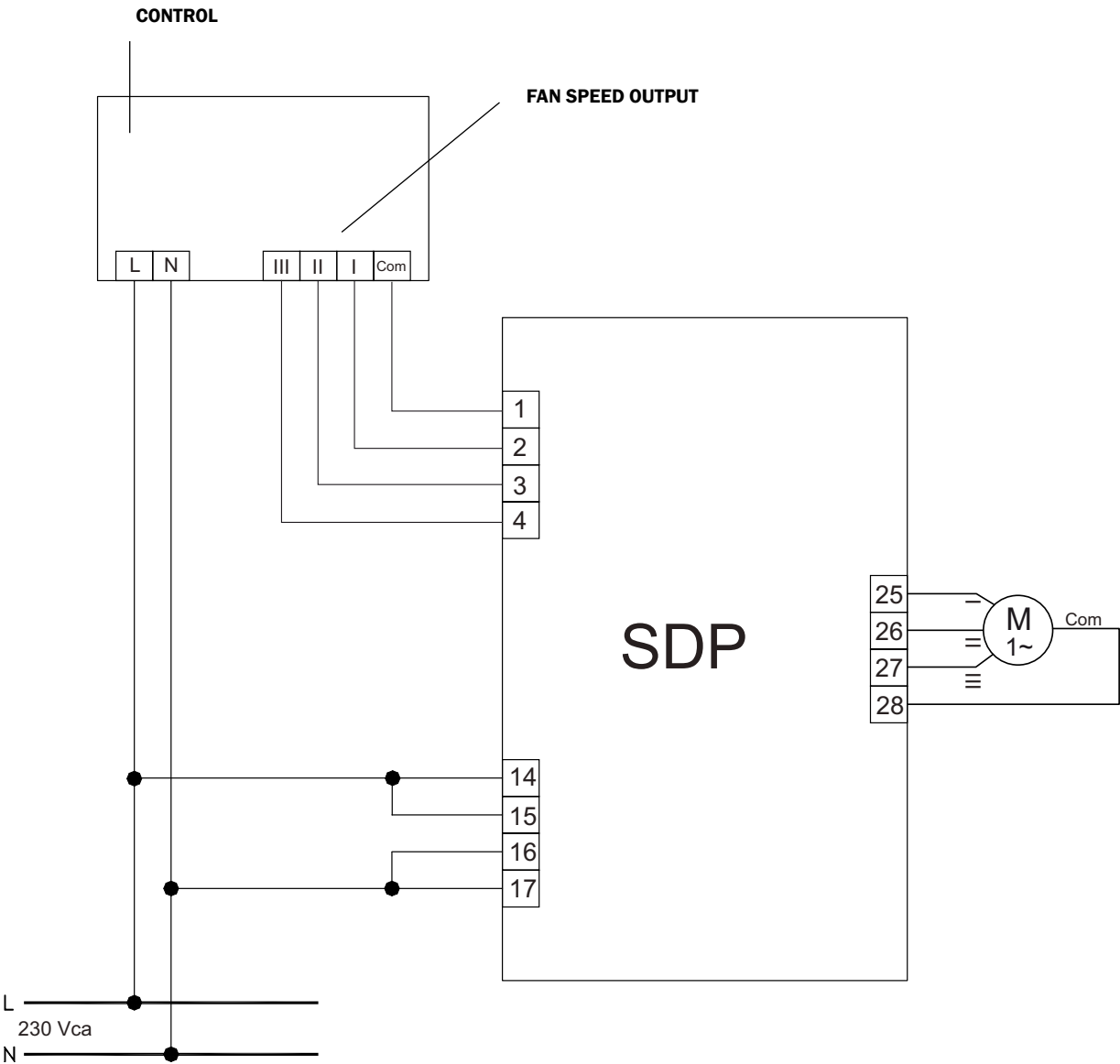


ACCESSORIES

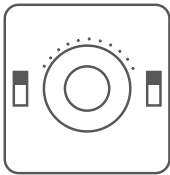
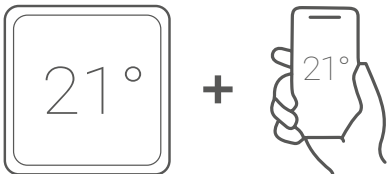
SDP INTERFACE BOARD

The SDP power interface is installed between the thermostat and the fan coil unit and must be used to control the fan coil motor when the current drawn by the motor exceeds the current rating of the thermostat contacts. The board is housed in a plastic enclosure with a DIN rail mount and has a size of 6 modules.

Power Supply	230V - 50/60Hz
Rated Contact Current	10A - 250Vac
Single-Phase Motor Power (230 V AC)	0,55W - 3/4HP
Dimensions	105x90x70mm (6 DIN modules)



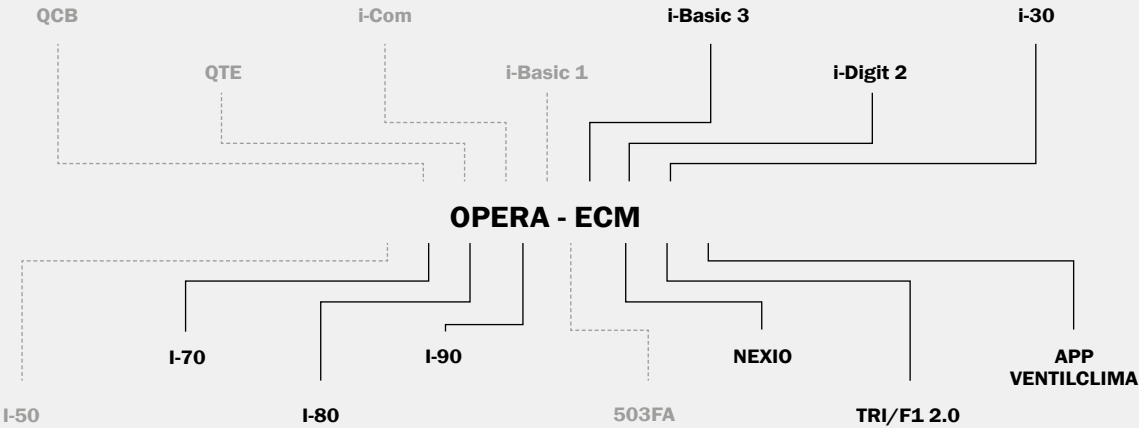
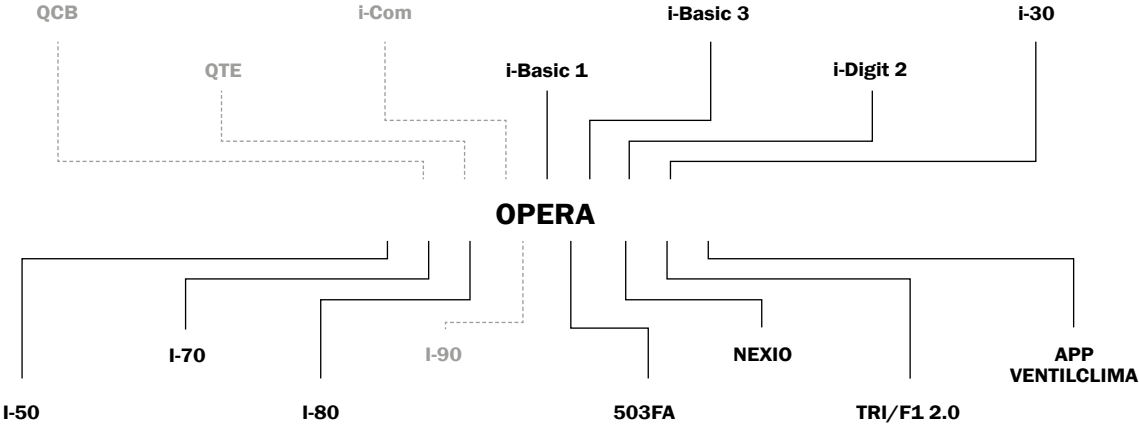
REGULATOR COMPATIBILITY

	Control	Descrizione - Description
TERMOSTATI BASE - BASIC THERMOSTATS 	QCB	Controllo base con selettore di velocità e stagione (senza gestione della temperatura ambiente) <i>Base control with speed and season selector (without room temperature control)</i>
	QTE	Termostato base elettronico con selettore di velocità e stagione <i>Base electronic thermostat with speed and season selector</i>
	i-Com	Controllo base con selettore di velocità e stagione (senza gestione della temperatura ambiente) <i>Base control with speed and season selector (without room temperature control)</i>
	i-Basic 1	Termostato base elettronico con selettore di velocità e stagione <i>Base electronic thermostat with speed and season selector</i>
	i-Basic 3	Termostato elettronico con selettore di velocità, stagione e DIP-SWITCH di programmazione <i>Base electronic thermostat with speed and season selector and programming DIP switch</i>
TERMOSTATI EVOLUTI - ADVANCED THERMOSTATS 	i-Digit 2	Cronotermostato elettronico parametrico con display LCD e protocollo Modbus <i>Electronic parametric chronothermostat with LCD display and Modbus protocol</i>
	i-30	Termostato elettronico parametrico con display LCD <i>Electronic parametric thermostat with LCD display</i>
	i-50	Termostato elettronico parametrico con display LCD <i>Electronic parametric thermostat with LCD display</i>
	i-70	Termostato elettronico touch parametrico con display LCD, protocollo Modbus e Bacnet <i>Electronic parametric touch thermostat with LCD display, Modbus and Bacnet protocol</i>
	503FA	Termostato elettronico parametrico da incasso con display LCD <i>Built-in electronic parametric thermostat with LCD display</i>
	NEXIO	Controllo elettronico di temperatura con protocollo KNX; abbinabile ad interfaccia da parete touch con display LCD <i>Electronic temperature control with KNX protocol; compatible with wall-mounted touch interface thermostat with LCD display</i>
	TRI/F1 2.0	Controllo elettronico di temperatura con protocollo Modbus; abbinabile a telecomando (IR-C) o a interfaccia da parete (RWI ECM1-2) <i>Electronic temperature control with Modbus protocol; compatible with remote control (IR-C) or wall-mounted interface (RWI ECM1-2)</i>
TERMOSTATI EVOLUTI + APP - ADVANCED THERMOSTATS + APP 	i-80	Cronotermostato elettronico touch parametrico con display, protocollo Modbus e connettività Wi-Fi per gestione tramite App <i>Electronic parametric touch chronothermostat with display, Modbus protocol, and Wi-Fi connectivity for App-based control</i>
	i-90	Cronotermostato elettronico touch parametrico con display a colori e connettività Wi-Fi per gestione tramite App <i>Electronic parametric touch chronothermostat with color display and Wi-Fi connectivity for App-based control</i>
APP VENTILCLIMA - VENTILCLIMA APP 	APP VENTILCLIMA	Controllo elettronico di temperatura con connettività Wi-Fi per gestione tramite App <i>Electronic temperature control with Wi-Fi connectivity for App-based management</i>
SISTEMI DI SUPERVISIONE - BMS SUPERVISION SYSTEMS 	EFLO	Sistema di gestione centralizzata di reti di ventilconvettori, idoneo per applicazioni civili e terziarie quali abitazioni, uffici, strutture collettive, B&B e complessi alberghieri <i>Centralized management system for fan coil networks, designed for residential, office, and hospitality applications, from homes to shared spaces, B&Bs, and large hotels</i>

REGULATOR COMPATIBILITY

Scheda di potenza per controllo a 3 velocità
Power chart for 3-speed control
Fiche de puissance pour contrôle à 3 vitesses
Leistungsplatine zur Steuerung mit 3 Geschwindigkeiten
Tarjeta de alimentación para el control de 3 velocidades

	i-Basic 1	i-Basic 3	i-Digit 2	i-30	i-50	i-70	i-80	503FA	NEXIO	TRI/F1 2.0
Mod. 1	○	○	○	○	○	○	○	○	○	○
Mod. 2	○	○	○	○	○	○	○	○	○	○
Mod. 3	○	○	○	○	○	○	○	○	○	○
Mod. 4	○	○	○	○	○	○	○	○	○	○
Mod. 5	○	○	○	○	○	○	○	○	○	○
Mod. 6	○	○	○	○	○	○	○	○	○	○
Mod. 7	○	○	○	○	○	○	○	○	○	○
Mod. 8	○	○	○	○	○	○	○	○	○	○
Mod. 9	○	○	○	○	○	○	○	○	○	○



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a trademark of A GROUP S.p.A.

A GROUP S.p.A.

Via Monte Grappa, 67
31020 San Zenone degli Ezzelini (TV) - Italy
Tel. +39 0423 969037 - Fax +39 0423 968197
info@ventilclima.com - www.ventilclima.com
www.aliseogroup.com

