EN

TECHNICAL MANUAL

EST INVERTER
ENERGY SAVING TECHNOLOGY

EST-Fancoil units

Sigma - Prisma - Concealed - Low Body

EUROPO
INTEGRATED COMFORT SYSTEMS

CE

EUROVENT CERTIFIED PERFORMANCE
www.eurovent-certification.com

INDEX

1. GENERAL INFORMATION

1.1 APPLICATIONS

EST-Fancoils, with brushless motor, are used to directly treat the air in the room where they are installed.
They can be used both for heating and cooling applications; in the latter case, the air is also dehumidified.

1.2 OPERATION

The effectiveness of an EST-Fancoil is due to the large surface area of the finned heat exchanger (coil) where the air drawn from the room by the fan passes through.
Heating operation: the hot water circulating in the finned coil supplies heat to the air passing through the heat exchanger.
Cooling operation: the chilled water circulating in the finned coil removes heat from the air passing through the heat exchanger. The air is also dehumidified and the condensed water vapour must be discharged from the unit: suitable drains must therefore be provided to drain the condensed water that collects in the condensate tray.

1.3 PERFORMANCES

The performance of an EST-Fancoil can vary greatly with changes in the temperature and in the amount of water circulating through the coil, as well as with changes in the temperature and in the amount of air circulating through the coil.
When using the direct expansion coil, thermal performances in cooling and heating depend on the performance of the condensing unit connected to the EST-Fancoil. The air volume is determined by selecting the proper fan speed through continuous regulation (0-100%), by using electronic or digital regulators (also for BMS system), while the water flow rate is determined by the specifications of the system and of the pump. Thermal performances of the unit can be optimised by controlling the inlet flow rate of the water with proper regulating valves (ON/OFF or modulating type), which can be supplied as accessories.
For each model, thermal performances in heating and cooling depend on the number of rows of the coil installed, which gives the opportunity to make the air treatment suit every condition required.
In cooling function, under the same operating conditions, the more rows the heat exchanger has, the more it will dehumidify.

1.4 OPERATING LIMITS

Each fancoil can work properly only if the operating limits listed below are respected:

- Maximum operating pressure (water side): 1600 kPa
- Maximum pressure of the refrigerant fluid for fancoils with direct expansion: 2400 kPa
- Minimum inlet water temperature in cooling: 3 °C
- Maximum inlet water temperature in cooling: 20 °C
- Minimum inlet water temperature in heating: 35 °C
- Maximum inlet water temperature in heating: 90 °C

1.5 PRODUCT RANGE

This manual covers the following models of EURAPO fancoil units:

MODEL	INSTALLATION	SIZE
SIGMA SERIE		
EST-SV with cabinet	vertical on the wall/floor (with feet)	112÷228
EST-SV/AF with cabinet and frontal air intake	vertical on the floor (without feet)	112÷228
EST-SH with cabinet	horizontal on the ceiling	112÷228
EST-SH/AF with cabinet and frontal air intake	horizontal on the ceiling	112÷228
PRISMA SERIE		
EST-PV with cabinet	vertical on the wall/floor (with feet)	112÷216
EST-PV/AF with cabinet and frontal air intake	vertical on the floor (without feet)	112÷216
EST-PH with cabinet	horizontal on the ceiling	112÷216
EST-PH/AF with cabinet and frontal air intake	horizontal on the ceiling	112÷216
LOW BODY SERIE		
EST-SVR with cabinet	vertical on the floor (without feet)	112÷216
EST-CVR without cabinet	vertical and concealed	112÷216
CONCEALED SERIE		
EST-CV without cabinet	vertical and concealed	112÷228
EST-CV/AF without cabinet and frontal air intake	vertical and concealed	112÷228
EST-CH without cabinet	horizontal and concealed	112÷228
EST-CH/AF without cabinet and frontal air intake	horizontal and concealed	112÷228

1.6 SELECTION SOFTWARE

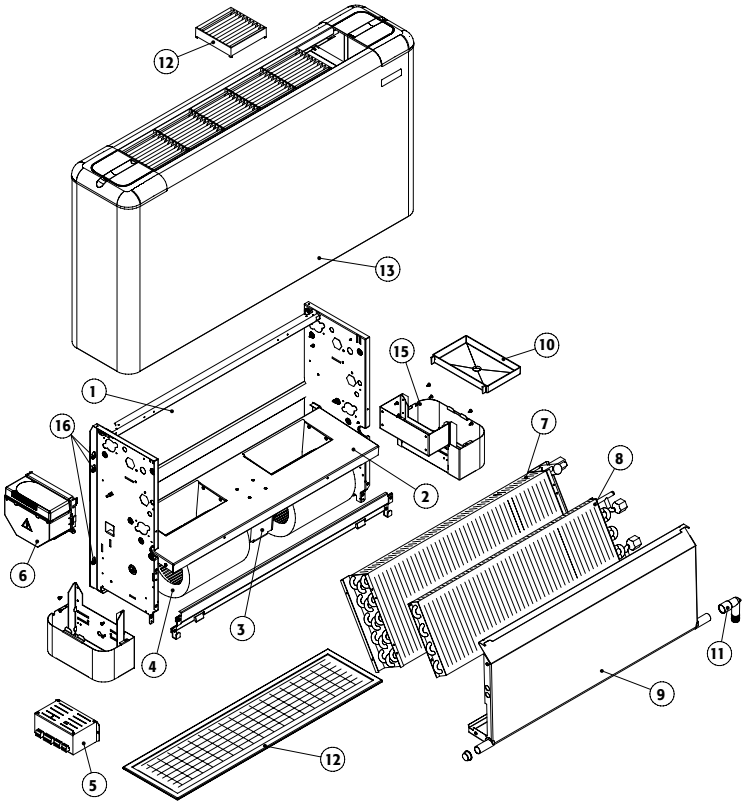
To facilitate choosing the correct size of a fan coil for any operating condition (including those differing from the standard ones), EURAPO offers a dedicated computer program which can be downloaded from the ftp address http://ftp.eurapo.it/ and can be updated with automatic upload through internet.

Installation and Operation instructions concerning the software for selection provided with the software itself.

LEGEND

1.	Internal structure
2.	Fan deck
3.	Electric motor with inverter (112÷222 models)
4.	Scroll and impeller
5.	Inverter for electric motor (224 and 228 models)
6.	Electric panel
7.	Standard coil (2, 3 or 4 rows)
8.	Additional coil
9.	Condensate tray
10.	Auxiliary drain pan
11.	Water discharge plastic pipe
12.	Grilles
13.	Housing
14.	Filter
15.	Set of feet
16.	Fixing slots

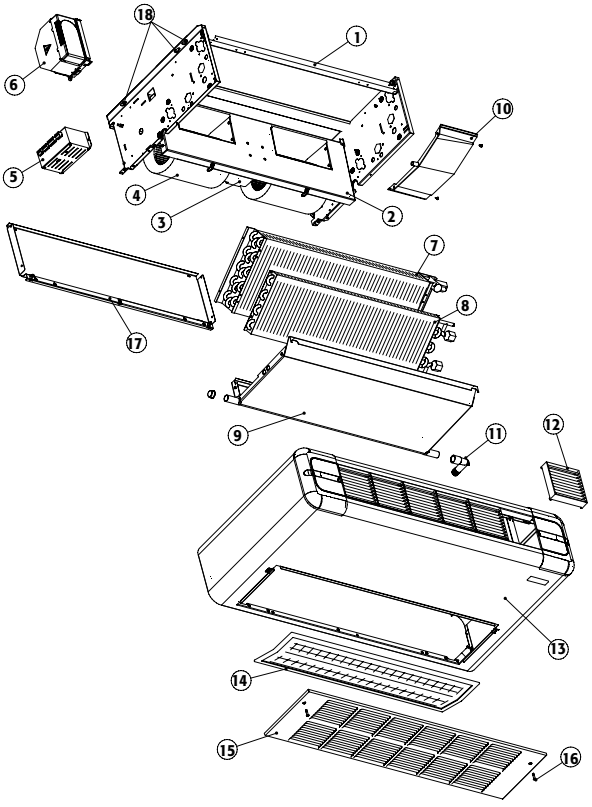
EST-SV MODEL



LEGEND

1.	Internal structure
2.	Fan deck
3.	Electric motor with inverter (112÷222 models)
4.	Scroll and impeller
5.	Inverter for electric motor (224 and 228 models)
6.	Electric panel
7.	Standard coil (2, 3 or 4 rows)
8.	Additional coil
9.	Condensate tray
10.	Auxiliary drain pan
11.	Water discharge plastic pipe
12.	Grilles
13.	Housing
14.	Filter
15.	Air intake panel
16.	Fixing screws
17.	Back inner panel
18.	Fixing slots

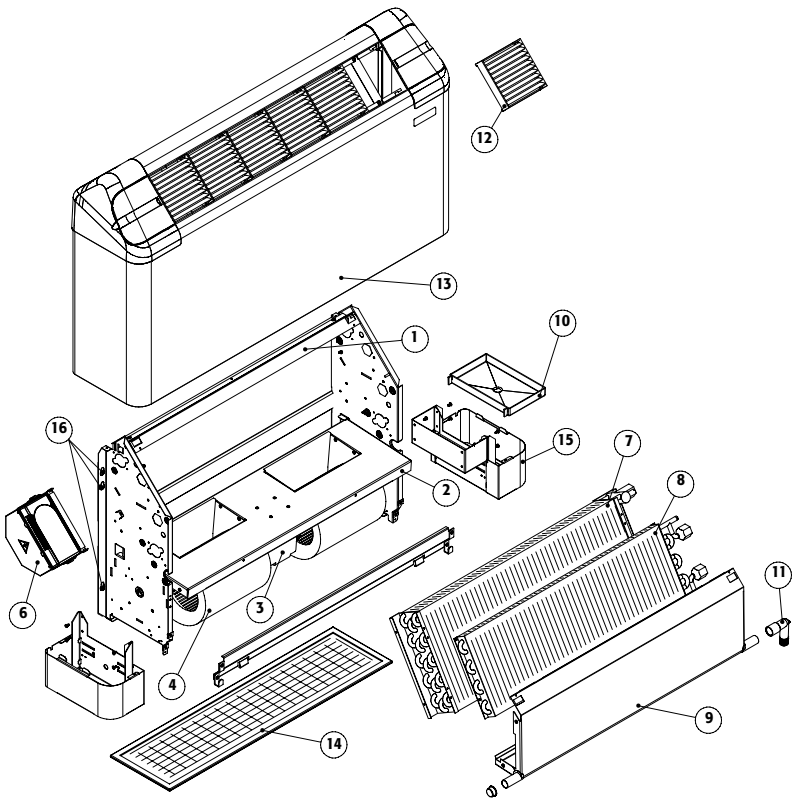
EST-SH/AF MODEL



LEGEND

1.	Internal structure
2.	Fan deck
3.	Electric motor with inverter (112÷216 models)
4.	Scroll and impeller
6.	Electric panel
7.	Standard coil (2 or 3 rows)
8.	Additional coil
9.	Condensate tray
10.	Auxiliary drain pan
11.	Water discharge plastic pipe
12.	Grilles
13.	Housing
14.	Filter
15.	Set of feet
16.	Fixing slots

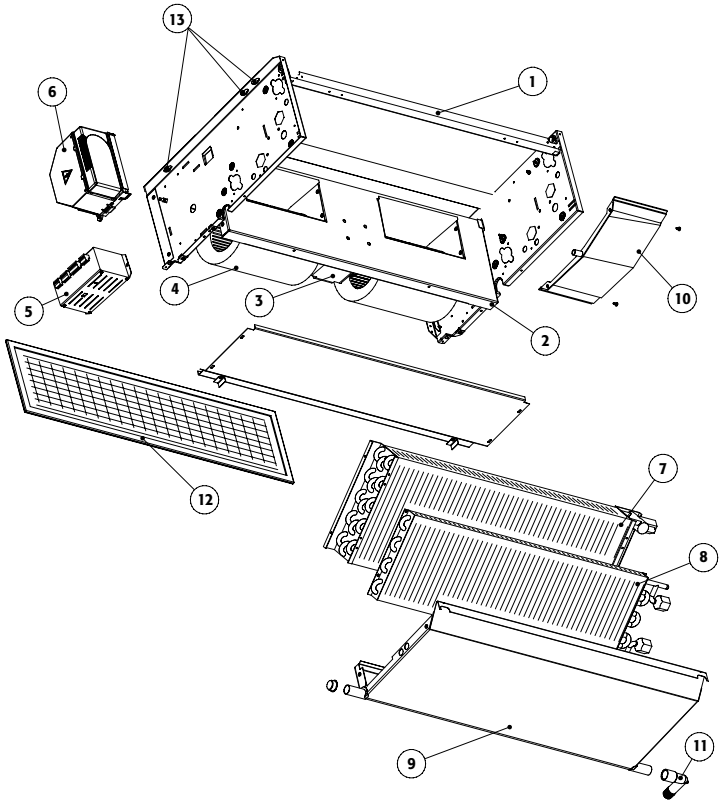
EST-PV MODEL



LEGEND

1.	Internal structure
2.	Fan deck
3.	Electric motor with inverter (112÷222 models)
4.	Scroll and impeller
5.	Inverter for electric motor (224 and 228 models)
6.	Electric panel
7.	Standard coil (2, 3 or 4 rows)
8.	Additional coil
9.	Condensate tray
10.	Auxiliary drain pan
11.	Water discharge plastic pipe
12.	Filter
13.	Fixing slots

EST-CH MODEL



2. MODELS WITH CABINET

2.1 SIGMA SERIE: EST-SV – EST-SV/AF MODELS

Vertical units with upper air outlet and bottom (EST-SV) or frontal (EST-SV/AF), to be installed on the wall (EST-SV) or on the floor (both models, but with a set of feet in white RAL 9003 for EST-SV model).

- grilles can be adjusted in all four directions and are made of heat-resistant ABS
- models equipped with auxiliary drain pan
- 2 pipe systems: 2, 3 or 4 row coils; on 2 or 3 row coil units an electric heater can also be mounted
- 4 pipe systems: additional 1 row coil can be added to units with a 2 or 3 row coil
- direct expansion system: 3 row direct expansion coil
- standard colour: white casing (RAL 9003) with white grilles and access doors (RAL 9016)

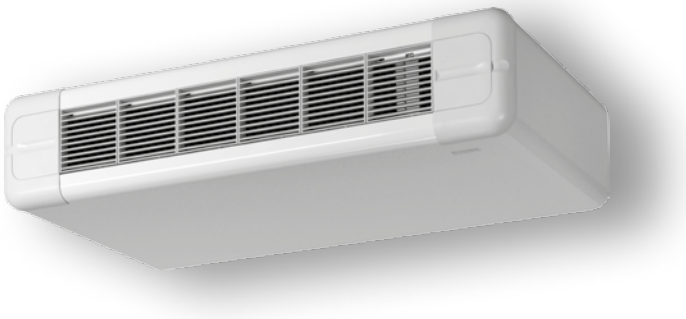
EST-SV MODEL

2.2 SIGMA SERIE: EST-SH – EST-SH/AF MODELS

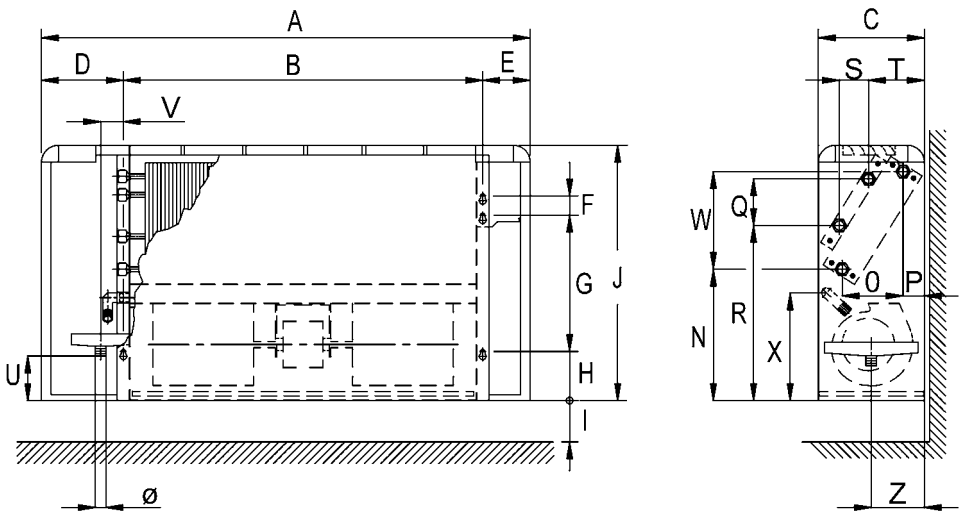
Horizontal units for ceiling installation with frontal air discharge and rear (EST-SH) or bottom (EST-SH/AF) air intake.

- grilles can be adjusted in all four directions and are made of heat-resistant ABS
- models equipped with auxiliary drain pan
- 2 pipe systems: 2, 3 or 4 row coils; in 2 or 3 row coil units an electric heater can also be mounted
- 4 pipe systems: additional 1 row coil can be added to units with a 2 or 3 row coil
- direct expansion system: 3 row direct expansion coil
- standard colour: white casing (RAL 9003) with white grilles and access doors (RAL 9016)

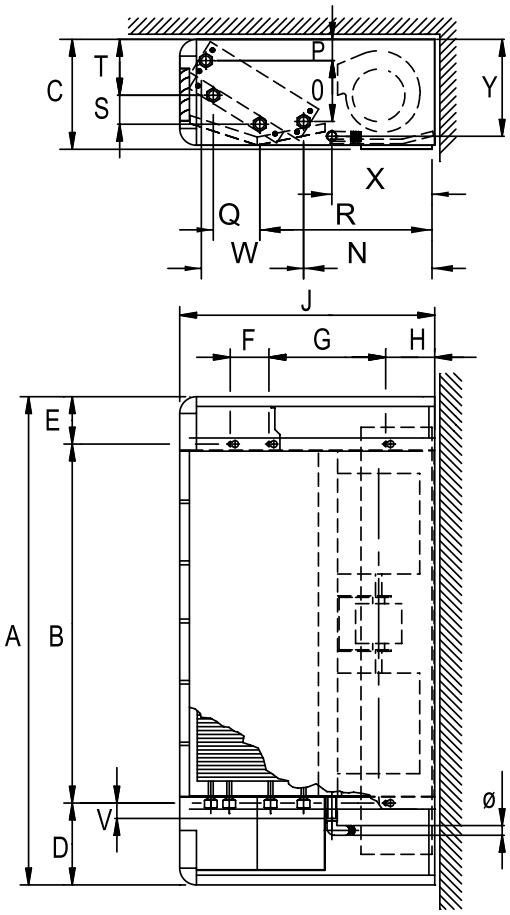
EST-SH MODEL



EST-SV MODEL



EST-SH/AF MODEL



EST-SV and EST-SH Dimensions and weights

Size	112	114	216	220	222	224	228
A	773	898	1023	1273	1273	1523	1773
B	499	624	749	999	999	1249	1499
C	224	224	224	254	254	254	254
D	174	174	174	174	174	174	174
E	100	100	100	100	100	100	100
F	40	40	40	40	40	40	40
G	280	280	280	356	356	356	356
H	101	101	101	101	101	101	101
I	85	85	85	85	85	85	85
J	538	538	538	614	614	614	614
N	266	266	266	299	299	299	299
O	113	113	113	138	138	138	138
P	48	48	48	53	53	53	53
Q	87	87	87	87	87	87	87
R	335	335	335	409	409	409	409
S	50	50	50	50	50	50	50
T	117	117	117	135	135	135	135
U	90	90	90	116	116	116	116
V	47	47	47	47	47	47	47
W	195	195	195	238	238	238	238
X	219	219	219	252	252	252	252
Z	109	109	109	122	122	122	122
Ø	20	20	20	20	20	20	20
kg	20	23	28	41	44	52	58

EST-SV/AF and EST-SH/AF Dimensions and weights

Size	112	114	216	220	222	224	228
A	773	898	1023	1273	1273	1523	1773
B	499	624	749	999	999	1249	1499
C	233	233	233	263	263	263	263
D	174	174	174	174	174	174	174
E	100	100	100	100	100	100	100
F	40	40	40	40	40	40	40
G	280	280	280	356	356	356	356
H	101	101	101	101	101	101	101
J	538	538	538	614	614	614	614
N	266	266	266	299	299	299	299
O	113	113	113	138	138	138	138
P	48	48	48	53	53	53	53
Q	87	87	87	87	87	87	87
R	335	335	335	409	409	409	409
S	50	50	50	50	50	50	50
T	117	117	117	135	135	135	135
V	28	28	28	28	28	28	28
W	195	195	195	238	238	238	238
X	219	219	219	252	252	252	252
Y	205	205	205	235	235	235	235
Ø	20	20	20	20	20	20	20
kg	21	24	30	43	46	54	61

2.3 PRISMA SERIE: EST-PV – EST-PV/AF MODELS

Vertical units with upper air outlet and bottom (EST-PV) or frontal (EST-PV/AF) air intake, to be installed on the wall (EST-PV) or on the floor (both models, but with a set of feet in white RAL 9003 for EST-PV model).

- grilles can be adjusted in all four directions and are made of heat-resistant ABS
- models equipped with auxiliary drain pan
- 2 pipe systems: 2 or 3 row coils; on 2 row coil units an electric heater can also be mounted
- 4 pipe systems: additional 1 row coil can be added to units with a 2 or 3 row coil
- direct expansion system: 3 row direct expansion coil
- standard colour: white casing (RAL 9003), with white grilles and access doors (RAL 9016)

EST-PV/AF MODEL

2.4 PRISMA SERIE: EST-PH – EST-PH/AF MODELS

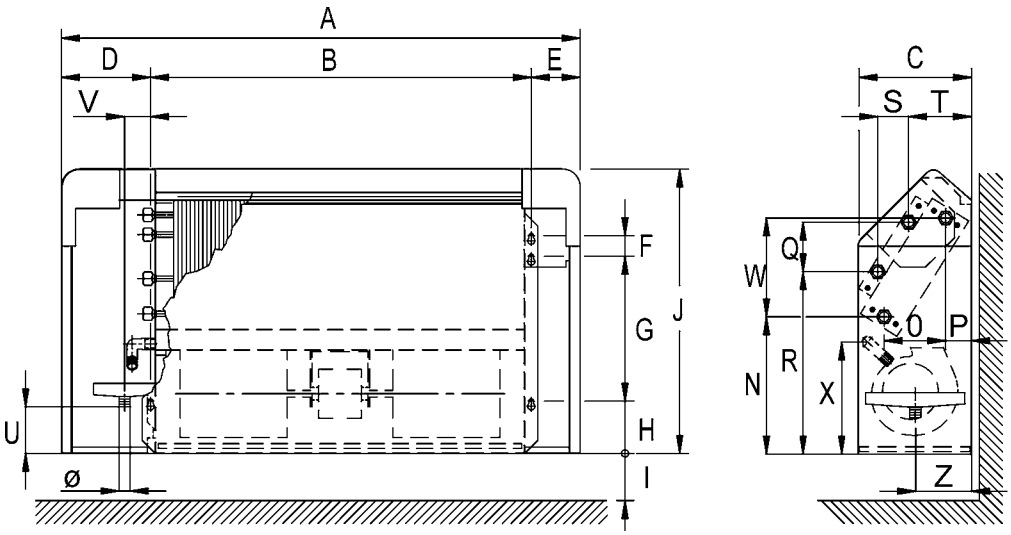
Horizontal units for ceiling installation with frontal air discharge and rear (EST-PH) or bottom (EST-PH/AF) air intake.

Designed for heating only.

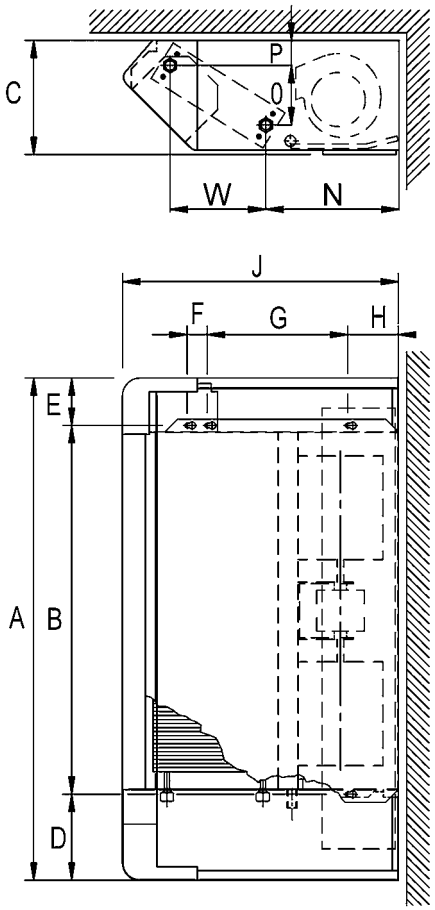
- grilles can be adjusted in all four directions and are made of heat-resistant ABS
- 2 pipe systems: 2 or 3 row coils; in 2 row coil units an electric heater can also be mounted
- standard colour: white casing (RAL 9003) with white grilles and access doors (RAL 9016)

EST-PH MODEL

EST-PV MODEL



EST-PH/AF MODEL



EST-PV and EST-PH Dimensions and weights

Size	112	114	216
A	773	898	1023
B	499	624	749
C	226	226	226
D	174	174	174
E	100	100	100
F	40	40	40
G	280	280	280
H	101	101	101
I	85	85	85
J	560	560	560
N	266	266	266
O	113	113	113
P	48	48	48
Q	87	87	87
R	355	355	355
S	50	50	50
T	117	117	117
U	90	90	90
V	47	47	47
W	195	195	195
X	219	219	219
Z	109	109	109
Ø	20	20	20
kg	20	23	27

EST-PV/AF and EST-PH/AF Dimensions and weights

Size	112	114	216
A	773	898	1023
B	499	624	749
C	235	235	235
D	174	174	174
E	100	100	100
F	40	40	40
G	280	280	280
H	101	101	101
J	560	560	560
N	266	266	266
O	113	113	113
P	48	48	48
W	195	195	195
Ø	20	20	20
kg	21	24	28

2.5 LOW BODY SERIE: EST-SVR MODEL

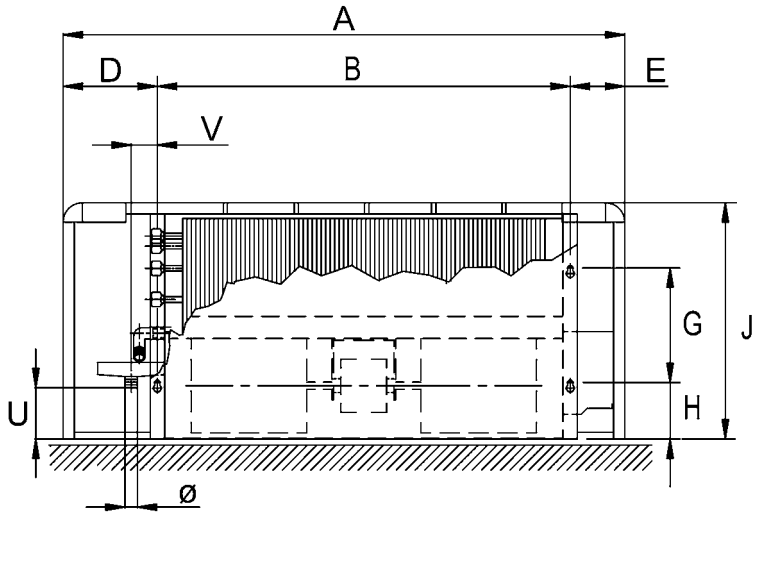
Vertical unit in a reduced height (430 mm) with upper air outlet and frontal air intake, to be installed on the floor.

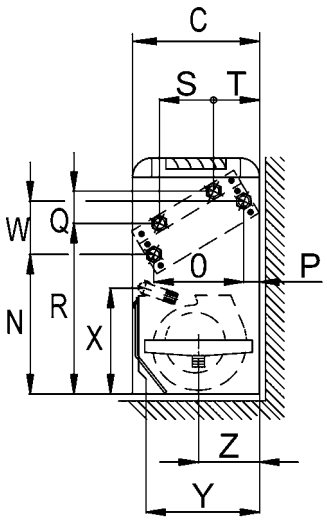
- grilles can be adjusted in all four directions and are made of heat-resistant ABS
- model equipped with auxiliary drain pan
- 2 pipe systems: 2 or 3 row coils; on 2 row coil units an electric heater can also be mounted
- 4 pipe systems: additional 1 row coil can be added to units with a 2 or 3 row coil
- standard colour: white casing (RAL 9003) with white grilles and access doors (RAL 9016)

EST-SVR MODEL

EST-SVR Dimensions and weights

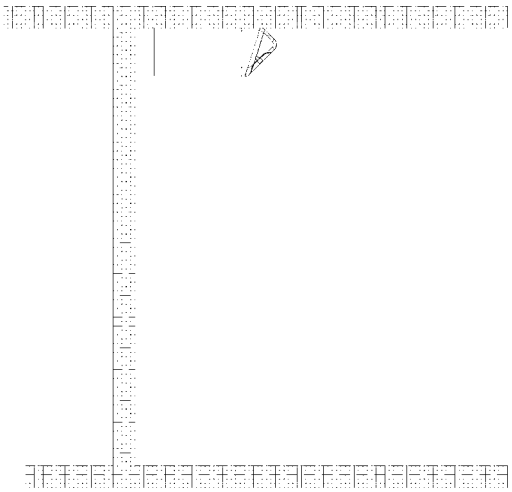
Size	112	114	216
A	773	898	1023
B	499	624	749
C	254	254	254
D	174	174	174
E	100	100	100
G	170	170	170
H	101	101	101
J	430	430	430
N	245	245	245
O	154	154	154
P	31	31	31
Q	47	47	47
R	304	304	304
S	88	88	88
T	87	87	87
U	65	65	65
V	47	47	47
W	84	84	84
X	214	214	214
Z	109	109	109
Ø	20	20	20
kg	17	22	23



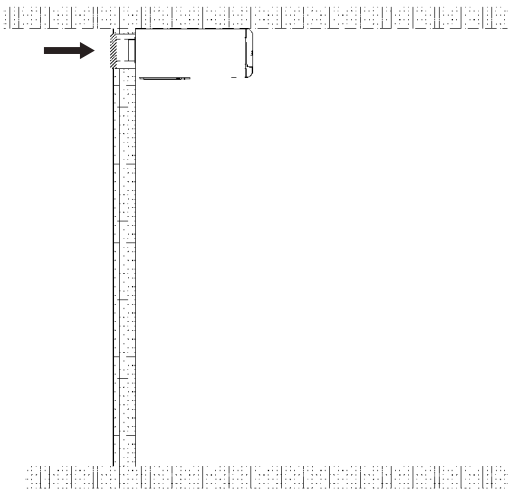


2.6 SUGGESTED INSTALLATION

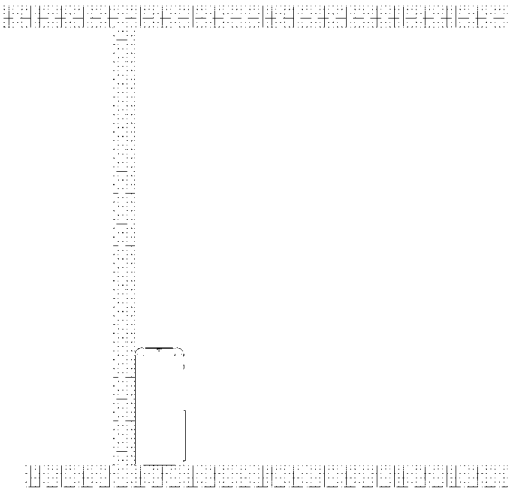
EST-PH



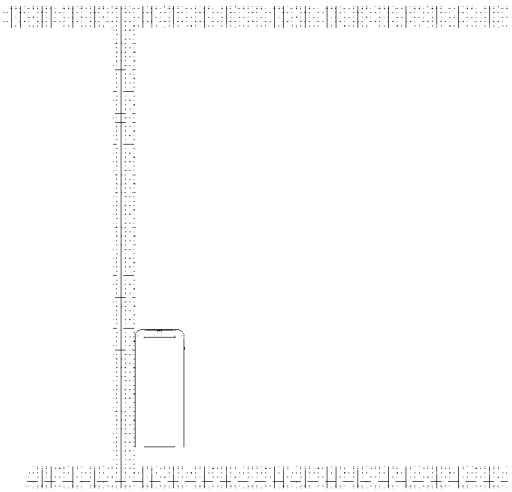
EST-SH/AF
PAE/HAF



EST-SV/AF



EST-SV



3. MODELS WITHOUT CABINET

3.1 CONCEALED SERIE: EST-CV – EST-CV/AF MODELS

Vertical units for concealed installation with upper air outlet and bottom (EST-CV) or frontal (EST-CV/AF) air intake.

- models equipped with auxiliary drain pan
- 2 pipe systems: 2, 3 or 4 row coils; in all units an electric heater can also be mounted
- 4 pipe systems: additional 1 row coil can be added to units with a 2 or 3 row coil; in 4 row coil units, the additional 1 row coil is fitted on the air outlet connection
- direct expansion system: 3 row direct expansion coil

EST-CV MODEL

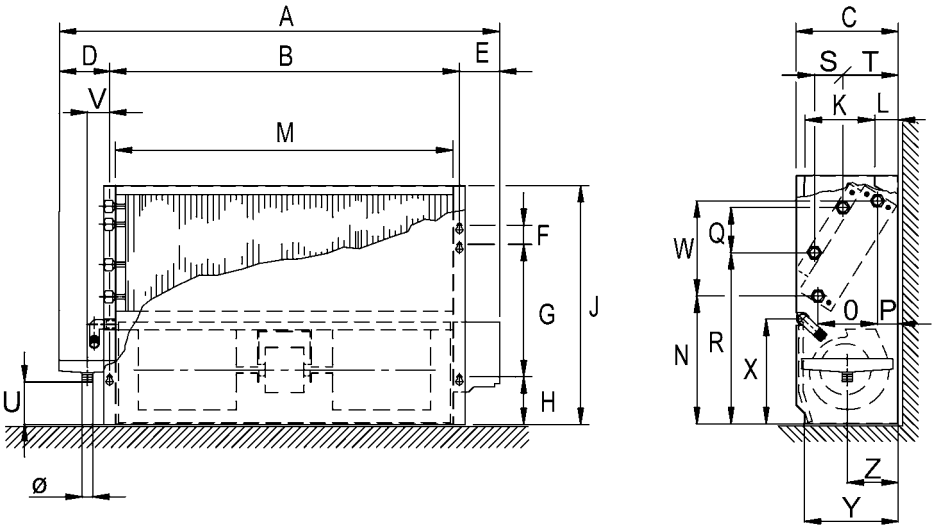
3.2 CONCEALED SERIE: EST-CH – EST-CH/AF MODELS

Horizontal units for concealed installation, with frontal air outlet and rear (EST-CH) or bottom (EST-CH/AF) air intake.

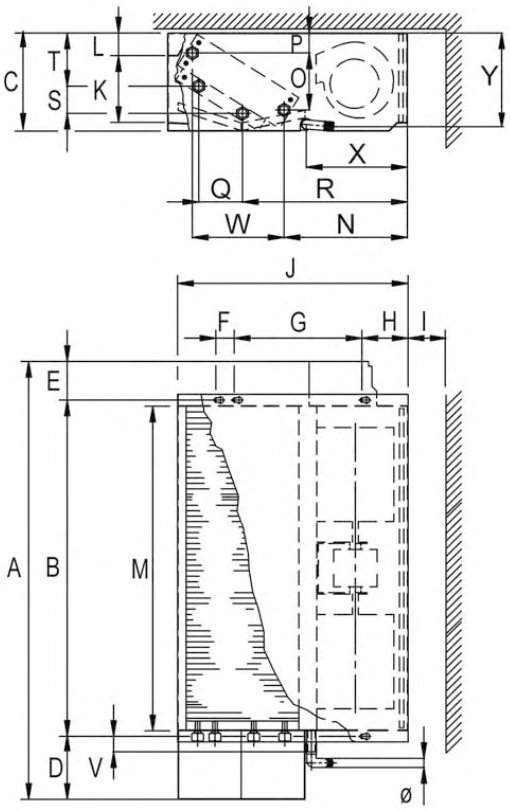
- models equipped with auxiliary drain pan
- 2 pipe systems: 2, 3 or 4 row coils; in all units an electric heater can also be mounted
- 4 pipe systems: additional 1 row coil can be added to units with a 2 or 3 row coil; in 4 row coil units, the additional 1 row coil is fitted on the air outlet connection
- direct expansion system: 3 row direct expansion coil

EST-CH/AF MODEL

EST-CV/AF MODEL



EST-CH MODEL



EST-CH and EST-CH/AF Dimensions and weights

Size	112	114	216	220	222	224	228
A	699	824	949	1199	1199	1449	1699
B	499	624	749	999	999	1249	1499
C	215	215	215	245	245	245	245
D	128	128	128	128	128	128	128
E	72	72	72	72	72	72	72
F	40	40	40	40	40	40	40
G	280	280	280	356	356	356	356
H	101	101	101	101	101	101	101
I	85	85	85	85	85	85	85
J	505	505	505	581	581	581	581
K	110	110	110	125	125	125	125
L	55	55	55	60	60	60	60
M	474	599	724	974	974	1224	1474
N	266	266	266	299	299	299	299
O	113	113	113	138	138	138	138
P	48	48	48	53	53	53	53
Q	87	87	87	87	87	87	87
R	355	355	355	409	409	409	409
S	50	50	50	50	50	50	50
T	117	117	117	135	135	135	135
V	28	28	28	28	28	28	28
W	195	195	195	238	238	238	238
X	219	219	219	252	252	252	252
Y	205	205	205	235	235	235	235
Ø	20	20	20	20	20	20	20
kg	13	16	19	29	31	38	42

EST-CV and EST-CV/AF Dimensions and weights

Size	112	114	216	220	222	224	228
A	680	805	930	1180	1180	1430	1680
B	499	624	749	999	999	1249	1499
C	215	215	215	245	245	245	245
D	109	109	109	109	109	109	109
E	72	72	72	72	72	72	72
F	40	40	40	40	40	40	40
G	280	280	280	356	356	356	356
H	101	101	101	101	101	101	101
J	505	505	505	581	581	581	581
K	110	110	110	125	125	125	125
L	55	55	55	60	60	60	60
M	474	599	724	974	974	1224	1474
N	266	266	266	299	299	299	299
O	113	113	113	138	138	138	138
P	48	48	48	53	53	53	53
Q	87	87	87	87	87	87	87
R	355	355	355	409	409	409	409
S	50	50	50	50	50	50	50
T	117	117	117	135	135	135	135
U	90	90	90	116	116	116	116
V	47	47	47	47	47	47	47
W	195	195	195	238	238	238	238
X	219	219	219	252	252	252	252
Y	200	200	200	230	230	230	230
Z	109	109	109	122	122	122	122
Ø	20	20	20	20	20	20	20
kg	13	16	19	29	31	38	42

3.3 LOW BODY SERIE: EST-CVR MODEL

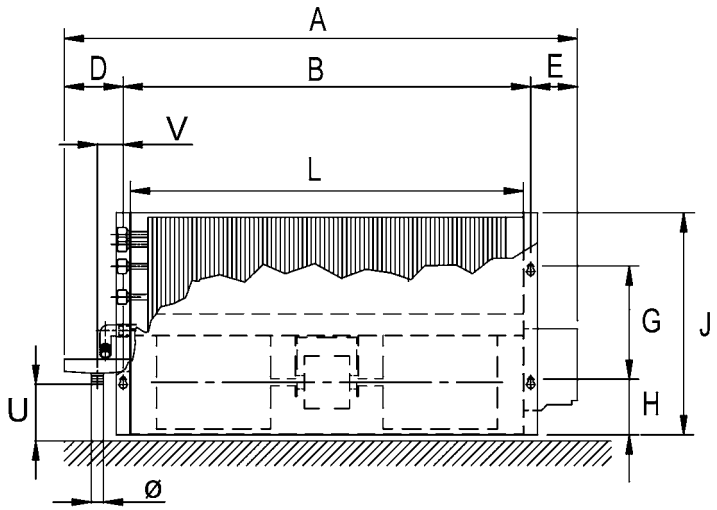
Vertical unit in a reduced height (395 mm) for concealed installation, with upper air outlet and frontal air intake.

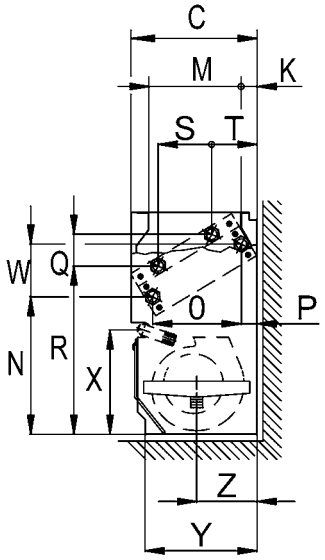
- model equipped with auxiliary drain pan
- 2 pipe systems: 2 or 3 row coils; on 2 row coil units an electric heater can also be mounted
- 4 pipe systems: additional 1 row coil can be added to units with a 2 or 3 row coil

EST-CVR MODEL

EST-CVR Dimensions and weights

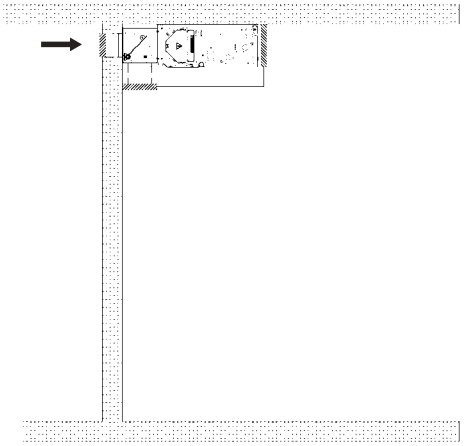
Size	112	114	216
A	680	805	930
B	499	624	749
C	230	230	230
D	108	108	108
E	73	73	73
G	170	170	170
H	101	101	101
J	395	395	395
K	61	61	61
L	474	599	724
M	127	127	127
N	245	245	245
O	154	154	154
P	31	31	31
Q	47	47	47
R	304	304	304
S	88	88	88
T	87	87	87
U	65	65	65
V	47	47	47
W	84	84	84
X	214	214	214
Y	201	201	201
Z	109	109	109
Ø	20	20	20
kg	11	14	16



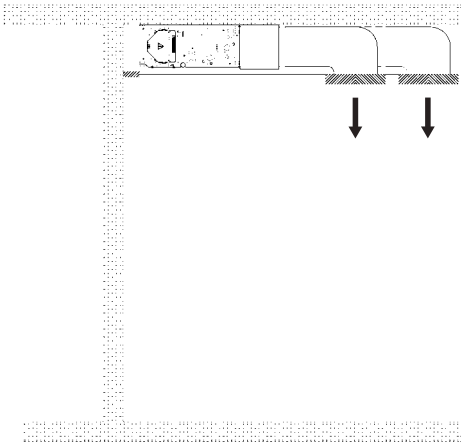


3.4 SUGGESTED INSTALLATION

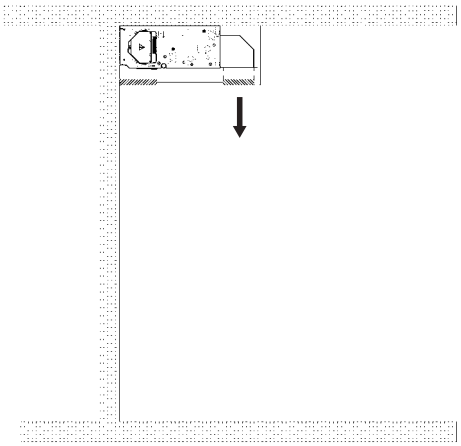
EST-CH
PAE/HM



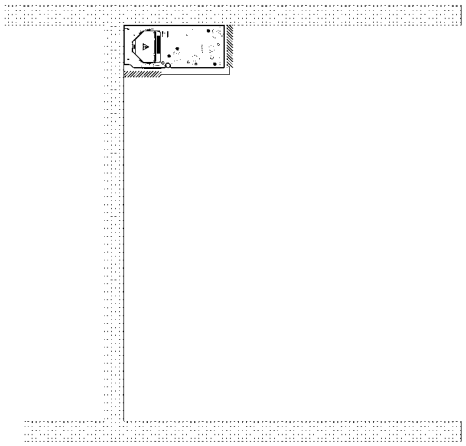
EST-CH
PM



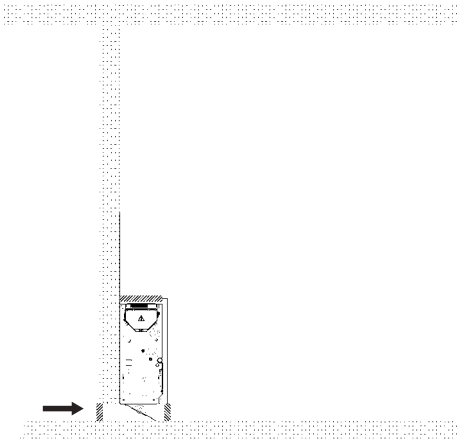
EST-CH/AF
PM 90°



EST-CH/AF



EST-CV
PAE/V



4. COMPONENTS

4.1 INNER FRAME

The inner frame consists of 2 sides and a back panel assembled together, and of a movable element (condensate tray). It is made of galvanised steel: 8/10 mm thick for models up to size 216, 10/10 mm thick for the other sizes.
The sides have a special structure near the coil connections in order to avoid the headers' deformation while connecting the unit to the system (anti-torsion structure).
All the inner elements are completely lined with closesd cell thermal insulation material.
The insulated condensate tray can be taken apart independently of the other components and it is perfectly effective both in vertical and in horizontal position.
The condensed water is discharged from the side (left or right, by choice), through a 20 mm external diameter header.

4.2 COILS

The coils consist of aluminium fin packs and mechanically expanded copper tubes.
Max. operating pressure: 16 bar. Testing pressure: 30 bar. Standard water connections are on the right side of the unit, facing the air outlet; however the coils can be easily removed and reversed on site. Each header is provided with a very handy air valve, to allow air venting or water drainage from the coil. All water connections are ½" G (female threaded).

Maximum operating pressure: 16 bar (without valves).

COMPATIBILITY							
Model	**EST-SV EST-SV/AF**	**EST-SH EST-SH/AF**	**EST-CV EST-CV/AF**	**EST-CH EST-CH/AF**	**EST-PV EST-PV/AF**	**EST-PH EST-PH/AF**	**EST-SVR EST-CVR**
B2 (2 rows)	•	•	•	•	•	•	•
B3 (3 rows)	•	•	•	•	•	•	•
B4 (4 rows)	•	•	•	•			
B2 + BA1 (*)	•	•	•	•	•		•
B3 + BA1 (*)	•	•	•	•	•		•
B4 + BA41 (**)			•	•			
BE3 (direct expansion)	•	•	•	•	•		
BE3 + BA1 (*)	•	•	•	•	•		

(*) BA1: additional 1 row coil for 4 pipe systems; the coil (for heating only) is placed inside the inner frame, in addition to 2 or 3 row coils.

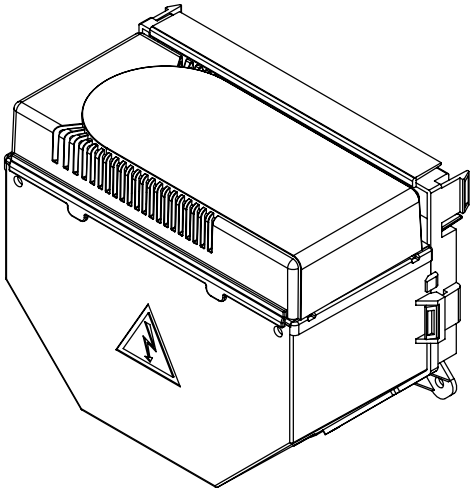
(**) BA41: additional 1 row coil for 4 pipe systems; the coil (for heating only) is placed outside the frame, fixed on the air outlet.

4.3 FAN DECK

The brushless motor is a component of the EST technology (Energy Saving Technology) applied to the Eurapo product range. It is combined to a dedicated electronic device (inverter), which is provided with DIP SWITCH that can be set on site accordingly to the pressure drop in the system.
The inverter can be managed by specific regulators (Omnibus, for example) which use a modulating signal with 0-10Vdc tension in order to regulate the fan speed. OMNIBUS regulators give the possibility to fully control the fan speed (0-100%) and/or to manually select three fan steps (high, med and low speed): it is actually possible to set in every moment and very easily the three different levels of motor's rotation, in order to fulfil specific thermal or acoustical requirements.
The motor and the scrolls are fixed on a galvanized steel basement (12/10 mm thick for models 112÷216 and 15/10 mm thick from size 220÷228): the motor is located in a proper cradle and fixed with elastic ribbon supports. Each fan assembly is dynamically balanced, to reduce noise and wear of the components to minimum levels; it can be easily removed, independently of the inner frame, by taking off two fixing screws. It consists of a centrifugal fan, one (112 and 114 sizes) or two (216÷228 sizes) aluminium impellers, directly splined to the motor shaft, and of galvanized steel scrolls. All motors operate at 50/60Hz, protection grade IP41.

4.4 ELECTRICAL COMPONENTS AND CONTROLS

The electric panel (CBL00) consists of a self-extinguishing plastic box (class V0), which contains a 12 pole terminal board.
The plastic box is fixed on the left side (as standard) of the inner frame, and it can be easily pulled out and shifted from the left to the right side when the water connections are reversed.
Every unit is provided with an electric wiring diagram, always showing all the controls (both built-in and remote) and electric accessories eventually mounted on the unit. Everything must be correctly wired in accordance to the diagram, to obtain the requested working conditions of the unit.



CBL00

4.5 AIR FILTER

The air filter consists of a galvanized steel frame and two wide mesh nets enclosing the washable filter element with filtering cells made by non-hygroscopic material. (see page 6, Fig. EST-SV, point 14).
The filter is placed on the bottom part of the unit (except for AF units) and it can be easily removed by releasing its fixing; it can be cleaned by washing with soap and water and drying in open-air. AF models have a shaped filter located behind the air inlet panel and suspended by splines (see page 6, Fig. EST-SH/AF, point 14).

4.6 HOUSING

The housing (see page 6, Fig. EST-SV, point 13) is manufactured with sheet steel painted with oven dried epoxy powders; its thickness is 8/10 mm for 112÷216 sizes and 10/10 mm for 220÷228 sizes. The standard colour is white (RAL 9003).
It is fixed to the inner frame with screws and also with retainers. In models having frontal air intake (AF), the panel covering the filter is fixed with a 1/4 turn screw system and can be taken off by using a screwdriver.
The standard grilles are movable and can be turned into all 4 directions without any tool. They are made of heat-resistant ABS (see page 6, Fig. EST-SV, point 12). At each side of the grilles, two doors in ABS give access to the control panel and to the water connections respectively. Both grilles and access doors are white (RAL 9016).

On request, the full range of RAL colours is available for each model with a slightly increased delivery time.

5. ELECTRICAL ACCESSORIES

5.1 ELECTRIC BOX CBL10

Self-extinguishing plastic box (class V0), which contains a 12 pole terminal board and a voltage transformer (230/24 V~ 10 VA), for the electrical connection of the modulating valves. It can be used in combination to EDCR, EDCL and Omnibus controls.

5.2 ELECTRIC BOX CBL20

Self-extinguishing plastic box (class V0), which contains a 12 pole terminal board and a power relay card (230 V~) for controlling an electric heater. It can be combined with the following regulators: EDCR, EDCL and OBVxx (Omnibus).

5.3 ELECTRIC HEATER KREL

Electric heater supplied with 2 safety thermostats, one with automatic resetting and the other one with manual resetting (in accordance with LVD 2006/95/CE, EMC 2004/108/CE Directives), and a power relay card (CBL20).

Table A

COMPATIBILITY								
Model		**EST-SV EST-SV/AF**	**EST-SH EST-SH/AF**	**EST-CV EST-CV/AF**	**EST-CH EST-CH/AF**	**EST-PV EST-PV/AF**	**EST-PH EST-PH/AF**	**EST-SVR EST-CVR**
Type of coil	B2	•	•	•	•	•	•	•
	B3	•	•	•	•			
	B4			•	•			
	BE3	•	•	•	•			

The table A shows the availability of the electric heater for the different models, in relation to the coil mounted on the unit.

Table B

SIZE	112	114	216	220	222	224	228
Power kW	1,0	1,5	2,0	2,5	2,5	3,0	3,5

The table B shows the power of the electric heater for each unit size. An electric heater with a lower power rating than shown can always be installed.

5.4 WS – WATER SENSOR

3m long NTC sensor (10K, 25°C), requested for the automatic S/W switch when a fancoil unit is controlled by a regulator with microprocessor or OMNIBUS, in a 2 pipe system, for both heating and cooling operation.

The Summer/Winter changeover works as follows:

Summer: water temperature < 18 °C ± 1K = cooling on
water temperature > 20 °C ± 1K = cooling off
Winter: water temperature > 36 °C = heating on
water temperature < 34 °C = heating off

The water sensor is not suitable when 2 way valves are mounted on the unit (i.e.: H2A2 or J2AM).

WS

5.5 AS – AIR SENSOR

1m long NTC sensor (10K, 25°C), to be installed on the fancoil unit's air intake.
It is supplied as standard with the EDCL regulator.
It is optional, on request, for EDCR and OBVXX controls.

5.6 CS – CHECK SENSOR

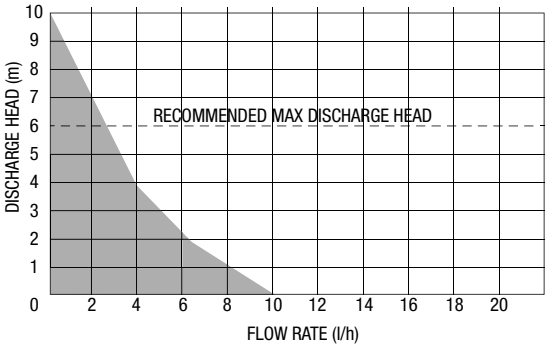
1m long NTC sensor, to be installed on the fancoil unit's air outlet.
In combination with OMNIBUS card, it allows to highlight any faults in the functioning of the fancoil unit, by reporting an alarm signal.

5.7 PC – CONDENSATE PUMP

The condensate pump is necessary when the natural water discharge is not allowed.

Functions:
- forced evacuation of the condensed water

Technical features:
- max water flow: 10 l/h
- max water discharge: 6 m head
- max suction: 2 m
- power supply: 230V~ 50/60 Hz
- power: 18 W
- alarm output: NC 8 A - 250 V
- detection levels in mm: running: 16, stop: 11, alarm: 19
- thermal protection (overheating): 90 °C
- sound level at 1 m: 25,1 db(A)



5.8 ELECTRONIC REGULATORS EDCR-EDCL

Microprocessor control designed for water terminal units equipped with brushless motors (EST Inverter Technology).
It permits to control the type of ventilation (fan thermostated or fan continuously running), the fan speeds (0-10V or Auto), SUMMER/WINTER changeover and room temperature thermostat.

EDCR-EDCL CONTROLS FUNCTIONS

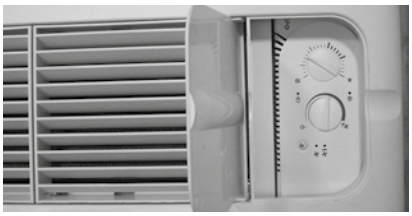
Functions	EDCR-EDCL
Ventilation mode (Thermostated - Continuous)	•
Manual (0-10V) or Auto speed selector	•
Automatic S/W changeover (2 pipe system, with WS)	•
Automatic (with dead band) or external (centralized) S/W changeover	•
Room temperature thermostat setting	•
Temperature setting range limitation	•
De-stratification function	•
Economy/occupancy contact*	•
Window contact*	•
Frost protection (only with heating valve)	•
Operating mode LED (Summer - Winter)	•
Dirty filter alarm LED	•

* not optoinsulated from 230 V~ power supply net

EDCR-EDCL CONTROLS COMPATIBILITY

Compatibility	Ref. EURAPO	EDCR-EDCL
2 and 4 pipe system		•
ON/OFF 230V cooling and heating valve, 2/4 pipe system	**H3A2**	•
Modulating 24V cooling and heating valve, 2/4 pipe system	**J3AM**	•
NTC water sensor for automatic S/W (2 pipe system) and min. water temp. thermostat	**WS**	•
Electric heater (in alternative to the heating valve)	**KREL**	•

EDCR



EDCL

For more information please refer to the TECHNICAL MANUAL FOR EDCR-EDCL CONTROLLERS.

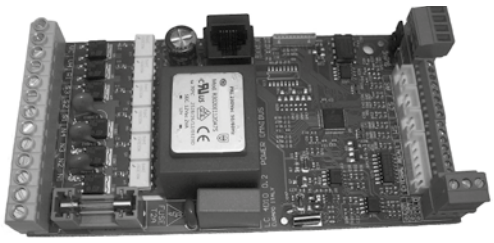
5.9 OMNIBUS DIGITAL CONTROL

OMNIBUS
BUILDING MANAGEMENT SYSTEM

The OMNIBUS digital control system permits a complete and integrated management of several fancoil units installed in the same building. It is designed either for a stand-alone operating mode, or to be integrated, at different levels, to a centralized Building Automation System, with a serial communication protocol RS-485 (Modbus RTU).
The digital regulator can control many fancoils at the same time (Master/Slave solution), which are connected together in a local BUS network by two twisted wires (AWG 24).

5.9.1 POWER OMNIBUS CARD – OBV10

The Power Omnibus card mounted on the unit is designed to fully regulate (directly or via Modbus) the water terminal units.
The card can provide:



OBV10

- 6 ON/OFF outputs: 3 speeds for an auxiliary fan; Electric heater/ Dehumidification; Hot water valve, Cold water valve
- 3 Analogue 0-10V outputs: EST fan, Heating modulating valve, Cooling modulating valve
- 5 Outputs on the additional multitask card OBV50: On/off heating valve 24V; On/off cooling valve 24V; Auxiliary fan for fresh air and/or free cooling; Alarm contact; External air damper
- 5 Analogue inputs: Room temperature sensor (AS), Water sensor (WS), Air outlet sensor (CS), External air temperature sensor and relative humidity sensor
- 3 Digital inputs: Economy contact; Window contact; contact for the thermal protection of the motor
- 2 Serial communication ports (RS485): Network "Local Bus" for the connection of the Console (built-in the unit or for remote installation); Network Modbus for the connection to a Supervision System (BMS)

5.9.2 DISPLAY CONSOLE - ODC236

The Console is connected to the Power Omnibus card by a phone cable (4 wires), from which it is energized (15 Vcc) and it receives information from the Local-bus network.
The Display Console is provided with four buttons for setting the parameters and the operating modes of the water terminal unit:

- Status: OFF-Comfort-Economy
- Fan: Low, Med, High, Auto
- Mode: Cool-Heat-Fan-Dry
- Room temperature Set-point

ODC236

The Display Console can be used as "service tool":

- identification by code of possible alarms
- setting or variation of the Modbus address
- visualization of the I/O status

5.9.3 ANALOGUE PLUS CONSOLE – ODC736

The Console is connected to the Power Omnibus card by a phone cable (4 wires), from which it is energized (15 Vcc) and it receives information from the Local-bus network.

The Analogue Plus Console is composed by:

- One LED showing the operating mode and operating status of the Power Omnibus card
- Four LEDs to visualize the fan speed status and warnings, in case
- Two buttons: one for setting the operating mode of the terminal unit (Cooling/Heating) and one for the selection of the fan speeds
- Room temperature sensor
- One knob for setting the room temperature set-point value and OFF position

ODC736

5.9.4 INFRARED RECEIVER (OC516) AND REMOTE CONTROL (OIR30)

The end user has the possibility to regulate the fan coil unit through the Infrared remote control (OIR30).
The IR receiver is connected to the Power Omnibus card by a flat phone cable from which it takes the power supply (15 Vcc) and by which it exchanges information on the RS485 "Local bus" network.
The IR receiver has a built-in air sensor and one LED showing the Status of the unit, in particular:

- fixed green: cooling mode
- fixed red: heating mode
- flashing yellow: alarm or warning status

OIR30

OC516

5.10 OMNIBUS SUPERVISION

5.10.1. OTOUCH – OCB30 (up to 100 units)

- Modbus/RTU protocol
- Different access levels (user/service/factory)
- Centralized operation
- Set-up parameters configuration
- INPUT/OUTPUT status monitoring
- Daily and weekly program
- Alarms management
- 7 inches touch screen
- Optional modem for remote management via GSM
- Boiler room management (pumps, boiler, heat pump)
- Radiant systems management (mixing valves and manifolds)
- Scenarios management
- Multilanguage

OTOUCH

5.10.2 WEBSERVER – OCB10 (up to 100 units)

- Modbus/RTU protocol
- Different access levels (user/service/factory)
- Centralized operation
- Set-up parameters configuration
- INPUT/OUTPUT status monitoring
- Daily and weekly program
- Alarms management
- Suitable for connecting up to 8 lines of 128 units each
- LAN interface with TCP/IP protocol
- Suitable for the most common web browsers
- Remote management via Internet
- Available with touch screen interface
- LON converter

OCB10

For more information please refer to the TECHNICAL MANUAL FOR OMNIBUS CONTROLLERS.

6. REGULATING VALVES

6.1 ON/OFF VALVES: 3-WAY WITH 4 WATER CONNECTIONS (H3A2) OR 2-WAY (H2A2), 1/2", 230V, FOR 2 OR 4 PIPE SYSTEMS

The ON/OFF 3-way regulating valves with bypass and 2-way regulating valves are provided with thermoelectric actuator and connection tubes. The direct water flow is closed by not supplying power to the actuator.
They are suitable for fan coils size 112÷228 and available also with 24V~.

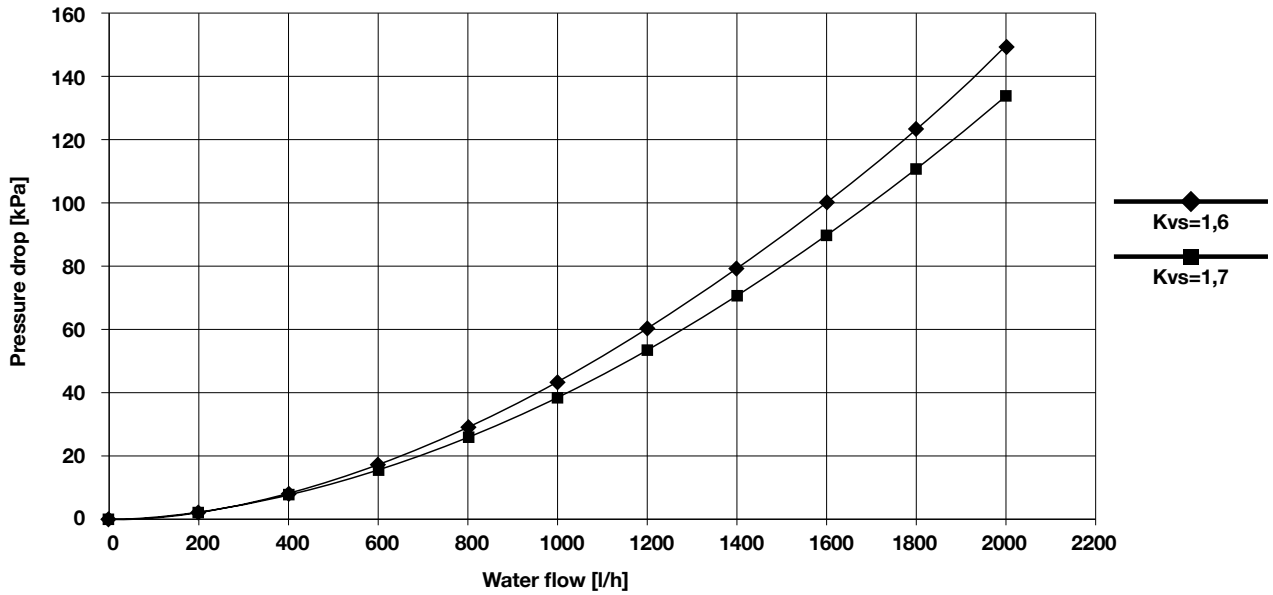
6.2 MODULATING VALVES: 3-WAY WITH 4 WATER CONNECTIONS (J3AM) OR 2-WAY (J2AM), 1/2", 24V, FOR 2 OR 4 PIPE SYSTEMS

The modulating 3-way regulating valves with bypass and 2- way regulating valves are provided with modulating actuator and connection tubes. The direct water flow is closed by not giving the 0-10V signal to the actuator.
They are suitable for fan coils size 112÷228.

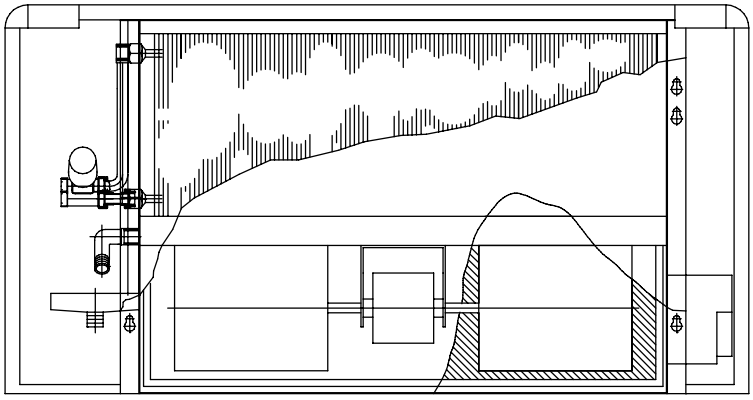
VALVES' TECHNICAL FEATURES		
Nominal pressure	PN 16	Cod.: H2A2, H3A2, J2AM, J3AM
Fluid	Hot or cold water for HVAC system, according to VDI standard quality or equivalent	Cod.: H2A2, H3A2, J2AM, J3AM
Connection	1/2" GM	Cod.: H2A2, H3A2, J2AM, J3AM
Max close-off pressure	180 kPa	Cod.: H2A2
	150 kPa	Cod.: H3A2
	200 kPa	Cod.: J2AM
	250 kPa	Cod.: J3AM
Kvs	1,6	Cod.: H2A2, H3A2
	1,7	Cod.: J2AM, J3AM
Material	Brass	Cod.: H2A2, H3A2, J2AM, J3AM
Flow temperature limit	2÷110 °C	Cod.: J2AM, J3AM
	2÷120 °C	Cod.: H2A2, H3A2
Room temperature limit	2÷50 °C	Cod.: H2A2, H3A2, J2AM, J3AM
Actuator	On/Off	Cod.: H2A2, H3A2
	Modulating	Cod.: J2AM, J3AM
Voltage supply	230V~ ±15% 50/60 Hz	Cod.: H2A2, H3A2
	24V~ ±15% 50/60 Hz	Cod.: J2AM, J3AM
Control signal	0÷10 Vcc	Cod.: J2AM, J3AM
Absorption	3 VA	Cod.: H2A2, H3A2
	2,5 VA	Cod.: J2AM, J3AM
Opening time (20 °C)	~ 200s	Cod.: H2A2, H3A2
Closing time (20 °C)	~ 300s	Cod.: H2A2, H3A2
Protection grade	IP43 (EN 60529)	Cod.: H2A2, H3A2
	IP43	Cod.: J2AM, J3AM

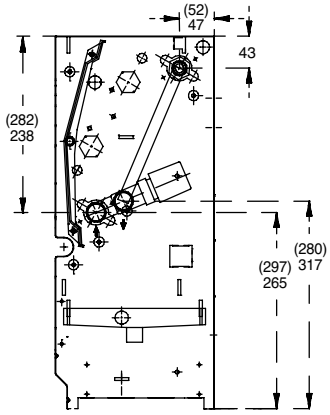
MAXIMUM OPERATING PRESSURE WITH VALVES: 10 BAR

PRESSURE DROP DIAGRAM FOR VALVES



Pressure drop diagram referred to the valve body only





SV WITH VALVE. Dimensions between brackets are referred to size 220÷228

In order to choose the correct type of valve it is necessary to know the system's technical specifications. For this reason the consultant has full responsibility for the correct choice of the valve.

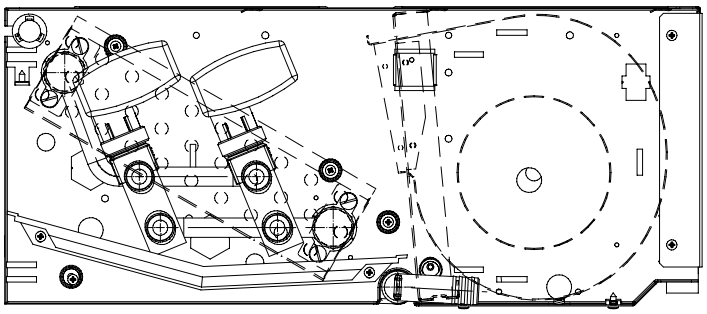
6.3 DT – SHUT-OFF VALVE

It is a full bore ball valve with T handle; it is designed to separate the unit from the piping system if maintenance is required.

6.4 FOUR PIPE COMPACT KIT

Four-pipe Compact Kit is made by two 3-way valves and two actuators On-Off 230V or 24V (IP43) or two modulating actuators 24V (IP43).
The kit enables, in a four pipe system, to use the main coil (3 or 4 row coil) both for cooling and for heating operation.

It is suitable for fancoil units size 112÷228.



4-PIPE COMPACT KIT

6.5 FY – FILTER

It is an accessible water filter with a stainless steel filter element. It is installed at the water inlet to avoid the entrance of wastes coming from the piping system; all solids with diameter above 0.4 mm can be removed.

7. OTHER ACCESSORIES

7.1 CP – SET OF FEET

Set of painted steel feet, each of them composed by two elements: a bearing element fixed to the inner frame, on which the unit leans, and a visible element fixed to the previous one. They are designed to cover the water connections and the electric cables.
• Height: 85 mm
• Colour: RAL 9003 (white) for both Sigma and Prisma series

7.2 ZL – LONG SOCLE WITH FEET

Painted steel socle consisting of a set of feet (CP) and a frontal grill. It is designed to cover a vertical external air intake or other accessories.
• Height: 85 mm
• Colour: RAL 9003 (white) for both Sigma and Prisma series

7.3 PPV – VERTICAL BACK PANEL

It is a back panel made of steel painted in the same colour as the casing. It is mounted on vertical units with housing when the back side of the unit is in view.

7.4 PPH – HORIZONTAL BACK PANEL

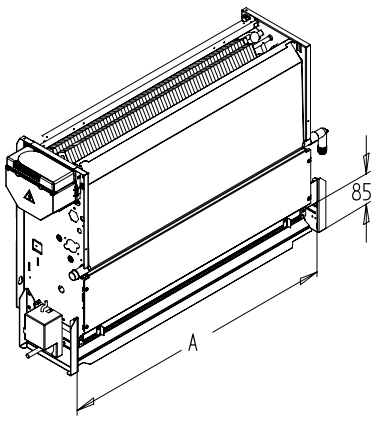
It is a back panel made of steel painted in the same colour as the casing. It is mounted on horizontal units with housing when the back side of the unit is in view.

7.5 PAE/V – VERTICAL EXTERNAL AIR INTAKE WITH MANUAL DAMPER

PAE/V is a vertical external air intake with supporting feet and manual damper.
All the elements are made of painted steel, in the same colour as the casing. The manual air damper provides the unit with a mixture of return air and outside air. An air intake at the rear of the fan coil must be foreseen to provide fresh outside air.
- Mixture rate: 0/100%
- Height: 85 mm
- Colour: RAL 9003 (white) for both Sigma and Prisma series

7.6 PAE/VM – VERTICAL EXTERNAL AIR INTAKE WITH MOTORIZED DAMPER

PAE/VM is a vertical external air intake with supporting feet and motorized damper.
All the elements are made of painted steel. The motorized air damper is regulated by a servomotor and provides the unit with a mixture of return air and outside air. The servomotor operating mode depends on the required working conditions. An air intake at the rear of the fan coil must be foreseen to provide fresh outside air.
- Mixture rate: 0/100%
- Height: 85 mm
- Colour: RAL 9003 (white) for both Sigma and Prisma series
- Servomotor regulation: ON/OFF (code LM230), ON/OFF with spring return (code LF230) or modulating with a proper controller (code LM24)



SIZE		112	114	216	220	222	224	228
A	mm	549	674	799	1049	1049	1174	1299

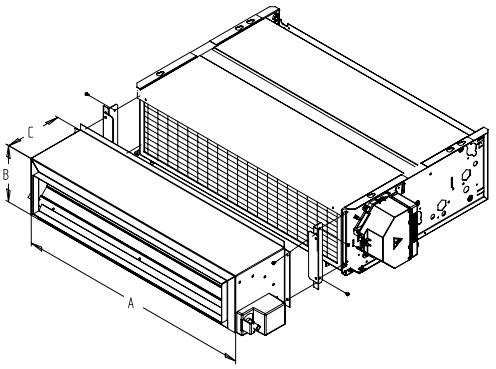
7.7 PAE/H – HORIZONTAL EXTERNAL AIR INTAKE WITH MANUAL DAMPER

Air suction plenum made of galvanized steel sheet, provided with a rectangular collar for the connection to the external air intake. It is mounted on the air intake of the unit, between the external air intake and the filter, which remains accessible for maintenance. A lever located on the side of the unit can operate the manual damper.

SIZE		112	114	216	220	222	224	228
A	mm	476	601	726	976	976	1226	1476
B	mm	176	176	176	206	206	206	206
C	mm	176	176	176	206	206	206	206

7.8 PAE/HM – HORIZONTAL EXTERNAL AIR INTAKE WITH MOTORIZED DAMPER

Air suction plenum made of galvanized steel sheet, provided with a rectangular collar for the connection to the external air intake. It is mounted on the air intake of the unit, between the external air intake and the filter, which remains accessible for maintenance. A servomotor can operate the damper: ON/OFF (code LM230), ON/OFF with spring return (code LF230) or modulating with a proper controller (code LM24).

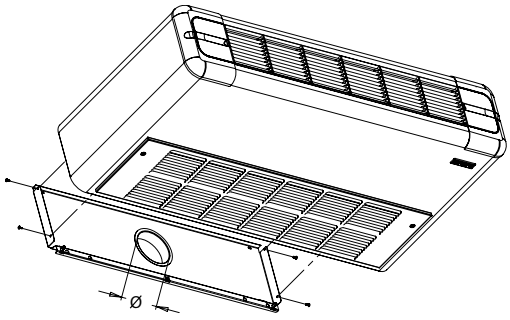


SIZE		112	114	216	220	222	224	228
A	mm	476	601	726	976	976	1226	1476
B	mm	176	176	176	206	206	206	206
C	mm	176	176	176	206	206	206	206

7.9 PAE/HAF – HORIZONTAL EXTERNAL AIR INTAKE (FOR HORIZONTAL UNITS WITH BOTTOM AIR INTAKE)

This external air intake is made of galvanized steel and is installed on the back side of horizontal units with bottom air intake. It is provided with a collar to be located in a hole on the wall, which allows the entrance of outside air.

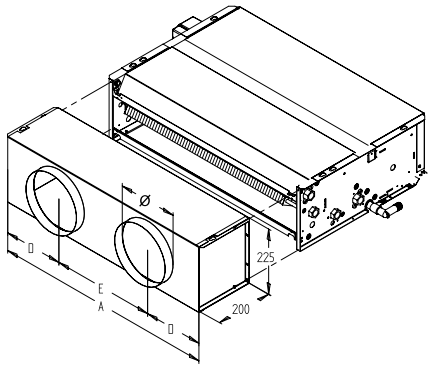
- Collar diameter of units 112÷216: 100 mm
- Collar diameter of units 220÷228: 150 mm



SIZE	112	114	216	220	222	224	228
N. of spigots	1	1	1	1	1	1	1
Spigots external Ø mm	100	100	100	150	150	150	150

7.10 PM – AIR DELIVERY PLENUM

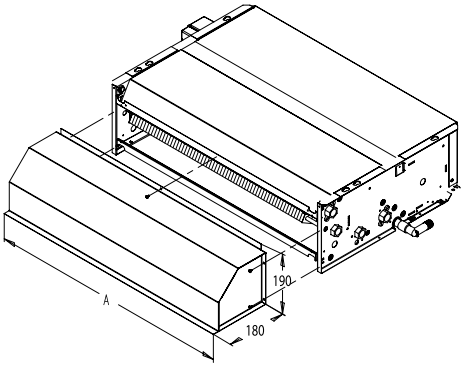
The air delivery plenum is made of galvanized steel sheet, insulated inside, provided with spigots for the connection to the air ducts. It is mounted on the air outlet of the unit.



SIZE		112	114	216	220	222	224	228
N. of spigots		2	2	2	3	3	3	3
Spigots external Ø	mm	150	150	200	200	200	200	200
A	mm	504	629	754	1004	1004	1254	1504
D	mm	127	139,5	202	152	152	277	377
E	mm	250	350	350	350	350	350	375

7.11 PM90 – 90° AIR DELIVERY PLENUM

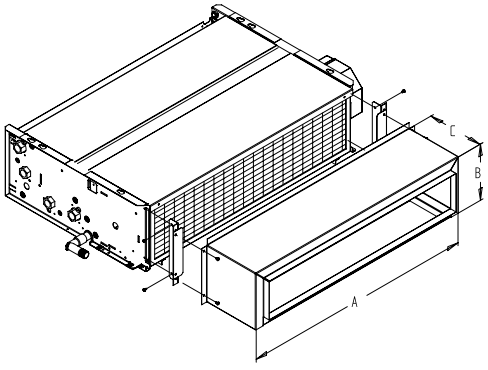
The 90° air delivery plenum is made of galvanized steel sheet, insulated inside, provided with a rectangular collar for the connection to the air duct. It is mounted on the air outlet of the unit.



SIZE		112	114	216	220	222	224	228
A	mm	504	629	754	1004	1004	1254	1504

7.12 PA – AIR SUCTION PLENUM

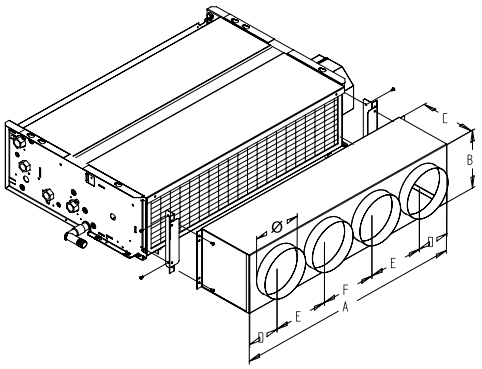
The air suction plenum is made of galvanized steel sheet, provided with a rectangular collar for the connection to the external air intake. It is mounted on the air intake of the unit, between the external air intake and the filter, which remains accessible for maintenance.



SIZE		112	114	216	220	222	224	228
A	mm	476	601	726	976	976	1226	1476
B	mm	176	176	176	206	206	206	206
C	mm	176	176	176	206	206	206	206

7.13 PAS – AIR SUCTION PLENUM WITH SPIGOTS

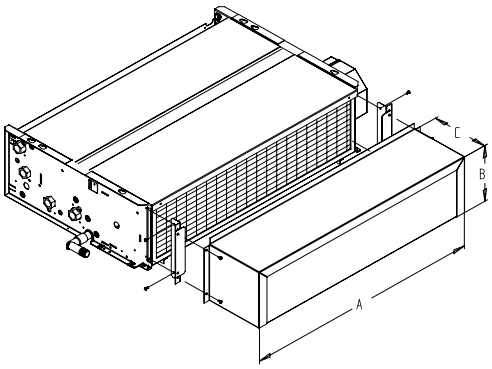
Air suction plenum made of galvanized steel sheet, provided with collars (spigots) for the connection to the external air intake. It is mounted on the air intake of the unit, between the external air intake and the filter, which remains accessible for maintenance.



SIZE		112	114	216	220	222	224	228
N. of spigots		2	3	4	3	3	4	4
Spigots external Ø	mm	150	150	150	200	200	200	200
A	mm	476	601	726	976	976	1226	1476
B	mm	191	191	191	221	221	221	221
C	mm	176	176	176	206	206	206	206
D	mm	101,8	101,8	101,8	116,8	116,8	126,8	126,8
E	mm	-	-	174	-	-	360	485
F	mm	272	198,5	174	371	371	252	252

7.14 PA90 – 90° AIR SUCTION PLENUM

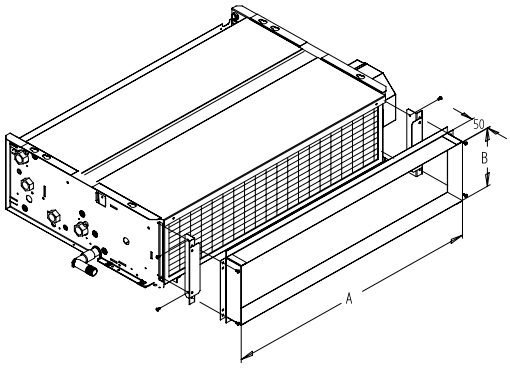
The 90° air suction plenum is made of galvanized steel sheet, provided with a rectangular collar for the connection to the external air intake. It is mounted on the air intake of the unit, between the external air intake and the filter, which remains accessible for maintenance.



SIZE		112	114	216	220	222	224	228
A	mm	476	601	726	976	976	1226	1476
B	mm	176	176	176	206	206	206	206
C	mm	176	176	176	206	206	206	206

7.15 RCA – DUCT CONNECTION

This duct connection is made of galvanized steel, provided with a rectangular collar for the connection to the suction air duct. It is mounted on the air intake of the unit, between the duct and the filter, which remains accessible for maintenance.



SIZE		112	114	216	220	222	224	228
A	mm	476	601	726	976	976	1226	1476
B	mm	176	176	176	206	206	206	206

8. TECHNICAL DATA

8.1 AIR VOLUMES

8.1.1 EST SERIE: SIGMA, PRISMA, CONCEALED

Nominal values (m^3/h)

SIZE		112	114	216	220	222	224	228
Fan speed	1 V	-	-	89	96	124	188	149
	2 V	90	117	131	201	240	389	367
	3 V	127	171	246	321	408	559	615
	4 V	179	240	299	424	482	757	854
	5 V	227	312	379	542	656	975	1098
	6 V	284	377	520	671	850	1195	1329
	7 V	330	449	609	780	936	1425	1559
	8 V	383	518	700	904	1100	1644	1799
	9 V	432	583	793	1009	1267	1824	2051

Nominal air volumes refer to standard fan coils with clean air filter, 20 °C room temperature, at sea level, without external static pressure.

Values with external static pressure (m^3/h)

Pressure drop	(Pa)	10	20	30	40	50
Size 112	1 V	-	-	-	-	-
	2 V	84	67	50	-	-
	3 V	126	95	65	-	-
	4 V	147	109	71	-	-
	5 V	184	131	79	-	-
	6 V	259	180	99	-	-
	7 V	359	300	224	208	-
	8 V	407	370	326	331	266
	9 V	480	442	400	410	363
Size 114	1 V	-	-	-	-	-
	2 V	114	105	95	-	-
	3 V	179	149	120	-	-
	4 V	212	176	140	-	-
	5 V	267	219	175	-	-
	6 V	373	303	232	-	-
	7 V	542	450	356	264	172
	8 V	609	551	490	427	358
	9 V	637	596	554	510	463
Size 216	1 V	81	71	60	-	-
	2 V	102	84	66	-	-
	3 V	218	159	100	-	-
	4 V	259	185	112	-	-
	5 V	324	229	133	-	-
	6 V	444	310	173	194	104
	7 V	560	470	381	362	167
	8 V	699	631	550	563	447
	9 V	820	756	681	707	613
Size 220	1 V	116	108	100	-	-
	2 V	137	122	108	-	-
	3 V	332	255	181	-	-
	4 V	378	282	197	-	-
	5 V	483	321	216	-	-
	6 V	764	465	240	157	100
	7 V	864	762	577	272	127
	8 V	1000	889	760	604	373
	9 V	1181	1083	964	821	648
Size 222	1 V	115	113	110	-	-
	2 V	220	167	115	-	-
	3 V	343	253	171	94	20
	4 V	419	310	211	118	31
	5 V	531	391	267	153	50
	6 V	703	517	354	209	76
	7 V	929	805	665	496	260
	8 V	1150	1042	920	782	619
	9 V	1365	1248	1126	994	853
Size 224	1 V	167	148	130	-	-
	2 V	241	188	135	-	-
	3 V	402	290	200	164	54
	4 V	466	342	240	228	83
	5 V	532	398	285	354	138
	6 V	1107	905	690	618	311
	7 V	1427	1268	1091	1091	907
	8 V	1636	1515	1382	1443	1298
	9 V	1897	1790	1674	1718	1605
Size 228	1 V	-	-	-	-	-
	2 V	343	270	196	123	51
	3 V	544	424	301	181	61
	4 V	721	573	419	258	91
	5 V	975	806	620	411	160
	6 V	1277	1115	931	703	384
	7 V	1530	1397	1253	1098	922
	8 V	1846	1735	1615	1487	1348
	9 V	2111	2017	1918	1811	1698

8.1.2 EST SERIE: LOW BODY

Nominal value (m^3/h)

Size		112	114	216
Fan speed	1 V	-	-	89
	2 V	90	117	131
	3 V	127	171	246
	4 V	179	240	299
	5 V	227	312	379
	6 V	284	377	520
	7 V	330	449	609
	8 V	383	518	700
	9 V	432	583	793

Nominal air volumes refer to standard fan coils with clean air filter, 20 °C room temperature, at sea level, without external static pressure.

Value with external static pressure (m^3/h)

Pressure drop	(Pa)	10	20	30	40	50
Size 112	1 V	-	-	-	-	-
	2 V	84	67	50	-	-
	3 V	126	95	65	-	-
	4 V	147	109	71	-	-
	5 V	184	131	79	-	-
	6 V	259	180	99	-	-
	7 V	359	300	224	208	-
	8 V	407	370	326	331	266
	9 V	480	442	400	410	363
Size 114	1 V	-	-	-	-	-
	2 V	114	105	95	-	-
	3 V	179	149	120	-	-
	4 V	212	176	140	-	-
	5 V	267	219	175	-	-
	6 V	373	303	232	-	-
	7 V	542	450	356	264	172
	8 V	609	551	490	427	358
	9 V	637	596	554	510	463
Size 216	1 V	81	71	60	-	-
	2 V	102	84	66	-	-
	3 V	218	159	100	-	-
	4 V	259	185	112	-	-
	5 V	324	229	133	-	-
	6 V	444	310	173	194	104
	7 V	560	470	381	362	167
	8 V	699	631	550	563	447
	9 V	820	756	681	707	613

8.2 COOLING CAPACITIES

8.2.1 EST SERIE: SIGMA, PRISMA, CONCEALED

Room temperature: 27 °C D.B. - 48% Humid. IN — Water temperature: 7/12 °C

SIZE			112	114	216	220	222	224	228
			2 ROWS						
1 V	Total cooling capacities	kW	-	-	0,39	0,71	0,83	0,89	0,96
	Sensible cooling capacities	kW	-	-	0,31	0,38	0,61	0,78	0,72
	Water flow	l/h	-	-	68	121	143	153	166
	Water pressure drop	kPa	-	-	0,3	0,4	0,5	1,0	1,0
2 V	Total cooling capacities	kW	0,30	0,58	0,53	1,10	1,26	1,76	2,13
	Sensible cooling capacities	kW	0,28	0,49	0,41	0,69	1,09	1,57	1,63
	Water flow	l/h	52	100	90	189	217	303	366
	Water pressure drop	kPa	0,5	1,0	0,5	0,8	0,9	3,4	4,2
3 V	Total cooling capacities	kW	0,47	0,80	1,06	1,67	2,11	2,34	3,19
	Sensible cooling capacities	kW	0,47	0,67	0,87	0,99	1,54	2,04	2,39
	Water flow	l/h	81	137	182	286	363	402	547
	Water pressure drop	kPa	0,7	1,8	1,8	1,6	2,3	5,5	8,5
4 V	Total cooling capacities	kW	0,62	1,15	1,29	2,18	2,41	3,22	4,02
	Sensible cooling capacities	kW	0,61	0,87	1,10	1,34	1,74	2,70	3,01
	Water flow	l/h	107	197	222	373	414	552	689
	Water pressure drop	kPa	1,0	3,1	2,0	2,5	3,0	8,1	13,1
5 V	Total cooling capacities	kW	0,83	1,45	1,64	2,65	3,05	4,25	4,75
	Sensible cooling capacities	kW	0,73	1,07	1,40	1,74	2,15	3,36	3,61
	Water flow	l/h	142	249	281	455	524	729	815
	Water pressure drop	kPa	1,5	4,4	2,3	3,6	4,5	11,4	17,9
6 V	Total cooling capacities	kW	1,13	1,72	2,15	3,09	3,66	5,28	5,39
	Sensible cooling capacities	kW	0,84	1,24	1,86	2,19	2,54	4,07	4,12
	Water flow	l/h	193	296	368	530	629	906	924
	Water pressure drop	kPa	2,3	5,5	2,9	4,6	6,3	14,4	22,8
7 V	Total cooling capacities	kW	1,29	2,00	2,37	3,46	3,92	5,97	6,86
	Sensible cooling capacities	kW	0,93	1,46	2,12	2,41	2,73	4,63	5,42
	Water flow	l/h	221	343	406	593	673	1025	1176
	Water pressure drop	kPa	2,80	7,10	3,20	5,70	7,1	18,10	27,50
8 V	Total cooling capacities	kW	1,39	2,18	2,57	3,84	4,38	6,55	7,53
	Sensible cooling capacities	kW	1,02	1,63	2,31	2,67	3,02	5,18	5,93
	Water flow	l/h	239	374	441	660	752	1125	1292
	Water pressure drop	kPa	3,3	8,3	3,6	6,9	8,8	21,4	32,7
9 V	Total cooling capacities	kW	1,55	2,40	2,75	4,12	4,78	6,98	8,16
	Sensible cooling capacities	kW	1,13	1,85	2,51	2,84	3,31	5,57	6,48
	Water flow	l/h	265	412	472	706	820	1198	1400
	Water pressure drop	kPa	4,1	9,8	4,0	7,8	10,3	24,1	38,0
Water content		l	0,6	0,7	0,9	1,5	1,5	1,9	2,3

Room temperature: 27 °C D.B. - 48% Humid. IN — Water temperature: 7/12 °C

SIZE			112	114	216	220	222	224	228
			3 ROWS						
1 V	Total cooling capacities	kW	-	-	0,46	0,73	0,83	1,19	1,74
	Sensible cooling capacities	kW	-	-	0,32	0,51	0,60	0,84	1,14
	Water flow	l/h	-	-	79	125	142	208	298
	Water pressure drop	kPa	-	-	0,4	1,0	0,5	0,9	1,9
2 V	Total cooling capacities	kW	0,39	0,81	1,12	1,31	1,54	1,98	3,02
	Sensible cooling capacities	kW	0,30	0,58	0,79	0,98	1,15	1,38	2,04
	Water flow	l/h	67	139	193	224	264	337	518
	Water pressure drop	kPa	0,7	1,1	2,4	2,8	2,6	2,0	5,0
3 V	Total cooling capacities	kW	0,63 (E)	1,04 (E)	1,55 (E)	2,00 (E)	2,60 (E)	3,05 (E)	4,34 (E)
	Sensible cooling capacities	kW	0,43 (E)	0,84 (E)	1,08 (E)	1,52 (E)	2,02 (E)	2,27 (E)	3,03 (E)
	Water flow	l/h	113	180	268	341	440	524	740
	Water pressure drop	kPa	1,4 (E)	1,6 (E)	5,4 (E)	5,6 (E)	5,5 (E)	4,3 (E)	10,2 (E)
4 V	Total cooling capacities	kW	0,97	1,35	2,12	2,47	3,32	3,96	5,91
	Sensible cooling capacities	kW	0,79	1,06	1,53	1,93	2,60	2,96	4,28
	Water flow	l/h	166	231	364	424	566	680	1015
	Water pressure drop	kPa	2,9	1,9	7,7	8,7	12,3	6,9	13,6
5 V	Total cooling capacities	kW	1,26	1,84	2,46	3,17	3,89	4,57	7,50
	Sensible cooling capacities	kW	0,96	1,39	1,77	2,49	3,19	3,59	5,34
	Water flow	l/h	216	314	423	541	667	784	1288
	Water pressure drop	kPa	4,4	3,6	10,6	12,6	17,0	10,0	24,3
6 V	Total cooling capacities	kW	1,35 (E)	2,17 (E)	2,86 (E)	3,79 (E)	4,48 (E)	5,32 (E)	7,37 (E)
	Sensible cooling capacities	kW	1,08 (E)	1,76 (E)	2,07 (E)	2,94 (E)	3,84 (E)	4,11 (E)	5,45 (E)
	Water flow	l/h	256	369	498	642	760	910	1377
	Water pressure drop	kPa	4,8 (E)	4,7 (E)	13,1 (E)	17,4 (E)	15,7 (E)	12,9 (E)	25,0 (E)
7 V	Total cooling capacities	kW	1,69	2,58	3,29	4,25	5,05	6,15	8,10 (E)
	Sensible cooling capacities	kW	1,43	2,04	2,46	3,44	4,32	4,83	5,96 (E)
	Water flow	l/h	287	438	565	722	863	1055	1543
	Water pressure drop	kPa	6,6	6,3	14,3	21,1	26,8	16,7	29,8 (E)
8 V	Total cooling capacities	kW	1,83	2,80	3,61	4,70	5,60	7,01	9,84
	Sensible cooling capacities	kW	1,56	2,21	2,76	3,75	4,92	5,67	7,44
	Water flow	l/h	314	470	605	811	955	1185	1689
	Water pressure drop	kPa	7,8	7,2	16,0	24,7	31,6	19,3	37,0
9 V	Total cooling capacities	kW	1,91 (E)	2,93 (E)	3,86 (E)	5,06 (E)	6,08 (E)	7,58 (E)	10,59
	Sensible cooling capacities	kW	1,57 (E)	2,40 (E)	2,92 (E)	4,08 (E)	5,34 (E)	6,11 (E)	7,97
	Water flow	l/h	343	492	641	862	1010	1291	1814
	Water pressure drop	kPa	8,9 (E)	8,4 (E)	18,1 (E)	28,3 (E)	26,7 (E)	23,0 (E)	42,1
Water content		l	0,8	1,1	1,3	2,2	2,2	2,9	3,5

(E): Eurovent

Room temperature: 27 °C D.B. - 48% Humid. IN — Water temperature: 7/12 °C

SIZE			112	114	216	220	222	224	228
			4 ROWS						
1 V	Total cooling capacities	kW	-	-	0,47	0,95	1,12	1,59	1,24
	Sensible cooling capacities	kW	-	-	0,39	0,61	0,73	1,06	0,83
	Water flow	l/h	-	-	80	164	192	273	213
	Water pressure drop	kPa	-	-	1,0	0,4	0,5	1,2	0,5
2 V	Total cooling capacities	kW	0,63	0,93	0,63	1,74	1,58	3,04	2,68
	Sensible cooling capacities	kW	0,45	0,64	0,54	1,15	1,06	2,08	1,88
	Water flow	l/h	108	160	108	298	271	521	459
	Water pressure drop	kPa	0,6	1,2	1,7	0,9	0,9	3,6	1,8
3 V	Total cooling capacities	kW	1,01	1,26	2,35	2,57	2,98	4,10	4,18
	Sensible cooling capacities	kW	0,68	0,88	1,51	1,74	2,10	2,88	3,03
	Water flow	l/h	173	216	403	441	512	703	717
	Water pressure drop	kPa	1,0	2,1	4,9	1,9	2,7	6,1	4,0
4 V	Total cooling capacities	kW	1,26	1,69	2,73	3,24	4,38	5,33	5,73
	Sensible cooling capacities	kW	0,90	1,20	1,77	2,24	3,09	3,81	4,18
	Water flow	l/h	216	290	469	556	751	915	982
	Water pressure drop	kPa	1,5	3,4	6,6	2,9	5,4	9,8	6,5
5 V	Total cooling capacities	kW	1,55	2,17	3,33	3,95	5,12	6,55	7,36
	Sensible cooling capacities	kW	1,12	1,49	2,18	2,78	3,59	4,78	5,30
	Water flow	l/h	266	372	571	678	879	1124	1263
	Water pressure drop	kPa	2,1	5,3	9,7	4,2	7,1	14,2	9,5
6 V	Total cooling capacities	kW	1,89	2,59	4,24	4,73	5,58	7,71	8,88
	Sensible cooling capacities	kW	1,39	1,74	2,86	3,38	3,87	5,73	6,11
	Water flow	l/h	324	444	727	812	957	1323	1524
	Water pressure drop	kPa	2,9	7,2	15,4	5,8	8,3	19,2	12,6
7 V	Total cooling capacities	kW	2,18	3,00	4,62	5,34	6,36	8,74	9,71
	Sensible cooling capacities	kW	1,60	2,06	3,20	3,87	4,39	6,65	7,30
	Water flow	l/h	374	514	793	916	1092	1499	1666
	Water pressure drop	kPa	3,8	9,3	19,6	7,3	10,6	24,6	15,7
8 V	Total cooling capacities	kW	2,46	3,37	5,06	6,02	6,83	9,62	10,84
	Sensible cooling capacities	kW	1,83	2,40	3,59	4,41	4,71	7,49	8,17
	Water flow	l/h	421	579	869	1033	1172	1651	1859
	Water pressure drop	kPa	4,8	11,5	23,6	9,1	12,0	29,9	19,3
9 V	Total cooling capacities	kW	2,68	3,71	5,53	6,54	7,60	10,25	11,94
	Sensible cooling capacities	kW	2,01	2,71	3,96	4,85	5,22	8,17	9,06
	Water flow	l/h	460	636	949	1122	1305	1759	2048
	Water pressure drop	kPa	5,8	13,5	28,2	10,7	14,6	34,3	23,0
Water content		l	1,1	1,4	1,7	2,9	2,9	3,8	4,6

8.2.2 EST SERIE: LOW BODY

Room temperature: 27 °C D.B. - 48% Humid. IN — Water temperature: 7/12 °C

SIZE			112	114	216
		2 ROWS			
1 V	Total cooling capacities	kW	-	-	0,34
	Sensible cooling capacities	kW	-	-	0,32
	Water flow	l/h	-	-	59
	Water pressure drop	kPa	-	-	0,7
2 V	Total cooling capacities	kW	0,31	0,48	0,43
	Sensible cooling capacities	kW	0,31	0,43	0,43
	Water flow	l/h	52	83	73
	Water pressure drop	kPa	0,3	0,7	1,0
3 V	Total cooling capacities	kW	0,51	0,60	1,14
	Sensible cooling capacities	kW	0,44	0,55	0,90
	Water flow	l/h	87	102	195
	Water pressure drop	kPa	0,5	1,0	3,0
4 V	Total cooling capacities	kW	0,65	0,88	1,34
	Sensible cooling capacities	kW	0,58	0,75	1,07
	Water flow	l/h	112	151	230
	Water pressure drop	kPa	0,7	1,8	3,9
5 V	Total cooling capacities	kW	0,76	1,19	1,60
	Sensible cooling capacities	kW	0,71	0,96	1,29
	Water flow	l/h	131	204	274
	Water pressure drop	kPa	0,8	2,8	5,2
6 V	Total cooling capacities	kW	0,92	1,43	2,01
	Sensible cooling capacities	kW	0,81	1,15	1,64
	Water flow	l/h	158	245	345
	Water pressure drop	kPa	1,0	3,7	7,9
7 V	Total cooling capacities	kW	1,06	1,59	2,26
	Sensible cooling capacities	kW	0,95	1,31	1,84
	Water flow	l/h	181	273	387
	Water pressure drop	kPa	1,5	4,4	9,8
8 V	Total cooling capacities	kW	1,23	1,78	2,39
	Sensible cooling capacities	kW	1,04	1,48	1,97
	Water flow	l/h	211	306	410
	Water pressure drop	kPa	2,1	5,5	11,2
9 V	Total cooling capacities	kW	1,29	1,91	2,59
	Sensible cooling capacities	kW	1,13	1,60	2,10
	Water flow	l/h	221	328	444
	Water pressure drop	kPa	2,4	6,3	13,3
Water content		l	0,4	0,6	0,9

Room temperature: 27 °C D.B. - 48% Humid. IN — Water temperature: 7/12 °C

SIZE			112	114	216
			3 ROWS		
1 V	Total cooling capacities	kW	-	-	0,44
	Sensible cooling capacities	kW	-	-	0,37
	Water flow	l/h	-	-	75
	Water pressure drop	kPa	-	-	0,4
2 V	Total cooling capacities	kW	0,40	0,66	0,56
	Sensible cooling capacities	kW	0,36	0,45	0,50
	Water flow	l/h	69	113	95
	Water pressure drop	kPa	0,8	1,6	0,6
3 V	Total cooling capacities	kW	0,69	0,95	1,30
	Sensible cooling capacities	kW	0,55	0,63	1,07
	Water flow	l/h	118	163	223
	Water pressure drop	kPa	1,2	3,1	1,6
4 V	Total cooling capacities	kW	0,96	1,31	1,59
	Sensible cooling capacities	kW	0,73	0,89	1,30
	Water flow	l/h	165	225	272
	Water pressure drop	kPa	1,9	5,1	2,3
5 V	Total cooling capacities	kW	1,31	1,67	1,98
	Sensible cooling capacities	kW	0,88	1,17	1,63
	Water flow	l/h	225	286	340
	Water pressure drop	kPa	2,9	7,5	3,4
6 V	Total cooling capacities	kW	1,69	1,98	2,59
	Sensible cooling capacities	kW	1,08	1,43	2,13
	Water flow	l/h	290	340	445
	Water pressure drop	kPa	4,2	9,6	5,6
7 V	Total cooling capacities	kW	1,73	2,34	2,89
	Sensible cooling capacities	kW	1,23	1,65	2,40
	Water flow	l/h	298	402	496
	Water pressure drop	kPa	5,1	12,2	7,0
8 V	Total cooling capacities	kW	1,89	2,72	3,13
	Sensible cooling capacities	kW	1,35	1,86	2,61
	Water flow	l/h	323	467	537
	Water pressure drop	kPa	6,3	14,9	8,8
9 V	Total cooling capacities	kW	2,00	3,04	3,37
	Sensible cooling capacities	kW	1,47	2,08	2,78
	Water flow	l/h	343	522	579
	Water pressure drop	kPa	7,5	17,1	10,9
Water content		l	0,6	0,8	1,1

8.3 HEATING CAPACITIES

8.3.1 EST SERIE: SIGMA, PRISMA, CONCEALED

Room temperature: 20 °C — Water temperature: 70/60 °C

SIZE			112	114	216	220	222	224	228
			2 ROWS						
1 V	Heating capacities	kW	-	-	0,78	1,32	1,83	2,72	1,90
	Water flow	l/h	-	-	69	116	161	239	167
	Water pressure drop	kPa	-	-	0,7	0,2	0,4	1,8	0,8
2 V	Heating capacities	kW	1,10	1,58	1,07	2,51	2,67	5,03	4,17
	Water flow	l/h	97	139	94	220	234	442	366
	Water pressure drop	kPa	1,2	1,4	1,3	0,8	0,9	5,5	3,4
3 V	Heating capacities	kW	1,60	2,14	3,08	3,68	4,91	6,71	6,29
	Water flow	l/h	141	188	270	324	432	590	553
	Water pressure drop	kPa	1,6	2,6	8,1	1,5	2,7	9,3	7,2
4 V	Heating capacities	kW	2,07	2,76	3,47	4,74	6,90	8,46	8,03
	Water flow	l/h	182	243	305	416	606	743	706
	Water pressure drop	kPa	2,3	3,8	9,0	2,5	5,0	11,7	11,4
5 V	Heating capacities	kW	2,45	3,36	4,03	5,93	7,94	10,22	9,59
	Water flow	l/h	216	295	354	520	697	898	842
	Water pressure drop	kPa	2,8	5,1	10,7	3,8	6,5	14,0	15,9
6 V	Heating capacities	kW	2,84	3,81	4,91	7,18	8,51	11,84	10,93
	Water flow	l/h	250	334	432	630	747	1040	960
	Water pressure drop	kPa	3,2	6,0	14,0	5,4	7,4	15,8	20,4
7 V	Heating capacities	kW	3,18	4,30	5,51	7,99	9,59	13,43	12,84
	Water flow	l/h	279	378	484	701	842	1180	1127
	Water pressure drop	kPa	3,8	7,5	17,3	6,6	9,3	19,9	21,3
8 V	Heating capacities	kW	3,48	4,77	6,19	8,91	10,20	14,92	14,52
	Water flow	l/h	305	419	544	782	896	1311	1275
	Water pressure drop	kPa	4,7	8,9	22,2	8,0	10,4	24,1	26,9
9 V	Heating capacities	kW	3,81	5,14	6,88	9,62	11,26	16,03	16,30
	Water flow	l/h	334	452	604	845	989	1408	1431
	Water pressure drop	kPa	5,7	10,1	28,0	9,3	12,5	27,5	33,4
Water content		l	0,6	0,7	0,9	1,5	1,5	1,9	2,3

Room temperature: 20 °C

Water temperature: 70/60 °C

SIZE			112	114	216	220	222	224	228
3 ROWS									
1 V	Heating capacities	kW	-	-	0,80	1,33	1,99	2,58	2,29
	Water flow	l/h	-	-	71	117	174	227	201
	Water pressure drop	kPa	-	-	0,3	0,6	0,7	0,7	0,9
2 V	Heating capacities	kW	1,09	1,55	1,14	2,66	3,95	5,03	5,31
	Water flow	l/h	96	136	100	234	347	442	467
	Water pressure drop	kPa	3,2	0,9	0,6	2,1	2,6	2,2	3,9
3 V	Heating capacities	kW	1,68	2,15	3,57	4,05	5,81	6,88	8,36
	Water flow	l/h	148	189	314	355	510	605	734
	Water pressure drop	kPa	3,6	1,7	3,8	4,6	5,2	4,0	8,8
4 V	Heating capacities	kW	2,23	2,97	3,92	5,23	6,70	8,51	11,07
	Water flow	l/h	196	261	345	459	588	748	972
	Water pressure drop	kPa	4,7	2,6	4,5	8,0	6,7	6,0	14,2
5 V	Heating capacities	kW	2,72	3,83	4,42	6,54	8,62	9,99	13,65
	Water flow	l/h	239	336	388	574	757	878	1199
	Water pressure drop	kPa	4,7	3,5	5,6	12,9	10,7	8,2	20,1
6 V	Heating capacities	kW	3,24	4,59	5,23	7,92	10,58	11,20	15,98
	Water flow	l/h	285	403	460	696	930	984	1403
	Water pressure drop	kPa	3,7	4,0	7,5	19,6	15,6	10,4	25,8
7 V	Heating capacities	kW	3,69	5,44	6,01	8,89	11,39	13,16	17,10
	Water flow	l/h	324	477	528	780	1001	1156	1502
	Water pressure drop	kPa	4,5	5,8	10,5	22,4	17,9	14,6	34,8
8 V	Heating capacities	kW	4,11	6,23	6,95	9,91	12,88	15,07	19,08
	Water flow	l/h	361	547	610	871	1131	1323	1676
	Water pressure drop	kPa	4,9	8,0	13,0	25,2	22,4	19,4	41,1
9 V	Heating capacities	kW	4,55	7,04	7,93	10,75	14,31	16,69	21,02
	Water flow	l/h	400	618	697	944	1257	1466	1846
	Water pressure drop	kPa	5,3	10,6	15,6	26,7	27,3	24,2	47,4
Water content		l	0,8	1,1	1,3	2,2	2,2	2,9	3,5

Room temperature: 20 °C

Water temperature: 70/60 °C

SIZE			112	114	216	220	222	224	228
			4 ROWS						
1 V	Heating capacities	kW	-	-	0,87	1,60	2,01	3,05	2,34
	Water flow	l/h	-	-	76	140	177	268	205
	Water pressure drop	kPa	-	-	0,8	0,2	0,3	0,9	0,3
2 V	Heating capacities	kW	1,20	1,74	1,25	3,27	3,06	6,10	5,60
	Water flow	l/h	106	153	110	287	269	536	492
	Water pressure drop	kPa	0,5	1,0	1,5	0,7	0,7	3,1	1,6
3 V	Heating capacities	kW	1,87	2,47	4,44	5,06	6,17	8,50	9,03
	Water flow	l/h	165	217	390	444	542	747	793
	Water pressure drop	kPa	0,7	1,8	4,0	1,5	2,5	5,6	3,9
4 V	Heating capacities	kW	2,57	3,40	5,28	6,54	9,21	11,12	11,97
	Water flow	l/h	226	299	463	575	809	977	1051
	Water pressure drop	kPa	1,3	3,2	5,5	2,5	5,2	9,2	6,1
5 V	Heating capacities	kW	3,22	4,35	6,49	8,18	10,81	13,86	14,71
	Water flow	l/h	283	382	570	719	949	1217	1292
	Water pressure drop	kPa	1,9	4,8	8,3	3,8	6,9	13,8	8,3
6 V	Heating capacities	kW	3,95	5,17	8,49	9,90	11,73	16,45	17,08
	Water flow	l/h	347	454	745	870	1030	1445	1500
	Water pressure drop	kPa	2,8	6,5	13,9	5,5	8,1	19,0	10,2
7 V	Heating capacities	kW	4,71	6,08	9,52	11,29	13,50	19,26	20,23
	Water flow	l/h	413	534	836	992	1186	1692	1777
	Water pressure drop	kPa	4,0	8,6	18,7	7,1	10,5	25,9	14,9
8 V	Heating capacities	kW	5,31	6,95	10,64	12,85	14,52	21,93	22,77
	Water flow	l/h	466	611	934	1129	1275	1926	2000
	Water pressure drop	kPa	5,2	11,0	23,3	9,1	12,0	33,5	18,5
9 V	Heating capacities	kW	5,84	7,75	11,7	14,14	16,28	24,15	25,33
	Water flow	l/h	513	681	1028	1242	1430	2121	2225
	Water pressure drop	kPa	6,3	13,3	28,2	10,9	14,8	40,9	22,5
Water content		l	1,1	1,4	1,7	2,9	2,9	3,8	4,6

Room temperature: 20 °C

Water temperature: 70/60 °C

SIZE			112	114	216	220	222	224	228
			1 ROW						
1 V	Heating capacities	kW	-	-	0,66	0,97	1,37	1,75	2,29
	Water flow	l/h	-	-	58	85	121	150	201
	Water pressure drop	kPa	-	-	1,0	0,8	0,8	2,7	4,5
2 V	Heating capacities	kW	0,49	0,87	1,40	1,89	2,09	2,40	3,60
	Water flow	l/h	43	77	123	165	184	216	316
	Water pressure drop	kPa	0,5	1,9	3,6	2,1	2,5	5,4	10,3
3 V	Heating capacities	kW	0,76 (E)	1,11 (E)	1,50 (E)	2,32 (E)	2,93 (E)	3,49 (E)	5,19 (E)
	Water flow	l/h	72	97	133	227	265	307	450
	Water pressure drop	kPa	1,2 (E)	2,9 (E)	4,6 (E)	4,0 (E)	3,7 (E)	10,2 (E)	19,8 (E)
4 V	Heating capacities	kW	1,03	1,39	1,74	3,08	3,68	4,30	6,40
	Water flow	l/h	90	122	153	270	324	378	562
	Water pressure drop	kPa	2,2	4,5	5,8	5,3	7,2	15,1	30,3
5 V	Heating capacities	kW	1,20	1,83	2,04	3,59	4,34	5,15	7,54
	Water flow	l/h	106	161	179	316	381	452	662
	Water pressure drop	kPa	2,9	6,5	7,7	7,3	9,5	20,5	38,9
6 V	Heating capacities	kW	1,43 (E)	2,06 (E)	2,52 (E)	4,20 (E)	4,87 (E)	5,77 (E)	7,90 (E)
	Water flow	l/h	125	180	220	365	424	503	687
	Water pressure drop	kPa	3,9 (E)	7,4 (E)	11,1 (E)	9,7 (E)	8,7 (E)	24,0 (E)	41,0 (E)
7 V	Heating capacities	kW	1,55	2,42	2,76	4,69	5,37	6,57	8,75 (E)
	Water flow	l/h	136	212	242	412	471	577	752
	Water pressure drop	kPa	4,6	9,7	13,2	11,9	13,7	36,9	48,4 (E)
8 V	Heating capacities	kW	1,70	2,56	3,00	5,09	6,03	7,26	9,34
	Water flow	l/h	149	225	264	447	529	637	820
	Water pressure drop	kPa	5,4	10,9	15,3	13,8	17,1	41,0	56,8
9 V	Heating capacities	kW	1,87 (E)	3,13 (E)	3,21 (E)	5,59 (E)	6,47 (E)	7,78 (E)	10,00
	Water flow	l/h	155	230	282	482	563	690	878
	Water pressure drop	kPa	6,5 (E)	12,7 (E)	17,3 (E)	15,8 (E)	13,8 (E)	46,7 (E)	64,4
Water content		l	0,2	0,3	0,4	0,6	0,6	0,8	1,0

(E): Eurovent

8.3.2 EST SERIE: LOW BODY

Room temperature: 20 °C — Water temperature: 70/60 °C

SIZE			112	114	216
			2 ROWS		
1 V	Heating capacities	kW	-	-	0,68
	Water flow	l/h	-	-	96
	Water pressure drop	kPa	-	-	0,8
2 V	Heating capacities	kW	1,04	1,49	0,93
	Water flow	l/h	71	106	131
	Water pressure drop	kPa	0,5	1,0	1,4
3 V	Heating capacities	kW	1,45	1,70	2,85
	Water flow	l/h	127	164	189
	Water pressure drop	kPa	0,8	1,6	3,7
4 V	Heating capacities	kW	1,90	2,29	3,27
	Water flow	l/h	178	217	229
	Water pressure drop	kPa	1,3	2,6	4,8
5 V	Heating capacities	kW	2,24	2,88	3,88
	Water flow	l/h	224	269	287
	Water pressure drop	kPa	1,8	3,8	6,6
6 V	Heating capacities	kW	2,65	3,42	4,76
	Water flow	l/h	282	315	371
	Water pressure drop	kPa	2,5	5,0	9,7
7 V	Heating capacities	kW	2,92	3,90	5,03
	Water flow	l/h	285	354	426
	Water pressure drop	kPa	2,9	6,2	12,1
8 V	Heating capacities	kW	3,18	4,35	5,62
	Water flow	l/h	301	390	486
	Water pressure drop	kPa	3,4	7,5	14,4
9 V	Heating capacities	kW	3,47	4,73	6,17
	Water flow	l/h	319	418	544
	Water pressure drop	kPa	4,1	8,6	16,6
Water content		l	0,4	0,6	0,7

Room temperature: 20 °C

Water temperature: 70/60 °C

SIZE			112	114	216
			3 ROWS		
1 V	Heating capacities	kW	-	-	0,75
	Water flow	l/h	-	-	84
	Water pressure drop	kPa	-	-	0,4
2 V	Heating capacities	kW	1,03	1,72	1,06
	Water flow	l/h	82	108	119
	Water pressure drop	kPa	0,9	1,8	0,7
3 V	Heating capacities	kW	1,58	1,78	3,36
	Water flow	l/h	154	149	212
	Water pressure drop	kPa	1,6	3,3	2,2
4 V	Heating capacities	kW	2,12	2,57	3,92
	Water flow	l/h	217	209	250
	Water pressure drop	kPa	2,7	5,5	3,1
5 V	Heating capacities	kW	2,61	3,45	4,72
	Water flow	l/h	280	276	304
	Water pressure drop	kPa	3,8	8,2	4,9
6 V	Heating capacities	kW	3,17	4,31	5,96
	Water flow	l/h	356	338	389
	Water pressure drop	kPa	5,4	10,8	8,2
7 V	Heating capacities	kW	3,55	4,91	6,32
	Water flow	l/h	365	401	465
	Water pressure drop	kPa	6,6	13,7	10,1
8 V	Heating capacities	kW	3,93	5,48	7,13
	Water flow	l/h	395	466	537
	Water pressure drop	kPa	8,2	16,8	12,2
9 V	Heating capacities	kW	4,24	5,96	7,91
	Water flow	l/h	416	525	610
	Water pressure drop	kPa	9,6	19,7	14,3
Water content		l	0,6	0,8	1,1

Room temperature: 20 °C Water temperature: 70/60 °C

SIZE			112	114	216
			1 ROW		
1 V	Heating capacities	kW	-	-	0,80
	Water flow	l/h	-	-	71
	Water pressure drop	kPa	-	-	1,2
2 V	Heating capacities	kW	0,49	0,80	1,03
	Water flow	l/h	43	77	90
	Water pressure drop	kPa	1,0	1,7	1,9
3 V	Heating capacities	kW	0,65	1,10	1,50
	Water flow	l/h	58	99	132
	Water pressure drop	kPa	1,4	2,8	3,8
4 V	Heating capacities	kW	0,86	1,40	1,73
	Water flow	l/h	75	125	152
	Water pressure drop	kPa	2,1	4,1	4,9
5 V	Heating capacities	kW	1,08	1,77	2,04
	Water flow	l/h	94	156	179
	Water pressure drop	kPa	2,8	5,9	6,7
6 V	Heating capacities	kW	1,31	2,04	2,52
	Water flow	l/h	115	178	221
	Water pressure drop	kPa	3,6	7,3	9,9
7 V	Heating capacities	kW	1,42	2,32	2,76
	Water flow	l/h	125	203	242
	Water pressure drop	kPa	4,4	8,6	11,4
8 V	Heating capacities	kW	1,55	2,65	3,00
	Water flow	l/h	136	232	264
	Water pressure drop	kPa	5,4	10,3	13,2
9 V	Heating capacities	kW	1,64	2,95	3,21
	Water flow	l/h	144	259	282
	Water pressure drop	kPa	6,1	11,8	14,9
Water content		l	0,2	0,3	0,4

8.4 ELECTRICAL DATA

Power supply: 230-1-50 [V-ph-Hz]

SIZE			112	114	216	220	222	224	228
Nominal absorbed power	1 V	[W]	-	-	5	5	5	5	5
	2 V	[W]	5	5	6	6	7	8	8
	3 V	[W]	6 (E)	6 (E)	7 (E)	7 (E)	8 (E)	9 (E)	14 (E)
	4 V	[W]	8	9	12	10	19	16	25
	5 V	[W]	10	13	17	14	27	24	41
	6 V	[W]	15 (E)	18 (E)	19 (E)	19 (E)	35 (E)	35 (E)	67 (E)
	7 V	[W]	18	25	25	27	63	54	111 (E)
	8 V	[W]	24	35	34	38	89	79	157
	9 V	[W]	32 (E)	46 (E)	40 (E)	47 (E)	108 (E)	103 (E)	230
Nominal absorbed current	1 V	[A]	-	-	0,06	0,06	0,06	0,09	0,10
	2 V	[A]	0,06	0,06	0,08	0,07	0,08	0,11	0,11
	3 V	[A]	0,06	0,08	0,09	0,08	0,10	0,14	0,15
	4 V	[A]	0,08	0,10	0,13	0,10	0,18	0,20	0,23
	5 V	[A]	0,11	0,14	0,16	0,14	0,25	0,30	0,36
	6 V	[A]	0,13	0,18	0,20	0,19	0,33	0,44	0,56
	7 V	[A]	0,17	0,24	0,35	0,26	0,54	0,68	0,88
	8 V	[A]	0,22	0,32	0,41	0,34	0,74	0,97	1,21
	9 V	[A]	0,28	0,42	0,46	0,44	0,85	1,37	1,70

(E): Eurovent

Electrical data refer to standard fan coils with clean filter and without external static pressure. A dirty filter or an external air pressure drop will lower the absorbed power level. The installation of electric accessories increase the absorbed power level.

9. NOISE LEVELS

9.1 SOUND POWER

The acoustic emission characteristics of any noise source is defined as its **«sound power»** (SWL). This typical measurement indicates the total radiated energy which does not vary for a given noise source; that is, it does not depend on the observer, location, distance or any other factor which is not part of the source.

9.2 SOUND PRESSURE IN A CLOSED ENVIRONMENT

The perceived noise radiated from a sound source is something quite different: noise perception is indicated by its **«sound pressure»** (SPL). Even though it is caused by the emission of sound energy, it greatly depends on the environment through which the sound travels, on the distance from the source and on all other circumstances that are not directly related to the primary noise source.
Besides the distance from the source, the most important factor that influences the **«sound pressure»** (and, as a result, the perceived noise) in a closed environment is the amount of sound energy reflected off surfaces that have a greater or lesser reflection capacity: it depends, therefore, on the re-transmission of sound energy (**power**) acting upon reflecting surfaces.
Covering the walls with sound absorbing material (i.e. material with a low sound reflecting capacity) is the most effective way to reduce the noise level in a closed environment. The following values indicate the sound pressure emitted by the fan coils. By using the EURAPO software for selection it is possible to calculate the new sound pressure level obtained by changing the parameters: room volume, distance from the noise source and reverberation time.
The reverberation time measures the sound characteristics of a room: it increases as the room dimensions increase and decreases as the sound absorption capacity of the structure increases.

Sound power level

(*) Minimum value measurable in laboratory, indicated by Eurovent.

		dB (A)
Size 112	1 V	-
	2 V	30(*)
	3 V (Eurovent)	31
	4 V	36
	5 V	40
	6 V (Eurovent)	45
	7 V	48
	8 V	52
	9 V (Eurovent)	55
Size 114	1 V	
	2 V	30(*)
	3 V (Eurovent)	34
	4 V	35
	5 V	43
	6 V (Eurovent)	46
	7 V	54
	8 V	56
	9 V (Eurovent)	57
Size 216	1 V	30(*)
	2 V	30(*)
	3 V (Eurovent)	33
	4 V	37
	5 V	42
	6 V (Eurovent)	45
	7 V	51
	8 V	52
	9 V (Eurovent)	53
Size 220	1 V	30(*)
	2 V	30(*)
	3 V (Eurovent)	30(*)
	4 V	34
	5 V	40
	6 V (Eurovent)	46
	7 V	50
	8 V	54
	9 V (Eurovent)	57
Size 222	1 V	30(*)
	2 V	33
	3 V (Eurovent)	37
	4 V	39
	5 V	49
	6 V (Eurovent)	52
	7 V	57
	8 V	59
	9 V (Eurovent)	62
Size 224	1 V	30
	2 V	35
	3 V (Eurovent)	40
	4 V	42
	5 V	45
	6 V (Eurovent)	53
	7 V	54
	8 V	56
	9 V (Eurovent)	63
Size 228	1 V	30(*)
	2 V	34
	3 V (Eurovent)	44
	4 V	51
	5 V	56
	6 V (Eurovent)	58
	7 V (Eurovent)	62
	8 V	68
	9 V	70

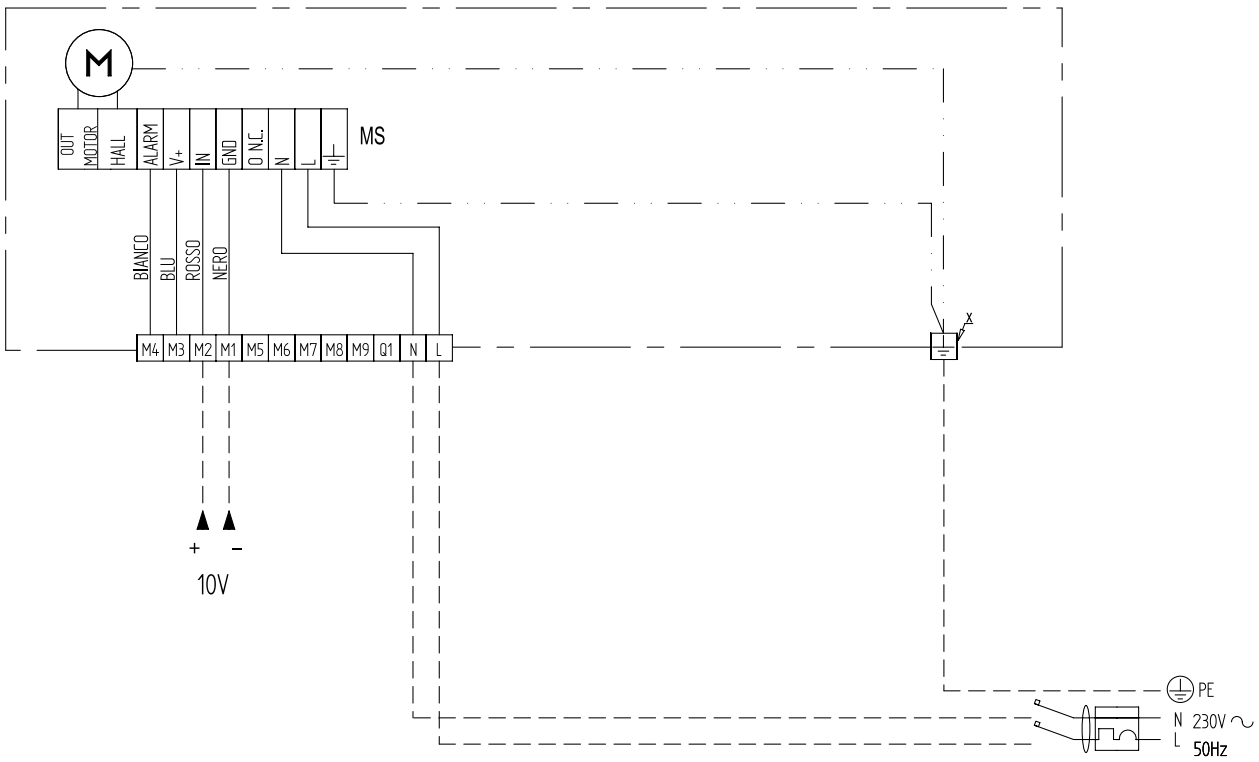
Sound pressure in a closed environment

		dB (A)
Size 112	1 V	-
	2 V	20
	3 V	21
	4 V	26
	5 V	30
	6 V	35
	7 V	39
	8 V	43
	9 V	46
Size 114	1 V	-
	2 V	20
	3 V	24
	4 V	26
	5 V	34
	6 V	37
	7 V	44
	8 V	47
	9 V	48
Size 216	1 V	20
	2 V	20
	3 V	24
	4 V	28
	5 V	33
	6 V	35
	7 V	45
	8 V	42
	9 V	44
Size 220	1 V	20
	2 V	20
	3 V	20
	4 V	25
	5 V	31
	6 V	36
	7 V	41
	8 V	43
	9 V	48
Size 222	1 V	20
	2 V	23
	3 V	27
	4 V	29
	5 V	39
	6 V	42
	7 V	47
	8 V	49
	9 V	52
Size 224	1 V	20
	2 V	25
	3 V	31
	4 V	32
	5 V	34
	6 V	43
	7 V	45
	8 V	46
	9 V	54
Size 228	1 V	20
	2 V	24
	3 V	34
	4 V	41
	5 V	46
	6 V	48
	7 V	52
	8 V	59
	9 V	61

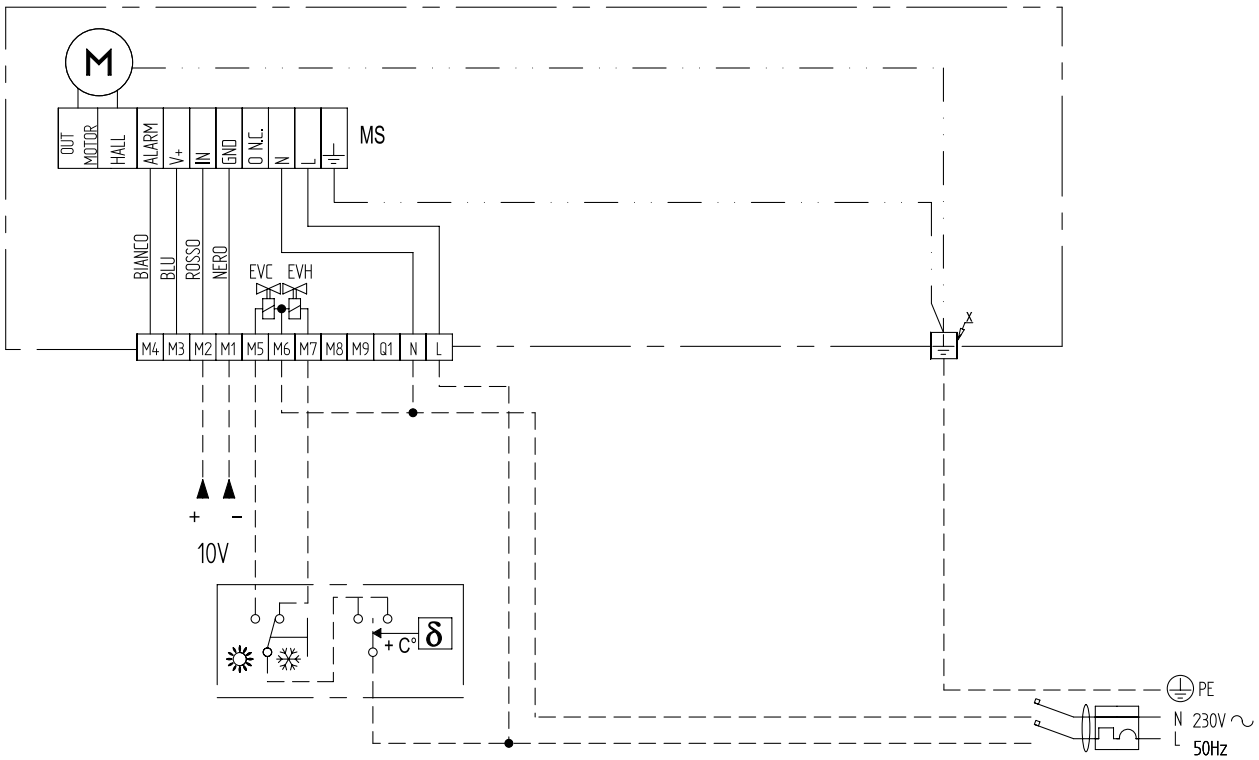
10. ELECTRICAL CONNECTIONS

The following wiring diagrams are the most frequently used for fancoil applications:

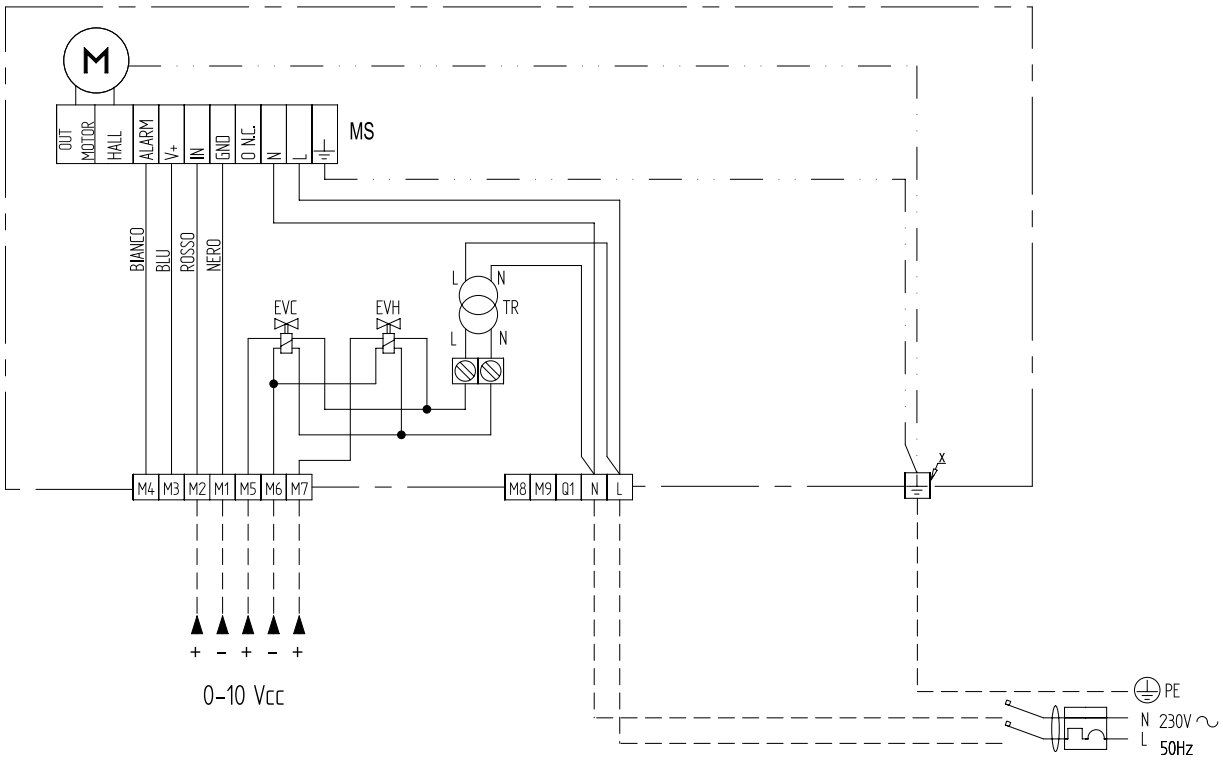
EST – CBL00



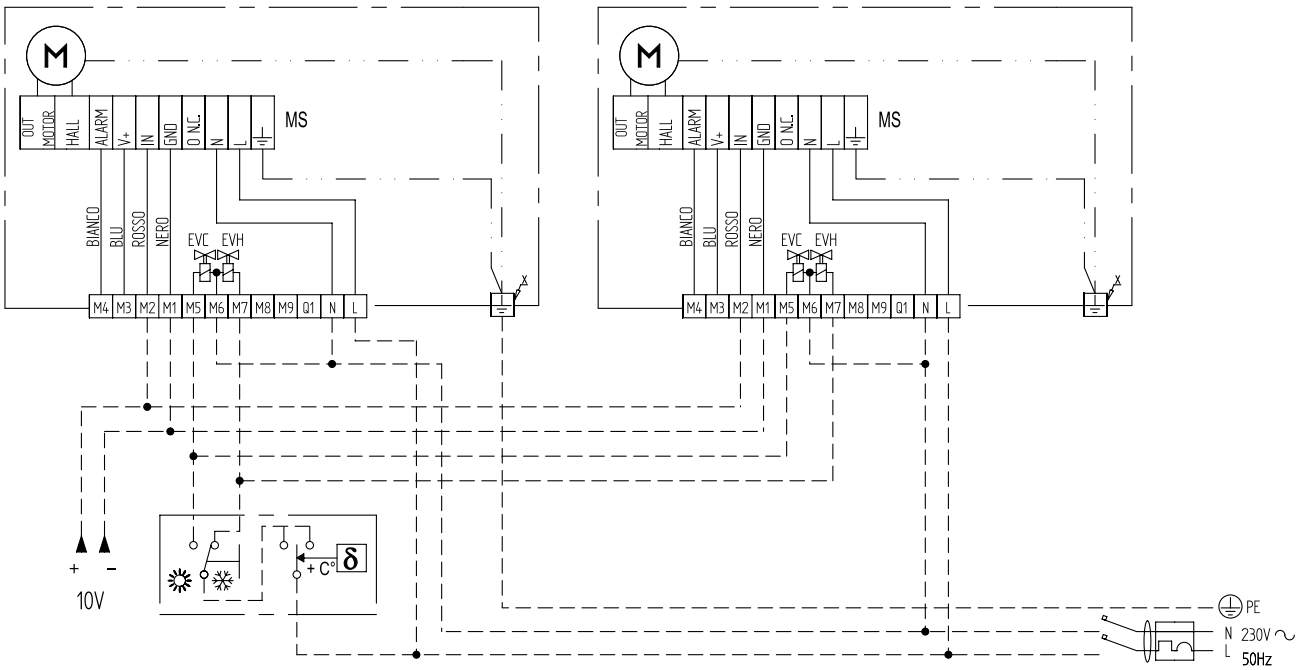
EST – CBL00 – EVC – EVH



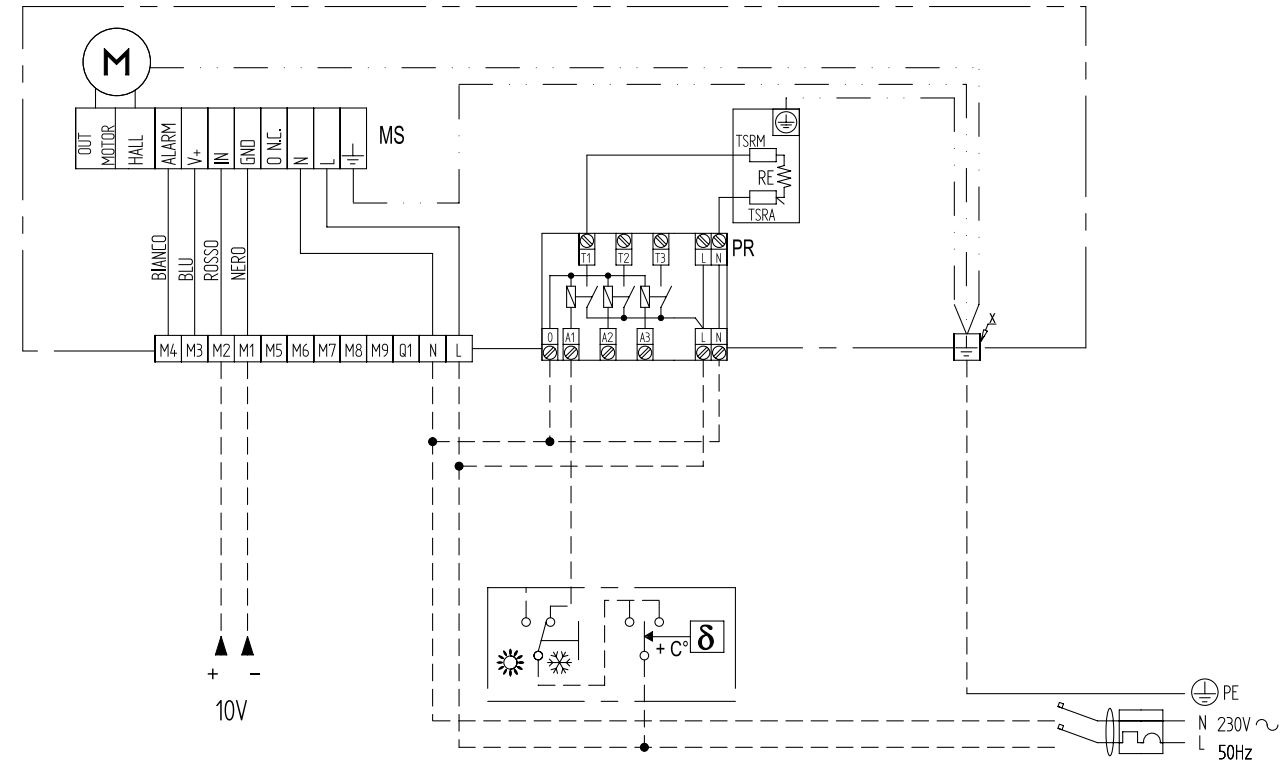
EST – CBL10 – EVCM – EVHM



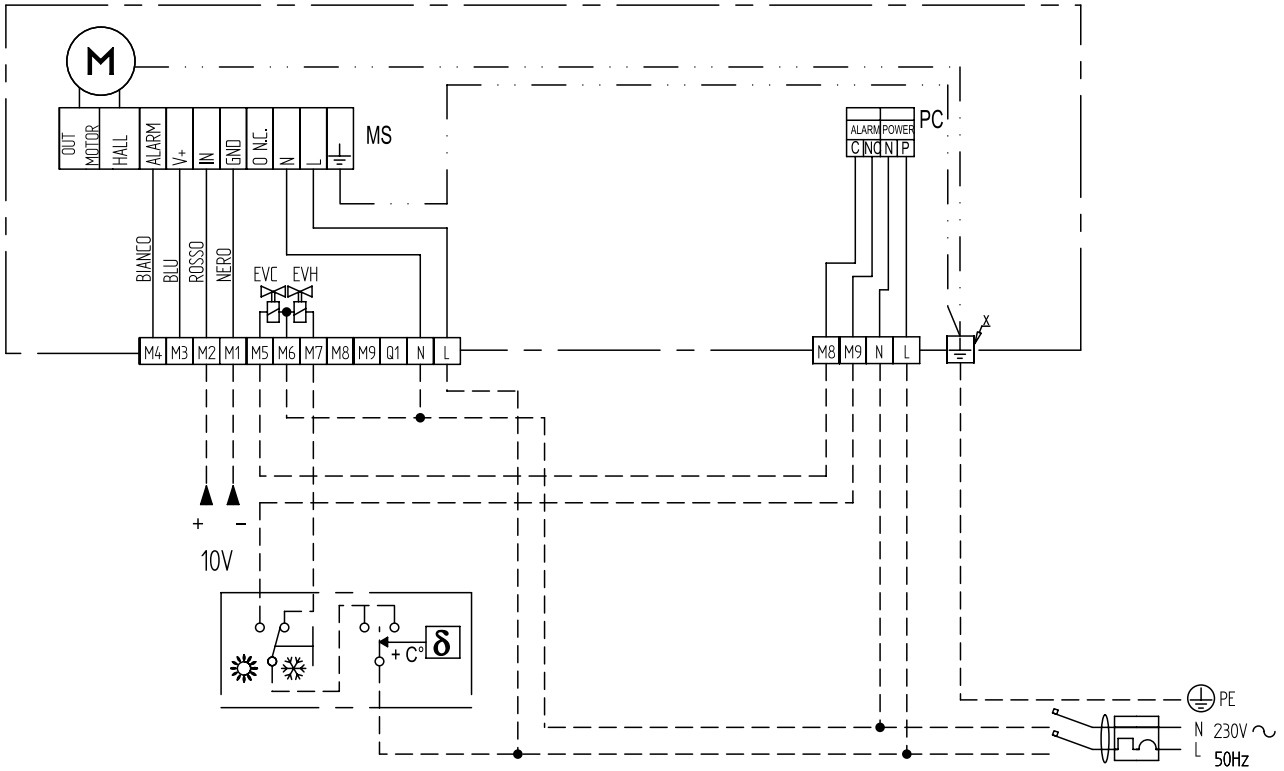
EST – CBL00 – EVC – EVH – MASTER/SLAVE



EST – CBL20 – RE



EST – CBL00 – EVC – EVH – PC



LEGEND (for all the electrical diagrams)

M	Fan motor
MS	Terminal board for motor
PE	Earth
N	Neutral
L	Phase
X	CBL00 Terminal board

RE	Electric heater
PR	Power Relay card
PC	Condensate pump
TSRM	Safety thermostat with manual resetting
TSRA	Safety thermostat with automatic resetting
☼ ❄	Summer/Winter switch
EV	Regulating valve: EVC for cooling; EVH for heating

NOTE. If other configurations are required, different from the standard ones, please refer to the instruction manual of every specific EURAPO regulator.

6MT0106 - EN1400

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