

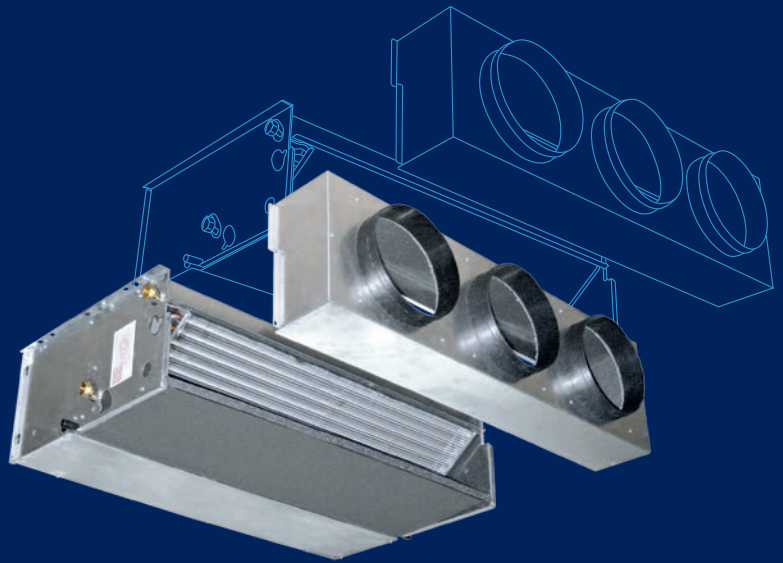


Cert. n° 0545



www.eurovent-certification.com

NEW
Wall controls
Compliant with ERP 2015 Regulation (EU) No. 327/2011



Air Conditioning
Carisma CRSO High Pressure Fan Coil Units



SABIANA
IL CLIMA AMICO

INTRODUCTION

In line with innovative trends and modern industrial design, the **Carisma CRSO** fan coil range meets today's demanding requirements of performance, size, acoustics, low energy, ease of installation and maintenance. The **Carisma CRSO** fan coil unit has been designed around a platform of models, versions and accessories, all of which have been independently tested and certified by Eurovent.

All **Carisma CRSO** fan coils with centrifugal fans are equipped with electric motors which reduce electrical consumption comparative to previous models, with 5 speed motors as standard offering greater flexibility in the selection of products.

New market trends have also led to an extension of the four pipe model which now has a two row LTHW battery giving improved outputs at lower flow and return temperatures.

A full range of control options is available offering greater flexibility in the installation of units, with the highest precision in monitoring and maintaining the desired comfort conditions.

The **Carisma CRSO** model is complemented with a full range of accessories: various types of adjustment valves, additional electric heater, auxiliary condensate pump, air inlet/outlet diffusers for fitted installations.

CONTENTS

• Presentation	Page 3
• Construction features	Page 3
• Dimension, Weight, Water content	Page 4
• EUROVENT Certification	Page 6
• Main performance and technical characteristics	Page 7
• Cooling emission tables	Page 8
• Heating emission tables	Page 12
• Correction factors table	Page 14
• Operation limits	Page 16
• Water pressure drop	Page 17
• Accessories	Page 18
• Wall electronic controls	Page 29
• Controls for MB version	Page 30



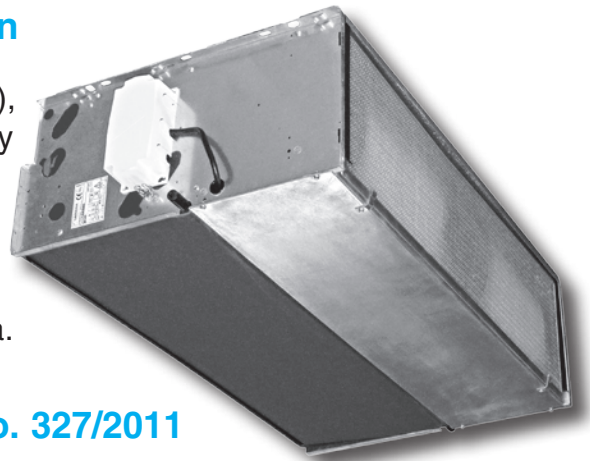
Sabiana take part to the Eurovent program of fan coil performance certification. The official figures are published in the web site www.eurovent-certification.com. The tested performances are:

- | | | | | | |
|--|------------------|----------------|--|----------------|----------------|
| • Cooling total emission at the following conditions: | | | • Cooling sensible emission at the following conditions: | | |
| - Water temperature | +7°C E.W.T. | +12°C L.W.T. | - Water temperature | +7°C E.W.T. | +12°C L.W.T. |
| - Entering air temperature | +27°C dry bulb | +19°C wet bulb | - Entering air temperature | +27°C dry bulb | +19°C wet bulb |
| • Heating emission (2 pipe units) at the following conditions: | | | • Heating emission (4 pipe units) at the following conditions: | | |
| - Water temperature | +45°C E.W.T. | +40°C L.W.T. | - Water temperature | +65°C E.W.T. | +55°C L.W.T. |
| - Entering air temperature | +20°C | | - Entering air temperature | +20°C | |
| • Available pressure | • Fan absorption | | • Water pressure drop | • Sound power | |

Carisma CRSO version with centrifugal fan

Range includes 4 air flow rates (from 375 to 2220 m³/h), each equipped with 3 or 4 row coil and with the possibility to add a 1 or 2 row coil for 4 pipe systems.

It is the most comprehensive range, perfect to meet all air-conditioning requirements of work environments like offices, shops, restaurants and hotel rooms featuring ducted installations with available pressure up to 80 Pa.



Compliant with ERP 2015 Regulation (EU) No. 327/2011

Construction features

Casing

Made from 1 mm galvanized steel insulated with 3mm polyolefin (PO) foam (class M1).

Filter

Polypropylene cellular fabric regenerating filter.

The filter frame of galvanized steel is inserted into special plastic sliding guides fastened to the internal structure for easy insertion and removal of the filter.

Fan assembly

The fans have aluminium or plastic blades directly keyed on the motor with double aspiration and they are dynamically and statically balanced during manufacture in order to have an extremely quiet operation.

Electric motor

The motor is wired for single phase and has five speeds 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.

Coil

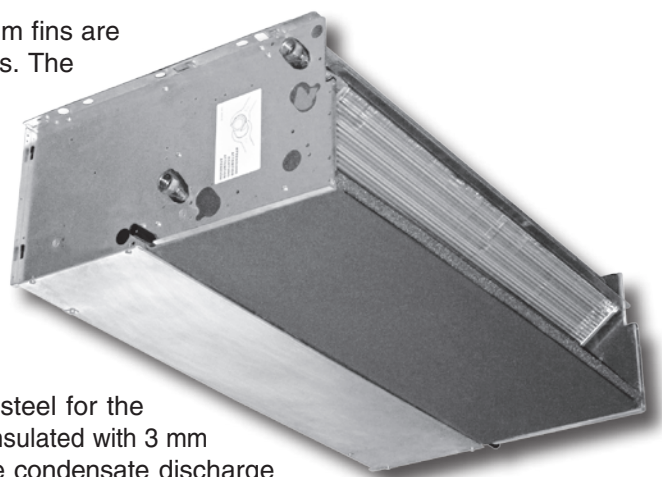
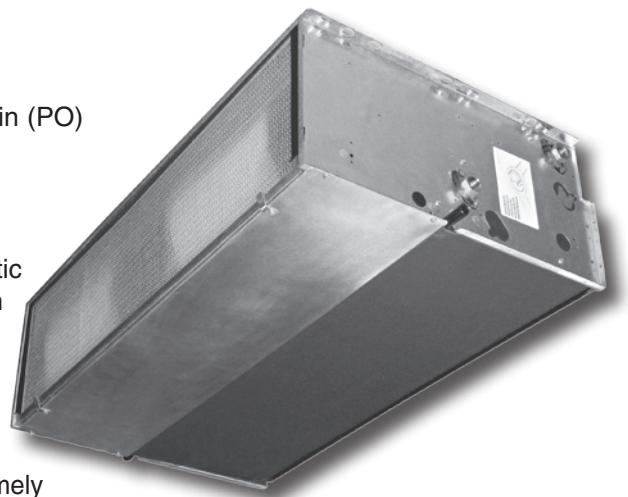
It is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain.

The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion. The connections are on the left hand side looking from the air outlet of the unit (see picture).

On request or on site the connections can be moved to the other side.

Condensate collection tray

Made of plastic (ABS UL94 HB) for sizes 1÷3 and painted steel for the size 4 with a "L"-shaped fitted on the inner casing; the tray is insulated with 3 mm polyolefin (PO) foam (class M1). The outside diameter of the condensate discharge pipe is 15mm.

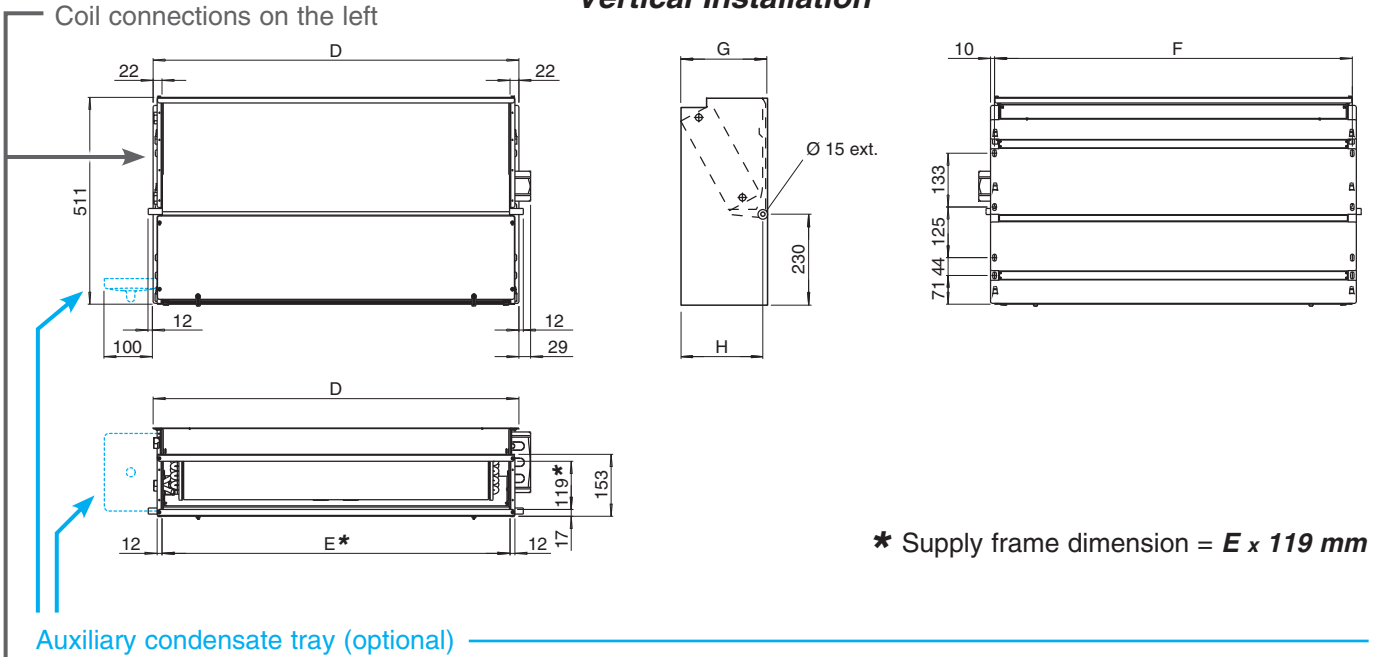


Accessories and Controls

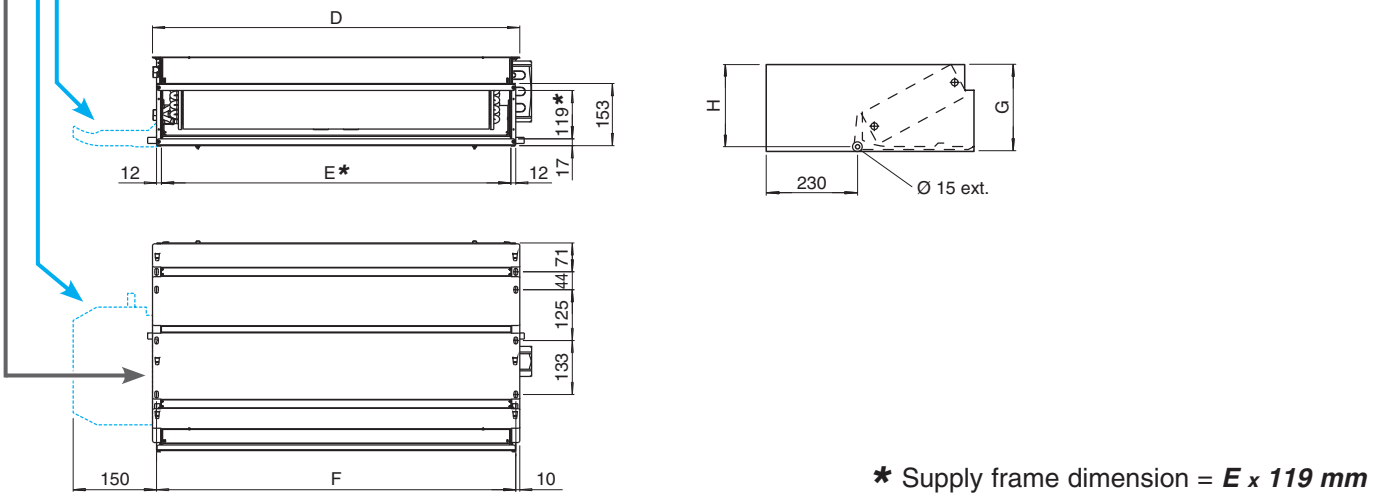
See pages 18 - 29.

Dimension, Weight, Water content

Vertical Installation

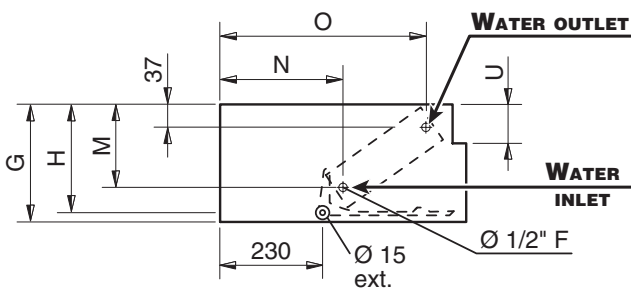


Horizontal Installation

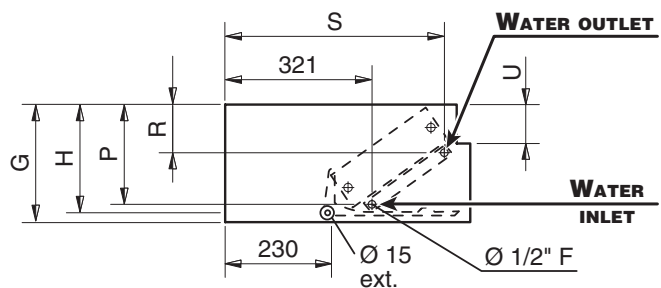


COIL CONNECTIONS

3 or 4 row coils

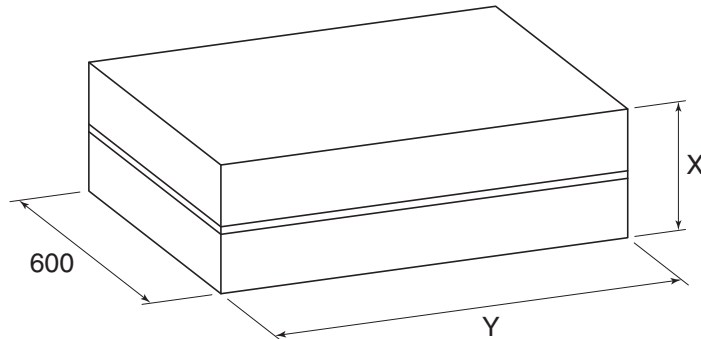


Heating additional coil (1 or 2 rows)



Dimension, Weight, Water content

PACKAGING



Dimension (mm)

MODEL	1	2	3	4
<i>D</i>	689	904	1119	1570
<i>E</i>	645	860	1075	1526
<i>F</i>	669	884	1099	1550
<i>G</i>	218	248	248	248
<i>H</i>	205	235	235	235
<i>M</i>	145	170	170	170
<i>N</i>	260	270	270	270
<i>O</i>	460	450	450	450
<i>P</i>	185	210	210	210
<i>R</i>	105	110	110	110
<i>S</i>	475	465	465	465
<i>U</i>	65	95	95	95
<i>X</i>	260	290	290	290
<i>Y</i>	820	1035	1250	1790

Weight (kg)

		<i>Weight with packaging</i>				<i>Weight without packaging</i>			
MODEL		1	2	3	4	1	2	3	4
Rows	<i>3</i>	19,1	26,1	30,4	47,7	17,3	23,5	27,3	43,3
	<i>3+1</i>	20,3	27,6	32,2	50,0	18,5	25,0	29,1	45,6
	<i>3+2</i>	21,0	28,5	33,3	–	19,2	25,9	30,2	–
	<i>4</i>	20,1	27,4	31,9	49,5	18,3	24,8	28,8	45,1
	<i>4+1</i>	21,3	28,9	33,7	51,8	19,5	26,3	30,6	47,4

Water content (litres)

MODEL		1	2	3	4
Rows	<i>3</i>	0,9	1,6	1,9	3,2
	<i>4</i>	1,3	2,2	2,8	4,2
	<i>+1</i>	0,3	0,5	0,6	0,9
	<i>+2</i>	0,6	1,0	1,2	–

2 pipe units. 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

Entering air temperature +20°C
Water temperature +45°C E.W.T. +40°C L.W.T.

MODEL		CRSO 13			CRSO 23			CRSO 33			CRSO 43		
		2	3	4	2	3	4	2	3	4	1	2	3
Speed (E)													
Air flow (E)	m ³ /h	240	285	310	470	525	580	760	885	960	945	1155	1285
Available pressure (E)	Pa	40	50	60	40	50	60	40	50	60	35	50	60
Cooling total emission (E)	kW	1,54	1,76	1,88	2,86	3,10	3,32	4,33	4,80	5,07	5,81	6,72	7,24
Cooling sensible emission (E)	kW	1,10	1,26	1,36	2,09	2,28	2,47	3,25	3,68	3,92	4,25	5,01	5,46
Heating (E)	kW	1,59	1,85	1,99	2,98	3,25	3,53	4,72	5,38	5,67	6,10	7,18	7,84
Dp Cooling (E)	kPa	9,0	11,5	12,9	10,6	12,3	13,9	13,1	16,7	17,8	9,0	12,0	13,0
Dp Heating (E)	kPa	7,8	10,2	11,6	9,2	10,7	12,4	13,8	17,5	19,1	7,9	10,5	12,3
Fan (E)	W	40	46	55	82	90	97	107	121	134	140	148	158
Sound power outlet (E)	dB(A)	44	47	50	46	49	51	51	54	57	52	56	58
Sound power inlet + radiated (E)	dB(A)	52	54	57	52	54	57	57	60	63	59	62	64
Sound pressure level outlet (*)	dB(A)	35	38	41	37	40	42	42	45	48	43	47	49
Sound pressure level inlet + radiated (*)	dB(A)	43	45	48	43	45	48	48	51	54	50	53	55
Plenum code (E)		9066363			9069222			9066368			9069224		

MODEL		CRSO 14			CRSO 24			CRSO 34			CRSO 44		
		2	3	4	2	3	4	2	3	4	1	2	3
Speed (E)													
Air flow (E)	m ³ /h	240	285	310	470	525	580	760	885	960	945	1155	1285
Available pressure (E)	Pa	40	50	60	40	50	60	40	50	60	35	50	60
Cooling total emission (E)	kW	1,70	1,96	2,10	3,19	3,48	3,75	4,69	5,24	5,55	6,37	7,44	8,06
Cooling sensible emission (E)	kW	1,19	1,38	1,49	2,23	2,46	2,67	3,41	3,87	4,12	4,54	5,39	5,89
Heating (E)	kW	1,71	2,00	2,16	3,24	3,56	3,89	5,03	5,71	6,12	6,56	7,82	8,59
Dp Cooling (E)	kPa	5,4	7,0	7,9	18,1	21,2	24,3	9,7	11,9	13,2	11,8	15,6	18,0
Dp Heating (E)	kPa	4,6	6,1	6,9	15,3	18,0	21,1	9,3	11,5	13,1	12,2	16,6	19,6
Fan (E)	W	40	46	55	82	90	97	107	121	134	140	148	158
Sound power outlet (E)	dB(A)	44	47	50	46	49	51	51	54	57	52	56	58
Sound power inlet + radiated (E)	dB(A)	52	54	57	52	54	57	57	60	63	59	62	64
Sound pressure level outlet (*)	dB(A)	35	38	41	37	40	42	42	45	48	43	47	49
Sound pressure level inlet + radiated (*)	dB(A)	43	45	48	43	45	48	48	51	54	50	53	55
Plenum code (E)		9066363			9069222			9066368			9069224		

4 pipe units. 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

Entering air temperature +20°C
Water temperature +65°C E.W.T. +55°C L.W.T.

MODEL		CRSO 13+1			CRSO 23+1			CRSO 33+1			CRSO 43+1		
		2	3	4	2	3	4	2	3	4	1	2	3
Speed (E)													
Air flow (E)	m ³ /h	240	285	310	470	525	580	760	885	960	945	1155	1285
Available pressure (E)	Pa	40	50	60	40	50	60	40	50	60	35	50	60
Cooling total emission (E)	kW	1,54	1,76	1,88	2,86	3,10	3,32	4,33	4,80	5,07	5,81	6,72	7,24
Cooling sensible emission (E)	kW	1,10	1,26	1,36	2,09	2,28	2,47	3,25	3,68	3,92	4,25	5,01	5,46
Heating (E)	kW	1,44	1,62	1,72	2,48	2,67	2,86	3,62	4,03	4,19	4,83	5,54	5,96
Dp Cooling (E)	kPa	9,0	11,5	12,9	11,2	13,0	14,7	13,9	17,7	19,0	8,9	11,5	13,1
Dp Heating (E)	kPa	4,4	5,5	6,1	3,2	3,6	4,1	5,0	6,0	6,4	11,3	14,3	16,3
Fan (E)	W	40	46	55	82	90	97	107	121	134	140	148	158
Sound power outlet (E)	dB(A)	44	47	50	46	49	51	51	54	57	52	56	58
Sound power inlet + radiated (E)	dB(A)	52	54	57	52	54	57	57	60	63	59	62	64
Sound pressure level outlet (*)	dB(A)	35	38	41	37	40	42	42	45	48	43	47	49
Sound pressure level inlet + radiated (*)	dB(A)	43	45	48	43	45	48	48	51	54	50	53	55
Plenum code (E)		9066363			9069222			9066368			9069224		

(E) = Eurovent certified performance.

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

Main performance and technical characteristics

2 pipe units. 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

Entering air temperature +20°C
Water temperature +60°C E.W.T. +50°C L.W.T.

AVAILABLE PRESSURE: 0 Pa

MODEL	CRSO 13					CRSO 23					CRSO 33					CRSO 43					
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
Speed																					
Air flow	m³/h	375	410	470	540	595	580	665	765	870	1040	745	950	1150	1320	1415	1000	1360	1705	1980	2220
Cooling total emission	kW	2,22	2,36	2,59	2,84	3,02	3,42	3,75	4,12	4,48	5,01	4,38	5,16	5,85	6,38	6,68	6,21	7,69	8,94	9,84	10,59
Cooling sensible emission	kW	1,64	1,76	1,96	2,18	2,35	2,57	2,86	3,19	3,53	4,05	3,31	4,02	4,66	5,19	5,47	4,59	5,88	7,02	7,88	8,61
Heating	kW	3,62	3,91	4,37	4,89	5,28	5,50	6,15	6,89	7,63	8,76	7,19	8,78	10,23	11,40	12,04	9,90	12,78	15,35	17,31	18,91
Dp Cooling	kPa	16,6	18,5	21,8	25,7	28,7	13,9	16,4	19,4	22,6	27,7	11,1	14,9	18,7	21,9	23,8	9,6	14,1	18,5	22,0	25,1
Dp Heating	kPa	8,9	10,2	12,5	15,3	17,6	7,3	8,9	11,0	13,2	16,9	6,1	8,7	11,5	13,9	15,4	5,0	7,9	11,0	13,6	16,0
Fan	W	41	46	54	65	76	88	95	107	120	140	97	121	143	164	174	163	191	218	237	256
Sound power Lw	dB(A)	47	50	53	56	59	45	47	51	54	59	49	54	59	63	64	49	55	60	64	66
Sound pressure (*)	dB(A)	38	41	44	47	50	36	38	42	45	50	40	45	50	54	55	40	46	51	55	57

MODEL	CRSO 14					CRSO 24					CRSO 34					CRSO 44					
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
Speed																					
Air flow	m³/h	375	410	470	540	595	580	665	765	870	1040	745	950	1150	1320	1415	1000	1360	1705	1980	2220
Cooling total emission	kW	2,50	2,68	2,96	3,27	3,50	3,85	4,27	4,72	5,16	5,83	4,73	5,64	6,44	7,06	7,40	6,81	8,56	10,07	11,16	12,05
Cooling sensible emission	kW	1,82	1,96	2,19	2,46	2,66	2,77	3,10	3,47	3,84	4,43	3,47	4,22	4,91	5,47	5,78	4,91	6,34	7,63	8,59	9,41
Heating	kW	3,98	4,31	4,86	5,48	5,95	6,06	6,83	7,71	8,59	9,97	7,64	9,43	11,08	12,41	13,13	10,40	13,57	16,43	18,61	20,40
Dp Cooling	kPa	10,4	11,7	14,1	16,8	19,0	24,3	29,2	35,0	41,2	51,2	9,5	13,0	16,5	19,5	21,2	12,9	19,4	26,0	31,2	35,9
Dp Heating	kPa	5,4	6,2	7,7	9,5	11,1	12,3	15,2	19,0	23,0	30,1	5,0	7,3	9,8	12,0	13,3	7,0	11,4	16,1	20,1	23,7
Fan	W	41	46	54	65	76	88	95	107	120	140	97	121	143	164	174	163	191	218	237	256
Sound power Lw	dB(A)	47	50	53	56	59	45	47	51	54	59	49	54	59	63	64	49	55	60	64	66
Sound pressure (*)	dB(A)	38	41	44	47	50	36	38	42	45	50	40	45	50	54	55	40	46	51	55	57

4 pipe units. 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

Entering air temperature +20°C
Water temperature +70°C E.W.T. +60°C L.W.T.

AVAILABLE PRESSURE: 0 Pa

MODEL	CRSO 13+1					CRSO 23+1					CRSO 33+1					CRSO 43+1					
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	
Speed																					
Air flow	m³/h	375	410	470	540	595	580	665	765	870	1040	745	950	1150	1320	1415	1000	1360	1705	1980	2220
Cooling total emission	kW	2,22	2,36	2,59	2,84	3,02	3,42	3,75	4,12	4,48	5,01	4,38	5,16	5,85	6,38	6,68	6,21	7,69	8,94	9,84	10,59
Cooling sensible emission	kW	1,64	1,76	1,96	2,18	2,35	2,57	2,86	3,19	3,53	4,05	3,31	4,02	4,66	5,19	5,47	4,59	5,88	7,02	7,88	8,61
Heating	kW	2,25	2,39	2,61	2,85	3,04	3,28	3,58	3,92	4,25	4,76	4,08	4,79	5,40	5,89	6,16	5,76	7,04	8,14	8,95	9,63
Dp Cooling	kPa	16,6	18,5	21,8	25,7	28,7	13,9	16,4	19,4	22,6	27,7	11,1	14,9	18,7	21,9	23,8	9,6	14,1	18,5	22,0	25,1
Dp Heating	kPa	9,2	10,3	12,0	14,1	15,8	4,8	5,7	6,7	7,7	9,4	6,0	8,0	10,0	11,7	12,7	14,5	20,8	27,0	32,0	36,6
Fan	W	41	46	54	65	76	88	95	107	120	140	97	121	143	164	174	163	191	218	237	256
Sound power Lw	dB(A)	47	50	53	56	59	45	47	51	54	59	49	54	59	63	64	49	55	60	64	66
Sound pressure (*)	dB(A)	38	41	44	47	50	36	38	42	45	50	40	45	50	54	55	40	46	51	55	57

Note: the power absorption (Watt) at page 14 must be subtracted from the total and sensible cooling emission.

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

Cooling emission of 3 row coil

Entering air temperature: 27°C – R. H.: 50% – Available pressure: 0 Pa

Mod.	Speed	Qv m³/h	WT: 7/12 °C				WT: 8/13 °C				WT: 10/15 °C				WT: 12/17 °C				
			Pc	Ps	Qw	Dp(c)	Pc	Ps	Qw	Dp(c)	Pc	Ps	Qw	Dp(c)	Pc	Ps	Qw	Dp(c)	
			kW	kW	l/h	kPa	kW	kW	l/h	kPa	kW	kW	l/h	kPa	kW	kW	l/h	kPa	
CRSO 13	5		595	3,25	2,32	559	32,8	2,92	2,19	502	26,9	2,26	2,01	389	16,8	1,70	1,70	292	10,0
	4	MAX	540	3,05	2,16	525	29,3	2,74	2,04	472	24,1	2,12	1,86	365	15,0	1,59	1,59	273	8,8
	3	MED	470	2,78	1,95	479	24,9	2,51	1,83	431	20,5	1,93	1,67	333	12,7	1,44	1,44	247	7,4
	2	MIN	410	2,54	1,75	437	21,0	2,29	1,65	393	17,3	1,76	1,49	303	10,7	1,30	1,30	224	6,2
	1		375	2,38	1,64	410	18,8	2,15	1,54	370	15,5	1,65	1,38	284	9,6	1,22	1,22	210	5,5
CRSO 23	5		1040	5,42	3,96	931	31,8	4,84	3,78	833	25,9	3,77	3,48	649	16,4	2,85	2,85	489	9,8
	4	MAX	870	4,84	3,47	832	26,0	4,33	3,30	745	21,2	3,36	3,02	577	13,3	2,51	2,51	432	7,8
	3	MED	765	4,45	3,15	765	22,3	3,98	2,99	685	18,2	3,08	2,71	530	11,4	2,29	2,29	395	6,6
	2	MIN	665	4,05	2,83	696	18,8	3,63	2,68	624	15,4	2,80	2,42	481	9,6	2,07	2,07	357	5,5
	1		580	3,68	2,55	633	15,9	3,31	2,40	569	13,0	2,54	2,16	438	8,1	1,88	1,88	323	4,6
CRSO 33	5		1415	7,21	5,32	1240	27,3	6,44	5,11	1108	22,2	5,02	4,72	863	14,0	3,79	3,79	651	8,4
	4	MAX	1320	6,91	5,06	1188	25,3	6,17	4,85	1061	20,5	4,80	4,46	825	12,9	3,61	3,61	621	7,7
	3	MED	1150	6,33	4,57	1089	21,6	5,66	4,36	973	17,5	4,38	3,98	754	11,0	3,28	3,28	564	6,5
	2	MIN	950	5,59	3,96	961	17,2	4,99	3,76	859	14,0	3,85	3,40	663	8,7	2,86	2,86	492	5,1
	1		745	4,73	3,28	814	12,8	4,23	3,10	728	10,4	3,26	2,78	560	6,4	2,40	2,40	413	3,7
CRSO 43	5		2220	11,43	8,40	1966	28,8	10,21	8,03	1756	23,4	7,95	7,41	1368	14,8	6,00	6,00	1032	8,8
	4		1980	10,63	7,72	1829	25,3	9,51	7,36	1636	20,6	7,38	6,76	1270	12,9	5,54	5,54	953	7,6
	3	MAX	1705	9,66	6,91	1662	21,3	8,64	6,56	1487	17,3	6,68	5,98	1149	10,8	4,99	4,99	858	6,3
	2	MED	1360	8,31	5,82	1430	16,2	7,45	5,50	1281	13,3	5,73	4,96	985	8,2	4,24	4,24	729	4,7
	1	MIN	1000	6,69	4,57	1151	11,0	6,01	4,30	1034	9,0	4,61	3,83	792	5,5	3,38	3,38	581	3,1

Cooling emission of 3 row coil

Entering air temperature: 26°C – R. H.: 50% – Available pressure: 0 Pa

Mod.	Speed	Qv m³/h	WT: 7/12 °C				WT: 8/13 °C				WT: 10/15 °C				WT: 12/17 °C				
			Pc	Ps	Qw	Dp(c)	Pc	Ps	Qw	Dp(c)	Pc	Ps	Qw	Dp(c)	Pc	Ps	Qw	Dp(c)	
			kW	kW	l/h	kPa	kW	kW	l/h	kPa	kW	kW	l/h	kPa	kW	kW	l/h	kPa	
CRSO 13	5		595	2,90	2,20	499	26,8	2,57	2,10	442	21,4	1,97	1,93	339	13,1	1,46	1,46	251	7,6
	4	MAX	540	2,73	2,04	469	24,0	2,41	1,95	415	19,1	1,84	1,78	317	11,7	1,36	1,36	234	6,7
	3	MED	470	2,49	1,83	428	20,3	2,20	1,75	379	16,2	1,67	1,58	288	9,8	1,23	1,23	211	5,6
	2	MIN	410	2,27	1,65	391	17,3	2,01	1,57	346	13,8	1,52	1,41	262	8,3	1,11	1,11	191	4,6
	1		375	2,14	1,54	368	15,4	1,89	1,46	325	12,3	1,43	1,31	246	7,4	1,04	1,04	178	4,1
CRSO 23	5		1040	4,82	3,78	829	25,8	4,28	3,63	736	20,7	3,29	3,29	566	12,8	2,45	2,45	422	7,5
	4	MAX	870	4,31	3,30	741	21,1	3,82	3,15	657	16,9	2,92	2,88	502	10,3	2,16	2,16	371	5,9
	3	MED	765	3,96	2,99	682	18,1	3,51	2,85	603	14,5	2,67	2,58	460	8,8	1,96	1,96	338	5,0
	2	MIN	665	3,61	2,68	622	15,4	3,19	2,54	549	12,2	2,42	2,30	417	7,4	1,77	1,77	304	4,2
	1		580	3,29	2,41	566	13,0	2,91	2,28	500	10,3	2,20	2,04	378	6,2	1,60	1,60	275	3,4
CRSO 33	5		1415	6,41	5,11	1102	22,1	5,69	4,90	979	17,7	4,38	4,38	754	11,0	3,27	3,27	562	6,4
	4	MAX	1320	6,14	4,84	1056	20,4	5,44	4,64	936	16,4	4,18	4,18	719	10,1	3,11	3,11	535	5,9
	3	MED	1150	5,63	4,36	968	17,5	4,98	4,16	856	13,9	3,81	3,80	655	8,5	2,81	2,81	484	4,9
	2	MIN	950	4,97	3,76	854	13,9	4,39	3,57	755	11,1	3,34	3,24	574	6,7	2,45	2,45	421	3,8
	1		745	4,22	3,11	725	10,4	3,72	2,94	640	8,3	2,81	2,63	483	4,9	2,04	2,04	351	2,7
CRSO 43	5		2220	10,17	8,04	1749	23,3	9,02	7,70	1551	18,7	6,94	6,94	1193	11,6	5,17	5,17	889	6,7
	4		1980	9,46	7,37	1628	20,5	8,38	7,04	1442	16,4	6,42	6,42	1105	10,1	4,76	4,76	819	5,8
	3	MAX	1705	8,60	6,57	1479	17,3	7,61	6,26	1309	13,8	5,80	5,69	998	8,4	4,27	4,27	735	4,8
	2	MED	1360	7,40	5,51	1273	13,2	6,54	5,22	1124	10,5	4,96	4,71	852	6,3	3,61	3,61	621	3,5
	1	MIN	1000	5,98	4,31	1028	9,0	5,27	4,07	907	7,1	3,97	3,62	683	4,2	2,86	2,86	492	2,3

Note: the power absorption (Watt) at page 14 must be subtracted from the total and sensible cooling emission.

Correction factors for different R.H.

R.H.	WT:	7/12°C	8/13°C	10/15°C	12/17°C
48%	Pc	0,95	0,94	1,00	1,00
	Ps	1,00	1,00	1,00	1,00
46%	Pc	0,90	0,88	1,00	1,00
	Ps	1,00	1,00	1,00	1,00

LEGEND

- WT = Water temperature
- Pc = Cooling total emission
- Ps = Cooling sensible emission
- Qw = Water flow
- Dp(c) = Water pressure drop
- Speed = Fan speed
- MAX = High speed
- MED = Medium speed
- MIN = Low speed
- Qv = Air flow

Cooling emission of 3 row coil

Entering air temperature: 25°C – R. H.: 50% – Available pressure: 0 Pa

Mod.	Speed	WT: 7/12 °C					WT: 8/13 °C					WT: 10/15 °C					WT: 12/17 °C				
		Qv m³/h	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa			
CRSO 13	5	595	2,56	2,10	441	21,4	2,26	2,01	388	16,9	1,71	1,71	294	10,2	1,24	1,24	214	5,7			
	4 MAX	540	2,41	1,95	414	19,1	2,12	1,86	364	15,1	1,60	1,60	274	9,0	1,16	1,16	199	5,0			
	3 MED	470	2,19	1,75	378	16,2	1,93	1,66	331	12,8	1,45	1,45	249	7,5	1,04	1,04	179	4,1			
	2 MIN	410	2,00	1,57	344	13,7	1,76	1,49	302	10,8	1,31	1,31	225	6,3	0,94	0,94	161	3,4			
	1	375	1,88	1,46	324	12,3	1,65	1,38	284	9,6	1,23	1,23	211	5,6	0,87	0,87	150	3,0			
CRSO 23	5	1040	4,27	3,62	734	20,7	3,76	3,47	647	16,5	2,86	2,86	492	10,0	2,24	2,24	385	6,3			
	4 MAX	870	3,81	3,15	655	16,9	3,35	3,00	576	13,3	2,53	2,53	435	8,0	1,88	1,88	324	4,6			
	3 MED	765	3,49	2,85	601	14,5	3,07	2,71	528	11,4	2,31	2,31	397	6,8	1,67	1,67	287	3,7			
	2 MIN	665	3,18	2,55	547	12,2	2,79	2,41	480	9,6	2,09	2,09	359	5,7	1,50	1,50	257	3,1			
	1	580	2,90	2,28	498	10,3	2,54	2,16	436	8,1	1,89	1,89	325	4,7	1,35	1,35	231	2,5			
CRSO 33	5	1415	5,68	4,90	976	17,7	5,01	4,69	861	14,1	3,81	3,81	656	8,5	3,17	3,17	545	6,1			
	4 MAX	1320	5,43	4,63	934	16,4	4,78	4,44	823	13,0	3,63	3,63	625	7,8	2,96	2,96	510	5,4			
	3 MED	1150	4,96	4,16	853	13,9	4,37	3,97	752	11,0	3,30	3,30	567	6,6	2,59	2,59	446	4,2			
	2 MIN	950	4,38	3,58	753	11,1	3,84	3,40	661	8,8	2,88	2,88	496	5,2	2,16	2,16	371	3,0			
	1	745	3,71	2,94	638	8,2	3,24	2,78	558	6,4	2,42	2,42	416	3,8	1,72	1,72	296	2,0			
CRSO 43	5	2220	9,00	7,70	1548	18,7	7,93	7,38	1365	14,9	6,03	6,03	1038	9,0	4,88	4,88	840	6,1			
	4	1980	8,36	7,04	1437	16,4	7,36	6,73	1266	13,0	5,57	5,57	959	7,8	4,37	4,37	752	5,0			
	3 MAX	1705	7,58	6,26	1304	13,8	6,67	5,96	1147	10,9	5,02	5,02	864	6,5	3,78	3,78	650	3,8			
	2 MED	1360	6,51	5,23	1120	10,5	5,71	4,95	983	8,2	4,27	4,27	734	4,8	3,05	3,05	525	2,6			
	1 MIN	1000	5,25	4,07	904	7,1	4,60	3,84	790	5,6	3,40	3,40	585	3,2	2,40	2,40	412	1,7			

Note: the power absorption (Watt) at page 14 must be subtracted from the total and sensible cooling emission.

Correction factors for different R.H.

R.H.	WT:	7/12°C	8/13°C	10/15°C	12/17°C
48%	Pc	0,95	0,94	1,00	1,00
	Ps	1,00	1,00	1,00	1,00
46%	Pc	0,90	0,88	1,00	1,00
	Ps	1,00	1,00	1,00	1,00

LEGEND

- WT** = Water temperature
- Pc** = Cooling total emission
- Ps** = Cooling sensible emission
- Qw** = Water flow
- Dp(c)** = Water pressure drop
- Speed** = Fan speed
- MAX** = High speed
- MED** = Medium speed
- MIN** = Low speed
- Qv** = Air flow

Cooling emission of 4 row coil

Entering air temperature: 27°C – R. H.: 50% – Available pressure: 0 Pa

Mod.	Speed	Qv m³/h	WT: 7/12 °C				WT: 8/13 °C				WT: 10/15 °C				WT: 12/17 °C				
			Pc	Ps	Qw	Dp(c)	Pc	Ps	Qw	Dp(c)	Pc	Ps	Qw	Dp(c)	Pc	Ps	Qw	Dp(c)	
			kW	kW	l/h	kPa	kW	kW	l/h	kPa	kW	kW	l/h	kPa	kW	kW	l/h	kPa	
CRSO 14	5		595	3,78	2,63	651	21,9	3,39	2,49	583	17,8	2,61	2,23	448	11,0	1,92	1,92	331	6,3
	4	MAX	540	3,53	2,44	607	19,3	3,17	2,30	544	15,8	2,43	2,05	418	9,7	1,79	1,79	308	5,6
	3	MED	470	3,19	2,18	549	16,1	2,87	2,05	493	13,2	2,20	1,83	378	8,1	1,61	1,61	277	4,6
	2	MIN	410	2,88	1,95	496	13,4	2,60	1,84	446	11,0	1,99	1,62	342	6,8	1,45	1,44	250	3,8
	1		375	2,69	1,81	463	11,8	2,43	1,70	418	9,8	1,86	1,50	320	6,0	1,35	1,33	233	3,4
CRSO 24	5		1040	6,27	4,39	1078	58,3	5,64	4,14	970	48,0	4,37	3,75	751	30,0	3,25	3,25	559	17,5
	4	MAX	870	5,54	3,82	953	46,7	5,00	3,60	861	38,7	3,86	3,24	664	24,0	2,85	2,85	491	13,8
	3	MED	765	5,06	3,45	870	39,7	4,57	3,25	787	32,9	3,52	2,90	606	20,4	2,59	2,59	446	11,6
	2	MIN	665	4,57	3,09	786	33,0	4,13	2,91	711	27,4	3,18	2,58	548	17,0	2,33	2,30	402	9,6
	1		580	4,12	2,77	709	27,4	3,73	2,60	642	22,8	2,88	2,30	495	14,2	2,10	2,04	362	8,0
CRSO 34	5		1415	8,00	5,69	1376	24,4	7,15	5,40	1230	19,8	5,51	4,92	948	12,3	4,11	4,11	707	7,2
	4	MAX	1320	7,64	5,40	1314	22,4	6,83	5,12	1174	18,3	5,26	4,65	905	11,3	3,91	3,91	673	6,6
	3	MED	1150	6,96	4,86	1197	19,0	6,22	4,59	1070	15,4	4,78	4,15	822	9,5	3,54	3,54	609	5,5
	2	MIN	950	6,09	4,19	1047	14,9	5,46	3,95	938	12,2	4,19	3,54	720	7,5	3,07	3,07	529	4,3
	1		745	5,10	3,45	876	10,8	4,58	3,24	789	8,9	3,50	2,88	603	5,4	2,56	2,56	440	3,1
CRSO 44	5		2220	13,06	9,27	2246	41,4	11,67	8,80	2007	33,7	9,01	7,97	1549	20,9	6,70	6,70	1152	12,2
	4		1980	12,08	8,49	2078	36,0	10,80	8,04	1858	29,3	8,32	7,25	1431	18,1	6,17	6,17	1061	10,5
	3	MAX	1705	10,89	7,56	1873	29,9	9,75	7,14	1677	24,4	7,49	6,40	1289	15,0	5,53	5,53	950	8,6
	2	MED	1360	9,25	6,32	1592	22,3	8,30	5,94	1428	18,2	6,37	5,28	1095	11,2	4,66	4,66	801	6,3
	1	MIN	1000	7,32	4,90	1259	14,6	6,60	4,60	1136	12,1	5,05	4,05	869	7,4	3,67	3,57	631	4,1

Cooling emission of 4 row coil

Entering air temperature: 26°C – R. H.: 50% – Available pressure: 0 Pa

Mod.	Speed	Qv m³/h	WT: 7/12 °C				WT: 8/13 °C				WT: 10/15 °C				WT: 12/17 °C				
			Pc	Ps	Qw	Dp(c)	Pc	Ps	Qw	Dp(c)	Pc	Ps	Qw	Dp(c)	Pc	Ps	Qw	Dp(c)	
			kW	kW	l/h	kPa	kW	kW	l/h	kPa	kW	kW	l/h	kPa	kW	kW	l/h	kPa	
CRSO 14	5		595	3,37	2,49	580	17,8	2,98	2,36	512	14,2	2,25	2,11	388	8,5	1,64	1,64	281	4,7
	4	MAX	540	3,15	2,30	541	15,7	2,78	2,18	479	12,5	2,10	1,94	361	7,5	1,52	1,52	261	4,1
	3	MED	470	2,85	2,06	490	13,1	2,52	1,94	433	10,5	1,90	1,72	326	6,2	1,36	1,36	235	3,4
	2	MIN	410	2,58	1,84	444	11,0	2,28	1,73	392	8,7	1,71	1,53	294	5,2	1,23	1,23	211	2,8
	1		375	2,41	1,71	415	9,7	2,13	1,61	367	7,7	1,60	1,41	275	4,6	1,14	1,14	196	2,5
CRSO 24	5		1040	5,62	4,15	966	47,9	4,97	3,94	856	38,3	3,79	3,57	652	23,3	2,78	2,78	478	13,2
	4	MAX	870	4,98	3,61	856	38,5	4,40	3,41	757	30,7	3,34	3,07	575	18,5	2,43	2,43	418	10,4
	3	MED	765	4,54	3,26	781	32,7	4,02	3,08	692	26,1	3,04	2,75	523	15,7	2,20	2,20	379	8,7
	2	MIN	665	4,10	2,91	706	27,2	3,64	2,74	626	21,8	2,74	2,44	472	13,0	1,97	1,97	340	7,1
	1		580	3,71	2,61	637	22,6	3,29	2,45	566	18,2	2,48	2,17	426	10,8	1,77	1,77	305	5,9
CRSO 34	5		1415	7,12	5,41	1224	19,8	6,29	5,15	1081	15,7	4,79	4,70	824	9,5	3,52	3,52	606	5,4
	4	MAX	1320	6,80	5,13	1169	18,2	6,00	4,88	1032	14,5	4,56	4,43	785	8,8	3,35	3,35	576	5,0
	3	MED	1150	6,19	4,60	1065	15,4	5,46	4,37	940	12,2	4,14	3,94	712	7,4	3,02	3,02	520	4,1
	2	MIN	950	5,43	3,96	934	12,1	4,79	3,74	824	9,6	3,61	3,35	621	5,7	2,61	2,61	449	3,2
	1		745	4,56	3,25	784	8,9	4,02	3,06	691	7,0	3,02	2,72	519	4,2	2,16	2,16	372	2,3
CRSO 44	5		2220	11,61	8,81	1996	33,5	10,27	8,38	1767	26,8	7,81	7,58	1343	16,2	5,73	5,73	986	9,2
	4		1980	10,74	8,05	1848	29,1	9,50	7,64	1635	23,3	7,21	6,88	1240	14,0	5,26	5,26	905	7,9
	3	MAX	1705	9,70	7,15	1668	24,2	8,57	6,76	1473	19,3	6,48	6,06	1114	11,6	4,70	4,70	808	6,4
	2	MED	1360	8,26	5,96	1420	18,1	7,29	5,61	1253	14,4	5,48	4,98	943	8,6	3,94	3,94	678	4,7
	1	MIN	1000	6,56	4,62	1128	12,0	5,79	4,33	996	9,5	4,34	3,81	746	5,6	3,09	3,09	531	3,0

Note: the power absorption (Watt) at page 14 must be subtracted from the total and sensible cooling emission.

Correction factors for different R.H.

R.H.	WT:	7/12°C	8/13°C	10/15°C	12/17°C
48%	Pc	0,95	0,94	1,00	1,00
	Ps	1,00	1,00	1,00	1,00
46%	Pc	0,90	0,88	1,00	1,00
	Ps	1,00	1,00	1,00	1,00

LEGEND

- WT = Water temperature
- Pc = Cooling total emission
- Ps = Cooling sensible emission
- Qw = Water flow
- Dp(c) = Water pressure drop
- Speed = Fan speed
- MAX = High speed
- MED = Medium speed
- MIN = Low speed
- Qv = Air flow

Cooling emission of 4 row coil

Entering air temperature: 25°C – R. H.: 50% – Available pressure: 0 Pa

Mod.	Speed	WT: 7/12 °C					WT: 8/13 °C					WT: 10/15 °C					WT: 12/17 °C				
		Qv m³/h	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa	Pc kW	Ps kW	Qw l/h	Dp(c) kPa			
CRSO 14	5	595	2,97	2,36	510	14,1	2,60	2,23	447	11,1	1,94	1,94	333	6,5	1,38	1,38	237	3,5			
	4 MAX	540	2,77	2,18	477	12,5	2,43	2,06	418	9,8	1,80	1,80	310	5,7	1,28	1,28	220	3,0			
	3 MED	470	2,51	1,94	432	10,4	2,19	1,83	377	8,2	1,62	1,62	279	4,7	1,14	1,14	196	2,5			
	2 MIN	410	2,27	1,73	390	8,7	1,98	1,63	341	6,8	1,46	1,44	252	3,9	1,02	1,02	176	2,0			
	1	375	2,12	1,61	365	7,7	1,85	1,51	319	6,0	1,36	1,33	235	3,4	0,95	0,95	163	1,8			
CRSO 24	5	1040	4,96	3,94	853	38,2	4,36	3,75	749	30,1	3,27	3,27	563	17,9	2,35	2,35	405	9,8			
	4 MAX	870	4,39	3,42	754	30,7	3,85	3,24	662	24,1	2,87	2,87	494	14,1	2,05	2,05	352	7,6			
	3 MED	765	4,01	3,08	690	26,1	3,51	2,91	604	20,5	2,61	2,60	450	11,9	1,85	1,85	318	6,3			
	2 MIN	665	3,62	2,75	623	21,8	3,17	2,59	546	17,1	2,35	2,30	405	9,9	1,65	1,65	284	5,2			
	1	580	3,28	2,45	563	18,1	2,87	2,31	493	14,2	2,12	2,04	364	8,2	1,48	1,48	254	4,2			
CRSO 34	5	1415	6,27	5,16	1078	51,7	5,50	4,91	946	42,4	4,14	4,14	713	37,4	3,15	3,15	541	27,4			
	4 MAX	1320	5,98	4,88	1028	47,4	5,25	4,64	903	41,4	3,94	3,94	678	35,7	2,94	2,94	506	25,9			
	3 MED	1150	5,45	4,37	937	42,7	4,77	4,15	821	37,5	3,57	3,57	613	32,6	2,58	2,58	444	23,1			
	2 MIN	950	4,77	3,75	820	37,6	4,17	3,54	717	32,6	3,10	3,10	533	28,4	2,20	2,20	378	20,3			
	1	745	4,00	3,07	688	31,7	3,49	2,89	601	27,5	2,58	2,56	443	24,1	1,81	1,81	311	16,6			
CRSO 44	5	2220	10,23	8,37	1759	80,7	8,99	7,96	1546	70,1	6,75	6,75	1161	53,4	5,07	5,07	872	40,7			
	4	1980	9,47	7,64	1629	73,2	8,30	7,24	1428	64,3	6,21	6,21	1068	48,7	4,54	4,54	781	36,0			
	3 MAX	1705	8,53	6,77	1467	66,2	7,48	6,40	1286	58,1	5,57	5,57	957	43,8	3,95	3,95	680	31,7			
	2 MED	1360	7,26	5,62	1248	55,5	6,35	5,29	1092	49,3	4,70	4,69	808	37,1	3,30	3,30	568	25,9			
	1 MIN	1000	5,77	4,34	992	44,5	5,04	4,07	866	39,4	3,70	3,57	636	29,2	2,56	2,56	440	20,2			

Note: the power absorption (Watt) at page 14 must be subtracted from the total and sensible cooling emission.

Correction factors for different R.H.

R.H.	WT:	7/12°C	8/13°C	10/15°C	12/17°C
48%	Pc	0,95	0,94	1,00	1,00
	Ps	1,00	1,00	1,00	1,00
46%	Pc	0,90	0,88	1,00	1,00
	Ps	1,00	1,00	1,00	1,00

LEGEND

- WT** = Water temperature
- Pc** = Cooling total emission
- Ps** = Cooling sensible emission
- Qw** = Water flow
- Dp(c)** = Water pressure drop
- Speed** = Fan speed
- MAX** = High speed
- MED** = Medium speed
- MIN** = Low speed
- Qv** = Air flow

Heating emission of 3 row coil

Entering air temperature: 20°C – Available pressure: 0 Pa

Mod.	Speed	WT: 70/60 °C			WT: 60/50 °C			WT: 55/45 °C			WT: 50/40 °C			WT: 50/45 °C			WT: 45/40 °C				
		Qv	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	
		m³/h	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	
CRSO 13	5	595	6,89	593	27,5	5,28	454	17,6	4,48	386	13,3	3,68	316	9,5	4,22	725	42,0	3,42	588	29,3	
	4	MAX	540	6,37	548	23,9	4,89	421	15,3	4,14	356	11,6	3,40	293	8,3	3,90	671	36,5	3,16	544	25,5
	3	MED	470	5,69	489	19,5	4,37	376	12,5	3,71	319	9,5	3,04	262	6,8	3,49	600	29,9	2,83	487	20,9
	2	MIN	410	5,09	437	15,9	3,91	336	10,2	3,32	285	7,8	2,72	234	5,5	3,12	536	24,4	2,53	434	17,0
	1		375	4,71	405	13,9	3,62	312	8,9	3,08	264	6,8	2,53	217	4,9	2,89	497	21,2	2,34	403	14,9
CRSO 23	5		1040	11,43	983	26,4	8,76	754	16,9	7,42	638	12,8	6,08	523	9,1	7,00	1205	40,5	5,67	976	28,2
	4	MAX	870	9,95	856	20,6	7,63	656	13,2	6,46	555	9,9	5,29	455	7,1	6,10	1049	31,5	4,94	850	22,0
	3	MED	765	8,99	773	17,1	6,89	592	11,0	5,83	502	8,3	4,79	412	5,9	5,50	946	26,2	4,46	766	18,3
	2	MIN	665	8,01	689	13,9	6,15	528	8,9	5,21	448	6,8	4,28	368	4,8	4,91	845	21,4	3,98	685	14,9
	1		580	7,16	615	11,4	5,50	473	7,3	4,66	401	5,5	3,83	329	3,9	4,39	754	17,4	3,56	612	12,2
CRSO 33	5		1415	15,74	1354	24,1	12,04	1035	15,4	10,17	875	11,6	8,32	715	8,2	9,64	1658	36,8	7,80	1342	25,6
	4	MAX	1320	14,90	1281	21,8	11,40	980	13,9	9,64	829	10,5	7,89	678	7,4	9,12	1569	33,4	7,39	1270	23,2
	3	MED	1150	13,36	1149	17,9	10,23	880	11,5	8,66	745	8,7	7,09	609	6,1	8,19	1408	27,4	6,62	1139	19,1
	2	MIN	950	11,47	987	13,6	8,78	755	8,7	7,44	640	6,6	6,10	524	4,7	7,01	1206	20,8	5,69	979	14,5
	1		745	9,36	805	9,4	7,19	618	6,1	6,09	524	4,6	5,00	430	3,3	5,74	986	14,5	4,66	801	10,1
CRSO 43	5		2220	24,70	2124	24,9	18,91	1626	16,0	16,01	1377	12,0	13,09	1126	8,5	15,12	2601	38,2	-	-	-
	4		1980	22,61	1945	21,3	17,31	1489	13,6	14,65	1259	10,2	11,99	1031	7,3	13,84	2380	32,5	-	-	-
	3	MAX	1705	20,09	1727	17,2	15,35	1320	11,0	13,02	1120	8,3	10,68	918	5,9	12,29	2113	26,3	-	-	-
	2	MED	1360	16,69	1435	12,3	12,78	1099	7,9	10,84	932	6,0	8,89	765	4,2	10,23	1759	18,9	-	-	-
	1	MIN	1000	12,90	1109	7,7	9,90	851	5,0	8,38	721	3,8	6,89	593	2,7	7,90	1358	11,8	-	-	-

Heating emission of 4 row coil

Entering air temperature: 20°C – Available pressure: 0 Pa

Mod.	Speed	WT: 70/60 °C			WT: 60/50 °C			WT: 55/45 °C			WT: 50/40 °C			WT: 50/45 °C			WT: 45/40 °C				
		Qv	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	
		m³/h	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	
CRSO 14	5	595	7,75	667	17,2	5,95	512	11,1	5,06	435	8,4	4,15	357	6,0	4,74	816	26,3	3,86	663	18,5	
	4	MAX	540	7,14	614	14,8	5,48	471	9,5	4,65	400	7,2	3,82	328	5,2	4,37	752	22,7	3,54	610	15,9
	3	MED	470	6,32	544	11,9	4,86	418	7,7	4,12	355	5,8	3,39	291	4,2	3,87	665	18,2	3,14	540	12,7
	2	MIN	410	5,60	481	9,6	4,31	370	6,2	3,65	314	4,7	3,01	259	3,4	3,43	590	14,7	2,79	479	10,3
	1		375	5,17	444	8,3	3,98	342	5,4	3,38	290	4,1	2,78	239	2,9	3,17	545	12,7	2,57	442	8,9
CRSO 24	5		1040	12,97	1115	26,7	9,97	857	16,0	8,48	729	12,9	6,96	599	16,4	7,94	1367	41,6	6,45	1109	31,5
	4	MAX	870	11,16	960	23,7	8,59	739	13,0	7,30	628	11,6	6,01	517	12,6	6,83	1176	36,0	5,55	955	25,2
	3	MED	765	10,02	861	20,3	7,71	663	11,0	6,55	564	10,3	5,39	464	10,3	6,13	1054	31,9	4,98	857	22,2
	2	MIN	665	8,86	762	16,6	6,83	587	10,2	5,80	499	9,1	4,78	411	8,3	5,42	932	28,6	4,41	758	19,1
	1		580	7,86	676	14,0	6,06	521	12,3	5,16	443	9,4	4,25	365	6,7	4,81	827	25,0	3,91	673	16,3
CRSO 34	5		1415	17,13	1474	20,8	13,13	1129	13,3	11,12	956	10,0	9,11	783	7,2	10,50	1807	31,9	8,50	1462	22,2
	4	MAX	1320	16,20	1393	18,8	12,41	1067	12,0	10,51	904	9,1	8,60	740	6,5	9,93	1708	28,8	8,04	1382	20,1
	3	MED	1150	14,45	1243	15,3	11,08	953	9,8	9,38	806	7,4	7,68	660	5,3	8,85	1523	23,4	7,17	1233	16,3
	2	MIN	950	12,28	1056	11,4	9,43	811	7,3	7,99	687	5,5	6,55	563	3,9	7,52	1293	17,5	6,09	1048	12,2
	1		745	9,95	856	7,8	7,64	657	5,0	6,49	558	3,8	5,32	458	2,7	6,09	1047	11,9	4,94	849	8,3
CRSO 44	5		2220	26,66	2293	26,7	20,40	1754	16,0	17,29	1487	12,0	14,16	1218	12,7	16,30	2804	56,7	13,22	2274	39,6
	4		1980	24,24	2084	23,3	18,61	1600	13,6	15,76	1355	11,0	12,90	1110	10,8	14,85	2555	47,9	12,04	2070	33,4
	3	MAX	1705	21,43	1843	20,0	16,43	1413	11,0	13,94	1199	9,1	11,41	982	8,6	13,13	2258	41,6	10,63	1828	26,7
	2	MED	1360	17,67	1520	15,3	13,57	1167	11,4	11,53	991	8,6	9,45	813	6,2	10,82	1861	36,0	8,79	1512	19,0
	1	MIN	1000	13,52	1163	10,9	10,40	894	7,0	8,82	759	5,3	7,25	623	3,8	8,27	1422	26,7	6,71	1154	11,7

LEGEND WT = Water temperature Dp(c) = Water pressure drop MAX = High speed
 Ph = Emission Qv = Air flow MED = Medium speed
 Qw = Water flow Speed = Fan speed MIN = Low speed

Heating emission of 1 row additional coil

Entering air temperature: 20°C – Available pressure: 0 Pa

Mod.	Speed	WT: 80/70 °C			WT: 75/65 °C			WT: 70/60 °C			WT: 65/55 °C			WT: 60/50 °C			WT: 55/45 °C				
		Qv	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	
		m³/h	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	
CRSO 1	5	595	3,77	324	22,6	3,40	293	19,1	3,04	261	15,8	2,67	230	12,8	2,30	197	9,9	1,93	166	7,4	
	4	MAX	540	3,55	305	20,3	3,20	275	17,1	2,85	245	14,1	2,51	216	11,4	2,16	186	8,9	1,82	156	6,6
	3	MED	470	3,24	279	17,2	2,93	252	14,5	2,61	224	12,0	2,29	197	9,7	1,98	170	7,6	1,66	143	5,6
	2	MIN	410	2,96	255	14,6	2,68	230	12,4	2,39	205	10,3	2,10	180	8,3	1,81	156	6,4	1,52	131	4,8
	1		375	2,79	240	13,1	2,52	217	11,2	2,25	194	9,2	1,98	170	7,4	1,71	147	5,8	1,43	123	4,3
CRSO 2	5		1040	5,96	512	13,7	5,37	462	11,5	4,76	409	9,4	4,17	359	7,5	3,57	307	5,8	2,97	256	4,3
	4	MAX	870	5,32	457	11,1	4,79	412	9,4	4,25	366	7,7	3,73	320	6,2	3,19	274	4,7	2,66	229	3,5
	3	MED	765	4,90	421	9,6	4,41	379	8,1	3,92	337	6,7	3,43	295	5,3	2,94	253	4,1	2,46	211	3,0
	2	MIN	665	4,48	385	8,2	4,03	347	6,9	3,58	308	5,7	3,14	270	4,5	2,69	232	3,5	2,25	193	2,6
	1		580	4,09	352	7,0	3,68	317	5,8	3,28	282	4,8	2,87	247	3,9	2,47	212	3,0	2,06	177	2,2
CRSO 3	5		1415	7,68	660	18,2	6,92	595	15,4	6,16	530	12,7	5,40	465	10,2	4,64	399	7,9	3,89	335	5,8
	4	MAX	1320	7,34	631	16,8	6,62	570	14,2	5,89	507	11,7	5,18	445	9,4	4,45	383	7,3	3,73	321	5,4
	3	MED	1150	6,72	578	14,4	6,06	521	12,1	5,40	464	10,0	4,74	407	8,0	4,08	351	6,2	3,41	294	4,6
	2	MIN	950	5,95	512	11,5	5,37	462	9,7	4,79	412	8,0	4,19	361	6,4	3,62	311	5,0	3,03	261	3,7
	1		745	5,08	437	8,7	4,59	394	7,3	4,08	351	6,0	3,59	308	4,9	3,09	266	3,8	2,59	223	2,8
CRSO 4	5		2220	11,93	1026	52,0	10,78	927	44,0	9,63	829	36,6	8,47	729	29,5	7,31	629	23,0	6,17	531	17,3
	4		1980	11,11	956	45,8	10,02	862	38,6	8,95	770	32,0	7,88	678	25,9	6,81	586	20,2	5,73	493	15,1
	3	MAX	1705	10,07	866	38,3	9,11	783	32,5	8,14	700	27,0	7,16	616	21,8	6,19	532	17,0	5,21	448	12,7
	2	MED	1360	8,73	751	29,6	7,88	678	25,0	7,04	605	20,8	6,21	534	16,8	5,36	461	13,1	4,51	388	9,8
	1	MIN	1000	7,13	613	20,6	6,44	554	17,4	5,76	495	14,5	5,08	437	11,7	4,38	377	9,2	3,70	318	6,9

Heating emission of 2 row additional coil

Entering air temperature: 20°C – Available pressure: 0 Pa

Mod.	Speed	WT: 65/55 °C			WT: 60/50 °C			WT: 55/45 °C			WT: 50/40 °C			WT: 45/40 °C			WT: 45/35 °C				
		Qv	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	Ph	Qw	Dp(c)	
		m³/h	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	kW	l/h	kPa	
CRSO 1	5	595	4,59	394	6,0	3,96	341	4,7	3,33	286	3,5	2,69	232	2,4	2,57	442	7,9	2,06	178	1,5	
	4	MAX	540	4,29	369	5,3	3,70	318	4,2	3,11	268	3,1	2,52	217	2,2	2,41	414	7,0	1,93	166	1,4
	3	MED	470	3,88	334	4,5	3,35	288	3,5	2,82	242	2,6	2,29	197	1,8	2,17	374	5,8	1,75	151	1,1
	2	MIN	410	3,51	302	3,7	3,04	261	2,9	2,55	219	2,2	2,07	178	1,5	1,97	339	4,9	1,59	137	1,0
	1		375	3,29	283	3,3	2,84	244	2,6	2,39	206	1,9	1,94	167	1,4	1,85	317	4,3	1,49	128	0,9
CRSO 2	5		1040	7,60	654	20,2	6,58	566	15,8	5,55	478	11,9	4,53	389	8,4	4,27	734	26,4	3,49	300	5,3
	4	MAX	870	6,73	579	16,2	5,82	501	12,7	4,92	423	9,5	4,01	345	6,7	3,78	651	21,3	3,10	266	4,3
	3	MED	765	6,15	529	13,8	5,32	458	10,8	4,50	387	8,1	3,67	315	5,7	3,45	594	18,1	2,84	244	3,7
	2	MIN	665	5,56	478	11,5	4,82	414	9,0	4,06	349	6,8	3,32	285	4,8	3,12	537	15,1	2,57	221	3,1
	1		580	5,04	433	9,6	4,35	375	7,5	3,68	317	5,7	3,00	258	4,0	2,83	486	12,6	2,33	200	2,6
CRSO 3	5		1415	10,26	882	46,2	8,90	765	36,4	7,52	647	27,4	6,16	530	19,4	5,77	992	60,8	4,77	410	12,5
	4	MAX	1320	9,79	842	42,4	8,49	730	33,4	7,19	618	25,2	5,87	505	17,9	5,50	946	55,8	4,56	392	11,5
	3	MED	1150	8,92	767	35,9	7,73	665	28,2	6,54	562	21,3	5,34	460	15,1	5,00	860	47,0	4,15	357	9,7
	2	MIN	950	7,79	670	28,1	6,76	581	22,2	5,72	492	16,7	4,68	402	11,8	4,38	753	37,0	3,63	312	7,7
	1		745	6,52	561	20,4	5,66	487	16,1	4,79	412	12,2	3,92	337	8,6	3,67	631	26,9	3,06	263	5,6

LEGEND WT = Water temperature Dp(c) = Water pressure drop MAX = High speed
 Ph = Emission Qv = Air flow MED = Medium speed
 Qw = Water flow Speed = Fan speed MIN = Low speed

Air flow (m³/h)
depending on speed and requested available pressure

Mod.	Speed		Available pressure (Pa)								
			0	10	20	30	40	50	60	70	80
CRSO 1	5		595	565	530	495	455	410	355	297	230
	4	MAX	540	507	475	435	395	348	300	245	185
	3	MED	470	437	403	365	327	285	237	187	130
	2	MIN	410	378	344	305	265	225	180	135	–
	1		375	340	302	260	220	178	137	–	–
CRSO 2	5		1040	995	950	900	845	782	720	650	575
	4	MAX	870	825	780	730	680	630	575	515	450
	3	MED	765	710	665	620	572	530	480	430	360
	2	MIN	665	610	560	515	470	430	380	330	–
	1		580	535	495	455	410	370	320	270	–
CRSO 3	5		1415	1375	1325	1270	1200	1120	1040	945	845
	4	MAX	1320	1280	1230	1170	1105	1030	950	860	780
	3	MED	1150	1115	1070	1020	960	890	810	730	650
	2	MIN	950	905	860	810	760	700	640	570	500
	1		745	685	640	600	550	505	460	400	340
CRSO 4	5		2220	2130	2030	1930	1825	1720	1600	1495	1375
	4		1980	1900	1820	1740	1650	1550	1450	1340	1220
	3	MAX	1705	1650	1585	1520	1450	1380	1295	1200	1100
	2	MED	1360	1330	1300	1260	1215	1160	1090	1000	910
	1	MIN	1000	985	975	955	935	900	870	820	750

Power absorption (Watt)
depending on air flow and available pressure

Mod.	Speed		Available pressure (Pa)								
			0	10	20	30	40	50	60	70	80
CRSO 1	5		76	75	73	71	70	68	65	63	60
	4	MAX	65	63	62	60	58	56	54	52	50
	3	MED	54	53	51	49	48	46	44	42	40
	2	MIN	46	45	44	42	41	39	38	36	–
	1		41	40	39	38	36	35	33	–	–
CRSO 2	5		140	137	133	129	124	119	114	109	103
	4	MAX	120	117	114	110	105	101	97	92	86
	3	MED	107	104	101	97	93	90	86	81	76
	2	MIN	95	92	89	86	82	79	75	70	–
	1		88	85	83	80	76	73	69	65	–
CRSO 3	5		174	171	167	162	156	150	143	135	127
	4	MAX	164	161	157	152	146	140	133	125	119
	3	MED	144	141	137	133	128	122	115	108	101
	2	MIN	122	118	114	110	106	101	96	91	85
	1		97	94	91	88	84	81	77	73	68
CRSO 4	5		256	248	238	227	216	204	193	183	173
	4		237	224	212	201	190	179	170	161	151
	3	MAX	219	208	197	187	177	168	158	148	139
	2	MED	191	182	174	165	157	148	139	130	123
	1	MIN	164	156	151	143	136	127	122	115	108

Correction factors for Total cooling emission

Mod.	Speed		Available pressure (Pa)								
			0	10	20	30	40	50	60	70	80
CRSO 1	5		1,00	0,97	0,94	0,91	0,86	0,81	0,74	0,66	0,56
	4	MAX	1,00	0,97	0,93	0,89	0,84	0,78	0,71	0,62	0,51
	3	MED	1,00	0,96	0,92	0,87	0,82	0,75	0,66	0,57	0,45
	2	MIN	1,00	0,96	0,91	0,85	0,78	0,70	0,61	0,50	–
	1		1,00	0,95	0,89	0,81	0,73	0,64	0,54	–	–
CRSO 2	5		1,00	0,98	0,95	0,93	0,89	0,85	0,81	0,76	0,70
	4	MAX	1,00	0,97	0,94	0,91	0,87	0,84	0,79	0,74	0,67
	3	MED	1,00	0,96	0,93	0,89	0,85	0,81	0,76	0,71	0,63
	2	MIN	1,00	0,96	0,91	0,87	0,82	0,78	0,72	0,66	–
	1		1,00	0,96	0,92	0,88	0,82	0,77	0,70	0,63	–
CRSO 3	5		1,00	0,98	0,97	0,94	0,92	0,88	0,84	0,80	0,74
	4	MAX	1,00	0,98	0,96	0,94	0,91	0,87	0,83	0,78	0,74
	3	MED	1,00	0,98	0,96	0,94	0,91	0,87	0,82	0,77	0,72
	2	MIN	1,00	0,97	0,95	0,92	0,89	0,84	0,80	0,74	0,68
	1		1,00	0,96	0,92	0,89	0,85	0,80	0,76	0,69	0,62
CRSO 4	5		1,00	0,98	0,95	0,93	0,90	0,87	0,83	0,80	0,76
	4		1,00	0,98	0,96	0,93	0,91	0,88	0,84	0,80	0,76
	3	MAX	1,00	0,98	0,96	0,94	0,92	0,89	0,86	0,82	0,78
	2	MED	1,00	0,99	0,98	0,96	0,94	0,92	0,89	0,84	0,80
	1	MIN	1,00	0,99	0,99	0,98	0,96	0,95	0,93	0,90	0,85

Correction factors
for Sensible cooling emission and Heating emission

Mod.	Speed		Available pressure (Pa)								
			0	10	20	30	40	50	60	70	80
CRSO 1	5		1,00	0,96	0,92	0,88	0,83	0,76	0,68	0,60	0,49
	4	MAX	1,00	0,96	0,91	0,86	0,80	0,73	0,65	0,55	0,45
	3	MED	1,00	0,95	0,90	0,83	0,77	0,69	0,60	0,50	0,38
	2	MIN	1,00	0,94	0,88	0,81	0,73	0,64	0,54	0,43	–
	1		1,00	0,93	0,86	0,77	0,68	0,57	0,47	–	–
CRSO 2	5		1,00	0,97	0,94	0,90	0,86	0,82	0,77	0,71	0,65
	4	MAX	1,00	0,96	0,93	0,88	0,84	0,79	0,74	0,68	0,61
	3	MED	1,00	0,95	0,91	0,86	0,81	0,77	0,71	0,65	0,57
	2	MIN	1,00	0,94	0,89	0,83	0,78	0,73	0,66	0,59	–
	1		1,00	0,94	0,89	0,84	0,78	0,72	0,64	0,57	–
CRSO 3	5		1,00	0,98	0,95	0,93	0,89	0,85	0,80	0,75	0,69
	4	MAX	1,00	0,98	0,95	0,92	0,88	0,84	0,79	0,73	0,68
	3	MED	1,00	0,98	0,95	0,92	0,88	0,83	0,78	0,72	0,66
	2	MIN	1,00	0,97	0,93	0,89	0,85	0,80	0,75	0,69	0,62
	1		1,00	0,94	0,90	0,86	0,80	0,75	0,70	0,63	0,56
CRSO 4	5		1,00	0,97	0,94	0,91	0,87	0,83	0,79	0,75	0,70
	4		1,00	0,97	0,94	0,91	0,88	0,84	0,80	0,75	0,70
	3	MAX	1,00	0,98	0,95	0,92	0,89	0,86	0,82	0,78	0,73
	2	MED	1,00	0,98	0,97	0,95	0,92	0,89	0,85	0,80	0,75
	1	MIN	1,00	0,99	0,98	0,97	0,95	0,93	0,91	0,87	0,81

Operation limits

Highest water inlet temperature.....+ 85 °C

Lowest water inlet temperature.....+ 5 °C

for entering water temperatures below + 5°C, contact “SABIANA” technical department

Highest working pressure..... 1000 kPa (10 bars)

Water flow limits for 3 row coil (l/h)

MODEL	CRSO 13	CRSO 23	CRSO 33	CRSO 43
Lowest	100	150	200	300
Highest	750	1000	2000	3000

Water flow limits for 4 row coil (l/h)

MODEL	CRSO 14	CRSO 24	CRSO 34	CRSO 44
Lowest	150	150	300	400
Highest	1000	1500	2250	3300

Water flow limits for 1 row additional coil (l/h)

MODEL	CRSO 1	CRSO 2	CRSO 3	CRSO 4
Lowest	50	100	100	100
Highest	350	500	750	750

Water flow limits for 2 row additional coil (l/h)

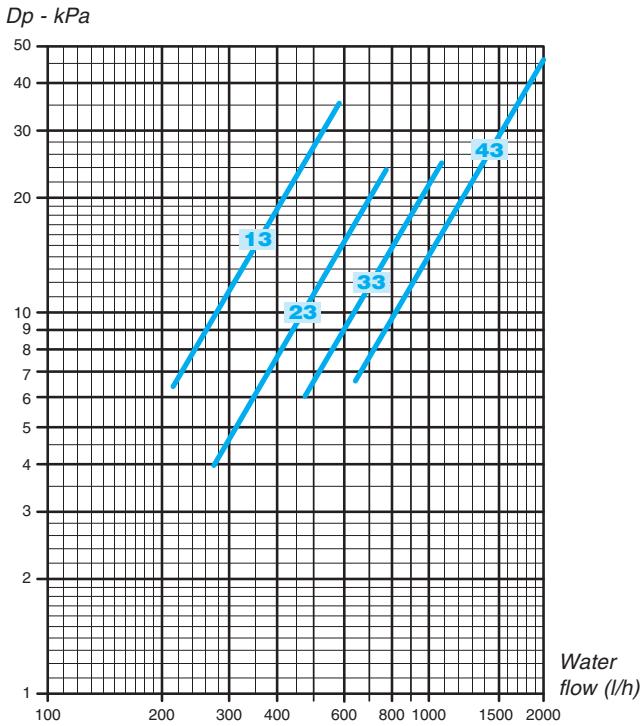
MODEL	CRSO 1	CRSO 2	CRSO 3	CRSO 4
Lowest	100	100	100	–
Highest	350	500	750	–

Motor electrical data (max. absorption)

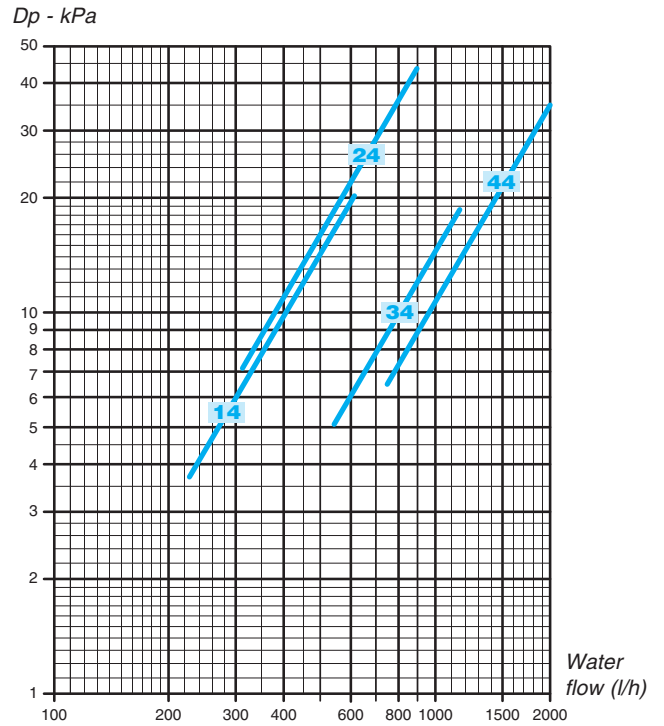
MODEL		CRSO 1	CRSO 2	CRSO 3	CRSO 4
230/1 50Hz	W	76	140	174	256
	A	0,33	0,64	0,81	1,22

Water pressure drop

3 row coil



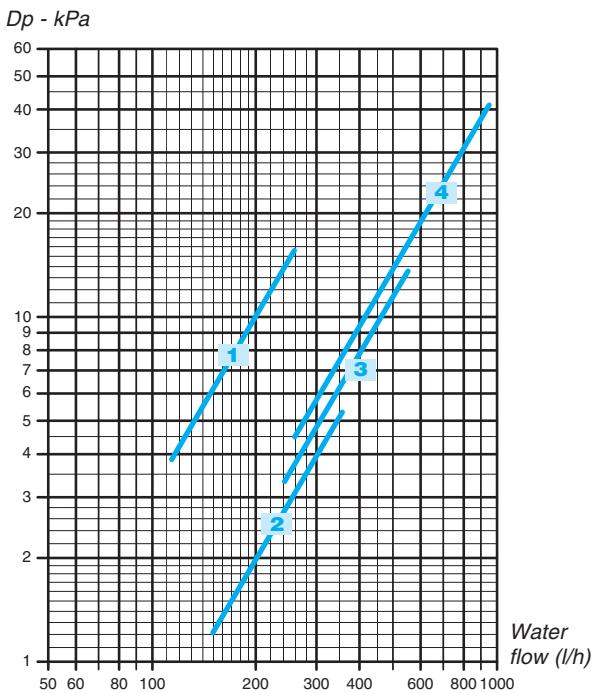
4 row coil



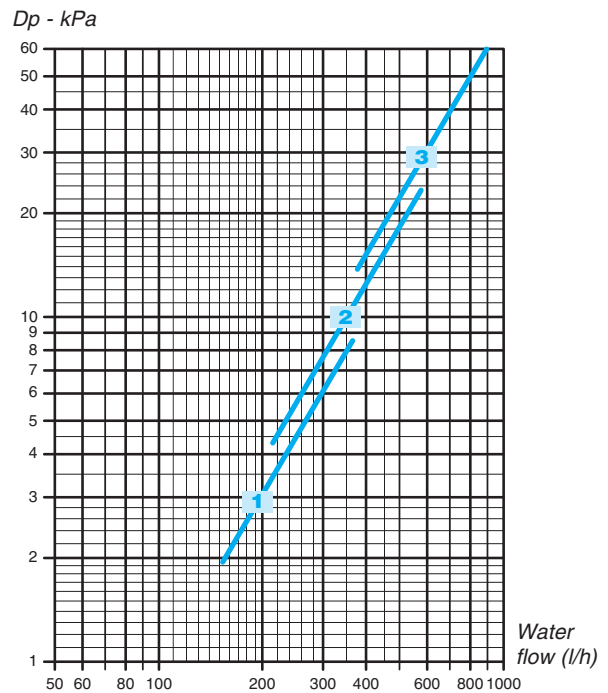
The water pressure drop figures refer to a mean water temperature of **10°C**; for different temperatures, multiply the pressure drop figures by the correction factors **K**.

°C	20	30	40	50	60	70	80
K	0,94	0,90	0,86	0,82	0,78	0,74	0,70

1 row additional coil



2 row additional coil

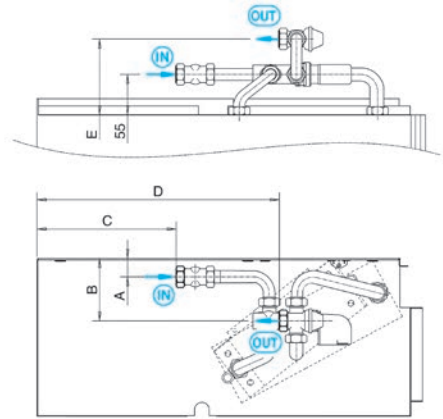
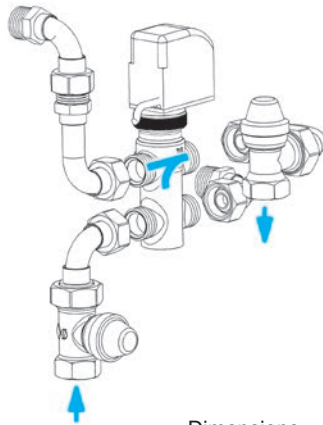


The water pressure drop figures refer to a mean water temperature of **65°C**; for different temperatures, multiply the pressure drop figures by the correction factors **K**.

°C	40	50	60	70	80
K	1,14	1,08	1,02	0,96	0,90

VBP
main coil 3 way valve

Control valve kit:
3 way valve, ON-OFF,
with electric motor and mounting kit
with micrometric lockshield valve.

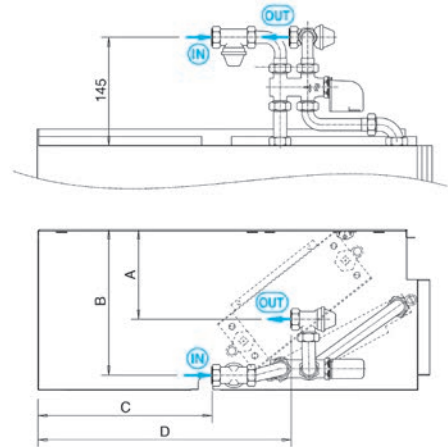
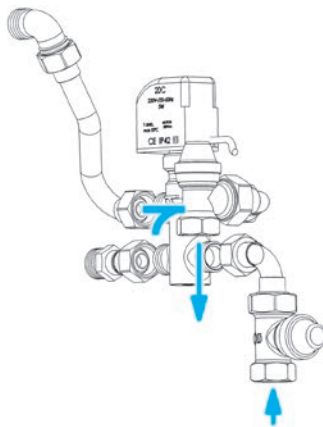


Dimensions ± 10 mm

Mod.	Dimensions (mm)					Valve			Micrometric lockshield valve			Code	
	A	B	C	D	E	DN	(Ø)	Kvs	DN	(Ø)	Kvs	FITTED	NOT FITTED
1	25	85	190	290	105	15	1/2"	1,6	15	1/2" F	2	9066561H	9066560H
2	25	85	190	290	105	20	3/4"	2,5	15	1/2" F	2	9060471H	9060474H
3	50	120	185	290	105	20	3/4"	2,5	15	1/2" F	2	9060471H	9060474H
4	50	120	185	290	105	20	3/4"	4	20	3/4" F	3,5	9069202H	9069200H

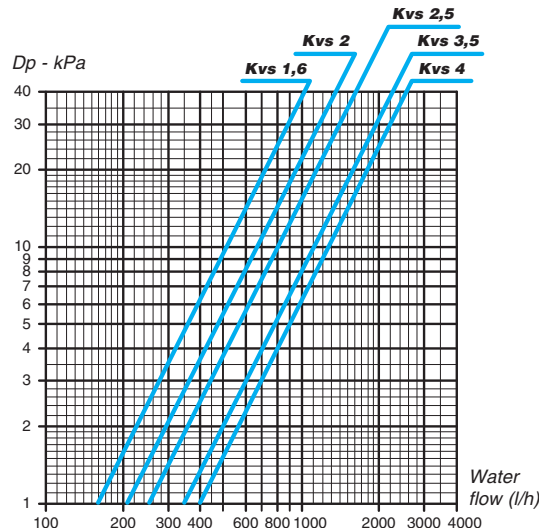
VBA
additional coil 3 way valve

Control valve kit:
3 way valve, ON-OFF,
with electric motor and mounting kit
with micrometric lockshield valve.



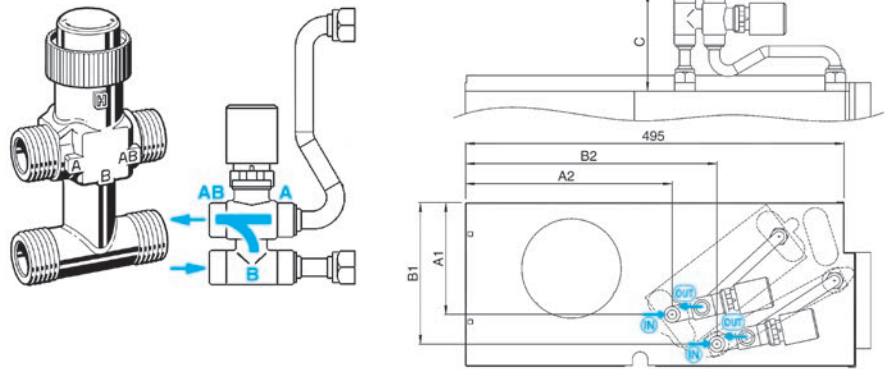
Dimensions ± 10 mm

Mod.	Dimensions (mm)				Valve			Micrometric lockshield valve			Code	
	A	B	C	D	DN	(Ø)	Kvs	DN	(Ø)	Kvs	FITTED	NOT FITTED
1 - 2	120	195	240	340	15	1/2"	1,6	15	1/2" F	2	9060472H	9060475H
3	135	200	235	330	15	1/2"	1,6	15	1/2" F	2	9060472H	9060475H
4	135	200	235	330	15	1/2"	1,6	15	1/2" F	2	9060472H	9060475H



VS
simplified kit for 3 way valve

3 way valve, (ON-OFF)
with electric motor and mounting kit.
Valve with flat connection
without micrometric lockshield valve.

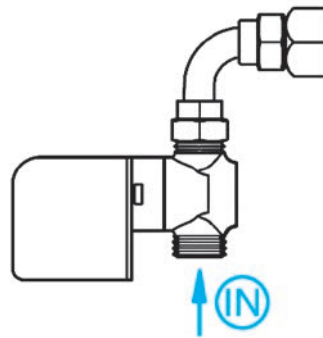


Dimensions ± 10 mm

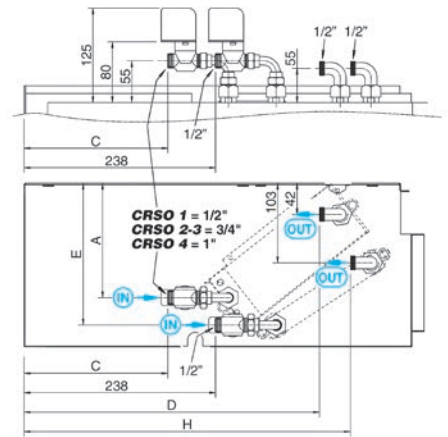
Mod.	Dimensions (mm)					MAIN					ADDITIONAL				
	MAIN		ADDITIONAL		C	Valve			Code		Valve			Code	
	A1	A2	B1	B2		DN	(Ø)	Kvs	FITTED	NOT FITTED	DN	(Ø)	Kvs	FITTED	NOT FITTED
1	152	270	185	330	116	15	1/2"	1,6	9066571H	9066570H	15	1/2"	1,6	9060483H	9060480H
2	152	268	185	330	124	20	3/4"	2,5	9060484H	9060481H					
3	177	270	210	327	124	20	3/4"	2,5	9060484H	9060481H					
4	177	270	210	329	124	20	3/4"	4	9069205H	9069204H					

V2
2 way valve
for main and additional coil

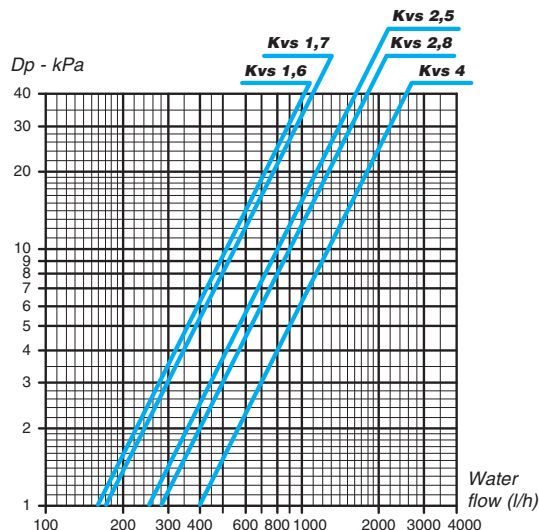
Control valve kit:
2 way valve, ON-OFF,
with electric motor and mounting kit.



Dimensions ± 10 mm



Mod.	Dimensions (mm)					MAIN					ADDITIONAL				
	MAIN		ADDITIONAL		H	Valve			Code		Valve			Code	
	A	C	D	E		DN	(Ø)	Kvs	FITTED	NOT FITTED	DN	(Ø)	Kvs	FITTED	NOT FITTED
1	149	180	438	186	456	15	1/2"	1,7	9060476H	9060478H	15	1/2"	1,7	9060476H	9060478H
2	150	181	438	186	456	20	3/4"	2,8	9060477H	9060479H					
3	176	175	422	210	440	20	3/4"	2,8	9060477H	9060479H					
4	176	175	422	210	440	25	1"	4	9069203H	9069201H					



3 way double valve kit for 4 tube installation and single coil

The kit consists of:

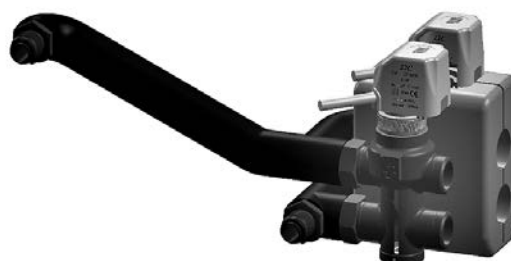
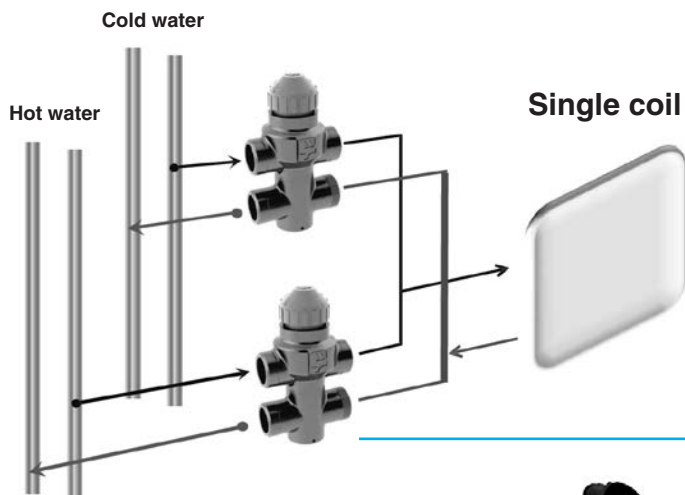
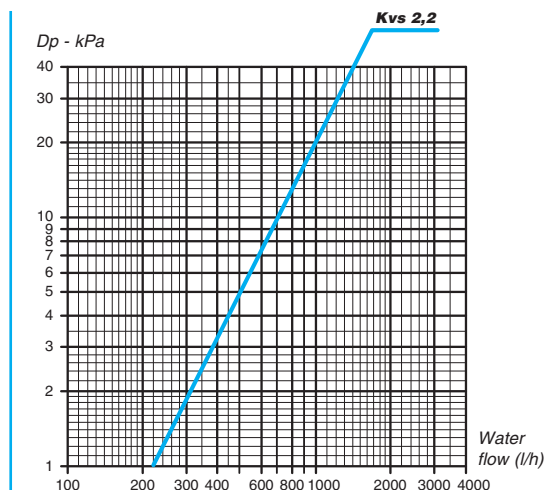
- 2 special 3 way valves;
- 2 230 Volt ON-OFF actuators with internal safety micro switch;
- insulated pipe kit;
- external valve insulation sleeve.

MODEL	Ø	Kvs	FITTED		NOT FITTED	
			CODE	TYPE	CODE	TYPE
1 ÷ 4	3/4"	2,2	9066572W	V3M4X2	9066562W	V3S4X2

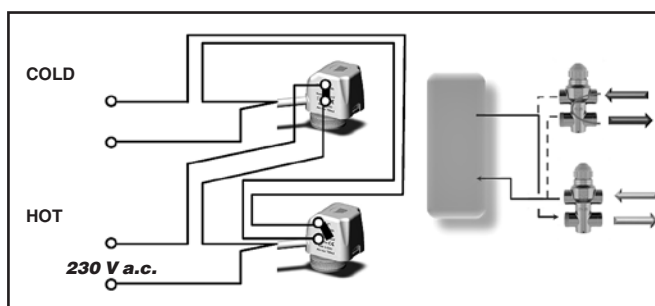
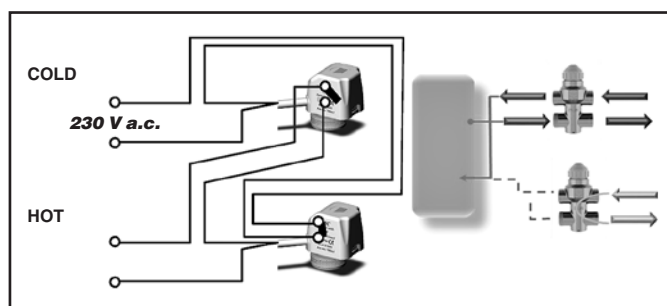
The kit uses a special 3 way valve which allows the transformation of the fan coil, equipped with one single coil, into a 4 tube installation.

The new **4X2** valve has been designed to keep the water flow between flow and return perfectly separated, allowing its use in parallel.

Therefore, it can be used on 4 pipe fan coil systems with one single heat-exchange coil on board the fan coil.



Double actuator electrical connections



Balancing valves independent from the system pressure

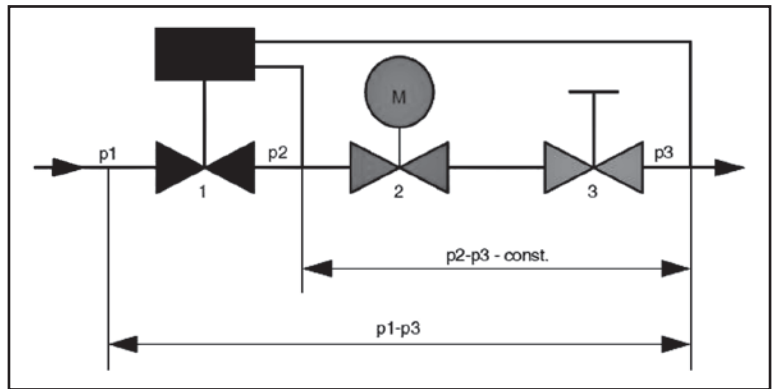
- The balancing valve and a combined 2 way valve allow the regulation of the water flow value autonomously, regardless of the system pressure, and the control of the flow by using an ON/OFF electro-thermal actuator.
- The balancing valve allows you to balance the hydraulic system by supplying the required water flow, for each fan- coil, and to maintain it even under partial load conditions.
- A graduated ring nut placed under the valve allows you to set the flow rate value and also allows direct reading of the set value.



Valve operation logic

- “p1” is the valve inlet pressure.
- “p3” is the outlet pressure.
- “p2” is the diaphragm activation pressure, which allows differential pressure “p2” – “p3” to be maintained at a constant value, in order to guarantee the water to flow at the set value.

The minimum differential pressure “p1” – “p3”, required to guarantee the correct value of the set water flow rate, is indicated in the diagrams on page 22. This is an essential factor to size the system pressure drop and pump pressure head. The flow rate is kept at a constant value only if the valve pressure drop is higher than the indicated value.



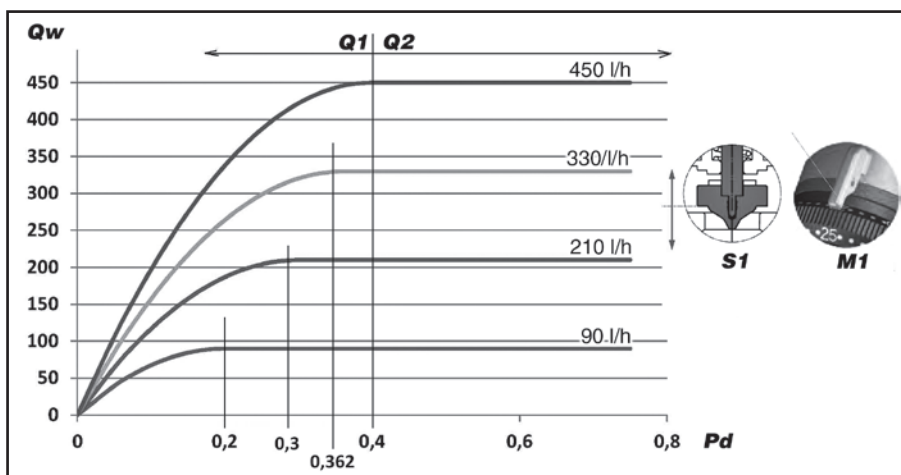
Minimum operating differential pressure

The minimum differential pressure and the balancing valve pressure drop must be considered to size the system pumps.

Flow rate is constant if the pressure drop is higher than that indicated in the diagrams on page 22.

The following diagram shows an example of the flow rate trend according to the pressure drop and calibration required.

Example DN 10 Model

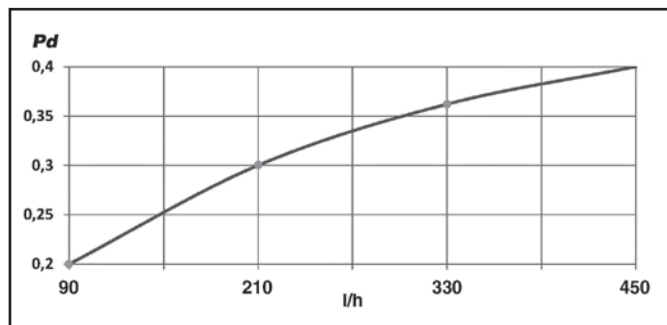


LEGEND:

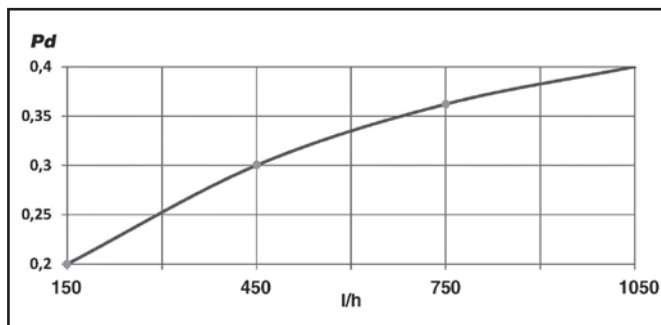
- Qw** = Water flow rate
- Pd** = Min. differential pressure “p1” – “p3” (bar)
- Q1** = Area with inconstant water flow
- Q2** = Area with constant water flow
- S1** = Position of the adjustment valve plunger
- M1** = Position of the knob

The valve upstream-downstream minimum differential pressure (“p1” – “p3”), which depends on the valve calibration value, must be exceeded to access the constant flow rate field.

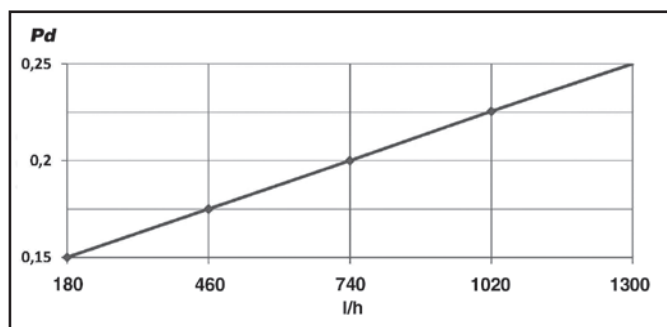
DN 10 Model



DN 15 Model



DN 20 Model



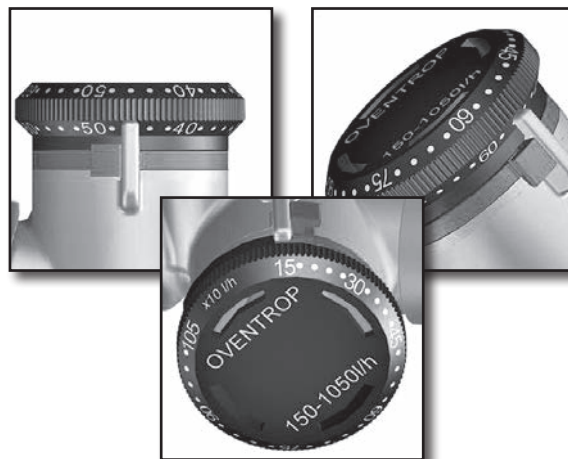
LEGEND:

Pd = Min. differential pressure “p1” – ”p3” (bar)

E.g., when sizing the system pump, in which the **DN 10** valves will be installed and in which 210 l/h are constantly required for each device, consider a useful pressure of 0.3 bar (to compensate the pressure drop of the valve) for each balancing valve. Therefore, the pressure drop values produced by the system balancing valves must be summed and the pump must be sized to produce a pressure equal to or greater than the value obtained previously.

Benefits

- Reduced dimensions.
- Easy installation on 2 or 4 pipe devices.
- Pre-regulation of the nominal value set even with installed actuator.
- Easy display of the nominal value set. Nominal values are indicated in 10 l/h without any conversion.
- Guarantee of constant flow rate set even with partial loads.
- Pre-regulation can be blocked and leaded with the locking ring.



Technical features

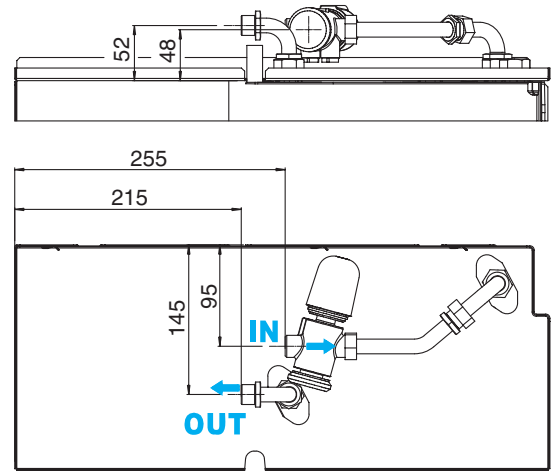
DN MODEL	FLOW RATE RANGE (l/h)	Kvs
DN 10	90 – 450	1,1
DN 15	150 – 1050	1,8
DN 20	180 – 1300	2,5

Operation limits of the balancing valves

- Maximum operating temperature 120°C
- Maximum operating pressure 16 bar
- Maximum % of water/glycol mixture 50%
- Minimum operating temperature -10°C
- Maximum differential pressure 4 bar

Balancing valves for main coil

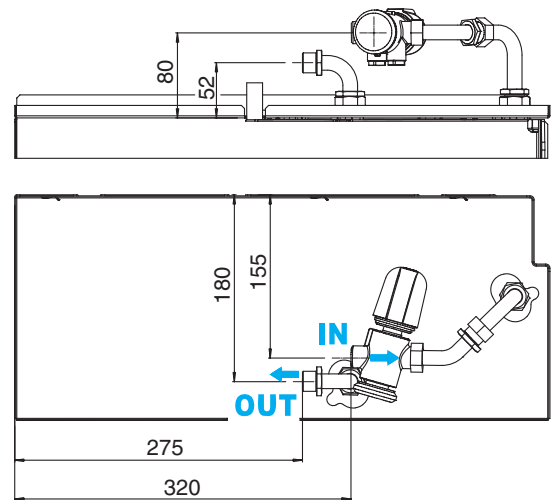
2 way valve for main coil and assembly kit.
The valve is supplied equipped with
230 Volt electro-thermal actuator for the ON/OFF control.



MODEL	VALVE			FITTED		NOT FITTED	
	DN	Ø	Range	CODE	TYPE	CODE	TYPE
1	10	1/2"	90 – 450	9066660	V2OVBPM 90-450	9066650	V2OVBPS 90-450
2 – 3	15	3/4"	150 – 1050	9066661	V2OVBPM 150-1050	9066651	V2OVBPS 150-1050
4	20	1"	180 – 1300	9066662	V2OVBPM 180-1300	9066652	V2OVBPS 180-1300

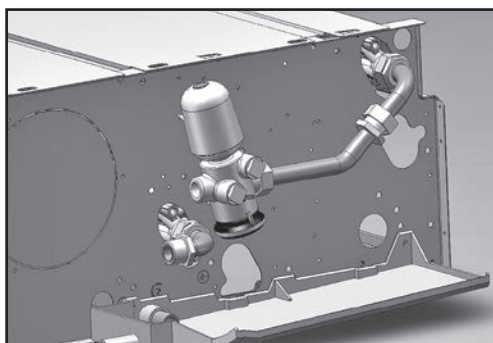
Balancing valves for additional coil

2 way valve for additional coil and assembly kit.
The valve is supplied equipped with
230 Volt electro-thermal actuator for the ON/OFF control.

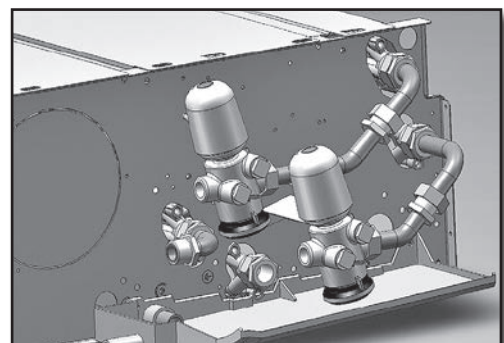


MODEL	VALVE			FITTED		NOT FITTED	
	DN	Ø	Range	CODE	TYPE	CODE	TYPE
1 ÷ 3	10	1/2"	90 – 450	9066663	V2OVBAM 90-450	9066653	V2OVBAS 90-450
4	15	3/4"	150 – 1050	9066664	V2OVBAM 150-1050	9066654	V2OVBAS 150-1050

2 pipe system



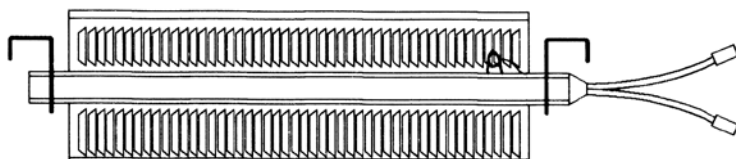
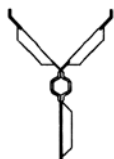
4 pipe system



BEL electric heater

1 PHASE 230V

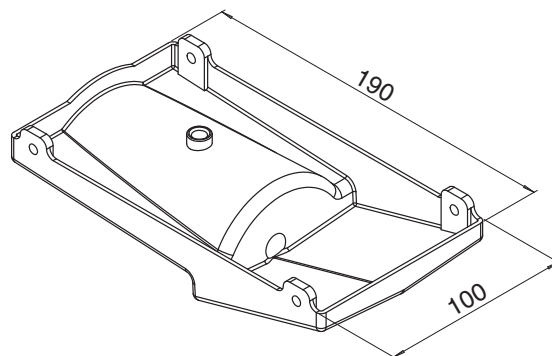
Electric heater with integral:
safety thermostat and relay control.



SIZE	CRSO 1			CRSO 2			CRSO 3			CRSO 4
WATT	1500	900	600	2000	1250	750	2500	1500	1000	3500
CODE	9066613	9066603	9066593	9066615	9066605	9066595	9066617	9066607	9066597	9038026

BSV extension condensate collection tray to cover valve assembly

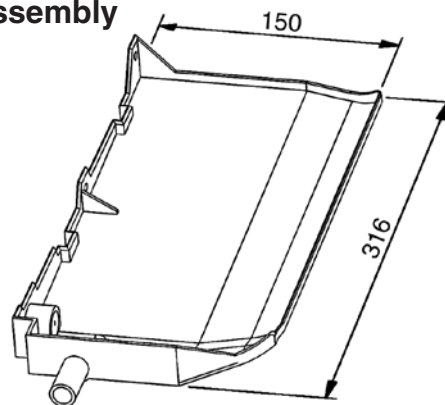
(for vertical units)



CODE	6060400
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BSO extension condensate collection tray to cover valve assembly

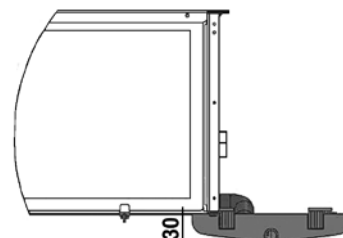
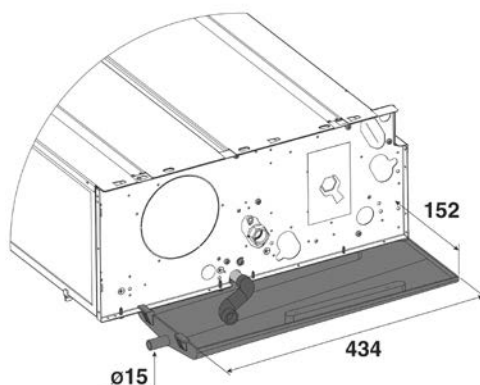
(for horizontal units)



CONNECTION SIDE	LEFT	RIGHT
TYPE	BSO-SX	BSO-DX
CODE	6060402	6060403

BSI-C extension condensate collection tray to cover valve assembly

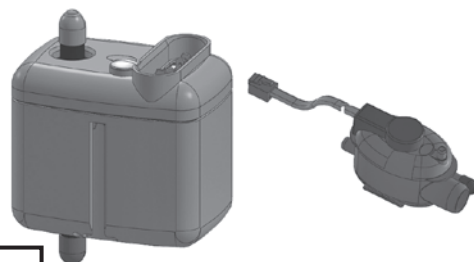
(for horizontal units)



CODE	6066039
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DRPV-C condensate pump

(for vertical units)

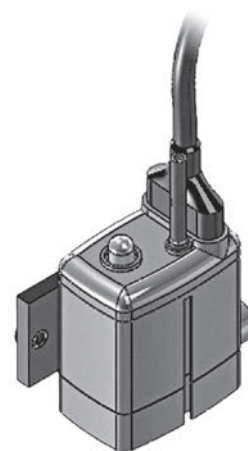


	FITTED	NOT FITTED
TYPE	DRPV-C-M	DRPV-C-S
CODE	9066297	9066296

HEIGHT FOR VERTICAL FLOW (m)	WATER FLOW (l/h) DEPENDING ON THE LENGTH OF HORIZONTAL FLOW	
	5 m	10 m
1	7,6	7,2
2	5,6	5,2
3	4,0	3,7
4	3,2	2,9

DRPO-C fitted condensate pump

(for horizontal units)

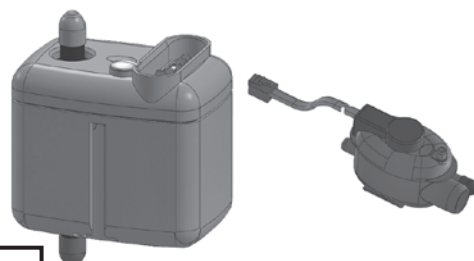


TYPE	DRPO-C
CODE	9066295

HEIGHT FOR VERTICAL FLOW (m)	WATER FLOW (l/h) DEPENDING ON THE LENGTH OF HORIZONTAL FLOW	
	5 m	10 m
1	7,6	7,2
2	5,6	5,2
3	4,0	3,7
4	3,2	2,9

DRPI-C fitted condensate pump

(for horizontal units)

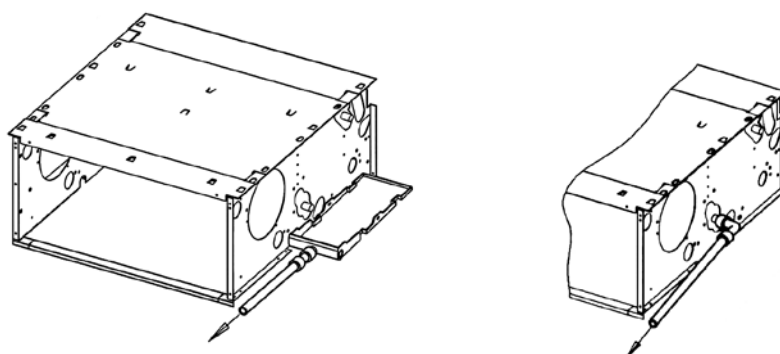


TYPE	DRPI-C
CODE	9066180

HEIGHT FOR VERTICAL FLOW (m)	WATER FLOW (l/h) DEPENDING ON THE LENGTH OF HORIZONTAL FLOW	
	5 m	10 m
1	7,6	7,2
2	5,6	5,2
3	4,0	3,7
4	3,2	2,9

SCR plastic condensate drain pipe with fast connection

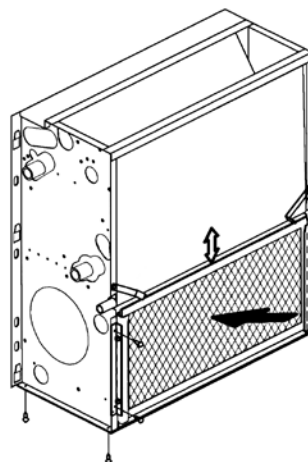
(allows correct condensate drain)



CODE	6060420
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KAF frontal intake kit

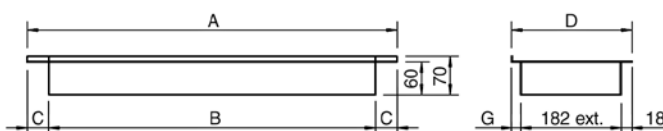
Bottom closing panel and filter sliding guides.



SIZE	CODE
CRSO 1	9069071
CRSO 2	9069072
CRSO 3	9069073
CRSO 4	9069074

FRD straight inlet flange

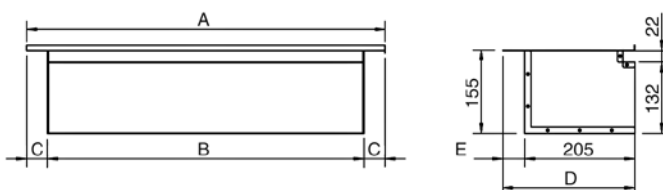
Can be used together with GRAG air inlet grid.
Made of galvanized steel.



SIZE	TYPE	A	B	C	D	G	CODE
CRSO 1	FRD - 3/4	669	590	39,5	216	16	9060721
CRSO 2	FRD - 4S	884	790	47	246	46	9038002
CRSO 3	FRD - 8/9	1099	990	54,5	246	46	9060724
CRSO 4	FRD - 8S	1549	1440	54,5	246	46	9038007

FR 90 90° inlet flange

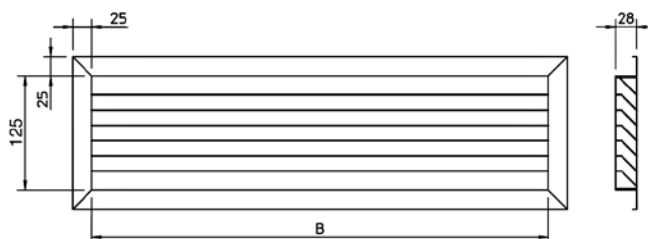
Can be used together with GRAP air inlet grid.
Made of galvanized steel.



SIZE	TYPE	A	B	C	D	G	CODE
CRSO 1	FR90 - 3/4	669	590	39,5	216	11	9060711
CRSO 2	FR90 - 4S	884	790	47	246	41	9038001
CRSO 3	FR90 - 8/9	1099	990	54,5	246	41	9060714
CRSO 4	FR90 - 8S	1549	1440	54,5	246	41	9038006

GRAP air inlet grid

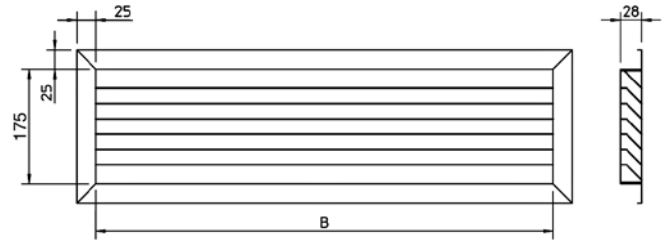
To be used with FR 90 90° inlet flange.
Made of anodized aluminium.



SIZE	TYPE	DESCRIPTION	B	CODE
CRSO 1	GRAP - 3/4	Grid 600x150	575	9060761
CRSO 2	GRAP - 5/6	Grid 800x150	775	9060762
CRSO 3	GRAP - 7/9	Grid 1000x150	975	9060763
CRSO 4	GRAP - S4	Grid 1450x150	1425	9038041

GRAG air inlet grid

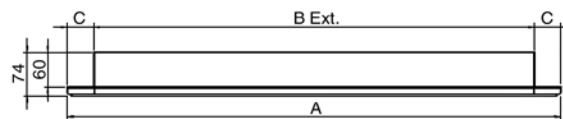
To be used with FRD straight inlet flange.
Made of anodized aluminium.



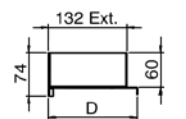
SIZE	TYPE	DESCRIPTION	B	CODE
CRSO 1	GRAG - 3/4	Grid 600x200	575	9060765
CRSO 2	GRAG - 5/6	Grid 800x200	775	9060766
CRSO 3	GRAG - 7/9	Grid 1000x200	975	9060767
CRSO 4	GRAG - S4	Grid 1450x200	1425	9038042

FMD straight outlet flange

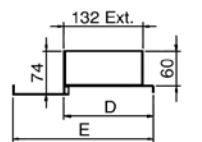
Made of galvanized steel.



CRSO 1-2-3



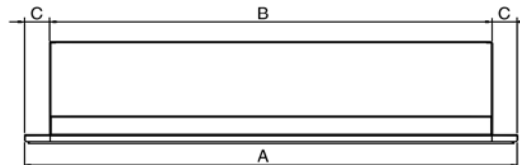
CRSO 4



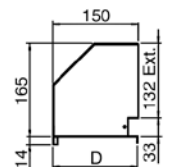
SIZE	TYPE	A	B	C	D	E	CODE
CRSO 1	FMD - 3/4	667	590	38,5	152	-	9066373
CRSO 2	FMD - 4S	882	790	46	179	-	9069232
CRSO 3	FMD - 8/9	1097	990	53,5	179	-	9066378
CRSO 4	FMD - 8S	1547	1440	53,5	152	248	9069234

FM 90 90° outlet flange

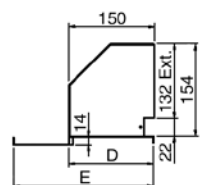
Made of galvanized steel
insulated with polyethylene lining.



CRSO 1-2-3



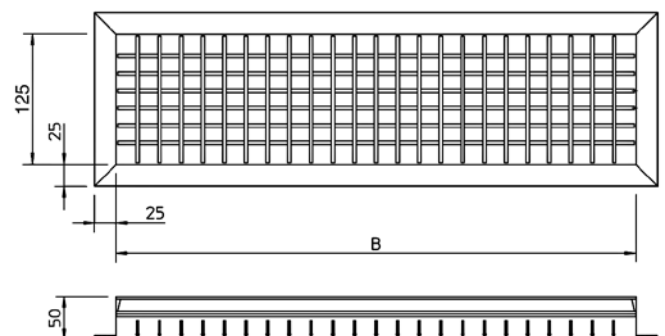
CRSO 4



SIZE	TYPE	A	B	C	D	E	CODE
CRSO 1	FM90 - 3/4	667	590	38,5	152	-	9066383
CRSO 2	FM90 - 4S	882	790	46	179	-	9069242
CRSO 3	FM90 - 8/9	1097	990	53,5	179	-	9066388
CRSO 4	FM90 - 8S	1547	1440	53,5	152	248	9069244

BMA air outlet grid

Double louvre grid to be fitted to the duct,
to the FMD straight outlet flange
or to the FM 90 90° outlet flange.
Made of anodized aluminium.

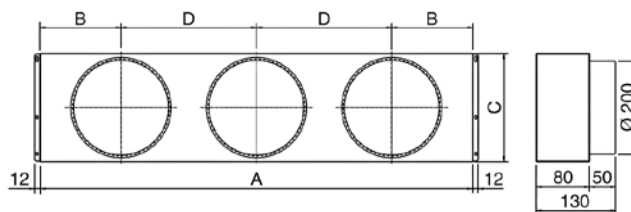


SIZE	TYPE	B	CODE
CRSO 1	BMA - 3/4	575	9060751
CRSO 2	BMA - 5/6	775	9060752
CRSO 3	BMA - 7/9	975	9060753
CRSO 4	BMA - 8S	1425	9038040

PRC air inlet spigot plenum

Made of galvanized steel insulated with polyethylene lining.

All the plenums are supplied with spigots for the connection of flexible ducts.

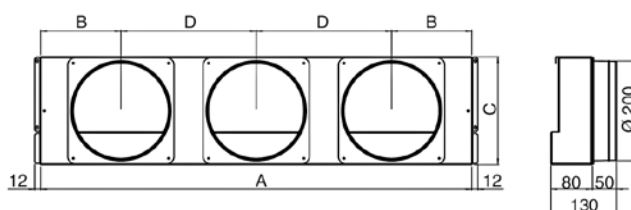


SIZE	TYPE	A	B	C	D	SPIGOTS	CODE
CRSO 1	PRC - 3/4	645	166	218	313	N° 2	9066463
CRSO 2	PRC - 4S	860	160	248	270	N° 3	9038050
CRSO 3	PRC - 8/9	1075	190	248	347,5	N° 3	9066468
CRSO 4	PRC - 8S	1525	223	248	360	N° 4	9038051

PMC spigot diffuser

Made of galvanized steel insulated with polyethylene lining.

All the plenums are supplied with spigots for the connection of flexible ducts.



SIZE	TYPE	A	B	C	D	SPIGOTS	CODE
CRSO 1	PMC - 3/4	645	166	218	313	N° 2	9066363
CRSO 2	PMC - 4S	860	160	248	270	N° 3	9069222
CRSO 3	PMC - 8/9	1075	190	248	347,5	N° 3	9066368
CRSO 4	PMC - 8S	1525	223	248	360	N° 4	9069224

All the **Carisma CRSO** units can be supplied with a wide control range that allows to control a single unit or several units (through the use of Dip-Switches or the use of power units).

The room temperature can be controlled through electronic room thermostats, with different solutions according to every ambient conditions.

The options range from the basic 3 speed control **WM-3V** to the highly sophisticated **WM-T** and **WM-TQR** electronic room thermostats that regulate the room temperature and are suitable when the user wants to set the fan speed. The most evolved **WM-AU**, **T-MB** and **WM-503** versions allow both the manual and the automatic speed switch.



WM-3V wall control



WM-T wall control



WM-TQR wall control



WM-AU wall control



T-MB wall control



WM-503 wall control



T2T wall control

All the controls are described in detail in the "Fan Coil Control Range" literature.

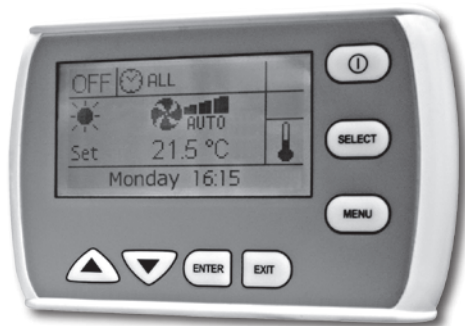
All the **Carisma CRSO** units can be supplied in **MB version**. This version includes a wide range of controls, including the **infra-red remote control**, which allows managing one single unit or several units by using the Modbus RTU - RS 485 communication protocol.

Units can be managed according to the Master/Slave logic (up to 20 units) or by supervisory components.

The system consists in a **MB** board and a series of controls, such as the **T-MB** wall control, the **RT03** infra-red remote control, the **PSM-DI** multifunction control panel and the **Sabianet** supervisory program.



T-MB wall control



PSM-DI multifunction control panel



RT03 infra-red remote control



PC

Sabianet screenshot



Sabianet software

All the controls are described in detail in the “Fan Coil Control Range” literature.



www.icim.it

CERTIFICATO n. 0545/6
CERTIFICATE No. _____

SI CERTIFICA CHE IL SISTEMA DI GESTIONE PER LA QUALITA' DI
WE HEREBY CERTIFY THAT THE QUALITY MANAGEMENT SYSTEM OPERATED BY

SABIANA S.p.A.

Sede e Unità Operativa
Via Piave, 53 - 20011 Corbetta (MI)
Direzione e uffici amministrativi, progettazione, assistenza, produzione di
apparecchiature per il riscaldamento e il condizionamento dell'aria (aerotermi,
termostrisce radianti, unità trattamento aria) e canne fumarie
Unità Operativa
Via Virgilio, 2 - 20013 Magenta (MI)
Produzione di ventilconvettori, magazzino e logistica
Italia

E' CONFORME ALLA NORMA
IS IN COMPLIANCE WITH THE STANDARD

UNI EN ISO 9001:2008

PER LE SEGUENTI ATTIVITA'
FOR THE FOLLOWING ACTIVITIES

EA: 18

Progettazione, produzione e assistenza di apparecchiature per il
riscaldamento e il condizionamento dell'aria (aerotermi, termostrisce
radianti, ventilconvettori e unità trattamento aria) e canne fumarie.
*Design, production and service of heating and air conditioning equipment
(unit heaters, radiant panels, fan coil units
and air handling units) and chimneys.*

Riferirsi al Manuale della Qualità per l'applicabilità dei requisiti della norma di riferimento.
Refer to Quality Manual for details of application to reference standard requirements.

Il presente certificato è soggetto al rispetto del regolamento per la certificazione dei sistemi di gestione per la qualità delle aziende.
The use and the validity of this certificate shall satisfy the requirements of the rules for the certification of company quality management systems.

Data emissione
First issue
10/06/1996

Emissione corrente
Current issue
10/04/2015

Data di scadenza
Expiring date
09/04/2018

ICIM S.p.A.

Piazza Don Enrico Mapelli, 75 - 20099 Sesto San Giovanni (MI)



SGQ N° 004A SSI N° 008G
SGA N° 005D PRD N° 004B
SCR N° 006F ISP N° 046E
PRS N° 002C SGE N° 005M

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Signatory of EA, IAF and ILAC Mutual Recognition Agreements

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Air Conditioning
Carisma **CRSO** High Pressure Fan Coil Units

CRSO - EX - 03/17
Cod. 99A4690100 E/03/17

