

Product Range



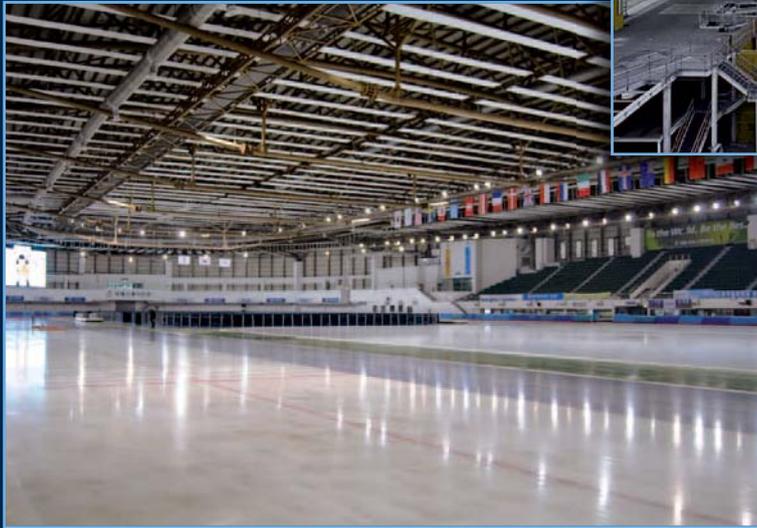
Quality management systems
ISO 9001 – Cert. n° 0545/5



SABIANA
IL CLIMA AMICO



DUCK STRIP RADIANT PANELS: AEROSPATIALE TOULOUSE
NEW AIRBUS A380 PRODUCTION PLANT.
INSTALLATION HEIGHT: 40 m



DUCK STRIP RADIANT PANELS



ATLAS UNIT HEATERS



CARISMA FAN COIL UNITS



SABIANA
IL CLIMA AMICO

Sabiana, the company

Choose Sabiana, choose safety

Choose **SABIANA** and you choose safety. Safety in terms of products, performance and reliability. Safety also means a relationship based on honesty and competence.

For this reason **SABIANA** has kept for 80 years a leading position in the production of heating and air conditioning equipment for use in industry, trade and sports.

In 1929 **SABIANA** was founded by Franco Binaghi and Benvenuto Anatrella and began its activity with the production of heating appliances. After having brilliantly overcome the war years and the post-war period, the company adapted its range of products to modern requirements, introduced a modernisation and automation program for working procedures and dedicated much attention to its most important product, the unit heater so that it could become a leader in Europe in this market.

In the Seventies **SABIANA** introduced the radiant strip, which very soon demonstrated its qualities as the most modern and efficient heating system for large areas. The design and production technologies, which were adopted for the radiant strip, assured that **SABIANA** became the market leader in Europe for this product.

The continuous updating of the product range has progressed with the introduction of the fan-coils, cassettes and air handling units, which satisfy all the needs of air treatment, and of the stainless steel flues.

With eighty years of experience and its high reliability **SABIANA** stands up for its principal purpose: to guarantee to engineers and customers the security of a safe product and of a trustful relationship with the supplier. Thanks to this philosophy **SABIANA** is prepared to accept the challenges of the coming years.



Sabiana manufacturing plant in Corbetta



The new Sabiana 2 manufacturing plant in Magenta for the production of Fan Coils and Cassettes



The new Sabiana 3 logistic center



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 and in the web site www.certiflash.com.



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The descriptions and illustrations provided in this publication are not binding: Sabiana reserves the right, whilst maintaining the essential characteristics of the types described and illustrated, to make, at any time, without the requirement to promptly update this piece of literature, any changes that it considers useful for the purpose of improvement or for any other manufacturing or commercial requirements.

Pulsar

Radiant Panels



The SABIANA radiant panels can be described as the hygienic heating and cooling system par excellence. The system does not create noise nor movement of air and therefore dust. In addition, it avoids annoying streams of air and the circulation of germs, dust and smears and thus represents an important contribution to the prevention of allergies and illnesses. This result is achieved with the best design: the visible side is perfectly smooth, adapting to any

type of architecture and none of the peripheral walls are affected by the installation as the PULSAR radiant panel can be perfectly integrated into all types of false ceiling. Given its modular dimensions and the design of the water connections, the PULSAR panels can be installed in sequence with ceiling lights, in complete compliance with the regulations on artificial lighting. The design of the PULSAR panel allows it to be installed in any building, including hospitals and clinics. Indeed, its completely smooth visible surface allows sanitisation by spraying for combating nosocomial illnesses in hospitals. The PULSAR radiant panels are inaccessible to the people in the room. Therefore there is no risk of burning or electric shock in schools and paramedical environments and no risk of vandalism. In summer, the PULSAR panel can be used for cooling without creating streams of air and with a uniform temperature throughout the environment.

Construction

PULSAR:

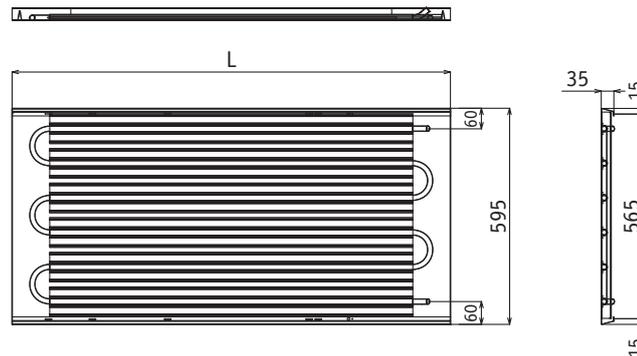
The radiant panels are made up of steel panel, 1mm thick, on which is fitted an oblong-shaped galvanized steel pipe. The lengths of 1.20, 1.80, 2.40 and 3.00 m ensure optimum integration into 600 x 600 mm modular ceilings.

As standard, the panels are supplied in RAL 9016 colour, with a satin finish created by an epoxy-polyester coat dried at 180°C.

Other RAL colours are also available on request.

Dimensions and Weight

Description	Length (mm)	Weight (kg)
Pulsar P.FE 1	1195	13,8
Pulsar P.FE 2	1795	20,7
Pulsar P.FE 3	2395	27,6
Pulsar P.FE 4	2995	34,5



The emission of the Sabiana Pulsar radiant panels have been certified by the laboratory at the University of Stuttgart H.L.K. applying the harmonised European Standard EN 14037, with the report Nr. DC210 D12.2956

Thermal emissions in accordance to the European Standard EN 14037-1

ΔT_M °C	EMISSION W/m												
89	582	79	507	69	434	59	362	49	292	39	225	29	160
88	574	78	500	68	427	58	355	48	285	38	218	28	153
87	567	77	492	67	419	57	348	47	279	37	211	27	147
86	559	76	485	66	412	56	341	46	272	36	205	26	141
85	552	75	478	65	405	55	334	45	265	35	198	25	134
84	544	74	470	64	398	54	327	44	258	34	192	24	128
83	537	73	463	63	391	53	320	43	251	33	185	23	122
82	529	72	456	62	383	52	313	42	245	32	179	22	116
81	522	71	448	61	376	51	306	41	238	31	172	21	110
80	515	70	441	60	369	50	299	40	231	30	166	20	104

ΔT_m = difference between the mean water temperature and the room temperature.

Cooling emissions in accordance to the European Standard EN 14037-4

COOLING EMISSION				
ΔT_M °C	With insulation		Without insulation	
	W/m	W/m ²	W/m	W/m ²
5	24	40	33	56
6	29	49	40	68
7	35	58	48	80
8	40	68	55	92
9	46	77	62	105
10	52	87	70	118

COOLING EMISSION				
ΔT_M °C	With insulation		Without insulation	
	W/m	W/m ²	W/m	W/m ²
11	57	96	78	130
12	63	106	85	143
13	69	116	93	156
14	75	126	101	169
15	81	136	108	182

ΔT_m = difference between the mean water temperature and the room temperature.

Radiant Panels

Duck-Strip

Construction DUCK-STRIP:

The radiant panels consist of three main components: the reflecting panel, the tubes and the insulation.

We have panels with 2 tubes or 3 tubes to provide a variation of output, these are then formed into widths of 30 cm, 60 cm, 90 cm, 120 cm, to provide a variation in coverage. The strip is provided in modular lengths of 4 or 6 metres thus accommodating a total strip to the nearest 2 metres.

The strip is supplied with 3 sections to make up a complete strip, first, intermediate and final. The first and final include headers and each section is connected to the one before it.

The DUCK STRIP panels are completely painted in light GREY, RAL 9002 or in WHITE, RAL 9016 with epoxy-polyester powder dried at 180°C. Model: standard for hot water and special for high temperature hot water.

On request:

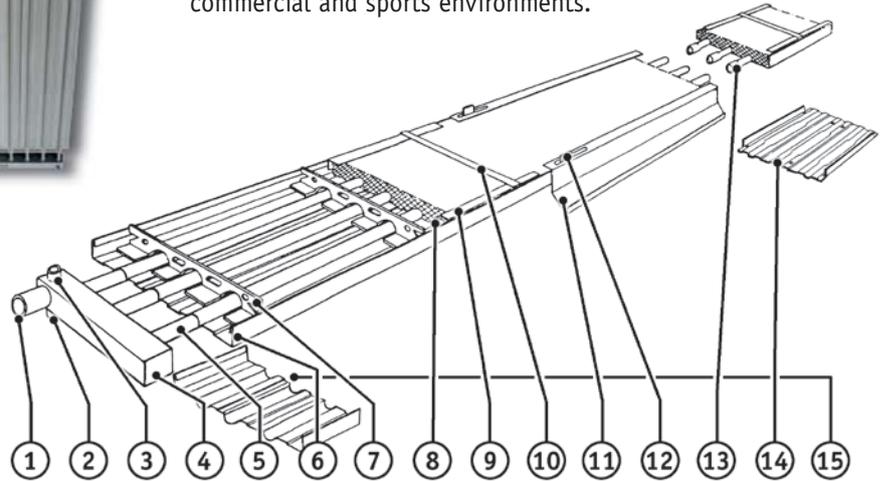
- Special version for steam.
- Special lengths.



Heating by radiation means absolute silence, no air movement, a constant temperature in the whole room and no danger of fire.

This implies energy savings, since the radiation directly heats the people, the walls, the floor and only indirectly the air so that the phenomena of heat stratification is reduced to a minimum.

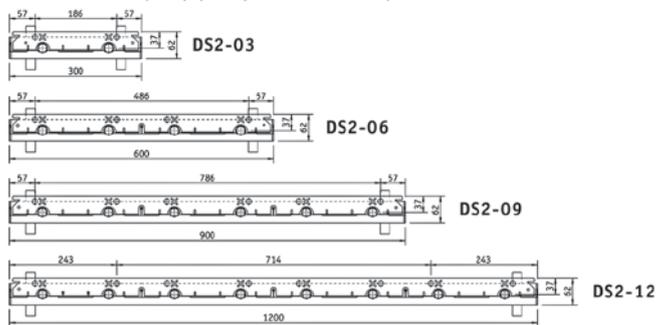
Radiant strips are the ideal solution for the heating of industrial, commercial and sports environments.



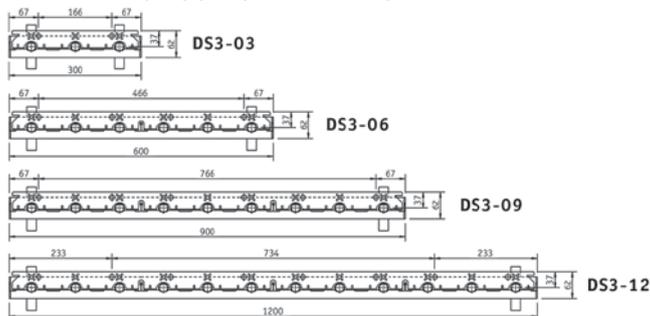
- | | | |
|---|--|---|
| 1) Connection | 6) Radiant panel | 11) Side reflecting skirt (optional) |
| 2) Ø 3/8 bsp connection (for drain valve) | 7) Strengthening section and hanging bracket | 12) Retaining clip for side reflecting skirt |
| 3) Ø 3/8 bsp connection (for air vent) | 8) Mineral wool insulation | 13) Belled end for welding |
| 4) Header | 9) Edging strip | 14) Make-up joint |
| 5) Ø 1/2 diameter tube | 10) Retaining clip | 15) Make-up joint between panel and header (optional) |

Modular Width

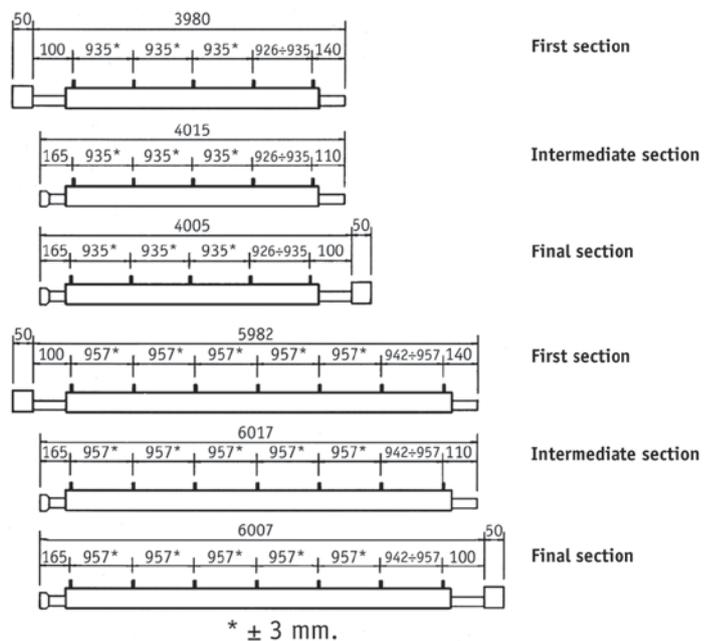
DS2 Model - Ø 1/2" pipes spaced 150 mm apart



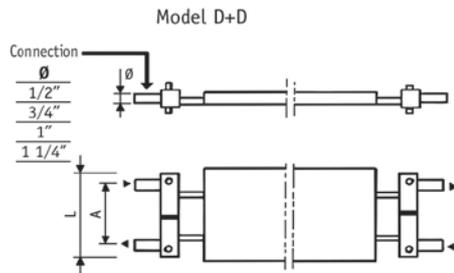
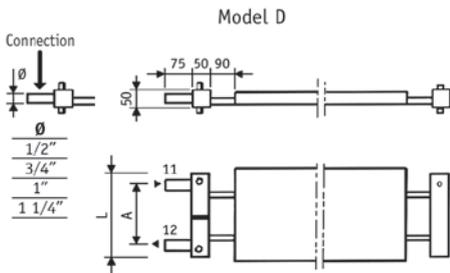
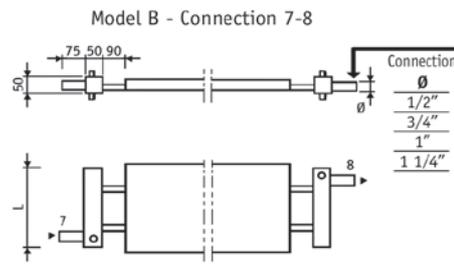
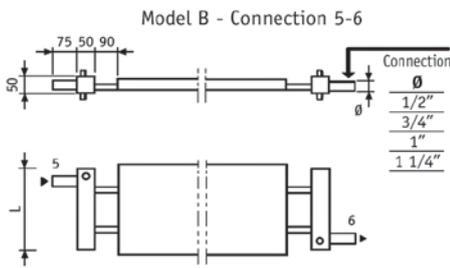
DS3 Model - Ø 1/2" pipes spaced 100 mm apart



Modular Length



Headers and connections



MODEL	03	06	09	12
L	300	600	900	1200
A	200	500	800	1100

Emission for each metre of the different models of the Duck-Strip radiant panels in compliance of the new EN 14037 STANDARD

ΔT_M (K)	DS 2-03 W/m	DS 2-06 W/m	DS 2-09 W/m	DS 2-12 W/m
30	81	144	201	270
32	87	155	217	291
34	93	166	233	312
36	100	177	249	333
38	106	189	265	355
40	112	200	281	376
42	119	212	297	398
44	125	223	314	420
46	132	235	330	442
48	139	247	347	464
50	145	259	364	486
52	152	271	380	509
54	159	283	397	531
55	162	289	406	543
56	165	295	415	554
58	172	307	432	577
60	179	319	449	600
62	186	331	466	623
64	193	344	484	646
65	196	350	493	657
66	200	356	501	669
68	207	368	519	692
70	214	381	537	716
72	221	394	555	739
74	228	406	572	763
76	235	419	590	787
78	242	432	608	810
80	249	444	627	834
82	256	457	645	858
84	263	470	663	883
86	271	483	681	907
88	278	496	700	931
90	285	509	718	955
92	292	522	737	980
94	300	535	755	1004
96	307	548	774	1029
98	314	561	792	1054
100	322	575	811	1078
102	329	588	830	1103
104	336	601	849	1128
106	344	614	868	1153
108	351	628	887	1178
110	359	641	906	1203
112	366	655	925	1228
114	374	668	944	1253
116	381	682	963	1279
118	389	695	983	1304
120	396	709	1002	1330

ΔT_M (K)	DS 3-03 W/m	DS 3-06 W/m	DS 3-09 W/m	DS 3-12 W/m
30	95	169	245	313
32	103	182	265	338
34	110	195	284	363
36	118	209	304	388
38	126	223	324	413
40	134	237	344	439
42	141	251	365	465
44	149	265	385	491
46	157	279	406	518
48	165	293	427	544
50	174	308	448	571
52	182	323	469	598
54	190	337	491	625
55	194	345	501	639
56	198	352	512	652
58	207	367	534	680
60	215	382	556	707
62	224	397	578	735
64	232	412	600	763
65	236	420	611	777
66	241	427	622	791
68	249	442	644	820
70	258	458	667	848
72	267	473	689	877
74	275	489	712	905
76	284	504	735	934
78	293	520	757	963
80	302	536	780	992
82	311	552	803	1021
84	320	568	827	1051
86	329	584	850	1080
88	338	600	873	1110
90	347	616	897	1139
92	356	632	920	1169
94	365	648	944	1199
96	374	664	968	1229
98	383	681	992	1259
100	393	697	1016	1290
102	402	714	1040	1320
104	411	730	1064	1351
106	420	747	1088	1381
108	430	763	1112	1412
110	439	780	1137	1443
112	449	797	1161	1474
114	458	813	1186	1505
116	468	830	1210	1536
118	477	847	1235	1567
120	487	864	1260	1598

ΔT_M = difference between the mean water temperature and the room temperature

Heating capacity certified by the leading European laboratories: The heating capacity values declared in the literature have been certified by the leading European radiant panel certification laboratory, the University of Stuttgart in Germany. The values have been obtained by applying the harmonised European standard EN 14037, approved in 2003. In Europe there are currently only four laboratories authorised to perform the tests and issue the certificates of conformity to the standard. As the standard makes explicit reference to the EEC directive 89/106 relating to building products, the CE mark on the product is compulsory by law and the product can only be sold if certified by one of the four authorised European laboratories.

Unit Heaters

Atlas

Construction ATLAS:

The main casing is manufactured from galvanized pre-painted steel finished in a light grey colour (RAL 9002) and is assembled from three component parts. The standard motor fitted is a hermetically sealed motor which is maintenance free. The motor is supplied as standard for a three phase 230/400V 50Hz available in accordance to the size at 4, 6 pole (IP44) and at 4/6, 6/8 two speed version (IP55). A wide range of air boxes and accessories is available. The heat exchanger is manufactured from the highest quality steel or copper tube. The fins are pressed from aluminium sheet, bonded onto the tubes facilitating the maximum transfer contact available. The fan and motor assembly is made up of three components: the fan, the motor and the finger proof guard, which also acts as the main support.

On request:
Special voltages and special air boxes.

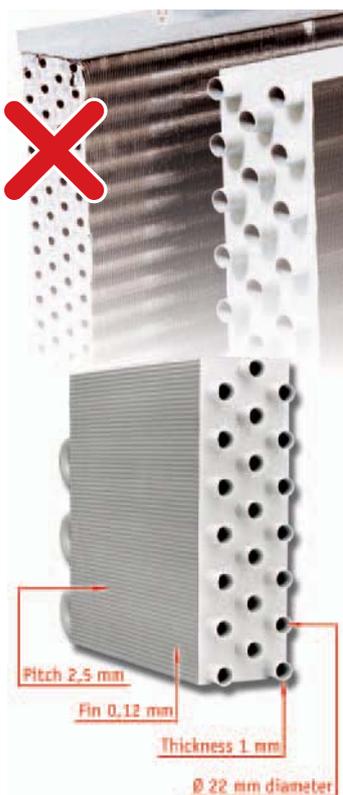
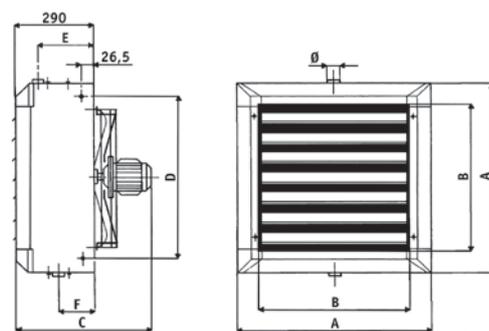


The ATLAS Sabiana Unit Heaters have a big "heart": a battery, which has been developed, studied and constructed expressly for heating industrial environments.

The high thickness of the tubes (1 mm steel tube, 0,7 mm copper tube), their large diameter (Ø 22 mm) and the excellent ratio between the air flow and the output guarantee a long life and a high environmental comfort.

The ATLAS Unit Heaters are produced in 10 sizes from 5 to 120 kW and are available with a 1-row battery for steam and high temperature hot water installations, a 2-row battery for hot water installations and a 3-row battery for low temperature hot water installations.

SIZE	A	B	C	D	E	F	Ø	WEIGHT (kg)		
								1R	2R	3R
1	472	336	465	375	220	130	1 1/4"	19	22	24
2	526	390	465	429	220	130	1 1/4"	22	25	27
3	580	444	465	483	220	130	1 1/4"	26	30	33
4	634	498	488	537	220	130	1 1/4"	30	34	38
5	688	552	488	591	220	130	1 1/4"	33	40	44
6	742	606	513	645	220	130	1 1/4"	38	46	51
7	793	657	560	696	210	140	1 1/2"	46	55	61
8	900	764	575	803	210	140	1 1/2"	55	66	73
9	1010	874	595	913	210	140	1 1/2"	65	79	88
10	1117	980	640	1020	210	140	2"	79	95	106



ATLAS-HELIOS heat exchanger

Thanks to its heart Sabiana is a Leader in the Sales of Unit Heaters in Europe.

The **BATTERY** of Sabiana Atlas and Helios unit heaters with steel tubes Ø 22 mm and aluminium fins has the following advantages compared with the copper-aluminium small diameter tube batteries used by most of our competitors.

The material used for the steel tube, which is very thick (1 mm instead of 0,3 - 0,4 mm), makes the Sabiana battery extremely sturdy and long lasting. The tube big diameter reduces the water pressure drop: this means that reduced power pumps are installed and a very rapid heating capacity is provided.

The Sabiana battery for unit heaters uses a reduced number of tubes to give the same yield: this determines a low resistance to the air flow and consequently an optimum leaving air temperature and a very high throw. The greater spacing between the fins as well as their thickness facilitate cleaning and maintenance operations, which is assential to keep the unit heater efficient.

The steel tube battery is the ideal choice for plants where all tubes and equipment are made of steel because it avoids physical and chemical unbalance due to the interaction of different metals. The special painting coat makes the battery long lasting and increases the thermal output.

The Sabiana battery can be used with hot water and high temperature hot water with a working pressure up to 16 bar and with steam up to 10 bar. As a matter of fact each battery is submitted to two tests at 30 bars. However Sabiana in order to meet any design and installation need can offer a complete set of unit heaters with copper tubes and aluminium fins. This battery has the same features (tube diameter, fin pitch, etc.) of the steel battery but it is built with copper tube 0,7 mm thick, of higher quality and with a total weight which is double compared with the batteries normally used for unit heaters. The wide range of products includes 10 different sizes with 1, 2 or 3 rows each.

Helios

Unit Heaters



The HELIOS unit heaters have been designed to provide the highest standards of appearance. The Helios Unit with its futuristic polished aluminium and contoured design is rather special. This smart new concept in commercial heating units will accommodate all architects who are looking for something new and different. Available in 6 size.

Construction HELIOS:

The main casing is manufactured from 4 angular diecast aluminium components and lateral elements made of extruded, anodized aluminium in a silver colour. The heat exchanger is manufactured from the highest quality steel or copper tube. The fins are pressed from aluminium sheet and bonded onto the tubes facilitating the maximum transfer contact available.

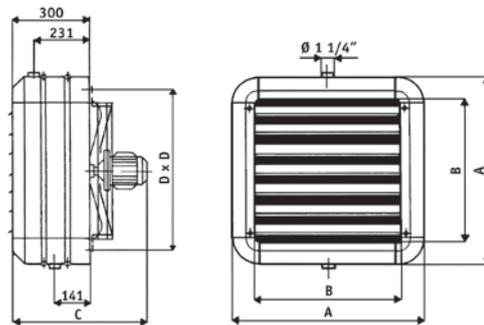
The fan and motor assembly consists of three components: the fan, the motor and the finger proof guard, which also acts as the main support. The standard motor fitted is a hermetically sealed motor which is maintenance free.

The motor is supplied as standard for a three phase 230/400V 50Hz available in accordance to the size at 4, 6 pole (IP44) and at 4/6, 6/8 two speed version (IP55).

A wide range of air boxes and accessories is available.

On request:
Special voltages
and special air boxes.

SIZE	A	B	C	D	WEIGHT (kg)		
					1R	2R	3R
1	486	330	477	406	21	25	29
2	540	384	477	460	23	27	31
3	594	468	477	514	26	34	42
4	648	492	500	568	32	42	52
5	702	546	500	622	40	51	62
6	756	600	525	676	56	66	76



Performance Data 85/75°C - 80°C Mean water temperature 10°C Drop - Entering air temperature 15°C

UNIT SIZE	MODEL REF.		MOTOR SPEED r.p.m.	LEAVING AIR VOLUME m ³ /h	NOISE LEVEL at 5 m. dB(A)	EMISSION W	LEAVING AIR TEMP. °C	POLES	MOUNTING HEIGHTS:			
	ATLAS	HELIOS							HORIZONTAL DISCHARGE		VERTICAL DISCHARGE	
									HEIGHT m	THROW m	HEIGHT max. m	THROW m
1	46A11	46H11	1350 / 1000	1490 / 1055	56 / 48	-	-	4	2,5÷3,5	8	4	50
	46A12	46H12	1350 / 1000	1400 / 1010	56 / 48	11170 / 8500	38 / 41					
	46A13	46H13	1350 / 1000	1330 / 960	56 / 48	12940 / 9790	44 / 48					
2	46A21	46H21	1350 / 1000	2315 / 1640	59 / 51	-	-	4	3÷4	11	4,5	60
	46A22	46H22	1350 / 1000	2100 / 1440	59 / 51	15600 / 11880	38 / 41					
	46A23	46H23	1350 / 1000	2010 / 1380	59 / 51	17700 / 13390	42 / 46					
3	46A31	46H31	1350 / 1000	3400 / 2215	61 / 52	-	-	4	3÷4	14	5	70
	46A32	46H32	1350 / 1000	2960 / 1995	61 / 52	23850 / 17940	38 / 42					
	46A33	46H33	1350 / 1000	2750 / 1850	61 / 52	27700 / 20710	43 / 47					
4	46A41	46H41	1350 / 1000	4230 / 2845	64 / 54	-	-	4	3,5÷4,5	16	5,5	80
	46A42	46H42	1350 / 1000	3525 / 2350	64 / 54	30840 / 23290	40 / 42					
	46A43	46H43	1350 / 1000	3120 / 2080	64 / 54	35260 / 26630	45 / 48					
5	46A51	46H51	1350 / 1000	5600 / 3630	66 / 56	-	-	4	4÷5	20	6	100
	46A52	46H52	1350 / 1000	5280 / 3470	66 / 56	40600 / 30910	39 / 43					
	46A53	46H53	1350 / 1000	4550 / 2990	66 / 56	46310 / 35250	43 / 48					
6	46A61	46H61	1350 / 1000	6920 / 4700	69 / 60	-	-	4	4÷5,5	25	7	130
	46A62	46H62	1350 / 1000	6450 / 4225	69 / 60	51780 / 40390	38 / 43					
	46A63	46H63	1350 / 1000	5570 / 3720	69 / 60	59380 / 46430	43 / 48					
7	68A71	-	900 / 700	5800 / 4400	65 / 60	-	-	6	4÷5	24	7	120
	68A72	-	900 / 700	5400 / 4100	65 / 60	44200 / 37100	41 / 44					
	68A73	-	900 / 700	5200 / 3800	65 / 60	53500 / 43800	48 / 52					
8	68A81	-	900 / 700	8500 / 6000	67 / 61	-	-	6	4÷5,5	26	9	160
	68A82	-	900 / 700	7600 / 5500	67 / 61	62900 / 52200	42 / 45					
	68A83	-	900 / 700	7000 / 5000	67 / 61	72700 / 59700	48 / 52					
9	68A91	-	900 / 700	10600 / 8000	68 / 62	-	-	6	4÷6	28	11	200
	68A92	-	900 / 700	10000 / 7500	68 / 62	81400 / 67600	41 / 44					
	68A93	-	900 / 700	9500 / 7000	68 / 62	98800 / 81100	48 / 52					
10	68A101	-	900 / 700	12500 / 9500	71 / 65	-	-	6	4÷6	30	12	220
	68A102	-	900 / 700	11900 / 8800	71 / 65	97800 / 79200	42 / 44					
	68A103	-	900 / 700	11400 / 8450	71 / 65	118600 / 97300	47 / 52					

Identification code

Example: 46A42 SX

46	A-H	4	2	SX	SP
motor 4/6 pole (1350/1000 r.p.m.)	range Atlas-Helios	size 4	rows 2	battery steel tube	battery copper tube

Construction Atlas ECM:

The main casing is manufactured from galvanized pre-painted steel finished in a light grey colour (RAL 9002) and is assembled from three component parts. The standard motor fitted is a hermetically sealed motor which is maintenance free. The heat exchanger is manufactured from the highest quality steel or copper tube. The fins are pressed from aluminium sheet, bonded onto the tubes facilitating the maximum transfer contact available. The fan and motor assembly is made up of three components: the fan, the motor and the finger proof guard, which also acts as the main support. A wide range of air boxes and accessories is available.

Unit Heaters with **inverter board** Atlas ECM



Sabiana ATLAS series is available, for the first 6 sizes, in version with electronic motor and inverter board.

The motor is single phase permanent magnet brushless electronic motor.

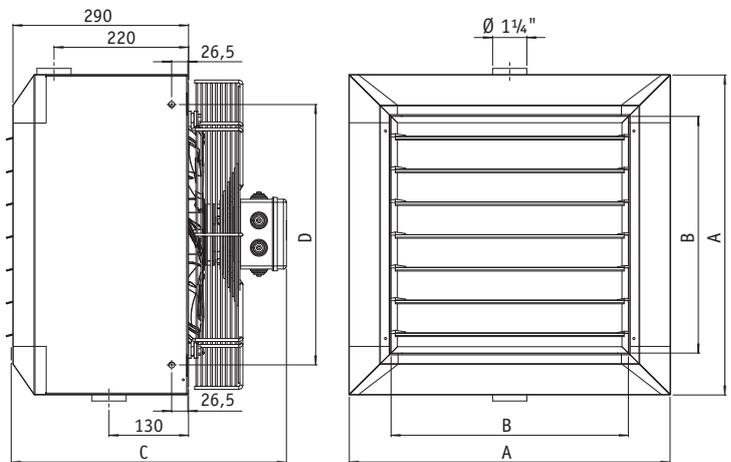
The inverter board that controls the motor operation is powered by single-phase and it generates a frequency modulated wave form power supply. The electric power supply required for the machine is therefore single-phase with voltage of 200 - 240 V and frequency of 50 - 60 Hz.

The helicoidal fan is made with statically and dynamically balanced plastic or aluminium blades. Its rational high-capacity profile provides the maximum air volume with the minimum energy consumption. The fan hub is secured onto the motor shaft and it is protected by a safety guard.



Dimensions, weight and water content

SIZE	A	B	C	D	WEIGHT (kg)			WATER CONTENT (liters)		
					1R	2R	3R	1R	2R	3R
1	472	336	460	375	19	22	24	1,3	2,6	3,9
2	526	390	460	429	22	25	27	1,6	3,2	4,8
3	580	444	460	483	26	30	33	1,9	3,8	5,7
4	634	498	460	537	30	34	38	2,3	4,6	6,9
5	688	552	500	591	33	40	44	3,0	6,0	9,0
6	742	606	500	645	38	46	51	3,5	7,0	10,5



Performance Data 85/75°C - 80°C Mean water temperature 10°C Drop - Entering air temperature 15°C

Figures at high speed

ATLAS A-ECM MODEL		11	12	13	21	22	23	31	32	33	41	42	43	51	52	53	61	62	63
Inverter Power	V	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Speed	r.p.m.	1126	1126	1126	1124	1124	1124	1126	1126	1126	1059	1059	1059	1108	1108	1108	1107	1107	1107
Air flow	m ³ /h	1260	1155	1100	1790	1650	1580	2620	2235	2075	3440	2815	2490	5130	4010	3455	5895	4535	3845
Thermal emission	kW	5,67	9,12	11,39	8,26	13,34	16,73	11,76	18,36	22,60	15,48	23,68	28,40	21,10	32,00	38,11	25,35	38,05	44,48
Leaving air temperature	°C	28	38	45	29	39	46	28	39	47	28	40	48	27	38	47	28	40	49
Fan	W	78,2	78,2	78,2	122	122	122	166	166	166	166	166	166	265	265	265	246	246	246
Sound pressure	dB(A)	42,0	42,0	42,0	47,0	47,0	47,0	44,0	44,0	44,0	45,0	45,0	45,0	47,0	47,0	47,0	48,0	48,0	48,0
Horizontal discharge: Height	m	2,5 ÷ 3,5			2,5 ÷ 3,5			2,5 ÷ 3,5			3 ÷ 4,5			3 ÷ 4,5			3 ÷ 5		
Horizontal discharge: Throw	m	6,5	6,0	6,0	8,0	7,5	7,0	12,0	10,5	10,0	14,5	12,5	11,0	19,0	15,0	13,0	22,0	17,0	14,5
Vertical discharge: Height max.	m	3,5	3,0	3,0	4,0	3,5	3,5	4,5	4,0	4,0	5,0	4,5	4,0	6,0	5,0	5,0	6,5	5,5	5,0
Vertical discharge: Cover	m ²	40	40	40	50	45	40	60	60	55	70	65	60	85	80	75	100	90	85

Measurement performed at 5 meter from the source - Room volume of 500 m³ - Reverberation period of 2 s - Directional factor Q=2 (hemisphere sound emission).

Atlas STP

Door Curtain Units



The ATLAS Sabiana STP Door Curtain unit with its special fishtail diffuser is designed to provide a screen of warm air across the door opening to restrict cold air blowing into the area and to reduce the heated atmosphere inside the area from escaping out.

Construction

Atlas STP:

The main casing is manufactured from galvanized prepainted steel finished in a light grey colour (RAL 9002) and is assembled from three component parts. The standard motor fitted is a hermetically sealed motor which is maintenance free. The motor is supplied as standard for a three phase 400V 50Hz available at 6 and 8 pole, IP55.

Construction

AIX:

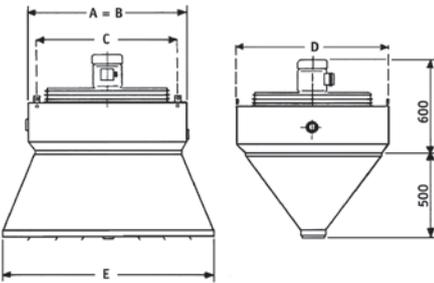
The main casing is manufactured from AISI 304 stainless steel, 1 mm thick. The adjustable louvres are held firm by spring loaded pivots and they are mounted in horizontal position on the front part of the unit. The fins are pressed from aluminium sheet, bonded onto the AISI 304 stainless steel tubes facilitating the maximum transfer contact. The AIX units are supplied with flanged connections. The standard motor fitted is hermetically sealed motor which is maintenance free. The motor is 2 speeds, 3 phase, single voltage, 400V 50Hz, IP55, with klixon thermal protection.

Unit selection

SIZE STP	MOTOR POLE	DOOR HEIGHT H (m)	DOOR WIDTH L (m)
7	6	3.0 ÷ 4.0	1.5
8	6	3.5 ÷ 4.5	2.0
9	6	4.5 ÷ 5.5	2.5
7	8	2.5 ÷ 3.0	1.5
8	8	3.0 ÷ 3.5	1.8
9	8	3.5 ÷ 4.5	2.0

Emission - LTHW 85/70°C - EAT +15°C

SIZE STP	6 POLE (900 r.p.m.)			8 POLE (700 r.p.m.)			
	1 Row	2 Rows	3 Rows	1 Row	2 Rows	3 Rows	
AIR FLOW m ³ /h	7	5000	4600	4400	3700	3500	3200
	8	7300	6500	6000	5100	4700	4200
	9	9000	8500	8100	6800	6400	6000
OUTPUT AND LEAVING AIR TEMPERATURE	7	-	38.4 kW 43°C	46.5 kW 52°C	-	32.5 kW 44°C	38.4 kW 53°C
	8	-	52.5 kW 41°C	60.7 kW 48°C	-	43.6 kW 44°C	50.0 kW 53°C
	9	-	70.7 kW 42°C	85.7 kW 50°C	-	58.7 kW 44°C	70.4 kW 53°C



Dimensions

SIZE STP	A=B	C	D	E	N° ROWS	WEIGHT kg	WATER CONTENTS (l)
7	793	696	793	1000	1	62	4.3
					2	70	8.2
					3	76	12.3
8	900	803	900	1200	1	75	5.8
					2	86	11.1
					3	93	16.6
9	1010	913	1010	1400	1	90	7.6
					2	104	14.5
					3	113	21.8

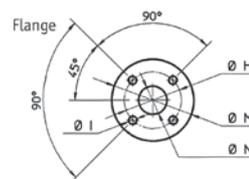
AIX

Stainless Steel Unit Heater

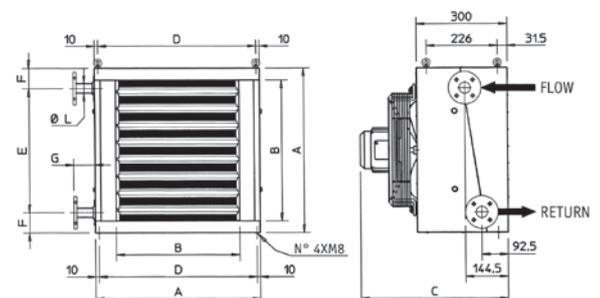


The AIX units are available in 4 sizes and 8 models. This units heaters are suitable for low/high temperature hot water and steam supply. The main casing in stainless steel and the heat exchanger offer a great resistance in corrosive environment.

MODEL	A	B	C	D	E	F	G	ØH	ØI	ØL	ØM	ØN	WEIGHT (kg)		WATER CONTENTS (l)	
													1R	2R	1R	2R
46 I 21-22	526	393	468	506	330	98	66	65	14	1 1/2"	95	15	26	30	1.7	2.5
46 I 41-42	636	501	468	616	497	69.5	66	85	14	1"	115	25	33	38	2.9	4.2
46 I 61-62	743	609	468	723	588	44.5	56	100	18	1 1/4"	140	32	45	51	5.3	5.9
68 I 91-92	1011	877	576	991	832	89.5	87	110	18	1 1/2"	150	40	82	92	8.2	12



MODEL	SIZE	ROWS	MOTOR SPEED				AIR FLOW				THROW				NOISE LEVEL AT 5m				STEAM 6 BAR		W.T. 85/75°C		W.T. 130/100°C	
			r.p.m.		m ³ /h		m		dB(A)		kW		kW		kW		kW		kW					
			Δ	λ	Δ	λ	Δ	λ	Δ	λ	Δ	λ	Δ	λ	Δ	λ	Δ	λ	Δ	λ				
46 I 21	2	1	1350	1000	2300	1500	11	7.5	59	51	16.5	13.8	-	-	-	-	-	-	-	-				
46 I 22	2	2	1350	1000	2100	1400	11	7.5	59	51	-	-	13	10.6	18.9	15.4	-	-	-	-				
46 I 41	4	1	1350	1000	3900	2600	16	12	64	54	27	22.9	-	-	-	-	-	-	-	-				
46 I 42	4	2	1350	1000	3600	2400	16	12	64	54	-	-	21.1	17.2	30.2	24.7	-	-	-	-				
46 I 61	6	1	1350	1000	6900	4400	25	18	69	60	42.7	35.9	-	-	-	-	-	-	-	-				
46 I 62	6	2	1350	1000	6300	4100	25	18	69	60	-	-	36.5	29.3	53.3	43	-	-	-	-				
68 I 91	9	1	900	700	10200	7600	28	21	68	62	79	70	-	-	-	-	-	-	-	-				
68 I 92	9	2	900	700	9200	7000	28	21	68	62	-	-	59.2	51.4	84.1	74	-	-	-	-				



Induction Flow Optimizers for Atlas and Helios

Jetstream

Construction JETSTREAM:

The JETSTREAM induction flow optimizer is composed of a metal frame which incorporates a set of special shaped anodised extruded aluminium louvres moved by a set of manually or motor-controlled levers. The Jetstream induction flow optimizer can be mounted on the air outlet of all unit heater Sabiana series Helios or Atlas (up to size 6). This equipment can also be installed at a later stage and can be mounted on all previously installed unit heaters.

The Jetstream induction flow optimizer increases the air speed thanks to the special shape of its deflecting louvres which allow the creation of various layers of hot air at the unit heater outlets. The depression created between the layers induces a lateral aspiration of ambient air that mixes with the air heated by the unit, thus reducing the leaving air temperature and increasing the throw.



The leaving air temperature from the units has a decisive influence on hot air stratification and consequently on energy saving: for each centigrade degree of increase in temperature there is a 1.5% increase in energy consumption. The use of the induction flow optimizer has the following advantages:

a) energy saving:

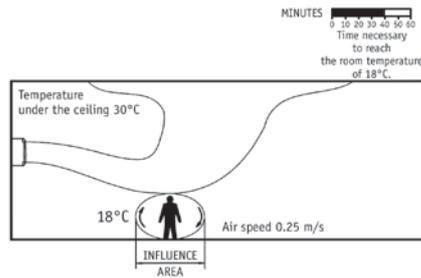
- reduced hot air stratification within the building
- reduced operating time of the units with the same ambient temperature.

Energy saving varies between a minimum of 5% and a maximum of 15%, with maximum assessment in two seasons.

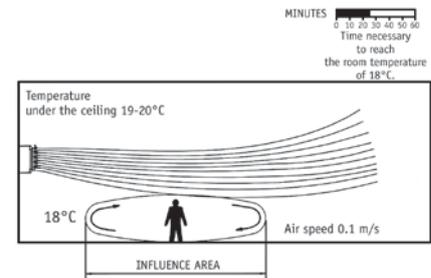
b) environment comfort advantages:

- increased floor-temperature uniformity with greater comfort area
- possibility to install smaller and quieter units, due to the increase of the throw.

Air flow produced by a unit heater without flow optimizer



Air flow produced by a unit heater equipped with a flow optimizer



Antistratification and Heat Recovery Units

No-Strat

Construction NO-STRAT:

The casing is manufactured from galvanised prepainted steel sheet (1 mm thick) finished in light grey colour (RAL 9002).

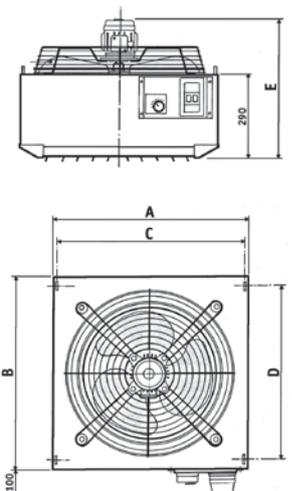
The adjustable louvres are held firm by spring loaded pivots. The fan assembly is made up of the aluminium helicoidal fan, finger proof support and three phase 400 V, IP44, electric motor working at 1400 rpm or 900 rpm. A room thermostat is mounted on the unit for the automatic on/off switching of the motor in accordance with the temperature under the ceiling.



The Sabiana No-Strat is an anti-air-stratification and heat saving appliance, which can be used on all existing industrial as well as commercial warm air heating applications.

As soon as the temperature of the higher zone exceeds the predetermined value (i.e. 20°C), the electric fan will be actuated to guide the hot air into the lower part of the room and to distribute it at the right level for use.

MODEL	SPEED r.p.m.	AIR FLOW m ³ /h	MOTOR W	AMPERE V 400	INSTALLAT. HEIGHT m	SURFACE m ²	NOISE LEVEL at 4 m dB(A)	A mm	B mm	C mm	D mm	E mm
DNS-450/4	1400	4.400	260	0.60	4,5 ÷ 6,5	100	61	634	634	629	537	488
DNS-450/6	900	3.200	100	0.26	3,5 ÷ 6	60	52	634	634	629	537	488
DNS-500/4	1400	6.500	260	0.60	5 ÷ 8	150	66	688	688	683	591	488
DNS-500/6	900	4.400	140	0.30	4 ÷ 8	90	56	688	688	683	591	488
DNS-550/4	1400	6.700	370	0.80	6,5 ÷ 9	200	69	742	742	737	645	513
DNS-550/6	900	4.750	140	0.30	5 ÷ 8,5	120	60	742	742	737	645	513
DNS-650/6	900	9.500	850	1.73	6,5 ÷ 11	300	67	900	900	895	803	575
DNS-750/6	900	13.500	850	1.73	7 ÷ 13	400	68	1010	1010	1005	913	595



Electra 90 and Electramatic

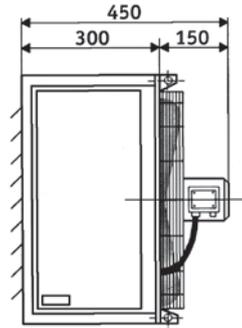
Electric Unit Heaters



The ELECTRA electrical unit heaters for air horizontal discharge are available in 7 sizes, with outputs from 6 to 36 kW.

The Sabiana ELECTRAMATIC offers a new concept in electric unit heaters as they include all the automatic controls and overheat protections making the unit functionally independent. The control panel is integral in the unit, fully automatic and need only to be connected to the electrical supply and if desired to the thermostat.

Outputs from 6 to 24 kW.



Construction

ELECTRA 90
and **ELECTRAMATIC**:
Outer casing: made of steel finished in a oven dried grey powder paint.

Electric heat exchanger: is made using a tungston element hermetically sealed inside a steel tube wound with spiral fins.

Electric motor: three phase, 400V 50Hz, single speed 900 r.p.m.

The unit includes internal thermostatic protection and terminal board for the electrical connections.

MODEL	ELECTRA 90		06E	09E	11E	17E	24E	30E	36E
	ELECTRAMATIC		EM6	EM9	EM11	EM17	EM24	-	-
Length	mm	570	570	650	650	730	730	730	730
Height	mm	470	470	570	570	670	670	670	670
Fan	∅	300	300	400	400	500	500	500	500
ELECTRAMATIC Weight	kg	32	35	43	45	60	-	-	-
ELECTRA 90 Weight	kg	30	33	41	43	58	61	64	

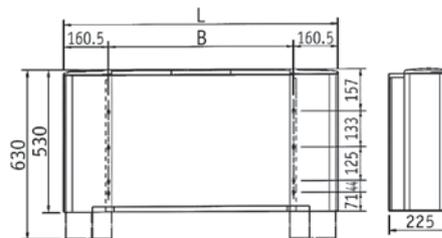
MODEL	ELECTRA 90		06E	09E	11E	17E	24E	30E	36E
	ELECTRAMATIC		EM6	EM9	EM11	EM17	EM24	-	-
Emission	Watt	6480	9720	11100	16650	24000	30000	36000	
Step	1 st W	3240	3240	5550	5550	6000	12000	12000	
	2 nd W	3240	6480	5550	11100	18000	18000	24000	
Air flow	m ³ /h	1000	1000	1800	1800	3600	3500	3400	
L.A.T. (e.w.t. +15°C)	°C	33	44	35	44	36	42	47	
Throw	m	6	6	8	8	12	12	12	
Mounting heights	Min m	2.5	2.5	3.0	3.0	3.0	3.0	3.0	
	Max m	4.0	4.0	4.5	4.5	5.0	5.0	5.0	
Helicoidal fan motor 400V 50Hz	A	0.22	0.22	0.22	0.22	0.47	0.47	0.47	
	r.p.m.	900	900	900	900	900	900	900	
	W	110	110	110	110	230	230	230	
Noise level at 5 m	dB(A)	43	43	48	48	50	50	50	

FSE

Electric Fan Convectors



The FSE electrical fan convectors are designed to provide controllable heat for residential and commercial buildings. Available in 5 sizes from 3 kW to 8.5 kW with integral electric board with protection and safety relays, the FSE joins safety and aesthetical appearance in a high quality product.



Construction FSE:

- **Electrical resistance:** three phase 400V (all sizes) or single phase 230V (sizes 1 and 2 only).
- **Outer casting:** made from sheet steel prepainted and easily removeable for acces to the unit.
- **Fan and motor assembly:** the fans are dynamically and statically balanced during manufacture in order to have an extremely quiet unit. The motor is wired for single phase and has three speeds.
- **Electrical heat exchanger:** is made using a tungston element hermetically sealed inside a finned steel tube.
- **Control panel:** include all the automatic controls and protections with the room thermostat and the terminal boards.

MODEL	230 V~									400 V~ (3P+N)															
	FSE 1			FSE 2			FSE 1			FSE 2			FSE 3			FSE 4			FSE 5						
Speed	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
Air flow	m ³ /h	190	240	300	290	360	450	190	240	300	290	360	450	380	480	600	650	800	1000	650	800	1000	650	800	1000
Heat output	kW	-	1.90	3.00	-	2.90	4.50	-	1.90	3.0	-	2.90	4.50	-	4.00	6.00	-	5.00	7.50	-	5.60	8.50	-	5.60	8.50
Absorbed power (*)	A	13.5			20.0			5.0			7.0			9.5			10.0			13.0					
Sound pressure (**)	Lw dB(A)	31	36	41	33	38	43	31	36	41	33	38	43	26	33	42	39	47	50	39	47	50	39	47	50
B	mm	454			669			454			669			884			1099			1099					
L	mm	775			990			775			990			1205			1420			1420					

(*) Figures at high power and high speed.

(**) 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.

Construction COMFORT:

The casing is made of spun steel on both top and bottom sections which is designed to give greater strength and quieter operation. The casing is then phosphatised and finished with an epoxy, polyester powder coating of light grey, RAL 9002. These top and bottom sections are assembled by means of threaded tie-rods, thus enabling the unit to be rapidly dismantled for maintenance etc. The circular heat exchanger of the COMFORT Sabiana Unit Heater is constructed of copper tubes with aluminium fins. Standard motors are three phase, closed frame, flange mounted, pre-greased bearings. COMFORT Sabiana units are supplied as standard with three phase motors 400 V (IP44) available at 4, 6 pole and at 4/6, 6/8.

Circular Unit Heaters

Comfort

For all factory premises, either commercial or industrial, the efficient COMFORT Sabiana vertical discharge Circular Unit Heater offers a practical and economical solution for space heating. They are available in nine sizes for hot water, high temperature hot water and steam.



Radial louvre "DRA"

Is the model most commonly used; made of eight separately adjustable large louvres, shaped so as to be able to cover the whole of the outlet area and therefore adaptable for minimum to maximum heights.

This diffuser allows the air to be directed more easily to the areas where it is required most, or conversely, if you do not require air to one particular corner you can close down one, two or three vanes and restrict the distribution.

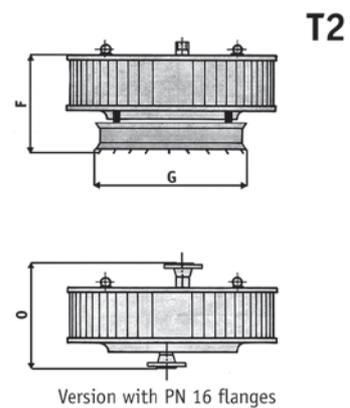
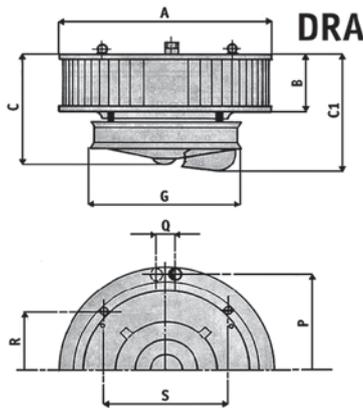


Two way diffuser "T2"

It is designed to give a two way or corridor distribution, suitable for corridor or gangway areas, between storage racks etc., generally mounted at any height dependant upon the length of corridor required.

Technical table:
EMISSION LTHW 85/75°C,
10°C DROP, ENTERING AIR TEMPERATURE 15°C

MOTOR SPEED r.p.m.	SIZE	AIR FLOW m³/h	NOISE LEVEL at 5 m dB(A)	MODEL	EMISSION W	L.A.T. °C
1400	0	3.000	56	4Z-007	24.400	39
	1	3.400	60	4Z-107	28.400	39
	2	5.100	63	4Z-211	41.800	39
	3	6.000	65	4Z-311	48.800	39
	4	7.800	66	4Z-415	64.400	39
900	0	2.000	48	6Z-007	19.100	43
	1	2.400	52	6Z-107	22.100	42
	2	3.700	54	6Z-211	32.700	41
	3	4.400	55	6Z-311	38.000	40
	4	5.700	56	6Z-415	50.200	41
	5	7.100	63	6Z-515	61.500	40
	6	9.000	64	6Z-618	77.800	40
	7	9.900	65	6Z-722	92.000	42
	8	11.000	65	6Z-822	107.000	44
9	12.000	66	6Z-924	115.100	44	



Dimensions, weight and water content

SIZE	A	B	C	C1	F	G	O	P	Q	R	S	CONNECTIONS		WEIGHT (kg)	WATER CONTENT (l)
												Ø	DN		
0	680	180	430	560	380	560	331	612	62	350	350	1 1/2"	25	31	1.20
1	780	180	430	560	380	560	331	702	62	421	421	1 1/2"	25	36	1.30
2	780	280	530	660	480	560	431	702	62	421	421	1 1/2"	25	42	1.90
3	880	280	530	700	480	660	435	802	68	491	491	1 1/2"	32	52	2.40
4	880	380	630	760	580	660	535	802	68	491	491	1 1/2"	32	58	3.20
5	1080	380	630	870	580	760	539	1005	80	755	440	2"	40	75	4.30
6	1080	455	705	945	655	760	614	1005	80	755	440	2"	40	85	5.20
7	1080	555	805	1045	755	760	714	1005	80	755	440	2"	40	95	5.90
8	1080	555	815	1055	765	760	714	1005	80	755	440	2"	40	97	5.90
9	1080	605	865	1105	815	760	765	1005	80	755	440	2"	40	106	6.50

Polaris

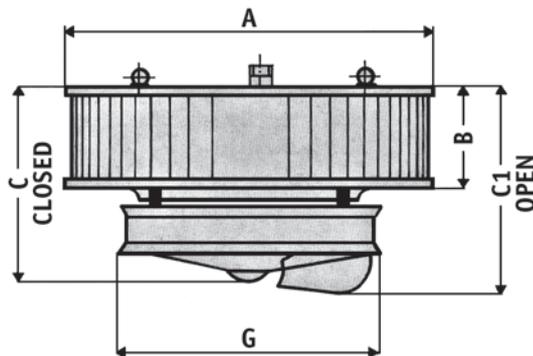
Air Conditioners



The POLARIS Air Conditioners for vertical discharge offer a practical and economical solution for space heating and cooling with hot water supply or chilled water supply.

Construction POLARIS:
The casing is made of spun steel on both top and bottom sections which is designed to give greater strength and quieter operation. The casing is then phosphatised and finished with an epoxy, polyester powder coating, in light grey, RAL 9002. The lower casing is also the condensate collection tray with appropriate drain connection. These top and bottom sections are assembled by means of threaded tie-rods, thus enabling the unit to be rapidly dismantled for maintenance etc. The POLARIS circular heat exchanger is constructed of copper tubes with aluminium fins. Standard motors are three phase, closed frame, flange mounted with pre-greased bearings. Polaris units are supplied as standard with three phase motors 400V, 6/8 pole, IP44.

SIZE	NOISE LEVEL at 5 m		AIR FLOW		HEATING:				COOLING: R.H. 55%	
	dB(A)		m ³ /h		L.T.H.W. 85/70°C - E.A.T. 15°C		L.A.T. °C		E.A.T. 28°C	
	900 r.p.m.	700 r.p.m.	900 r.p.m.	700 r.p.m.	900 r.p.m.	700 r.p.m.	900 r.p.m.	700 r.p.m.	900 r.p.m.	700 r.p.m.
0	48	46	2.000	1.400	17.6	15.1	41	47	3.1	2.7
1	52	49	2.400	1.680	20.4	17.4	40	46	4.0	3.5
3	55	52	4.400	3.080	35.3	30.0	38	44	7.5	6.6
4	56	53	5.700	4.000	46.7	39.6	39	44	10.9	9.5
5	65	60	7.100	4.970	57.1	48.5	39	44	13.6	11.9
6	66	61	9.000	6.300	72.2	61.4	38	44	17.2	15.0
7	68	63	9.900	6.930	85.6	72.7	40	46	18.9	16.5
8	65	60	11.000	7.700	99.5	84.5	43	48	22.0	19.0
9	66	61	12.000	8.400	106.7	90.7	42	47	23.7	20.6



Dimensions, weight and water content

SIZE	A	B	C	C1	G	CONNECTIONS		WEIGHT (kg)	WATER CONTENT (l)
						Ø	DN		
0	680	180	430	560	560	1 1/2"	25	31	1.20
1	780	180	430	560	560	1 1/2"	25	36	1.30
3	880	280	530	700	660	1 1/2"	32	52	2.40
4	880	380	630	760	660	1 1/2"	32	58	3.20
5	1080	380	630	870	760	2"	40	75	4.30
6	1080	455	705	945	760	2"	40	85	5.20
7	1080	555	805	1045	760	2"	40	95	5.90
8	1080	555	815	1055	760	2"	40	97	5.90
9	1080	605	865	1105	760	2"	40	106	6.50

Construction ELEGANT-ECM:

The casing is made of steel on both top and bottom sections which is designed to give greater strength and quieter operation. The casing is then phosphatised and finished with an epoxy, polyester powder coating, in white, RAL 9016.

The lower casing is also the condensate collection tray with appropriate condensate pump on PE models.

The ELEGANT circular heat exchanger is constructed of copper tubes with aluminium fins.

The motor is three phase permanent magnet brushless electronic motor.

The inverter board that controls the motor operation is powered by 230 Volt, single-phase and it generates a frequency modulated wave form power supply.

The electric power supply required for the machine is therefore single-phase with voltage of 230-240V and frequency of 50-60Hz. The helicoidal fan

is made with statically and dynamically balanced plastic blades.

Its rational high-capacity profile provides the maximum air volume with the minimum energy consumption.

The fan hub is secured onto the motor shaft and it is protected by a safety guard.

Ceiling Air Conditioners

Elegant-ECM



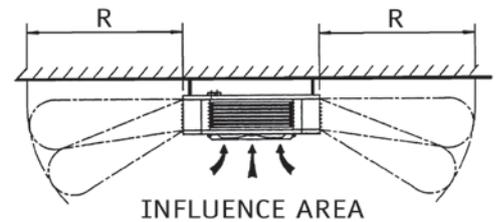
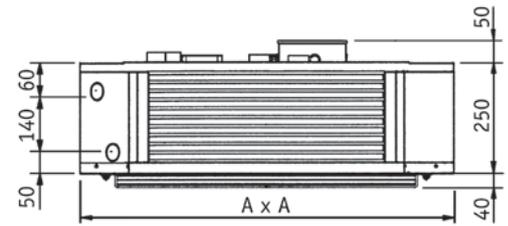
Elegant-ECM air conditioners allow to heat and cool very economically small and medium areas, like shops, show rooms, workshops, supermarkets.

The range is made up of 12 models: RE-ECM version, for heating only, is made up of 8 models, and PE-ECM version, for heating and cooling, is made up of 4 models.

All models are for ceiling installation and for hot/chilled water supply.

Dimensions

MODEL	A x A mm	WEIGHT kg	HIGH SPEED		LOW SPEED	
			MAX HEIGHT m	SURFACE R = m	MAX HEIGHT m	SURFACE R = m
E1	600	26	3,5	3,5	3,0	2,5
E2	750	31	3,5	3,8	3,0	2,6
E3	750	32	4,0	4,0	3,5	3,0
E4	830	38	4,5	4,5	4,0	3,5



Technical characteristics

Elegant RE-ECM units (heating only). The following standard rating conditions are used:

HEATING Entering air temperature + 20°C
(winter mode) Water temperature + 70/60°C

Figures at high speed

RE-ECM MODEL		11	12	21	22	31	32	41	42
Inverter Power (V)		10	10	10	10	10	10	10	10
Air flow	m ³ /h	1890	1820	2600	2500	3180	3060	4680	4500
Heating	kW	8,36	14,15	11,18	19,20	11,95	20,89	14,99	25,73
Dp Heating	kPa	21,1	14,1	15,9	27,7	18,5	25,8	12,4	9,7
Sound power Lw	dB(A)	57	57	62	62	61	61	60	60
Sound pressure Lp (*)	dB(A)	48	48	53	53	52	52	51	51
Sound pressure Lp (**)	dB(A)	44	44	49	49	48	48	47	47
Fan	W	81	81	136	136	164	164	174	174

Elegant PE-ECM units (heating and cooling). The following standard rating conditions are used:

COOLING Entering air temperature + 27°C d.b. R.H. 50%
(summer mode) Water temperature + 7°C E.W.T. + 12°C L.W.T.
HEATING Entering air temperature + 20°C
(winter mode) Water temperature + 70°C E.W.T. + 60°C L.W.T.

Figures at high speed

PE-ECM MODEL		12	22	32	42
Inverter Power (V)		10	10	10	10
Air flow	m ³ /h	1820	2500	3060	4500
Cooling total emission	kW	5,20	7,38	8,52	10,07
Cooling sensible emission	kW	4,71	6,44	7,60	10,07
Heating	kW	14,15	19,20	20,89	25,73
Dp Cooling	kPa	10,7	22,9	27,0	14,0
Dp Heating	kPa	14,1	27,7	25,8	9,7
Sound power Lw	dB(A)	57	62	61	60
Sound pressure Lp (*)	dB(A)	48	53	52	51
Sound pressure Lp (**)	dB(A)	44	49	48	47
Fan	W	81	136	164	174

(*) Measurement performed at 3 meter from the source, room volume of 500m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission)

(**) Measurement performed at 3 meter from the source, room volume of 1500m³, reverberation period of 2 s, directional factor Q=2 (hemisphere sound emission)

Janus 05

Air Conditioners



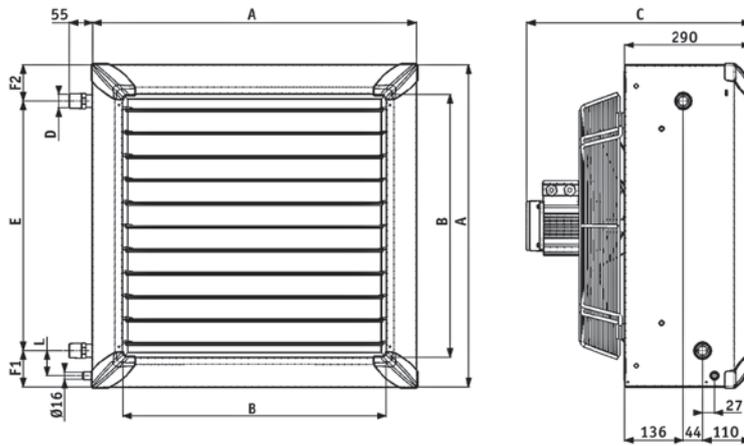
The Sabiana JANUS 05 air conditioner provides a simple solution to centralised Air Conditioning systems offering the following advantages: • simple installation • low equipment cost • low user running cost • flexibility in installation and project design • minimum space is required for the units not taking up valuable floor space, this type of unit also dispenses with expensive and cumbersome duct work systems. The Sabiana JANUS 05 range of air conditioners can be matched to the Sabiana Krio range of indoor and outdoor chillers and heat pumps.

Construction JANUS 05:

The main casing is manufactured from galvanized prepainted steel (1 mm thick) finished in light grey (RAL 9002), and it is assembled from three component parts. The condensate collection tray is fitted in the unit. The standard motor fitted is a hermetically sealed motor which is maintenance free. The motors are 2 speeds, 3 phase, single voltage, 400V 50Hz, IP55, with klixon thermal protection.

The heat exchanger is manufactured from the highest quality copper tube. The fins are pressed from aluminium sheet, bonded onto the tubes facilitating the maximum transfer contact. The fan and motor assembly is made up of three components: the fan, the motor and the finger proof guard, which also acts as the main support.

Dimensions, weight and water content



MODEL	A	B	C	D	E	F1	F2	L	WEIGHT (kg)		WATER CONTENT (liters)	
									3R	4R	3R	4R
46 F 23/24	526	390	500	1"	376	78	71	58	25.0	26.0	1.7	2.2
46 F 43/44	634	498	500	1"	476	76	83	58	32.5	34.0	2.7	3.4
68 F 63/64	742	605	525	1"	576	83	83	58	42.5	44.5	4.0	5.1
68 F 93/94	1010	874	650	1 1/4"	818	90	100	67	77.0	81.0	7.6	9.8

Technical characteristics

MODEL	MOUNTING HEIGHT	SPEED	AIR FLOW	AIR THROW	NOISE LEVEL at 5 m	COOLING						HEATING					
						WATER TEMPERATURE 7/12°C - Δt 5°C E.A.T. +28°C R.H. 55%			WATER TEMPERATURE 11/15°C - Δt 4°C E.A.T. +28°C R.H. 55%			WATER TEMPERATURE 45/40°C - Δt 5°C E.A.T. +15°C			WATER TEMPERATURE 85/75°C - Δt 10°C E.A.T. +15°C		
						KW TOTAL	KW SENSIBLE	L.A.T. °C	KW TOTAL	KW SENSIBLE	L.A.T. °C	KW	L.A.T. °C	KW	L.A.T. °C		
46F23	2.5 - 4	1350	2200	11	59	-	-	-	-	-	-	8.3	27.1	20.4	44.8		
		1000	1500	7.5	51	5.3	3.6	19.9	3.7	3.1	21.1	6.6	29.0	16.1	49.5		
46F24	2.5 - 4	1350	2000	10	59	-	-	-	-	-	-	9.5	30.4	23.3	52.8		
		1000	1400	7	51	6.3	4.2	17.9	4.4	3.5	19.6	7.5	32.3	18.5	57.5		
46F43	3 - 4.5	1350	3800	16	64	-	-	-	-	-	-	14.1	26.9	34.5	44.2		
		1000	2500	12	54	9.1	6.2	19.8	6.4	5.2	21.1	11.0	29.0	26.9	49.2		
46F44	3 - 4.5	1350	3400	14	64	-	-	-	-	-	-	16.2	30.3	39.7	52.3		
		1000	2150	10	54	10.6	6.9	17.5	7.5	5.8	19.2	12.1	32.7	29.6	58.2		
68F63	3 - 5	950	4350	18	60	-	-	-	-	-	-	19.0	28.7	46.3	48.4		
		750	3600	14	52	13.8	9.2	19.4	9.8	7.7	20.8	16.6	29.9	40.3	51.2		
68F64	3 - 5	950	4000	17	60	-	-	-	-	-	-	21.4	32.2	52.0	56.9		
		750	3150	13	52	15.9	10.2	17.2	11.3	8.5	19.0	18.2	33.6	44.0	60.1		
68F93	3.5 - 5.5	900	8250	26	66	-	-	-	-	-	-	36.5	29.2	89.5	59.8		
		700	6250	20	60	25.0	16.9	19.1	17.6	14.2	20.5	31.0	30.6	75.9	43.2		
68F94	3.5 - 5.5	900	7800	24	66	-	-	-	-	-	-	42.3	32.3	103.6	57.4		
		700	5950	18	60	28.2	18.4	17.0	20.0	15.4	18.8	33.6	34.2	82.0	61.9		

High Wall Fan Coil Units

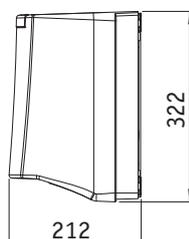
Carisma Fly

Construction FLY:

- **Casing:** made of auto-extinguishing ABS UL94 HB plastic with high specifications and great resistance to aging.
 - **Fan assembly:** made of plastic tangential fan.
 - **Electric motor:** the motor is for single phase supply and has six speeds, three of which are connected, with capacitor. The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings. Internal thermal protection with automatic reset, protection IP 20, class B.
 - **Coil:** it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain.
- The heat exchanger is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.
- Available with wall mounted control (CVP units), with infra-red remote control (CVP-T units) and with MB electronic board (CVP-MB units).



www.eurovent-certification.com
www.certiflash.com



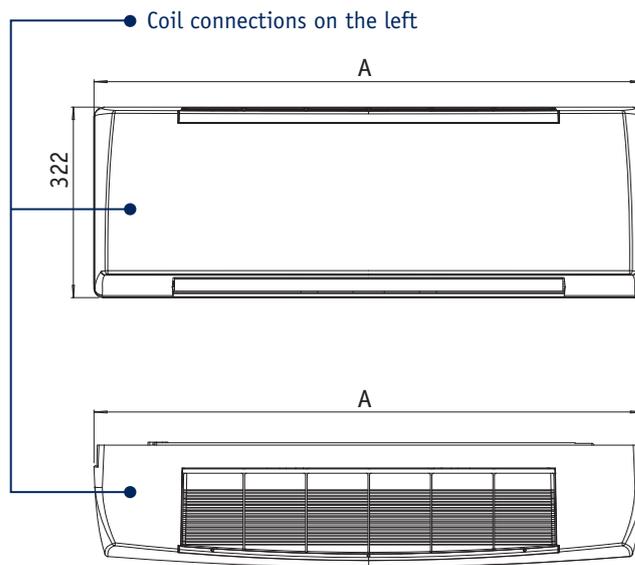
MOD.	A mm	B mm	C mm
1	880	678	691
2	880	678	691
3	1185	983	996
4	1185	983	996

The Sabiana Carisma Fly high wall fan coil harmoniously combine the need of performance, silence, ease of installation and simple maintenance.

The Carisma Fly are manufactured in:

- 4 models for wired wall controls
- 4 models with infra-red remote control
- 4 models with MB electronic board

For hot water supply and chilled water supply.



Technical characteristics

2-pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature + 27°C d.b., + 19°C w.b.
Water temperature + 7°C E.W.T. + 12°C L.W.T.

HEATING (winter mode)

Entering air temperature + 20°C
Entering water temperature + 50°C
Water flow rate as for the cooling conditions

MODEL	1						2						
	1 (E) MIN	2 (E) MED	3	4 (E) MAX	5	6	1 (E) MIN	2	3 (E) MED	4	5 (E) MAX	6	
Speed													
Air flow	m ³ /h	205	270	340	375	470	500	250	305	365	400	480	545
Cooling total emission (E)	kW	1,24	1,50	1,76	1,87	2,15	2,23	1,43	1,63	1,84	1,95	2,18	2,35
Cooling sensible emission (E)	kW	0,92	1,14	1,36	1,46	1,72	1,80	1,07	1,25	1,43	1,53	1,75	1,92
Heating (E)	kW	1,60	2,00	2,39	2,58	3,04	3,17	1,88	2,20	2,39	2,70	3,09	3,38
Dp Cooling (E)	kPa	4,8	6,8	9,0	10,1	13,0	13,9	6,2	7,9	9,8	10,9	13,3	15,2
Dp Heating (E)	kPa	3,7	5,5	7,2	8,3	10,6	10,8	4,8	6,4	7,2	8,5	10,9	12,5
Fan (E)	W	12	14	17	18	24	30	12	14	18	20	24	32
Sound power Lw (E)	dB(A)	35	41	46	48	52	53	39	43	47	49	53	55
Sound pressure Lp (*)	dB(A)	26	32	37	39	43	44	30	34	38	40	44	46

MODEL	3						4						
	1 (E) MIN	2 (E) MED	3	4 (E) MAX	5	6	1	2 (E) MIN	3	4 (E) MED	5	6 (E) MAX	
Speed													
Air flow	m ³ /h	280	375	480	545	730	780	300	440	500	610	675	790
Cooling total emission (E)	kW	1,89	2,32	2,78	3,03	3,63	3,78	1,99	2,62	2,86	3,26	3,46	3,81
Cooling sensible emission (E)	kW	1,35	1,69	2,06	2,27	2,81	2,95	1,43	1,93	2,12	2,47	2,66	2,98
Heating (E)	kW	2,26	2,84	3,49	3,86	4,79	5,03	2,40	3,26	3,61	4,20	4,53	5,07
Dp Cooling (E)	kPa	11,2	16,2	22,5	26,2	36,4	39,1	12,3	20,2	23,6	29,9	33,4	39,7
Dp Heating (E)	kPa	8,7	12,6	17,7	21,2	29,3	31,9	9,7	15,9	19,1	23,7	27,2	31,5
Fan (E)	W	16	21	26	29	38	46	17	23	27	32	35	48
Sound power Lw (E)	dB(A)	35	40	45	48	55	57	36	43	46	51	54	57
Sound pressure Lp (*)	dB(A)	26	31	36	39	46	48	27	34	37	42	45	48

(E) Eurovent certified performance.

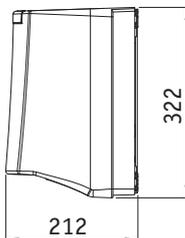
MIN-MED-MAX = Standard connected speeds.

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

Carisma Fly-ECM High Wall Fan Coil Units with inverter board



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www.certiflash.com



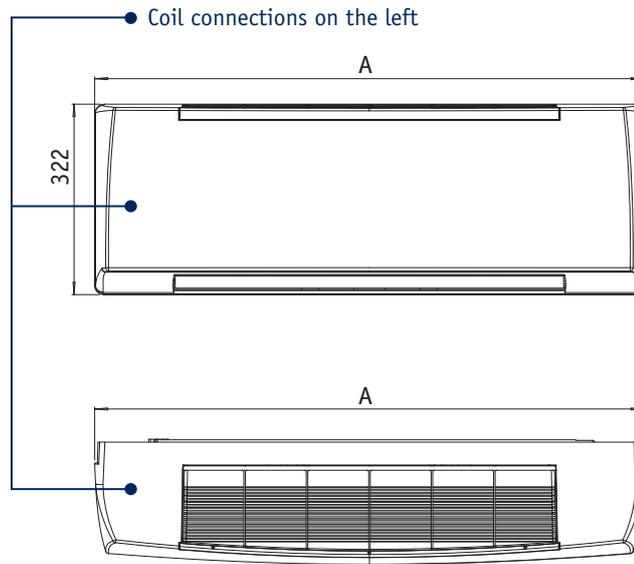
MOD.	A mm	B mm	C mm
1	880	678	691
2	880	678	691
3	1185	983	996
4	1185	983	996

The Sabiana Carisma Fly high wall fan coil harmoniously combine the need of performance, silence, ease of installation and simple maintenance.

Carisma Fly is available with low energy EC motors and in the following versions:

- 4 models for wired wall controls
- 4 models with infra-red remote control
- 4 models with MB electronic board

For hot water supply and chilled water supply.



Technical characteristics

2-pipe units. The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature +27°C d.b., +19°C w.b.
Water temperature +7°C E.W.T. +12°C L.W.T.

HEATING (winter mode)

Entering air temperature +20°C
Entering water temperature +50°C
Water flow rate as for the cooling conditions

ECM MODEL	1					2					
	1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)	
Inverter Power (V)											
Speed	MIN		MED		MAX	MIN		MED		MAX	
Air flow	m ³ /h	190	240	290	355	415	260	315	375	440	510
Cooling total emission (E)	kW	1,17	1,39	1,58	1,81	2,00	1,47	1,67	1,87	2,07	2,26
Cooling sensible emission (E)	kW	0,86	1,04	1,20	1,40	1,57	1,10	1,28	1,46	1,64	1,83
Heating (E)	kW	1,50	1,82	2,12	2,48	2,78	1,94	2,25	2,58	2,90	3,23
Dp Cooling (E)	kPa	5,0	6,3	7,7	9,5	11,2	6,9	8,4	10,1	11,8	13,7
Dp Heating (E)	kPa	4,2	5,4	6,5	8,2	9,3	5,6	6,9	8,5	9,7	11,6
Fan (E)	W	6	7	9	11	15	7	9	12	16	21
Sound power Lw (E)	dB(A)	35	39	46	48	52	40	44	47	51	55
Sound pressure Lp (+)	dB(A)	26	30	37	39	43	31	35	38	42	46

ECM MODEL	3					4					
	1 (E)	3	5 (E)	7,5	10 (E)	1 (E)	3	5 (E)	7,5	10 (E)	
Inverter Power (V)											
Speed	MIN		MED		MAX	MIN		MED		MAX	
Air flow	m ³ /h	270	345	420	520	620	375	465	550	665	770
Cooling total emission (E)	kW	1,83	2,20	2,53	2,93	3,29	2,34	2,72	3,05	3,43	3,75
Cooling sensible emission (E)	kW	1,31	1,60	1,86	2,19	2,50	1,70	2,01	2,29	2,63	2,92
Heating (E)	kW	2,20	2,69	3,15	3,72	4,25	2,87	3,41	3,88	4,48	4,99
Dp Cooling (E)	kPa	10,7	14,8	19,0	24,8	30,4	16,5	21,6	26,6	32,9	38,7
Dp Heating (E)	kPa	8,5	11,7	15,1	19,9	24,2	12,6	17,2	21,2	26,6	31,4
Fan (E)	W	6	8	11	15	20	9	12	16	22	30
Sound power Lw (E)	dB(A)	37	42	45	49	53	43	46	49	53	57
Sound pressure Lp (+)	dB(A)	28	33	36	40	44	34	37	40	44	48

(E) Eurovent certified performance.

MIN-MED-MAX = Standard connected speeds.

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

Construction FLY-ECM:

- **Casing:** made of auto-extinguishing ABS UL94 HB plastic with high specifications and great resistance to aging.
- **Fan assembly:** made of plastic tangential fan.
- **Electronic motor:** three phase permanent magnet brushless electronic motor that is controlled with reconstructed current according to a BLAC sinusoidal wave. The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a switching system, it generates a three-phase frequency modulated, wave form power supply. The electric power supply required for the machine is therefore single-phase with voltage of 230 - 240 V and frequency of 50 - 60 Hz.
- **Coil:** it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain. The heat exchanger is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.
- Available with wall mounted control (CVP-ECM units), with infra-red remote control (CVP-ECM-T units) and with MB electronic board (CVP-ECM-MB units).

Wireless Control System

FreeSabiana

Main components:

- A remote **control** which features a button panel and LCD display and can be wall-mounted or positioned on a dedicated table support. It enables the control of all the operating variables of the fan coil units in different configurations. The control is battery powered. The temperature and the operating speed of the fan coil unit are set with two large buttons featuring user friendly graphics.
- A **power unit** to be installed on the fan coil (fan coil interface). It controls the fan and the valves of the fan coil. The power unit is connected to the electric supply. The power unit receives the information required to control the fan coil both from the remote control and locally, such as the temperature of the coil.
- A room **temperature probe**, which can be wallmounted or positioned on a dedicated table support. It is a battery powered device, able to measure the air temperature in the spot where it is positioned, generating temperature information which is communicated to the other devices.



Free Sabiana is an innovative, **fully wireless**, electronic system for use with fan coil units, based on radio communication.

This technology **provides installation flexibility and a more accurate measurement of the room temperature.** The probe can be moved until the most suitable position is found, without the worry of changes in the environment layout and of its furniture and also without mounting it on a wall. If a new fan coil unit is added, no electrical wiring for the control system is required: just define the control unit and the probe which regulates it. The improved measurement accuracy is a result of the possibility to position the probe near the user location: this enables to keep the temperature exactly at the required value with energy savings compared with a traditional measurement system.

Transmission is based on communication protocol IEE802.15.4, the most suitable way to transmit a relatively low amount of information with very low consumption and high reliability.

The system has been certified by a leading independent body, officially recognized by the EU authorities and its sale has been authorized in all the EU and EFTA countries.



Control unit with support



Power unit



Probe with support

Carisma

Fan Coil Units

THE ULTRA QUIET FAN COIL

Carisma is the result of a great commitment of energy and resources, with the aim of offering an innovative product in terms of design, performance, low noise, energy saving and functionality.

Upon request, **innovative electronic motors** with extremely low energy consumption, controlled by an inverter board and identified by ECM, are available with centrifugal and tangential fan. The ECM motors allow to decrease electric consumption by more than 50% compared to traditional asynchronous motors. They enable to control the air flow continuously and the ambient temperature with precision, with further benefits in terms of very low noise levels thanks to the reduced average working speed.

The 4 models (for wall and ceiling installation, with casing and concealed) and the different available coils (with three or four rows for two pipe systems, one or two rows for four pipe systems) offer great installation flexibility and allow the use of low temperature hot water, in line with the development of modern boilers and heat pumps.

As a special option, the Carisma range can be fitted with a patented electronic filter featuring a class D rating according to Standard UNI 11254, with similar performances to the initial ones of a traditional mechanical filter featuring a class F9 rating according to Standard UNI EN 779.

A full range of adjustment and control devices is available including the innovative patented wire-less system, for rapidly obtaining correct environmental temperature and with an investment proportional to performances, comfort and desired measurement precision.

The Carisma model is complemented with a full range of accessories: various types of adjustment valves, sturdy support feet, rear covering panel for glass installation, additional electric heater, auxiliary condensate pump, fresh air intake louver, air inlet/outlet diffusers for fitted installations.



Electric and electronic controls:

All the controls to be fitted on the unit of the new range have been totally re-designed and feature a modern and attractive design. An innovative patented wireless control system called **FreeSabiana** allows adjusting the room temperature with high precision and high installation flexibility.



Eurovent Certification

Sabiana obtained the Eurovent certification in 1996. Eurovent is an independent body recognized in all Europe that ensures total reliability and transparency of performances.



Fan Coil Units with centrifugal fan **Carisma CRC**

- 9 sizes: from 220 to 1500 m³/h
- 1 battery: 3 or 4 rows
- 2 batteries: 3 or 4 rows (cooling) and 1 or 2 rows (heating)
- 5 versions: MV, MO-MVB, IV-IO

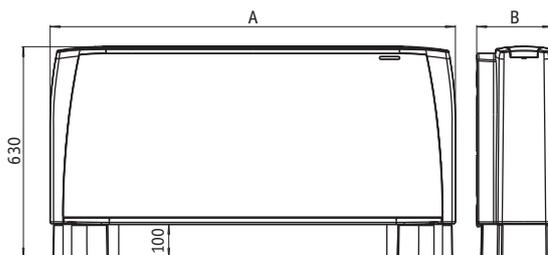


The ultra quiet fan coil

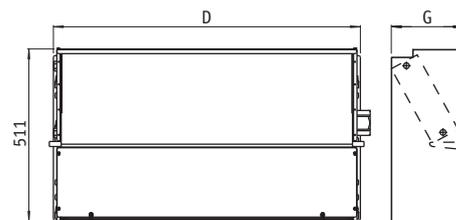
The CRC range is offered with standard 6 speed motors, 3 of which connected and one static, useful up to 50 Pa. It is the ideal choice for all those applications where wanting to optimise price/performance ratio, though guaranteeing excellent acoustic result, contained electric consumption and a design suitable for every modern architectural solution.



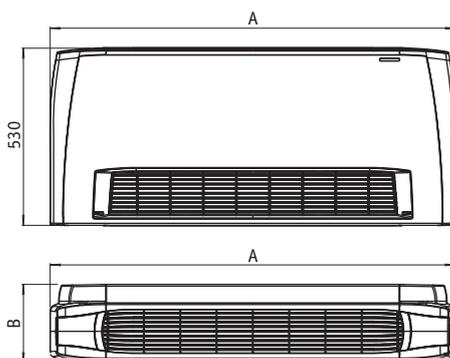
MV MODEL



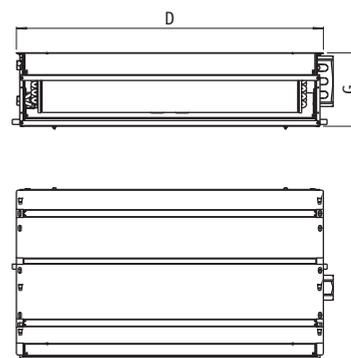
IV-IO MODEL Vertical installation



MO-MVB MODEL



IV-IO MODEL Horizontal installation



MV - MO - MVB		
SIZE	A	B
1	670	225
2	770	225
3	985	225
4	985	225
5	1200	225
6	1200	225
7	1415	225
8	1415	255
9	1415	255

IV - IO		
SIZE	G	D
1	218	374
2	218	474
3	218	689
4	218	689
5	218	904
6	218	904
7	218	1119
8	248	1119
9	248	1119

CarismaSabiana CRC. 2 pipes unit. The following standard rating conditions are used:

COOLING Entering air temperature + 27°C d.b., + 19°C w.b. **HEATING** Entering air temperature + 20°C
(summer mode) Water temperature + 7/12°C (winter mode) Entering water temperature + 50°C

Water flow rate as for the cooling conditions

Figures at high speed

CRC MODEL		CRC 13	CRC 23	CRC 33	CRC 43	CRC 53	CRC 63	CRC 73	CRC 83	CRC 93	CRC 14	CRC 24	CRC 34	CRC 44	CRC 54	CRC 64	CRC 74	CRC 84	CRC 94
Air flow	m ³ /h	220	295	385	485	650	760	925	1200	1500	220	295	385	485	650	760	925	1200	1500
Cooling total emission	kW	1.03	1.56	2.39	2.87	3.64	4.09	5.11	5.82	6.74	1.23	1.81	2.57	3.12	4.09	4.79	5.58	6.47	7.60
Cooling sensible emission	kW	0.86	1.24	1.80	2.19	2.82	3.20	3.95	4.68	5.55	0.97	1.38	1.90	2.34	3.07	3.60	4.23	5.06	6.05
Heating	kW	1.39	2.02	2.92	3.56	4.50	5.09	6.27	7.66	9.06	1.55	2.20	3.07	3.76	4.83	5.88	6.71	8.43	10.08
Δp Cooling	kPa	2.3	6.5	19.7	27.2	16.2	19.8	34.2	22.5	28.6	5.6	13.9	11.5	15.5	31.3	36.2	27.7	17.5	23.2
Δp Heating	kPa	2.0	5.5	16.7	23.1	13.8	16.8	29.1	19.2	24.6	4.7	11.6	9.2	12.2	25.7	29.3	23.7	14.5	19.3
Fan	W	33	32	41	44	61	78	103	130	176	33	32	42	44	61	78	103	130	176
Sound power Lw (Medium speed)	dB(A)	39	40	40	39	41	46	51	56	58	39	40	40	39	41	46	51	56	58
Sound pressure Lp (High speed)	dB(A)*	36	38	40	38	39	43	47	51	55	36	38	40	38	39	43	47	51	55
Sound pressure Lp (Medium speed)	dB(A)*	30	31	31	30	32	37	42	47	49	30	31	31	30	32	37	42	47	49
Sound pressure Lp (Low speed)	dB(A)*	23	21	27	24	22	28	33	36	41	23	21	27	24	22	28	33	36	41

* 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.

Carisma CRT Fan Coil Units with tangential fan



Low energy consumption tangential fan

The CRT range uses a 6 speed ventilating unit with extremely reduced electric consumptions. The large tangential fan (120 mm) supplies a consistent air flow with sound pressure values at medium speed which are below 35 dB(A)* and at minimum speed below 28 dB(A)* on all models.

Long laboratory tests have enabled obtaining a very stable and regular functioning in time, also in critical conditions, like in situations where the filter and the battery have not been regularly cleaned.

The motor, with newly conceived bearings, is guaranteed for double the number of hours compared to the previous range and stays at a particularly low functioning temperature, even after many days of continuous functioning.

It is the ideal choice for all large installations with maximum attention to consumptions and environmental sound levels.

CarismaSabiana CRT. 2 pipes unit. The following standard rating conditions are used:

COOLING (summer mode)	Entering air temperature	+ 27°C d.b.,	+ 19°C w.b.	HEATING (winter mode)	Entering air temperature	+ 20°C
	Water temperature	+ 7/12°C			Entering water temperature	+ 50°C

Water flow rate as for the cooling conditions

Figures at high speed

CRT MODEL		CRT 13	CRT 23	CRT 33	CRT 53	CRT 63	CRT 73
Air flow	m ³ /h	200	250	370	495	635	780
Cooling total emission	kW	0.87	1.24	2.04	2.76	3.33	4.18
Cooling sensible emission	kW	0.74	0.99	1.56	2.12	2.61	3.23
Heating	kW	1.24	1.66	2.55	3.47	4.26	5.27
Δp Cooling	kPa	1.8	4.1	15.2	9.9	13.8	25.1
Δp Heating	kPa	1.5	3.3	12.5	8.1	11.4	19.8
Fan	W	17	19	23	33	44	53
Sound power Lw (Medium speed)	dB(A)	36	35	36	39	43	43
Sound pressure Lp (High speed)	dB(A)*	35	34	35	34	41	41
Sound pressure Lp (Medium speed)	dB(A)*	27	26	27	28	34	34
Sound pressure Lp (Low speed)	dB(A)*	22	22	22	22	27	27

* 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.

- 6 sizes:
from 90 to 945 m³/h
- 1 battery: 3 rows
- 2 batteries:
3 rows (cooling)
and 1 row (heating)
- 5 versions:
MV, MO-MVB, IV-IO



- 4 sizes:
from 110 to 500 m³/h
- 1 battery: 2 rows
- 1 version: MV



Carisma CRR Fan Coil Units with tangential fan



High comfort for small environments

The series CRR is designed to be equipped with a tangential fan and the units are of smaller dimensions for smaller environments (depth 18 cm). Carisma is the ideal equipment for offices and houses, is no longer a simple technical product but also a furnishing element that can give added value to the aesthetics of the surroundings.

CarismaSabiana CRR. 2 pipes unit. The following standard rating conditions are used:

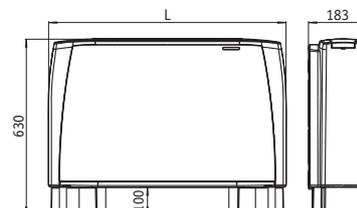
COOLING (summer mode)	Entering air temperature	+ 27°C d.b.,	+ 19°C w.b.	HEATING (winter mode)	Entering air temperature	+ 20°C
	Water temperature	+ 7/12°C			Entering water temperature	+ 50°C

Water flow rate as for the cooling conditions

Figures at high speed

CRR MODEL		CRR 1	CRR 2	CRR 3	CRR 4
Air flow	m ³ /h	180	250	360	500
Cooling total emission	kW	0.80	1.30	1.90	2.80
Cooling sensible emission	kW	0.70	1.01	1.53	2.05
Heating	kW	1.20	1.60	2.60	3.60
Δp Cooling	kPa	11.0	20.0	7.8	20.0
Δp Heating	kPa	7.0	16.5	7.0	18.8
Fan	W	28	27	31	36
Sound power Lw (Medium speed)	dB(A)	37	39	39	40
Sound pressure Lp (High speed)	dB(A)*	33	36	36	37
Sound pressure Lp (Medium speed)	dB(A)*	28	30	30	31
Sound pressure Lp (Low speed)	dB(A)*	25	25	25	25

MOD.	CRR 1	CRR 2	CRR 3	CRR 4
L	670	770	985	1200



* 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.

CB-T-ECM control



CR-T-ECM control



**MB-ECM
electronic board**

Fan Coil Units with inverter board

Carisma ECM

The **ECM** range makes use of the excellent experience gained with the Cassette fan coils with inverter board, first in the world in production since 2009, and which is having great success on all markets.

The innovative brushless and sensorless type synchronous electronic motor with permanent magnets, is controlled by an **inverter** board designed and developed in Italy. The board is mounted on the unit, closed to the motor, without the need to be cooled down by the air flow.

The air flow rate can be varied **in continuously** by means of a 1-10 V signal generated by Sabiana controls or by independent control systems. The continuous air flow control improves the acoustic comfort and allows a more punctual reply to the variation of the thermal loads and a greater stability of the requested ambient temperature.

The extreme efficiency, also at low speed, makes possible a great reduction in electric consumption (50% less in comparison to CRC and CRT AC motor) with absorption values under normal operating conditions that **do not exceed 16 Watt for CRC-ECM models and do not exceed 8 Watt for CRT-ECM models** on the entire range. The excellent values of the CRC and CRT range in terms of sound levels have been maintained **in all working conditions**, without any resonance phenomenon at any frequency.

The full compliance with the Electromagnetic Compatibility Directive and with the other severe Standards in force is certified by an independent institute.

This is the right choice for all buildings designed for achieving the highest energy class.

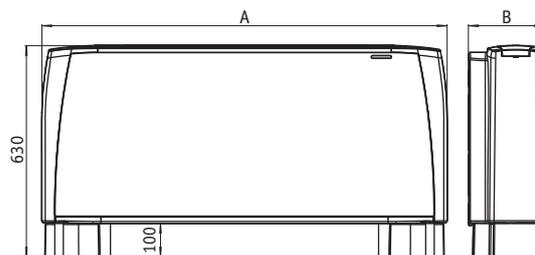


www.eurovent-certification.com
www.certiflash.com

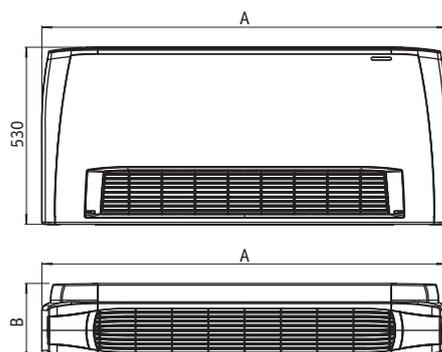
MV - MO - MVB		
SIZE	A	B
1	670	225
2	770	225
3	985	225
4	985	225
5	1200	225
6	1200	225
7	1415	225
9	1415	255

IV - IO		
SIZE	G	D
1	218	374
2	218	474
3	218	689
4	218	689
5	218	904
6	218	904
7	218	1119
9	248	1119

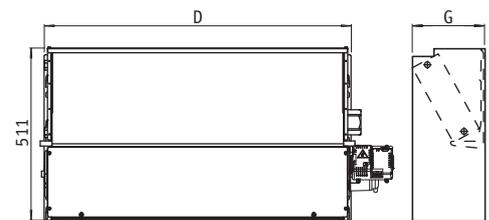
MV MODEL



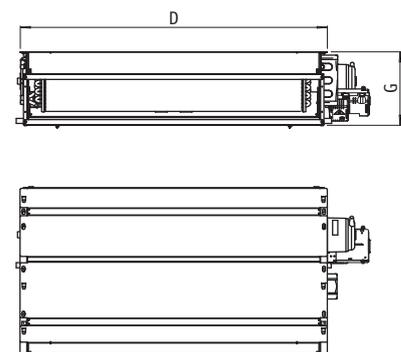
MO-MVB MODEL



IV-IO MODEL Vertical installation



IV-IO MODEL Horizontal installation



Carisma CRC-ECM Fan Coil Units with centrifugal fan and inverter board



Carisma Sabiana CRC-ECM. 2 pipes unit.

The following standard rating conditions are used:

COOLING (summer mode) Entering air temperature + 27°C d.b., + 19°C w.b.
Water temperature + 7/12°C

HEATING (winter mode) Entering air temperature + 20°C
Entering water temperature + 50°C
Water flow rate as for the cooling conditions

Figures at high speed

ECM MODEL		CRC 23	CRC 43	CRC 63	CRC 73	CRC 93	CRC 24	CRC 44	CRC 64	CRC 74	CRC 94
Inverter Power		10	10	10	10	10	10	10	10	10	10
Speed		MAX									
Air flow	m ³ /h	330	515	735	890	1395	325	505	720	875	1365
Cooling total emission	kW	1.61	2.97	3.99	4.98	6.36	1.88	3.19	4.54	5.34	7.14
Cooling sensible emission	kW	1.3	2.28	3.11	3.84	5.2	1.44	2.41	3.41	4.03	5.63
Heating	kW	2.13	3.74	4.95	6.09	8.69	2.37	3.91	5.6	6.51	9.39
Δp Cooling	kPa	6.9	28.9	19	32.6	25.9	14.8	16.1	33	25.6	20.8
Δp Heating	kPa	5.7	23.9	15.7	26.8	22.5	12.6	13.5	26.9	21	17
Fan (High speed)	W	21.0	25.0	32.0	41.0	99.0	21.0	25.0	32.0	41.0	99.0
Fan (Low speed)	W	7.0	6.0	7.0	9.0	16.0	7.0	6.0	7.0	9.0	16.0
Sound power Lw (Medium speed)	dB(A)	41	42	44	48	55	41	42	44	48	55
Sound pressure Lp (High speed)	dB(A)*	42	42	45	48	55	42	42	45	48	55
Sound pressure Lp (Medium speed)	dB(A)*	32	33	35	39	46	32	33	35	39	46
Sound pressure Lp (Low speed)	dB(A)*	21	21	24	28	35	21	21	24	28	35

* 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.

CRC-ECM version:

- 5 sizes:
from 115 to 1395 m³/h
- 1 battery: 3 or 4 rows
- 2 batteries:
3 or 4 rows (cooling)
and 1 or 2 rows (heating)
- 5 versions:
MV, MO-MVB, IV-IO

CRT-ECM version:

- 5 sizes:
from 95 to 900 m³/h
- 1 battery: 3 rows
- 2 batteries:
3 rows (cooling)
and 1 row (heating)
- 5 versions:
MV, MO-MVB, IV-IO

Carisma CRT-ECM Fan Coil Units with tangential fan and inverter board



Carisma Sabiana CRT-ECM. 2 pipes unit.

The following standard rating conditions are used:

COOLING (summer mode) Entering air temperature + 27°C d.b., + 19°C w.b.
Water temperature + 7/12°C

HEATING (winter mode) Entering air temperature + 20°C
Entering water temperature + 50°C
Water flow rate as for the cooling conditions

Figures at high speed

MODEL		CRT-ECM 13	CRT-ECM 23	CRT-ECM 33	CRT-ECM 53	CRT-ECM 73
Inverter Power		10	10	10	10	10
Speed		MAX	MAX	MAX	MAX	MAX
Air flow	m ³ /h	240	305	450	675	900
Cooling total emission	kW	0.99	1.41	2.38	3.49	4.67
Cooling sensible emission	kW	0.86	1.15	1.85	2.74	3.65
Heating	kW	1.48	1.96	3.12	4.63	6.06
Δp Cooling	kPa	2.2	5.2	19.7	15.0	29.1
Δp Heating	kPa	1.8	4.2	16.0	12.1	24.0
Fan (High speed)	W	10.0	11.5	16.0	26.0	38.0
Fan (Low speed)	W	4.0	4.5	5.0	6.0	7.0
Sound power Lw (Medium speed)	dB(A)	39	43	42	46	48
Sound pressure Lp (High speed)	dB(A)*	39	40	40	44	47
Sound pressure Lp (Medium speed)	dB(A)*	30	34	33	37	39
Sound pressure Lp (Low speed)	dB(A)*	20	24	24	26	28

* 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.

Electronic motor:

three phase permanent magnet brushless electronic motor that is controlled with reconstructed current according to a BLAC sinusoidal wave. The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a switching system, it generates a three-phase frequency modulated, wave form power supply. The electric power supply required for the machine is therefore single-phase with voltage of 230-240V and frequency of 50-60Hz.

Electronic Filter

Crystall

Construction

CRYSTALL:

The CRYSTALL Sabiana electrostatic filter is built of extruded profiles in aluminium alloy and has got a very resistant structure.

It takes up practically no valuable room space. It fits neatly into the bottom of the fan coils which only means that the casing has to be raised slightly.

The positioning of the filter allows for easy and efficient maintenance.

It can be cleaned very easily under running water and has an almost unlimited life.

The construction of the unit using the fan convector instead of having its own inbuilt fan makes it extremely competitively priced when compared to separately mounted filters. When the heating or cooling systems are switched off, the unit can still be used just as an air purifier.



The CRYSTALL electronic filter matches the need for better air conditioning with the concepts of space and design. With this filter the various stages of air treatment are combined in one appliance.

Thanks to this new patented filter, air pollutants such as cigarette smoke, dust, pollen and most biological organisms are eliminated.

In addition, as fresh air is not being introduced to obtain the best climatic conditions, there are consequential energy savings.

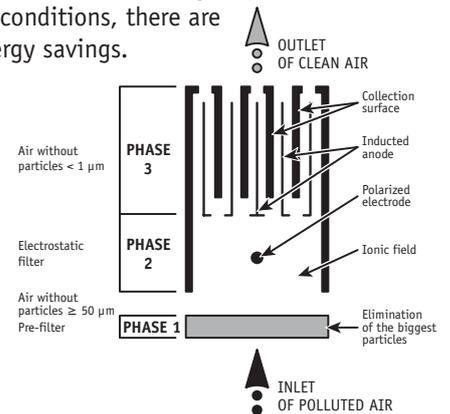
Operating principle of the Crystall Sabiana electronic filter

The air is sucked in and first passes a mechanical prefilter, which keeps away particles of more than 50 µm (dust, insects, etc.) **(Phase 1).**

Then the smallest particles (50÷0.01 µm) are exposed to an intensive ionic field and are polarized **(Phase 2).**

The charged particles passing through the second filter section, are pushed back by the anode and attracted to the collection surfaces by a strong, induced magnetic field **(Phase 3).**

The air which leaves the unit is free from polluting particles.



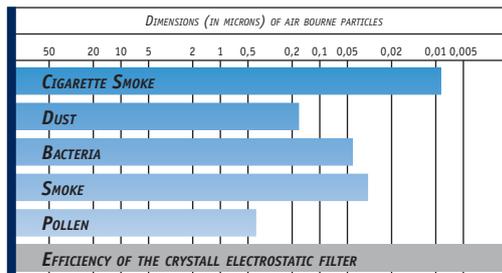
Heating, cooling,
heating + purification,
cooling + purification, purification

External air flow recommended
according to ASHRAE standard 62-1981
for area ventilation

The CRYSTALL SABIANA electrostatic air filter improves the air quality of any room. The filter which is fitted to a Carisma fan convector can remove particles even smaller than 0.01 micron. It is more than 90% efficient and has a very low power consumption.

Energy saving example.

- Meetings Rooms.
- With 6 people present.
- Some of whom are smokers.
- Fresh air intake according to ASHRAE 6x63=378 m³/h
- If the fresh air is taken through the CRYSTALL electrostatic filter the air that has to be introduced from outside is only 6x12,6=75,6 m³/h.



TYPE OF AREA	100% EXTERNAL AIR VENTILATION (WITH SMOKERS)	MINIMUM AMOUNT OF EXTERNAL AIR WITH FILTRATION PLANT (NO SMOKERS)
	IN m ³ /h PER PERSON	IN m ³ /h PER PERSON
Meeting room	63	12.6
Recreation areas	63	12.6
Industrial areas	63	18
Hospitals	63	12.6
Schools	45	9
Shops	45	9
Offices	36	9

Construction

CRYSTALL FLEX SYSTEM:

The system consists of:

- a duct of adjustable length;
- a Femec active electronic plate filter;
- an electronic filter control device;
- a high voltage cable;
- a double louvre grid.

Electronic Filter

Crystall Flex System



Crystall Flex System is an innovative electronic filter system that can be easily installed downstream from horizontal concealed fan coils.

The system minimizes the indoor diffusion of various types of polluting agents found in the ducts of air conditioning systems.

The system is intended for a variety of environments such as schools, hospitals and care homes, surgeries, hotels and all other places where indoor air quality can and should be improved.

The Crystall Flex System is an efficient, reliable and user-friendly product.

Its running costs are extremely low: it does not need to be replaced and can be cleaned and sanitized using commonplace detergents without fear of compromising efficiency and durability.

The filter unit can also be fitted on existing systems without need for significant alterations.

Maestro MTO High Pressure Fan Coil Units



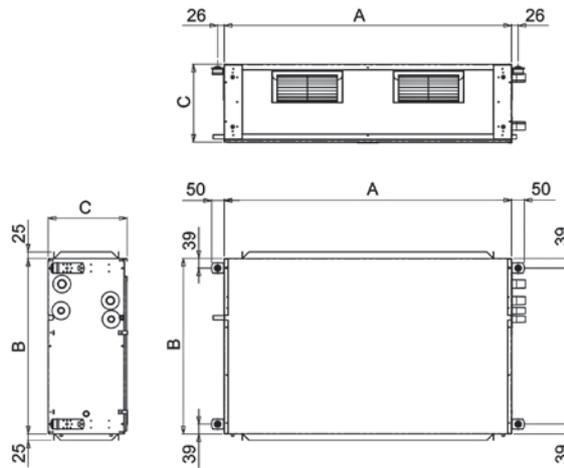
The Maestro MTO Fan Coil Units are for concealed installation and connection to a duct system.

They supply a consistent air flow with static pressure up to 160 Pa. The Maestro MTO Fan Coil Units are manufactured in 7 sizes for hot water supply and chilled water supply.



MOD.	MTO 1	MTO 2	MTO 3	MTO 4	MTO 5
A	1113	1113	1113	1445	1445
B	698	698	698	853	853
C	310	310	360	360	435

MOD.	MTO 6	MTO 7
A	1535	1535
B	1100	1100
C	488	588



Construction MAESTRO MTO:
The casing is made with galvanized steel insulated with polyolefin (PO) foam (class M1). The fan section consists of centrifugal fans in galvanized steel with one or two impellers and a directly coupled, single phase, five speed motor for sizes 1-5 and three speed motor for sizes 6-7, 230V/50 Hz. The heat exchanger is constructed in 3/8" dia expanded copper tubes with aluminium fins with a pitch of 2.1 mm. The heat exchanger is mounted in a galvanized steel carrying frame. The coils are supplied with 3, 4 or 6 rows and with 1 or 2 rows for the additional coil.

Technical characteristics

2-pipe units. The following standard rating conditions are used:

COOLING	Entering air temperature	+ 27°C d.b.,	+ 19°C w.b.	HEATING	Entering air temperature	+ 20°C
(summer mode)	Water temperature	+ 7/12°C		(winter mode)	Entering water temperature	+ 50°C
					Water flow rate as for the cooling conditions	

MODEL	MTO 14			MTO 24			MTO 34			MTO 44			
Speed(E)	1	2	3	1	2	3	1	2	3	1	2	3	
Air flow (E)	m ³ /h	790	1125	1410	840	1410	1825	1710	2075	2440	2070	2580	3020
Available pressure (E)	Pa	25	50	75	15	50	80	30	50	70	35	50	67
Cooling total emission (E)	kW	4,28	5,36	6,11	5,16	7,24	8,44	9,06	10,18	11,18	11,33	12,98	14,23
Cooling sensible emission (E)	kW	3,36	4,41	5,22	3,83	5,71	6,90	7,02	8,10	9,12	8,69	10,25	11,49
Heating (E)	kW	5,80	7,55	8,86	6,58	9,79	11,78	12,04	13,87	15,54	14,92	17,55	19,64
Δp Cooling (E)	kPa	5,1	7,6	9,6	6,9	12,7	16,8	16,0	19,8	23,4	13,9	17,7	20,9
Δp Heating (E)	kPa	4,1	6,2	7,9	5,6	10,3	13,6	13,1	16,2	19,1	11,2	14,5	17,0
Fan (E)	W	115	154	191	170	230	285	350	420	470	445	550	630
Sound power level outlet (E)	dB(A)	51	59	64	50	62	67	61	65	69	63	68	70
Sound power level inlet + radiated (E)	dB(A)	52	60	65	51	63	68	62	66	70	64	69	71
Sound pressure level outlet (*)	dB(A)	42	50	55	41	53	58	52	56	60	54	59	61
Sound pressure level inlet + radiated (*)	dB(A)	43	51	56	42	54	59	53	57	61	55	60	62
Plenum code (E)		9034200			9034200			9034220			9034230		

MODEL	MTO 54 (**)			MTO 64 (**)			MTO 74 (**)			
Speed(E)	1	2	3	1	2	3	1	2	3	
Air flow (E)	m ³ /h	2740	3280	3850	1880	3385	4800	3925	5070	7100
Available pressure (E)	Pa	35	50	70	150	150	150	150	150	150
Cooling total emission (E)	kW	15,04	16,81	18,52	12,99	19,51	24,19	23,06	27,09	33,09
Cooling sensible emission (E)	kW	11,71	13,42	15,13	9,45	14,94	19,28	17,57	21,22	26,99
Heating (E)	kW	19,39	22,12	24,79	20,86	33,52	43,6	39,34	47,85	61,14
Δp Cooling (E)	kPa	13,3	16,2	19,3	7,4	15,3	22,6	14,4	19,3	27,6
Δp Heating (E)	kPa	10,8	13,2	15,7	3,9	9,1	14,7	8,5	12,1	18,8
Fan (E)	W	500	617	760	574	778	1304	1518	1758	2460
Sound power level outlet (E)	dB(A)	66	70	73	63	71	77	71	75	81
Sound power level inlet + radiated (E)	dB(A)	67	71	74	-	-	-	-	-	-
Sound pressure level outlet (*)	dB(A)	57	61	64	54	62	68	62	66	72
Sound pressure level inlet + radiated (*)	dB(A)	58	62	65	-	-	-	-	-	-
Plenum code (E)		9034240			9034280			9034290		

(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.

(**) Models not covered by EUROVENT certification program.

Construction CRSO:

- Casing: made from 1 mm galvanized steel insulated with polyolefin (PO) foam (class M1).
- Fan assembly: the fans have aluminium or plastic material 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.
- Heat exchange coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The main coil and the eventual additional coil have two 1/2 inch BSP internal connections. The coils are supplied with 3 or 4 rows and with 1 or 2 rows for the additional coil.

High Pressure Fan Coil Units Carisma CRSO



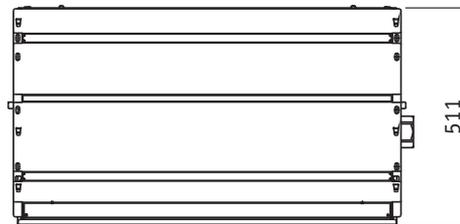
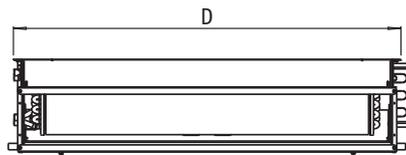
The Fan Coil Units are for concealed installation and connection to a small duct system.

They supply a consistent air flow with static pressure up to 80 Pa.

The Fan Coil Units are manufactured in 4 sizes for hot water supply and chilled water supply.



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SIZE	G	D
1	218	689
2	248	904
3	248	1119
4	248	1570

Technical characteristics

CarismaSabiana CRSO. 2 pipes unit. The following standard rating conditions are used:

COOLING (summer mode)	Entering air temperature	+ 27°C d.b., + 19°C w.b.	HEATING (winter mode)	Entering air temperature	+ 20°C
	Water temperature	+ 7/12°C		Entering water temperature	+ 50°C

Water flow rate as for the cooling conditions

Figures at high speed

MODEL		CRSO 13	CRSO 23	CRSO 33	CRSO 43	CRSO 14	CRSO 24	CRSO 34	CRSO 44
Air flow	m ³ /h	310	580	960	1285	310	580	960	1285
Available pressure	Pa	60	60	60	60	60	60	60	60
Cooling total emission	kW	1.93	3.42	5.20	7.40	2.15	3.85	5.68	8.22
Cooling sensible emission	kW	1.41	2.57	4.05	5.62	1.54	2.77	4.25	6.05
Heating	kW	2.39	4.25	6.79	9.41	2.60	4.69	7.31	10.30
Δp Cooling	kPa	12.9	13.9	15.1	13.1	7.9	24.3	13.2	18.0
Δp Heating	kPa	10.3	11.4	11.9	10.8	6.4	20.1	10.5	17.0
Fan	W	55	97	134	158	55	97	134	158
Sound power outlet	dB(A)	50	51	57	58	50	51	57	58
Sound power inlet + radiated	dB(A)	57	57	63	64	57	57	63	64
Sound pressure outlet	dB(A)*	41	42	48	49	41	42	48	49
Sound pressure inlet + radiated	dB(A)*	48	48	54	55	48	48	54	55
Plenum code		9066363	9069222	9066368	9069224	9066363	9069222	9066368	9069224

* 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.

Carisma CRS-ECM High Pressure Fan Coils Units with inverter board



The innovative brushless and sensorless type synchronous electronic motor with permanent magnets, is controlled by an **inverter** board designed and developed in Italy.

The air flow rate can be varied **in continuous** by means of a 1-10 V signal generated by Sabiana controls or by independent control systems. The continuous air flow control improves the acoustic comfort and allows a more punctual reply to the variation of the thermal loads and a greater stability of the requested ambient temperature.

The extreme efficiency, also at low speed, makes possible a great reduction in electric consumption.

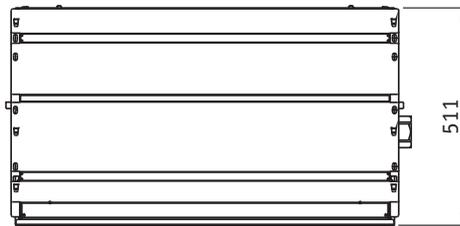
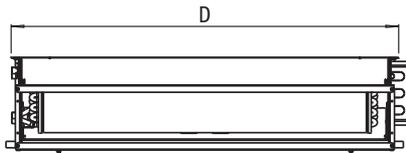
The Fan Coil Units are for concealed installation and connection to a small duct system.

They supply a consistent air flow with static pressure up to 80 Pa.

The Fan Coil Units are manufactured in 3 sizes for hot water supply and chilled water supply.



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SIZE	G	D
1	218	689
2	248	904
3	248	1119

Technical characteristics

Carisma Sabiana CRS-ECM. 2 pipes unit. The following standard rating conditions are used:

COOLING	Entering air temperature	+ 27°C d.b.,	+ 19°C w.b.	HEATING	Entering air temperature	+ 20°C
(summer mode)	Water temperature	+ 7/12°C		(winter mode)	Entering water temperature	+ 50°C
					Water flow rate as for the cooling conditions	

Figures at high speed

MODEL		CRS-ECM 13	CRS-ECM 23	CRS-ECM 33	CRS-ECM 14	CRS-ECM 24	CRS-ECM 34
Inverter Power		9	8	8,5	9	8	8,5
Air flow	m ³ /h	325	560	950	325	560	950
Available pressure	Pa	65	65	65	65	65	65
Cooling total emission	kW	1,98	3,33	5,16	2,19	3,70	5,58
Cooling sensible emission	kW	1,51	2,57	4,10	1,64	2,77	4,32
Heating	kW	2,48	4,10	6,68	2,69	4,53	7,21
Δp Cooling	kPa	13,7	13,4	15,0	8,5	23,0	13,3
Δp Heating	kPa	11,3	11,1	12,3	7,0	19,0	10,9
Fan (High speed)	W	43	64	102	43	64	102
Fan (Low speed)	W	24	30	50	24	30	50
Sound power outlet	dB(A)	52	52	56	52	52	56
Sound power inlet + radiated	dB(A)	58	58	63	58	58	63
Sound pressure outlet	dB(A)*	43	43	47	43	43	47
Sound pressure inlet + radiated	dB(A)*	49	49	54	49	49	54
Plenum code		9066363	9069222	9066368	9066363	9069222	9066368

* 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.

Construction CRS-ECM:

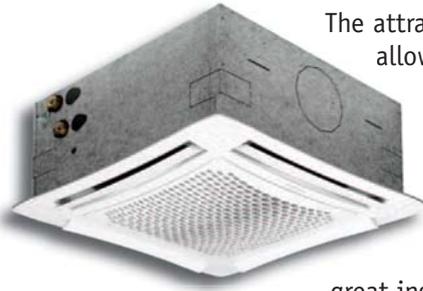
- Casing: made from 1 mm galvanized steel insulated with polyolefin (PO) foam (class M1).
- Fan assembly: the fans have aluminium or plastic material blades directly keyed on the motor with double aspiration and they are dynamically and statically balanced during manufacture in order to have an extremely quiet operation.
- Electronic motor: three phase permanent magnet brushless electronic motor that is controlled with reconstructed current according to a BLAC sinusoidal wave. The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a switching system, it generates a three-phase frequency modulated, wave form power supply. The electric power supply required for the machine is therefore single-phase with voltage of 230-240V and frequency of 50-60Hz.
- Heat exchange coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The main coil and the eventual additional coil have two 1/2 inch BSP internal connections. The coils are supplied with 3 or 4 rows and with 1 or 2 rows for the additional coil.

Construction SKYSTAR:

- Air inlet and air diffuser: internal grid, air diffuser and louvres are made of synthetic material of white color (RAL 9003). Other RAL colours available on request.
- Casing: is made from galvanized steel with inside thermal insulation with polyolefin (PO) foam (class M1) and outside anti-condensate lining.
- Fan assembly: extremely quiet radial flow fan with self-lubricating ball bearings. External rotor motor 230V / 50Hz, class 1 insulation, with integrated thermal contact for motor protection, wired to the terminal on the outside of the casing.
- Condensate collection tray: polystyrene foam condensate tray, shaped in order to optimize the air diffusion, fire retardant rating B1 to DIN 4102.
- Air filter: synthetic washable filter, class G1 (EN 779) easily removable.
- Condensate pump: two step float switch, integral with the unit and wired to the terminal on the outside of the casing, 650 mm maximum head.
- Valve set: two or three way valves, ON-OFF operation with thermostatic actuator.

Cassette Fan Coils

SkyStar

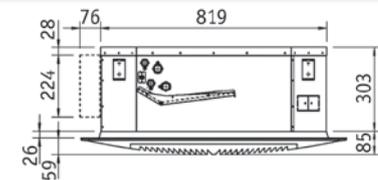
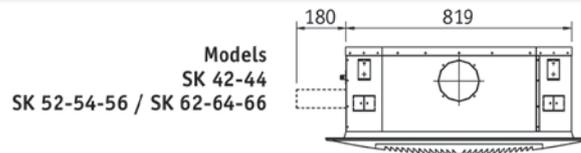
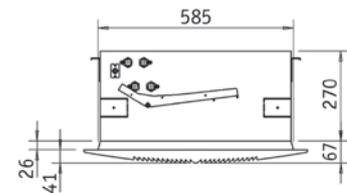
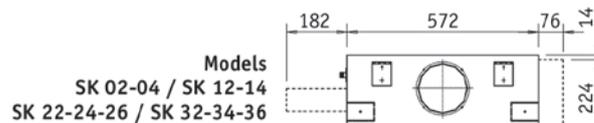


The attractive design and the high quality of all the components allow the SkyStar cassette fan coil to perfectly fit in all the environments, offering the quietest operational mode. The 4 smaller sizes are designed to fit into false ceiling standard 600x600mm modules. The 3 bigger sizes have a 800x800mm dimension that offers the best solution in terms of silent operation and price/performance ratio for these high capacity units. The SkyStar range offers great installation flexibility and very easy maintenance.



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The access to all the most important components is from the bottom side without the need to remove any parts of the false ceiling. Every unit can have fresh air intake, the air distribution is in four directions and a remote air diffuser can be connected to the unit. The condensate pump is integral with the unit and is easily accessible. The range is made of 7 sizes. Every size can be supplied with 2 or 4 pipes and with 2 or 3 way 230 V, ON-OFF valves. The valve installation is mandatory. Different electronic remote controls are available. The infra-red remote control is also available.



Technical characteristics

The following standard rating conditions are used:

2-pipe units

COOLING (summer mode)

Entering air temperature + 27°C d.b., + 19°C w.b.
Water temperature + 7/12°C

HEATING (winter mode)

Entering air temperature + 20°C
Water temperature + 50°C
Water flow rate as for the cooling conditions

4-pipe units

COOLING (summer mode)

Entering air temperature + 27°C d.b., + 19°C w.b.
Water temperature + 7/12°C

HEATING (winter mode)

Entering air temperature + 20°C
Water temperature + 70/60°C

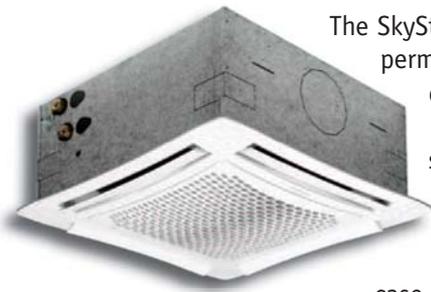
Figures at high speed

MODEL	2-PIPE UNITS								4-PIPE UNITS										
	SK 02	SK 12	SK 22	SK 32	SK 42	SK 52	SK 62	SK 04	SK 14	SK 24	SK 26	SK 34	SK 36	SK 44	SK 54	SK 56	SK 64	SK 66	
Air flow	m ³ /h	610	520	710	880	1140	1500	1820	610	520	710	710	880	880	1140	1500	1820	1820	
Cooling total emission	kW	1.98	2.68	4.33	5.02	6.16	9.51	11.10	2.33	2.70	3.34	3.93	3.81	4.53	6.34	7.71	8.77	8.89	10.20
Cooling sensible emission	kW	1.64	2.04	3.18	3.74	4.59	6.48	8.25	1.90	1.98	2.56	2.95	2.97	3.46	4.69	5.83	6.49	6.84	7.68
Δp Cooling	kPa	10.0	9.7	15.1	19.7	21.6	26.9	35.6	13.5	8.8	13.4	10.5	17.0	14.0	18.9	26.9	25.0	34.7	32.0
Heating	kW	2.64	3.35	5.23	6.17	7.77	10.71	14.00	3.03	3.46	4.40	3.35	4.95	3.79	9.10	11.00	8.56	12.70	9.80
Δp Heating	kPa	9.0	8.2	11.4	17.7	15.1	23.0	30.6	14.5	10.8	16.6	9.0	20.5	11.0	21.4	29.9	15.3	38.8	19.5
Sound power	dB(A)	49	45	53	59	48	53	58	49	45	53	53	59	59	48	53	53	58	58
Sound pressure (High speed)	dB(A)*	40	36	44	50	39	44	49	40	36	44	44	50	50	39	44	44	49	49
Sound pressure (Medium speed)	dB(A)*	31	31	36	40	31	31	39	31	31	36	36	40	40	31	31	31	39	39
Sound pressure (Low speed)	dB(A)*	24	24	24	32	24	25	25	24	24	24	24	32	32	24	25	25	25	25
Fan	W	57	44	68	90	77	120	170	57	44	68	68	90	90	77	120	120	170	170
	A	0.27	0.20	0.32	0.45	0.36	0.53	0.74	0.27	0.20	0.32	0.32	0.45	0.45	0.36	0.53	0.53	0.74	0.74
Dimensions	mm	575x575x275				820x820x303				575x575x275				820x820x303					

* 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.

SkyStar ECM

Cassette Fan Coils with inverter board



The SkyStar ECM series uses an innovative brushless synchronous permanent magnet electric motor controlled by an inverter card that is directly installed on the unit.

The air flow can be varied **continuously** with a 1-10 V signal from Sabiana controls or by independent controllers.

In the first case, an electronic board installed on the unit interfaces with specifically developed wall-mounted or infra-red controls, whereas in the second case programmable controllers should be used with a 1-10 V output.

The extreme efficiency, also at a low speed, makes possible a great reduction in electric consumption (**more than 75% less in comparison to a traditional motor**) with absorption values, under normal operating conditions, that are **no greater than 10 Watt** in the entire range.



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The brushless motor is characterised by a constant synchronous speed, independently of the applied load, that depends only on the motor power supply frequency, which is modulated by the inverter.

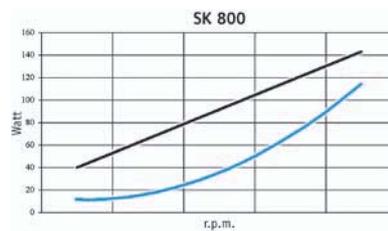
It consumes less because:

- The motor always works at its point of maximum efficiency.
- In the brushless motor, the rotor's permanent magnets generate the magnetising power autonomously.
- The motor always operates at the synchronous speed, as a result there are no induced currents that reduce efficiency.

The main advantages are:

- Large reduction in energy consumption, thanks to an optimal response to the thermal load of the environment during every moment of the day.
- Operating silence at all rotation speeds.
- Ability to operate at any rotation speed.

MOTOR ABSORPTION



— = SK — = SK-ECM

Construction SKYSTAR ECM:

- Fan assembly: extremely quiet radial flow fan with self-lubricating ball bearings.
- Three phase permanent magnet brushless electronic motor that is controlled with reconstructed current according to a BLAC sinusoidal wave. The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a switching system, it generates a three-phase frequency modulated, wave form power supply. The electric power supply required for the machine is therefore single-phase with voltage of 230-240V and frequency of 50-60Hz.

Technical characteristics

The following standard rating conditions are used:

2-pipe units

COOLING (summer mode)

Entering air temperature + 27°C d.b., + 19°C w.b.
Water temperature + 7/12°C

HEATING (winter mode)

Entering air temperature + 20°C
Water temperature + 50°C
Water flow rate as for the cooling conditions

4-pipe units

COOLING (summer mode)

Entering air temperature + 27°C d.b., + 19°C w.b.
Water temperature + 7/12°C

HEATING (winter mode)

Entering air temperature + 20°C
Water temperature + 70/60°C

Figures at high speed

MODEL		2-PIPE UNITS					4-PIPE UNITS				
		SK-ECM 12	SK-ECM 22	SK-ECM 32	SK-ECM 42	SK-ECM 52	SK-ECM 14	SK-ECM 26	SK-ECM 36	SK-ECM 44	SK-ECM 56
Air flow	m ³ /h	535	710	880	1165	1770	535	710	880	1165	1770
Cooling total emission	kW	2,75	4,33	5,02	6,33	10,75	2,77	3,93	4,53	6,51	9,87
Cooling sensible emission	kW	2,09	3,18	3,74	4,72	7,94	2,08	2,95	3,46	4,83	7,4
Δp Cooling	kPa	10,1	15,1	19,7	22,7	33,6	9,5	10,5	13,1	19,8	30,1
Heating	kW	3,44	5,24	6,2	8,01	12,73	3,62	3,35	3,79	9,36	9,51
Δp Heating	kPa	8,7	13,1	17,7	19,5	28,8	11,7	9	11	22,5	18
Sound power	dB(A)	47	54	60	48	57	47	54	60	48	57
Sound pressure (High speed)	dB(A)*	38	45	51	39	48	38	45	51	39	48
Sound pressure (Medium speed)	dB(A)*	30	34	41	30	38	30	34	41	30	38
Sound pressure (Low speed)	dB(A)*	24	24	28	24	25	24	24	28	24	25
Fan	W	16	31	62	33	108	16	31	62	33	108
Dimensions	mm	575x575x275			820x820x303		575x575x275			820x820x303	

Condensate pump absorption: 8 W

* 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.

Construction COANDA:

- Diffuser with intake grill: in pre-painted metal sheet in RAL 9003 colour with intake grill that can be opened for inspection and maintenance of the filter.
- Air filter: polypropylene cellular fabric regenerating filter.
- Casing: made from 1 mm galvanized steel insulated with polyolefin (PO) foam (class M1).
- 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 six speeds, three of which are connected, with capacitor. The motor is fitted on sealed for life bearings and is secured on anti-vibration and self-lubricating mountings. Internal thermal protection with automatic reset, protection IP 20, class B.
- 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.

One Way Cassette Fan Coils

Coanda



Thanks to the particular air handling section, Carisma Coanda cassette units generate an airflow with a "coanda" effect.

The unit is suitable for installation in a suspended ceiling.

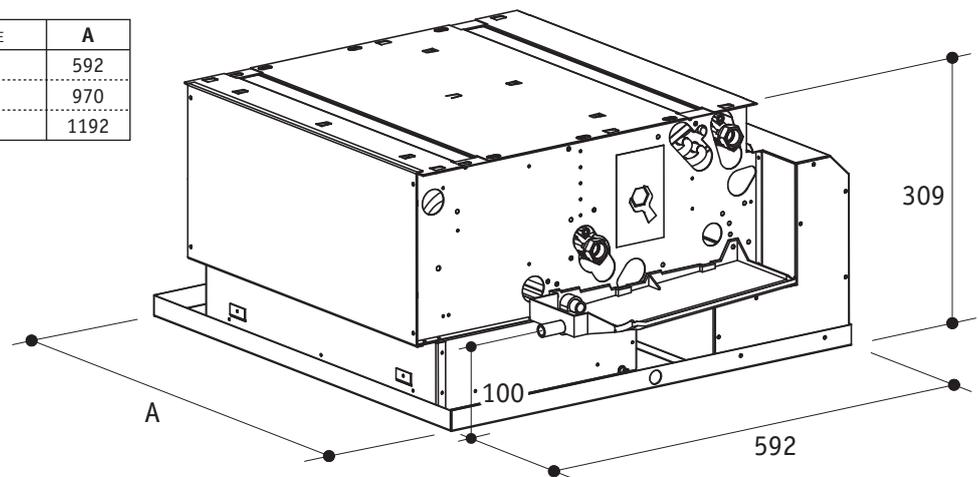
Air intake is from the bottom while the air supply is parallel to the ceiling, through practical and functional intake and outlet grids.

The "coanda" effect creates excellent circulation of the air inside the room.



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SIZE	A
1	592
2	970
3	1192



Technical characteristics

CarismaSabiana COANDA. 2 pipes unit. The following standard rating conditions are used:

COOLING (summer mode)	Entering air temperature	+ 27°C d.b.,	+ 19°C w.b.	HEATING (winter mode)	Entering air temperature	+ 20°C
	Water temperature	+ 7/12°C			Entering water temperature	+ 50°C
				Water flow rate as for the cooling conditions		

Figures at high speed

COANDA MODEL		CCN 13	CCN 23	CCN 33	CCN 14	CCN 24	CCN 34
Air flow	m ³ /h	280	380	540	280	380	620
Cooling total emission	kW	1.50	2.37	3.34	1.74	2.57	4.02
Cooling sensible emission	kW	1.18	1.77	2.51	1.31	1.88	2.98
Heating	kW	1.93	2.86	4.02	2.10	3.12	4.77
Δp Cooling	kPa	6.1	7.6	16.2	12.9	12.1	15.5
Δp Heating	kPa	4.9	6.3	13.4	10.7	10.2	12.6
Fan	W	49	44	59	49	44	72
Sound power Lw (Medium speed)	dB(A)	41	36	46	41	36	52
Sound pressure Lp (High speed)	dB(A)*	43	39	43	43	39	46
Sound pressure Lp (Medium speed)	dB(A)*	32	27	37	32	27	43
Sound pressure Lp (Low speed)	dB(A)*	26	24	26	26	24	32

* 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.

Coanda ECM

One Way Cassette Fan Coils with inverter board



The innovative brushless and sensorless type synchronous electronic motor with permanent magnets, is controlled by an **inverter** board designed and developed in Italy.

The air flow rate can be varied **in continuous** by means of a 1-10 V signal generated by Sabiana controls or by independent control systems. The continuous air flow control improves the acoustic comfort and allows a more punctual reply to the variation of the thermal loads and a greater stability of the requested ambient temperature.

The extreme efficiency, also at low speed, makes possible a great reduction in electric consumption.

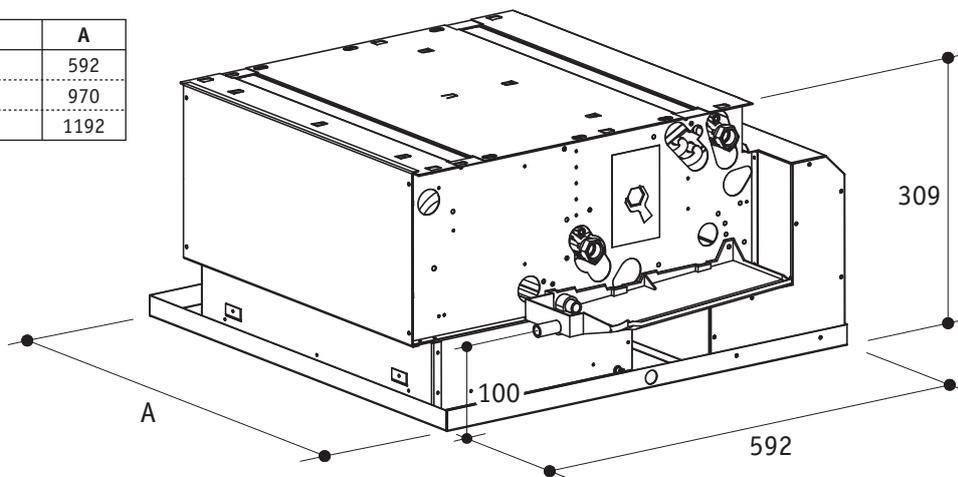


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Thanks to the particular air handling section, Carisma Coanda cassette units generate an airflow with a "coanda" effect. The unit is suitable for installation in a suspended ceiling. Air intake is from the bottom while the air supply is parallel to the ceiling, through practical and functional intake and outlet grids.

The "coanda" effect creates excellent circulation of the air inside the room.

SIZE	A
1	592
2	970
3	1192



Technical characteristics

CarismaSabiana COANDA-ECM. 2 pipes unit. The following standard rating conditions are used:

COOLING	Entering air temperature	+ 27°C d.b.,	+ 19°C w.b.	HEATING	Entering air temperature	+ 20°C
	(summer mode) Water temperature	+ 7/12°C			(winter mode) Entering water temperature	+ 50°C

Water flow rate as for the cooling conditions

Figures at high speed

COANDA-ECM MODEL		CCN-ECM 13	CCN-ECM 23	CCN-ECM 33	CCN-ECM 14	CCN-ECM 24	CCN-ECM 34
Inverter Power		10	10	10	10	10	10
Speed		MAX	MAX	MAX	MAX	MAX	MAX
Air flow	m ³ /h	295	540	620	295	540	620
Cooling total emission	kW	1.56	3.16	3.75	1.81	3.50	4.02
Cooling sensible emission	kW	1.24	2.41	2.83	1.38	2.60	2.98
Heating	kW	2.02	3.85	4.54	2.20	4.32	4.78
Δp Cooling	kPa	6.5	12.6	19.8	13.9	20.8	15.5
Δp Heating	kPa	5.3	10.4	16.6	11.6	17.1	13.0
Fan (High speed)	W	29	37	42	29	37	42
Fan (Low speed)	W	8	8	10	8	8	10
Sound power Lw (Medium speed)	dB(A)	46	46	48	46	46	48
Sound pressure Lp (High speed)	dB(A)*	46	47	49	46	47	49
Sound pressure Lp (Medium speed)	dB(A)*	37	37	39	37	37	39
Sound pressure Lp (Low speed)	dB(A)*	26	25	27	26	25	27

* 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.

Construction COANDA-ECM:

- Diffuser with intake grill: in prepainted metal sheet in RAL 9003 colour with intake grill that can be opened for inspection and maintenance of the filter.
- Air filter: polypropylene cellular fabric regenerating filter.
- Casing: made from 1 mm galvanized steel insulated with polyolefin (PO) foam (class M1).
- 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.
- Electronic motor: three phase permanent magnet brushless electronic motor that is controlled with current reconstructed according to a BLAC sinusoidal wave. The inverter board that controls the motor operation is powered by 230 Volt, single-phase and, with a switching system, it generates a three-phase frequency modulated, wave form power supply. The electric power supply required for the machine is therefore single-phase with voltage of 230 - 240 V and frequency of 50 - 60 Hz.
- Coil: it is manufactured from drawn copper tube and the aluminium fins are mechanically bonded onto the tube by an expansion process. The coil has two 1/2 inch BSP internal connections and 1/8 inch BSP air vent and drain. The coil is not suitable for use in corrosive atmosphere or in environments where aluminium may be subject to corrosion.

Heat Recovery Units

Energy

Construction ENERGY:

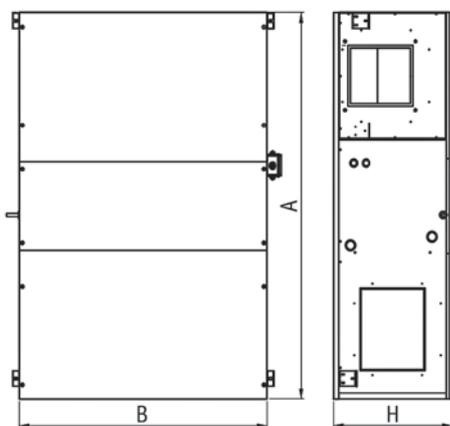
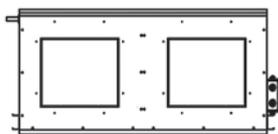
- The support frame is made of galvanized plate sandwich panels, 24 mm thick, filled with high-density polyurethane that combine thermal and acoustic insulating features. Size ENY 1, on the other hand, uses both sandwich panels and self-supporting panels insulated with foam material. The side panels are easily removable, allowing the position of the air inlet and outlet to be modified, even on site.
- The heat recovery units are static plate exchangers that transfer heat between two flows of air due to the temperature difference. The two flows of hot and cold air entering the heat recovery unit are sub-divided into sections that run between two plates, which carry hot air and cold air alternatively. These sections are sealed to prevent any possible contamination between the air flows. The heat is exchanged by the plates that make up the walls of the sections, with efficiency that reaches values between 50% and 75%.
- Condensate collection pan with drain connection on the side.
- The discharge and intake air fans are double intake with forward blades. The rotor is directly coupled to the electric motor, reducing the overall size. Single-phase motor, 230 V power supply with built-in motor protection, three speeds on all models.
- Pleated cell filters, 48 mm thick, efficiency G3, with filtering media made from regenerable synthetic material, class F1.
- Post-heating coil or electric post-heating coil available as optional.
- Vertical version unit available.



The ENERGY ducted units have been designed to allow energy savings in the ventilation systems of public and private environments, such as bars, restaurants, offices, shops, etc., by recovering the heat from the air discharged and transferring it to the fresh air introduced into the environment.

The heat exchange between the discharged air and the fresh air introduced occurs via a static cross-flow exchanger, designed to recover over 50% of the heat.

The Energy range features 6 sizes suitable for horizontal installation (1 to 6) and 5 sizes for vertical installation (2 to 6), covering a range of air flows from 400 to 3500 m³/h.



OUTSIDE DIMENSIONS		ENY 1	ENY 2	ENY 3	ENY 4	ENY 5	ENY 6
Length (B)	mm	1030	1480	1480	1480	1750	1750
Width (A)	mm	830	1000	1000	1000	1310	1310
Height (H)	mm	285	420	480	480	540	540
Weight	kg	41	85	93	105	140	155

Technical characteristics

Working static pressure = 50 Pa

MODEL			ENY 1	ENY 2	ENY 3	ENY 4	ENY 5	ENY 6
High speed	Air flow	m ³ /h	620	1200	1450	2150	2500	3800
	Sound pressure (*)	dB(A)	54	56	58	62	60	64
Medium speed	Air flow	m ³ /h	535	940	1080	1690	1630	2800
	Sound pressure (*)	dB(A)	52	52	53	58	58	60
Low speed	Air flow	m ³ /h	365	780	840	1040	1270	2230
	Sound pressure (*)	dB(A)	49	49	48	51	48	56

(*) Sound pressure measured in an open field at a distance of 1 metre from the fan outlet

HEAT RECOVERY UNITS			ENY 1	ENY 2	ENY 3	ENY 4	ENY 5	ENY 6
High speed	Efficiency (-5°C/20°C)	%	54.6	54.2	54.5	51.9	58.2	51.1
	Leaving air temperature	°C	8.6	8.5	8.6	7.9	9.5	7.8
Medium speed	Efficiency (-5°C/20°C)	%	55.3	55.6	56.4	53.5	60.8	53.5
	Leaving air temperature	°C	8.8	8.9	9.1	8.4	10.2	8.4
Low speed	Efficiency (-5°C/20°C)	%	57.1	56.6	58.0	56.6	62.3	55.3
	Leaving air temperature	°C	9.3	9.2	9.5	9.2	10.6	8.8

Ocean

Modular Ducted Units

Construction

OCEAN:

The casing consists of self-supporting panels of hot dip galvanized, prepainted steel, which are completely insulated with a 20 mm thick thermoacoustic, flame retardant lining.

The fan section consists of centrifugal fans in galvanized steel with two impellers and a directly coupled, single phase, three speed motor, 230V/50Hz with permanently installed condenser, insulation class F.

The heat exchanger is constructed in 3/8" dia expanded copper tubes with aluminium fins with a pitch of 2.1 mm. The steel headers have 3/4" male connections and an extra tapping for an air vent.

The heat exchanger is mounted in a galvanized steel carrying frame.

Available with Crystall electrostatic filter section



The Ocean Modular Ducted Units are constructed in four basic versions in order to satisfy any installation requirements and thanks to their compact size they can fit in narrow areas or false ceilings.

By the use of the same modular components, 12 versions can be obtained with air flows ranging from 600 to

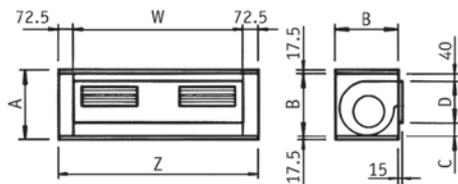
5300 m³/h.

It is possible to mount either 2, 3, 4 or 6 row heat exchangers for water.

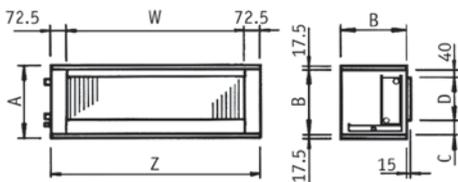
Thanks to its modular construction the unit can be easily disassembled and re-assembled on site and the air flow direction can be changed according to the specific needs.

OCEAN dimensions

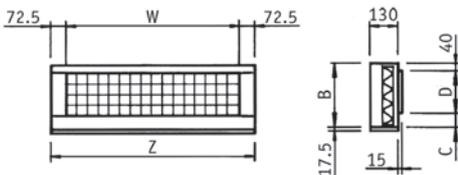
FAN SECTION SVE



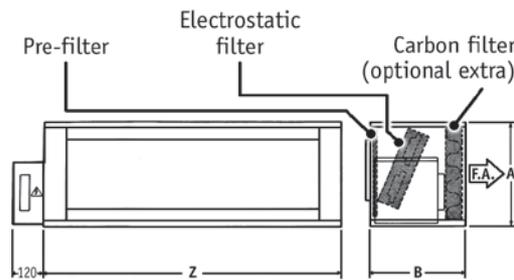
BATTERY SECTION SBO



FILTER SECTION SFS



Crystall electrostatic filter + Carbon filter



MOD.	A	B	C	D	W	Z	ELECTROSTATIC FILTER	ELECTROSTATIC FILTER N°
1	335	300	65	195	805	950	840x112	2
2	415	380	40	300	805	950	840x112	3
3	515	480	40	400	805	950	840x112	4
4	515	480	40	400	1355	1500	1390x112	4

Technical characteristics

The following standard rating conditions are used:

COOLING (summer mode)

Entering air temperature + 26°C b.s., R.H. 55%
Water temperature + 7/12°C

HEATING (winter mode)

Entering air temperature + 20°C
Entering water temperature + 70/60°C

With 4 row battery

MODEL		1			2			3			4		
Speed		1	2	3	1	2	3	1	2	3	1	2	3
Air flow	m ³ /h	600	1000	1400	1000	1550	2100	1500	2100	3000	2400	3800	5300
Cooling total emission	kW	3.70	5.20	6.40	5.80	7.90	9.60	9.80	12.20	15.20	15.00	20.30	24.80
Cooling sensible emission	kW	2.60	3.70	4.70	4.10	5.80	7.30	6.50	8.50	11.00	9.90	14.00	17.70
Heating	kW	7.40	11.40	15.00	12.20	17.60	22.40	18.30	23.80	32.00	30.20	43.20	55.10
Δp Cooling	kPa	2.2	4.6	7.5	2.6	4.8	7.4	9.0	14.5	24.3	7.0	13.1	13.1
Δp Heating	kPa	1.6	3.5	5.7	2.0	3.7	5.6	6.9	11.0	18.5	5.3	10.0	15.4
Sound pressure	dB(A)*	45	51	55	50	55	60	53	56	61	55	61	65
Fan max	A		2.0			2.8			4.4			6.0	

* Sound pressure in open field conditions at 1 metre from front of unit.

Accessories:

- Suspension Brackets
- Condensate collection tray
- Humidification section
- Supplementary electric element
- Recessed manual speed control switch
- Variable speed drive
- Manual speed control and thermostat
- Outlet box with circular diffusers
- Inlet box with damper
- Outlet grid with double louvres

Air Handling Units

Zeus

Construction ZEUS:

- Casing: aluminium holding frame and double skin sandwich panels 25 mm thick. Indoor panel made of galvanized steel, outdoor panel made of galvanized and prepainted steel in light blue colour.
- Insulation: non-inflammable mineral wool insulation (fire class A1 in accordance to DIN 4102) density 90 kg/m³, thickness 25mm.
- Fan: galvanized centrifugal fan with double exhausting outlet, statically and dynamically balanced.
- Transmission: driving pulley with varying diameter.
- Motor: three phase form B3 UNEL-MEC 400V 50Hz protection IP 55, class F.
- Battery: copper tubes, aluminium fins, painted steel collectors with 2, 3, 4 or 6 rows.
- Filter: pleated cells type class G3, regenerating synthetic, zinc-coated frame, thickness 48 mm - front extraction.



The ZEUS Sabiana Air Handling Units have been designed and developed to meet heating and air conditioning needs for industrial, commercial and residential installations.

The range is available in 6 vertical models and 6 horizontal models with an air flow varying from 5,000 to 25,000 m³/h. Heating outputs from 32 to 260 kW, cooling from 17 to 160 kW.

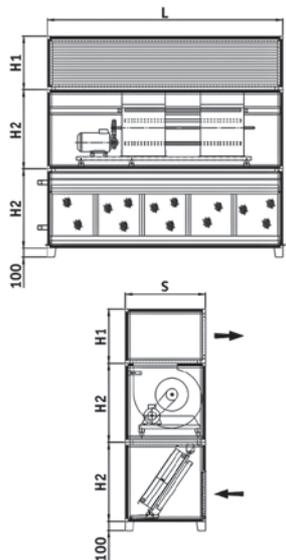
Emission

E.A.T. 20°C, W.T. 70/60°C

E.A.T. 27°C, R.H. 50%
W.T. 7/12°C

MODEL	AIR FLOW m ³ /h	ROWS	EMISSION kW	LEAVING AIR TEMPERATURE °C	WATER FLOW l/h
50	4400	2	32.35	41.9	2828
		3	42.37	48.6	3704
		4	49.77	53.6	4350
80	7400	2	54.38	41.9	4753
		3	71.22	48.6	6226
		4	83.66	53.6	7312
110	10400	2	76.13	41.9	6655
		3	99.70	48.6	8716
		4	117.12	53.6	10236
140	14000	2	98.93	41.2	8688
		3	129.05	47.5	11317
		4	151.28	52.7	13266
200	20200	2	142.40	41.1	12506
		3	186.88	47.5	16389
		4	219.08	52.7	19211
250	24500	2	171.61	41.3	15071
		3	226.34	47.7	19849
		4	263.21	52.8	23082

MODEL	AIR FLOW m ³ /h	ROWS	TOTAL EMISSION kW	SENSIBLE EMISSION kW	WATER FLOW l/h
50	4400	3	17.04	14.00	2931
		4	20.82	16.40	3581
		6	26.68	19.36	2656
80	7400	3	28.93	23.77	4976
		4	35.52	27.98	6109
		6	45.47	33.00	7821
110	10400	3	39.98	32.85	6876
		4	50.46	39.36	8680
		6	63.85	46.01	10982
140	14000	3	54.40	41.60	9333
		4	72.10	51.10	12364
		6	92.50	62.70	15830
200	20200	3	78.78	60.24	13516
		4	104.41	74.00	17913
		6	133.95	90.80	22982
250	24500	3	101.58	75.50	17428
		4	126.45	89.62	21695
		6	160.94	109.09	27612



Dimension and coil header Diameter

MODEL	L	S	H1	H2	H3	Ø HEADERS			
						2R	3R	4R	6R
50	1250	740	490	740	350	1"	1"	1"	1 1/4"
80	1900	740	490	740	350	1"	1 1/4"	1 1/4"	1 1/2"
110	1900	870	590	870	350	1 1/4"	1 1/2"	1 1/2"	1 1/2"
140	2560	870	590	870	350	1 1/2"	1 1/2"	1 1/2"	1 1/2"
200	2580	1150	810	1150	400	1 1/2"	2"	2"	2"
250	2780	1250	810	1270	450	2"	2"	2 1/2"	2 1/2"

Vulcan Pro

Air Handling Units



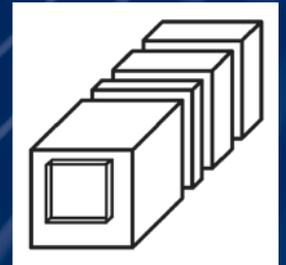
The VULCAN PRO air handling units are available in 23 different sizes, in order to provide an air flow range from 1.450 m³/h to 78.800 m³/h.

They can satisfy any need of air conditioning, filtration, humidification and heat recovery for any kind of environment: commercial, sport, residential, medical and industrial.

Construction VULCAN PRO:

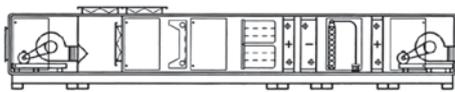
The Vulcan Pro Air Handling Units are made with holding aluminium frame and with double skin sandwich panels.

Thermo-acoustic insulation 35mm or 50mm thick, made of polyurethane foam or high density mineral wool.

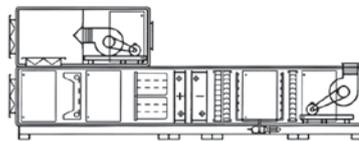


Strong construction and excellent thermal and acoustic insulation.

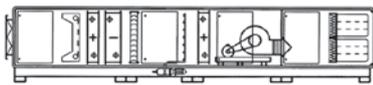
Unit Combinations



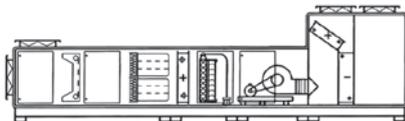
Supply and return air plant.



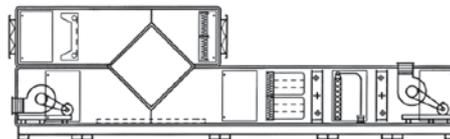
Double deck units.



Fresh air plant.



Multi-zone section.



Energy recovery units.



Modular panel construction, with no thermal or acoustic bridges

Vulcan Pro

Air Handling Units with Crystall Electrostatic Filters for Air Quality and Energy Savings



Electrostatic filtration is currently considered one of the most advanced systems for capturing particles in an air stream, capable of ensuring high and lasting efficiency and with major benefits in terms of quality-price ratio, considering their longer life compared to any other type of filter.

Cost analysis should also take into consideration the very low pressure drop rate and reduced running costs, **thanks to the simple washing** of the filters with water and detergent.

Their high filtration efficiency combines with considerable bacterial disinfection and viral inactivation, bringing the treated air to the highest quality levels defined by the relevant standards.

The **operating principle** of these filters is based on applying a high potential difference between discharge and collecting electrodes, so as to create a strong electric field that reaches maximum intensity near the discharge electrodes. The air around the surface of the discharge electrodes, which contains particle pollution, is thus ionised. The resulting effect is called a **corona discharge**, as the ions tend to move from the corona or ring around the discharge electrodes towards the collecting electrodes. During such movement, the ions generated collide with the particles of pollution suspended in the air, which become positively charged (each particle can be charged by many different ions, reaching very high electric charges). The positively charged particles (+) are then drawn towards the collecting electrodes (-), where they are captured.

Construction INOXSABIANA 25/50:

Inner lining:
stainless steel AISI 316L.
Thickness: 0,5 mm.
Plasma welding.
It is resistant to corrosive products and it is free to expand or contract as flue gas temperature changes.

Outer casing:
stainless steel AISI 304.
Thicknees: 0,5 mm.
Plasma Welding.
It is weatherproof and carries the structure load.

Insulation:
rockwool mineral wool.
Thickness 25 mm or 50 mm, density around 90 kg/m³.

Fixings and supports:
stainless steel AISI 304.
Minimized thermic bridge between inner and outer casing.

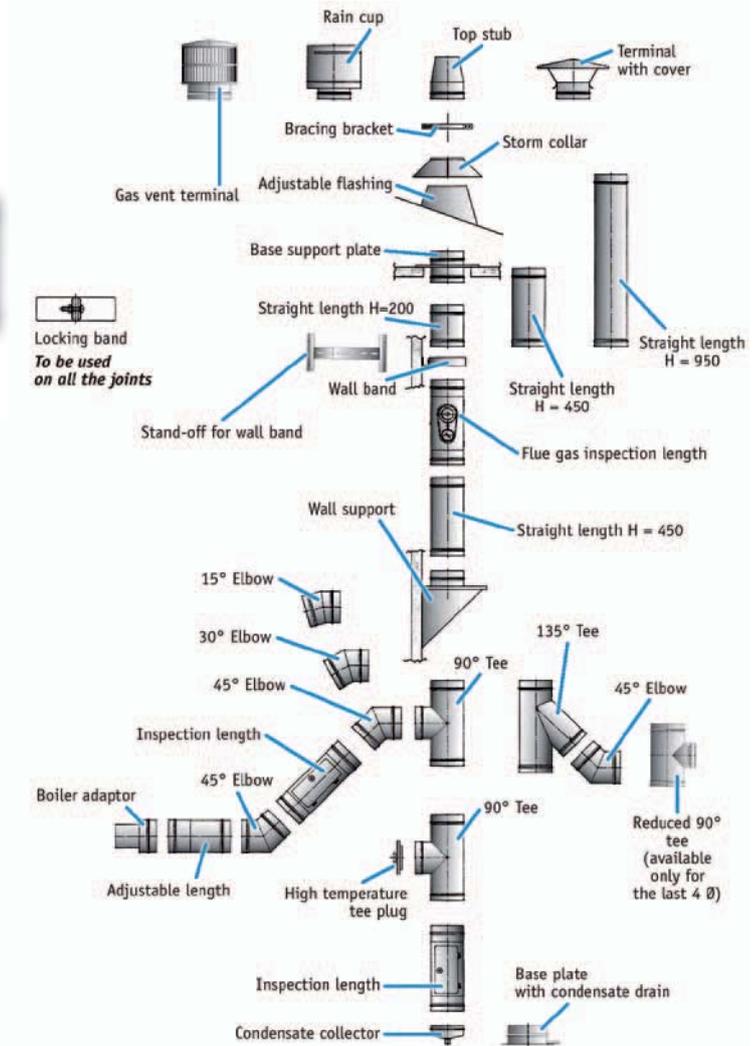
Each insulated component is single packed.

Flues

InoxSabiana 25/50

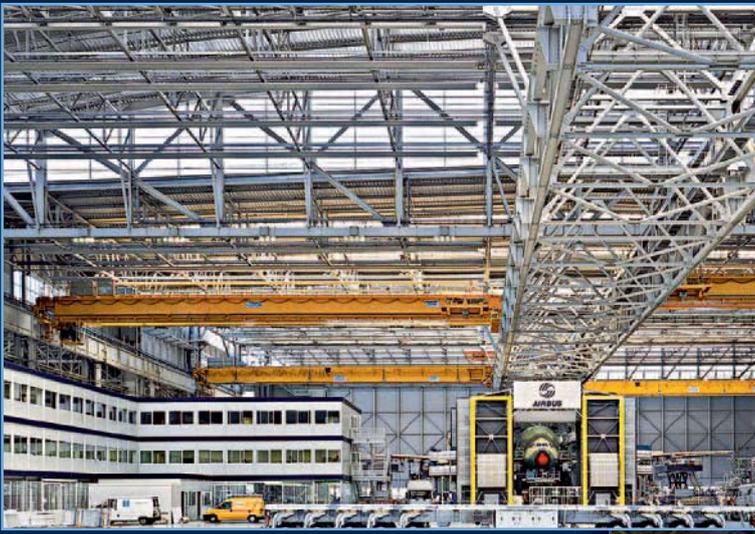


The system is designed for gravity flow application and it is suitable for oil and gas fired appliances as domestic and industrial boilers, stoves and heaters.

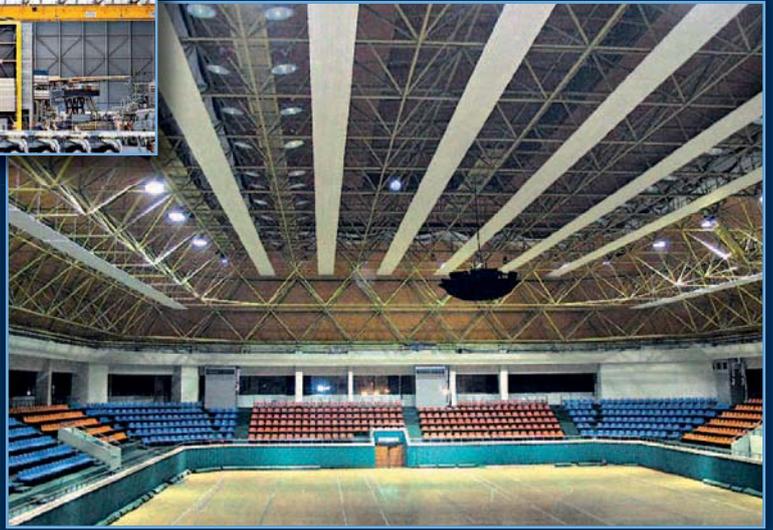


Summary table

	INOXSABIANA 25/25R								INOXSABIANA 50/50R					
	100	130	150	180	200	250	300	350	350	400	450	500	550	600
Inside diameters	mm													
Outside diameters	mm													
Weight per linear metre, InoxSabiana	kg/m													
Weight per linear metre, InoxSabiana -R (copper)	kg/m													
Inner wall	AISI 316L steel, 2B finish, nominal thickness 0,5 mm								AISI 316L steel, 2B finish, nominal thickness 0,5 mm					
Rock wool insulation	25 mm thick - Min. density 90 kg/m ³ - Toll. 0+30%								50 mm thick - Min. density 90 kg/m ³ - Toll. 0+30%					
InoxSabiana outer wall	AISI 304 steel, BA finish, nominal thickness 0,5 mm													
InoxSabiana -R (copper) outer wall	Annealed DHP copper 99,9 nominal thickness 0,6 mm													
Pressure class with gasket	P2 (200 Pa)													
Pressure class without gasket	N1 (40 Pa) negative pressure operation													
Max temperature of the flue gas with gasket	160													
Max temperature of the flue gas without gasket	450													
Gasket	Silicon rubber, blue													
Thermal resistance of the wall R at 200°C	0.34	0.36	0.36	0.37	0.37	0.38	0.39	0.39	0.74	0.75	0.76	0.77	0.77	0.78
Minimum distance to combustible materials class O (flue serving a boiler on liquid or gas fuel)	50								75		75		100	
Minimum distance to combustible materials class G (flue serving a boiler on solid fuel)	75								115		115		150	
Average roughness value for the straight length	According to EN 13384-1 : 2002													
Flow resistance coefficient of the insulated components	According to EN 13384-1 : 2002													
Metric screw and bolts	Stainless steel													



DUCK STRIP RADIANT PANELS: AEROSPATIALE TOULOUSE
NEW AIRBUS A380 PRODUCTION PLANT.
INSTALLATION HEIGHT: 40 m



DUCK STRIP RADIANT PANELS



PULSAR RADIANT PANELS



SKYSTAR FAN COIL UNITS CASSETTE



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IL CLIMA AMICO



SABIANA
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