afc

fan convector for all types of commercial
and domestic heating applications.

powrmatic

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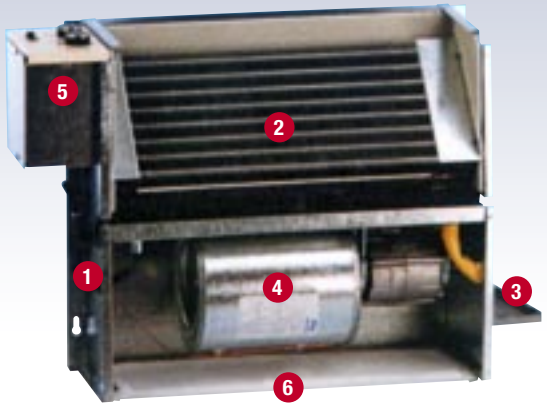
afc fan convector

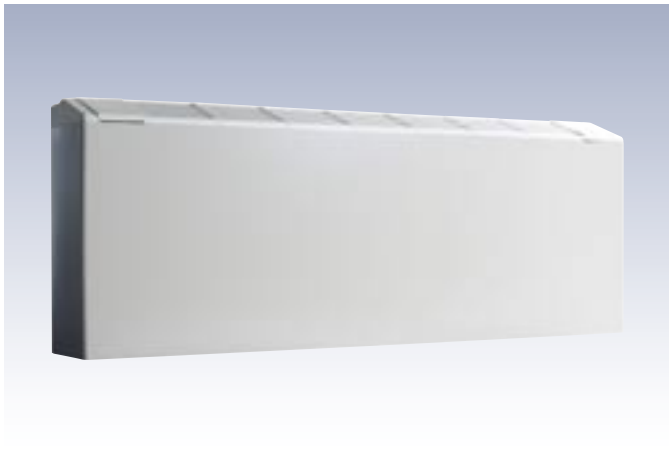
General

1. Lacquered steel plate cladding.
   Galvanised side panels.
   Grilles made from glass fibre impregnated polyamide.
2. Three row battery with copper tubes and aluminium fins.
3. Optional secondary condense tray.
4. Three-speed fan motor.
5. Control module with three-speed switch:
   fitted as standard on model SW.
   see option on description opposite for other models.
6. Regenerate filter made of acrylic fibres.



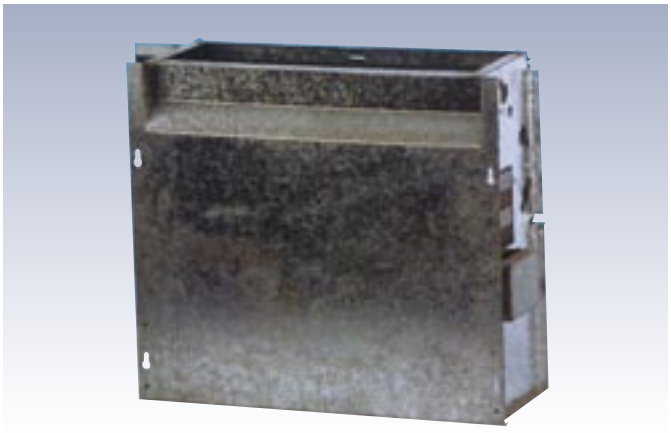
Surface wall model afc sw

Surface wall model, colour white, fitted with reversible air diffuser grilles. This version can be used in all types of commercial or domestic premises. It is installed and linked up like a central heating radiator.



Concealed wall model afc cw

Of identical design to the model shown on the left, but without casing. Its application is for installation behind cladding. An air distribution grille must be placed either on a panel or on a box produced on site by the installer. Transition ducting and grilles are available from Powrmatic.

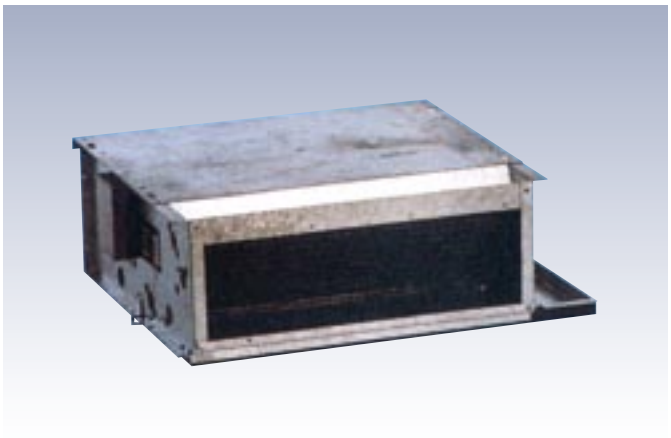


Surface Ceiling Model AFC SC

Model of similar design to Model SW, but mounted in a horizontal plane. This model as its name suggests is for mounting on the ceiling and can be used in all places with low ceilings. This type of appliance is particularly recommended for premises with a minimum of free floor or wall space.

Concealed Ceiling Model AFC CC

Standard horizontal non-cased model, intended and designed to be installed in low false ceilings.



Technical information

Framework, casing and air distribution grilles

The internal structure consists of a framework made of zinc-plated sheet steel The cladding on all models is made of steel plate coated with light coloured epoxy paint This surface treatment prevents any corrosion taking place These appliances are intended to have adjustable air distribution grilles made from glass fibre impregnated polyamide

Heat exchanger battery

These batteries consist of copper tubes on to which aluminium fins are fixed by mechanical expansion.

Maximum working pressure 8 bar (120 psi) max test pressure 20 bar (290 psi)

Maximum working temperature: 110°C

The three row batteries with which the standard versions are equipped are fitted with two 1/2" B.S.P. connections They are all manufactured with an air bleed screw and a drain cock fitted.

On vertical models, the manifolds are placed on the left in the direction of the airflow. It is possible to alter the arrangement on site as follows:

- Unscrew the casing
- Unscrew the battery protection front plate
- Unscrew and change over the battery
- Unscrew and change over the control module
- Reassemble the various components in reverse order

3 Rows + 1 battery

The standard afcs are equipped with a three-row battery made from copper tube and aluminium fins. As an option, we can supply these appliances with a 3 row + 1 battery fitted with four 1/2" B.S.P. connections.

This can easily be used on combined installations, e.g. as a heating and cooling system.

Fan unit

Consists of one or two centrifugal fans fitted with balanced aluminium blades inside an involute made of galvanised steel. This combination provides a long and corrosion free component life.

The 4 pole fan motors are equipped with three speeds and have a permanent condenser. They are mounted on an anti-vibration support and are fitted with thermal overload protection. They are direct drive and run in self lubricating bearings.

Electrical equipment complies with European safety standards

Control panel

Easily accessible by raising a tilting cover, the control panel is housed within a metal case where the 3 speed selector switch (stop – min – medium – max) is positioned.

A space is also provided in this panel to incorporate the thermostat, summer/winter switch and optional electric element switch. This control panel is located on the opposite side to the heat exchanger connections.

Air filter

This consists of a metal frame supporting the filtering medium made of synthetic fibre which is 75% AF1 and regenerable.

Accessories

Heating/cooling thermostat type tai

Fitted as standard the entering air thermostat tai is used only on the SW model. Supplied complete with a summer/winter switch, it's function is to operate the fan for both heating and cooling.

Remote control panel rab

This is a wall mounted unit and is for use with all models except the SW. Its facilities are:

- On/off, fan speed selection
- Room temperature thermostat and summer/winter switch.

Low temperature cut out (ltco)

Optional pipe thermostat for sensing low temperature flow water.

Electric elements for auxiliary heating

Applicable to all units the elements are of the enclosed type. They are complete with a limit thermostat and can used with and controlled by an ambient air thermostat.

Sizes	afc1	afc2	afc3	afc4	afc5
Element rating (kW)	1.0	2.0	3.0	4.0	5.0

N.B: For inputs greater than 2.0 kW a suitable relay should be fitted sized to the intended loading. This also applies to all remotely controlled models.

Options

- Fresh air recirculated air mixing box
- Fresh air recovery box with telescopic sleeve and fresh air grille
- Feet are available for models SW and CW. Their height is 110 mm
- Secondary condense tray.

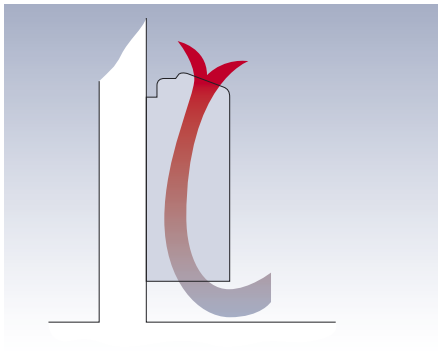
Valve kits

For both two and four pipe systems including 3 way four port valve, actuator and pipe kit.

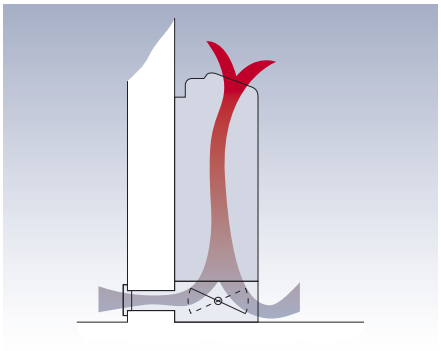
Definition	Appliances able to take accessories
Hot/cold ambient temperature thermostat type tai	sw
Remote control panel comprising: • Ambient temperature thermostat • 4 position switch • On/off switch • Summer/winter switch	sc, cc, sw
Electric element kit with limit thermostat:	
• 1.0kW	all size 1 models
• 2.0kW	all size 2 models
• 3.0kW	all size 3 models
• 4.0kW	all size 4 models
• 5.0kW	all size 5 models
Regenerable filter	all models
Fresh air recycled air mixing box with telescopic sleeve. Fresh air grille and recycled air grille	all models
Fresh air recovery box with telescopic sleeve and fresh air grille	all models
Feet	sw
Lacquered rear cover plate	sc
Secondary condense tray	all chilled water models

Installation examples

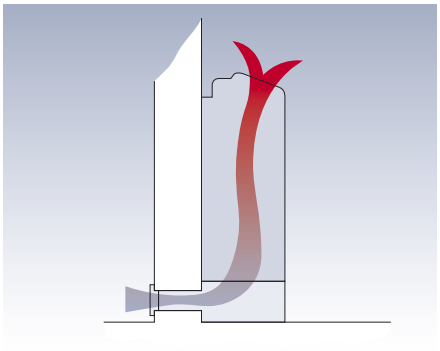
Surface wall models (sw)



1. Direct recovery with or without feet.

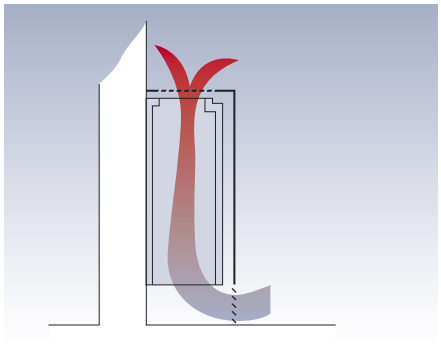


2. Fitted with fresh air/recirc air mixing box, telescopic sleeve, fresh air/recirc air grille.

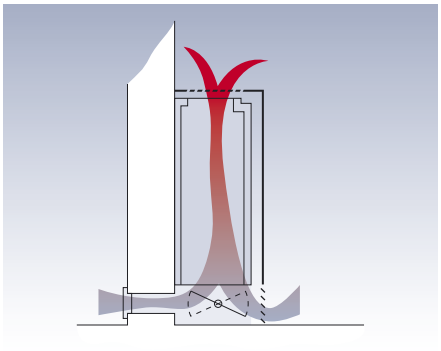


3. Fitted with fresh air box, telescopic sleeve, fresh air grille.

Concealed wall models (cw)

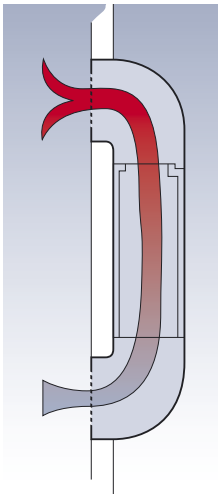


1. Direct recovery with or without feet.

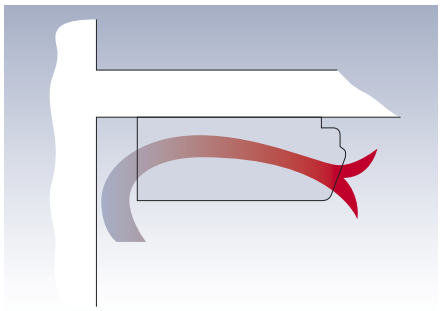


2. Fitted with fresh air/recirc air mixing box, telescopic sleeve, fresh air/recirc air grille.

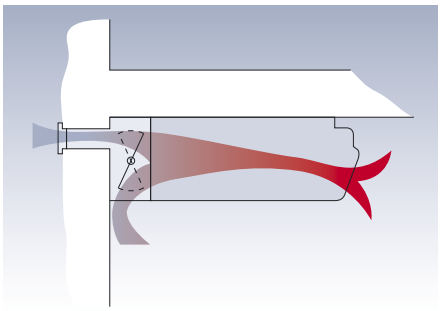
3. Fitted with fresh air box, telescopic sleeve, fresh air grille.



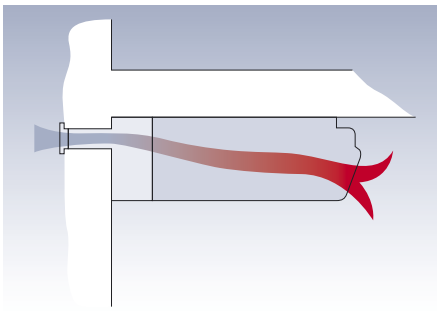
Surface ceiling models (sc)



1. Direct recovery.

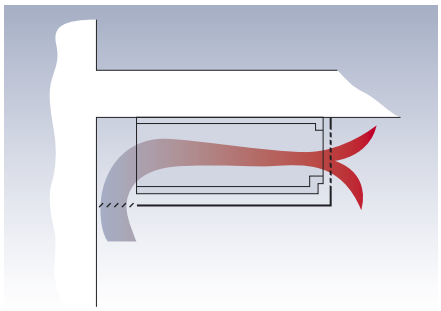


2. Fitted with fresh air/recirc air mixing box, telescopic sleeve, fresh air/recirc air grille.

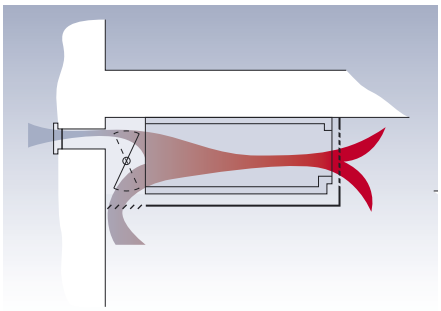


3. Fitted with fresh air box, telescopic sleeve, fresh air grille.

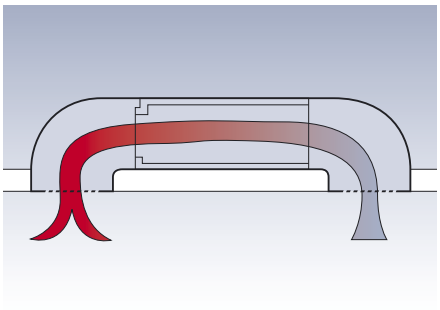
Concealed ceiling models (cc)



1. Direct recovery.



2. Fitted with fresh air/recirc air mixing box, telescopic sleeve, fresh air/recirc air grille.



3. Fitted with fresh air box, telescopic sleeve, fresh air grille.

Heating and cooling data

Heat output in kW – hot water standard 3 rows

Entering air temperature		afc1			afc2			afc3			afc4			afc5		
Airflow m³h		190	270	360	270	370	500	500	620	780	620	750	920	815	1120	1290
Water temperature 80/70°C	-15°C	5.07	6.77	8.48	7.27	9.44	11.99	12.70	15.06	17.96	15.62	18.16	21.23	20.16	25.76	28.62
	-5°C	4.50	6.00	7.51	6.45	8.37	10.62	11.26	13.36	15.92	13.85	16.09	18.82	17.88	22.84	25.37
	0°C	4.21	5.61	7.03	6.04	7.84	9.94	10.55	12.50	14.90	12.96	15.06	17.61	16.73	21.37	23.74
	15°C	3.34	4.45	5.57	4.80	6.23	7.90	8.39	9.95	11.85	10.30	11.96	13.98	13.31	16.99	18.86
	20°C	3.05	4.07	5.09	4.39	5.70	7.22	7.67	9.09	10.83	9.41	10.93	12.77	12.16	15.52	17.24
Water temperature 70/60°C	-15°C	4.49	5.98	7.49	6.44	8.36	10.60	11.24	13.33	15.89	13.82	16.06	18.77	17.84	22.79	25.31
	-5°C	3.91	5.21	6.52	5.62	7.29	9.24	9.81	11.63	13.86	12.05	13.99	16.35	15.56	19.87	22.06
	0°C	3.62	4.82	6.03	5.21	6.75	8.56	9.09	10.78	12.84	11.16	12.96	15.15	14.42	18.40	20.43
	15°C	2.76	3.67	4.58	3.97	5.15	6.52	6.94	8.22	9.79	8.50	9.87	11.52	10.99	14.02	15.56
	20°C	2.47	3.28	4.10	3.56	4.61	5.84	6.22	7.37	8.77	7.61	8.84	10.32	9.85	12.56	14.94
Water temperature 50/40°C	-15°C	3.31	4.40	5.50	4.77	6.18	7.82	8.33	9.87	11.75	10.21	11.85	13.83	13.20	16.83	18.68
	-5°C	2.73	3.63	4.53	3.95	5.11	6.46	6.90	8.17	9.72	8.43	9.79	11.42	10.91	13.91	15.43
	0°C	2.44	3.24	4.05	3.54	4.57	5.79	6.18	7.32	8.71	7.55	8.76	10.22	9.77	12.45	13.81
	15°C	1.58	2.09	2.60	2.30	2.97	3.75	4.03	4.76	5.66	4.89	5.67	6.60	6.35	8.07	8.94
	20°C	1.29	1.70	2.11	1.89	2.43	3.07	3.31	3.91	4.64	4.01	4.63	5.39	5.21	6.61	7.32

Heat output in kW – hot water 1 row (3 + 1 units)

Entering air temperature		afc1			afc2			afc3			afc4			afc5		
°C		Low	Med	High	Low	Med	High	Low	Med	High	Low	Med	High	Low	Med	High
Water temperature 80/70°C	-15°C	3.36	4.17	4.93	4.91	5.97	7.13	8.02	9.10	10.37	9.97	11.16	12.54	12.63	15.17	16.41
	-5°C	2.96	3.67	4.34	4.34	5.27	6.29	7.08	8.04	9.16	8.82	9.87	11.09	11.18	13.42	14.51
	0°C	2.76	3.42	4.04	4.05	4.92	5.87	6.62	7.51	8.55	8.24	9.22	10.36	10.45	12.55	13.57
	15°C	2.16	2.68	3.16	3.19	3.87	4.61	5.22	5.92	6.74	6.52	7.29	8.19	8.27	9.33	10.73
	20°C	1.97	2.43	2.87	2.90	3.52	4.20	4.76	5.40	6.14	5.94	6.64	7.46	7.55	9.06	9.79

Cooling output in kW – cold water standard 3 rows

Entering air temperature		afc1			afc2			afc3			afc4			afc5		
Airflow m³h		190	270	360	270	370	500	500	620	780	620	750	920	815	1120	1290
Water temperature 5/10°C	24°C (50%)	1.08	1.40	1.72	1.63	2.08	2.60	2.88	3.39	4.00	3.41	3.92	4.53	4.48	5.64	6.22
	27°C (48%)	1.45	1.90	2.34	2.17	2.78	3.48	3.81	4.49	5.31	4.55	5.24	6.08	5.95	7.61	8.31
	30°C (40%)	1.61	2.11	2.60	2.40	3.07	3.85	4.21	4.96	5.88	5.04	5.82	6.74	6.59	8.32	9.20
Water temperature 7/12°C	24°C (50%)	0.82	1.05	1.29	1.26	1.60	1.99	2.24	2.63	3.09	2.61	3.00	3.49	3.45	4.33	4.76
	27°C (48%)	1.19	1.55	1.90	1.80	2.30	2.87	3.17	3.73	4.41	3.76	4.32	5.00	4.93	6.21	6.86
	30°C (40%)	1.35	1.76	2.17	2.03	2.59	3.25	3.57	4.20	4.97	4.25	4.89	5.67	5.57	7.02	7.76
Water temperature 12/17°C	24°C (50%)	0.44	0.58	0.71	0.67	0.86	1.07	1.18	1.39	1.64	1.40	1.61	1.87	1.83	2.31	2.55
	27°C (48%)	0.62	0.81	1.00	0.92	1.18	1.48	1.61	1.90	2.25	1.93	2.23	2.59	2.52	3.19	3.52
	30°C (40%)	0.79	1.04	1.29	1.16	1.50	1.88	2.04	2.41	2.85	2.46	2.84	3.31	3.20	1.06	4.49

Technical data

Flow and pressure drop of water across 3 row battery

		afc1		afc2		afc3		afc4		afc5	
Water temperature	°C	80/70	7/12	80/70	7/12	80/70	7/12	80/70	7/12	80/70	7/12
Flow rate	l/h	252	216	360	324	648	540	792	648	1044	864
Pressure drop (low speed)	kpa	1.6	1.3	3.6	3.2	11.0	10.1	4.9	4.2	8.5	7.5
Flow rate	l/h	360	252	504	396	792	648	936	746	1332	1080
Pressure drop (med speed)	kpa	2.7	2.1	5.7	5.0	15.0	13.5	6.4	5.4	13.2	11.4
Flow rate	l/h	432	324	612	504	936	756	116	864	1476	1188
Pressure drop (high speed)	kpa	4.0	3.1	8.8	7.5	20.6	18.2	8.5	7.1	15.9	13.6

Battery characteristics – 3 row battery

		afc1	afc2	afc3	afc4	afc5
Standard battery	rows	3	3	3	3	3
No fins	mm	2.1	2.1	2.1	2.1	2.1
Frontal area	m^2	0.082	0.118	0.152	0.186	0.220
Condense tray connection Ø	mm	20	20	20	20	20
Battery connection	Ø	1/2" B.S.P.	1/2" B.S.P.	1/2" B.S.P.	1/2" B.S.P.	1/2" B.S.P.
Water content	l	1.1	1.4	1.6	2.0	2.3

Battery characteristics – 3 + 1 units

		afc1	afc2	afc3	afc4	afc5
Standard battery	rows	1	1	1	1	1
No fins	mm	1.8	1.8	1.8	1.8	1.8
Frontal area	m^2	0.072	0.103	0.133	0.163	0.193
Battery connection	Ø	1/2" B.S.P.	1/2" B.S.P.	1/2" B.S.P.	1/2" B.S.P.	1/2" B.S.P.
Water content	l	0.4	0.5	0.6	0.7	0.8

Supplementary electrical elements

		afc1	afc2	afc3	afc4	afc5
Total load	W	1000	2000	3000	4000	5000
Element	nq	1	1	1	1	1
Element loading	W	1000	2000	3000	4000	5000
Voltage	V	240V 1ph	240V 1ph	240V 1ph	240V 1ph	240V 1ph
Amperage	A	4.30	8.70	13.0	17.40	21.70

Electrical characteristics – 240V 1ph 50Hz

		afc1	afc2	afc3	afc4	afc5
Motor size	W	85	90	130	135	200
Load (low)	W	28	29	50	53	100
Load (med)	W	39	40	65	67	140
Load (high)	W	54	57	83	88	200
Running current (low)	A	0.13	0.13	0.23	0.24	0.45
Running current (med)	A	0.18	0.18	0.30	0.30	0.64
Running current (high)	A	0.25	0.26	0.38	0.40	0.91

Weights

		afc1	afc2	afc3	afc4	afc5
sw/cc	kg	22	26	30	34	38
cw/cc	kg	15	18	21	24	27

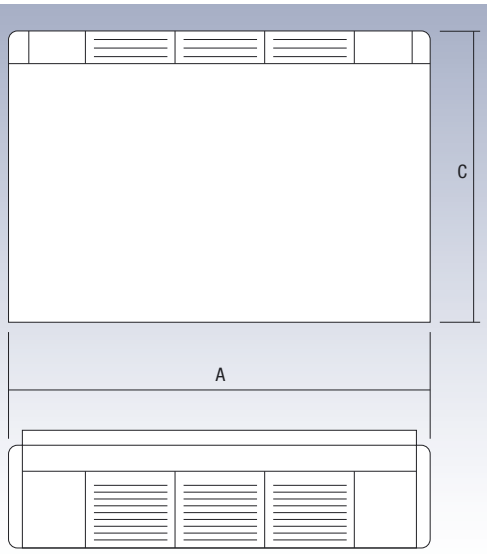
Noise levels in dB(A)

	afc1			afc2			afc3			afc4			afc5		
Fan speed	Low	Med	High	Low	Med	High	Low	Med	High	Low	Med	High	Low	Med	High
63Hz	30.1	35.0	37.0	38.4	40.6	42.3	45.0	46.0	47.0	46.6	48.5	50.8	43.4	46.2	49.1
125Hz	27.2	29.0	35.2	32.4	38.0	43.0	36.0	39.0	46.5	42.9	44.2	47.1	44.8	45.3	48.4
250Hz	24.1	35.0	36.3	29.3	37.2	44.0	33.0	37.0	42.5	38.3	40.5	45.6	39.9	46.2	49.8
500Hz	21.3	30.0	35.1	21.8	30.8	43.6	30.0	39.0	45.0	33.4	40.1	45.3	40.2	51.2	52.4
1000Hz	16.2	24.0	26.8	15.2	25.6	34.6	25.0	31.9	36.5	27.2	33.8	39.4	41.1	43.0	45.2
2000Hz	13.3	17.0	18.6	10.0	19.3	30.9	22.5	30.5	37.5	20.6	29.1	36.0	34.9	39.2	42.5
4000Hz	12.4	13.0	14.1	10.2	14.3	23.0	14.0	20.5	28.5	13.3	21.7	29.2	29.2	30.2	38.8
8000Hz	10.5	10.0	10.5	10.3	10.6	13.7	11.0	12.5	18.0	10.6	12.6	18.5	19.4	21.3	33.2
Overall acoustic level	23.1	29.2	32.1	23.5	33.4	42.0	32.5	39.0	44.5	33.2	40.8	45.6	39.5	44.4	46.8

N.B: Sound pressure levels were read at a distance of 1m on appliances installed in an acoustic chamber.

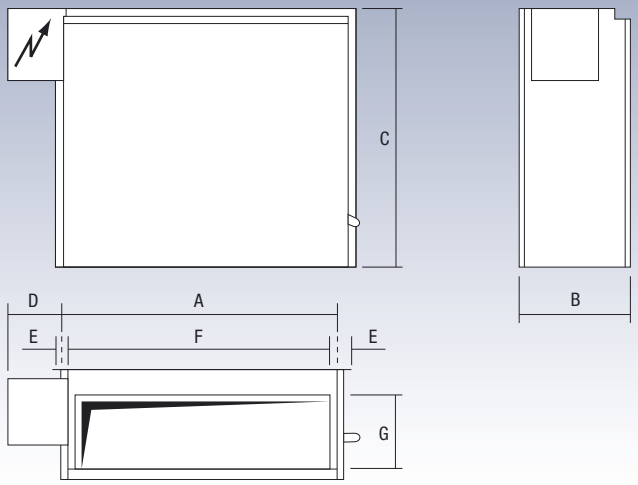
Dimensions – wall models

Surface wall – model sw



	afc1	afc2	afc3	afc4	afc5
A	815	990	1160	1335	1510
B	225	225	225	225	225
C	560	560	560	560	560

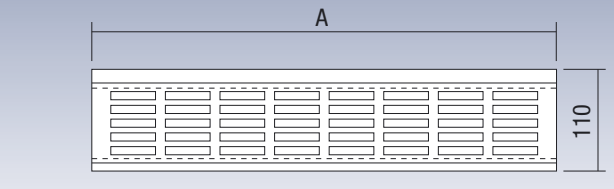
Concealed wall – model cw



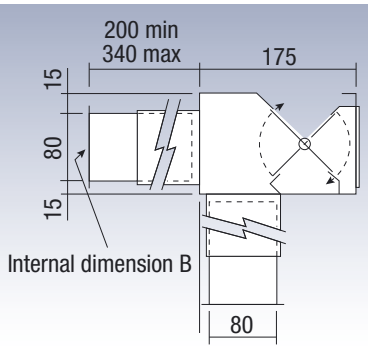
	afc1	afc2	afc3	afc4	afc5
A	517	697	867	1037	1207
B	213	213	213	213	213
C	500	500	500	500	500
D	115	115	115	115	115
E	25	25	25	25	25
F	487	667	837	1007	1177
G	155	155	155	155	155

Accessory

Mixing box fresh air/recycled air

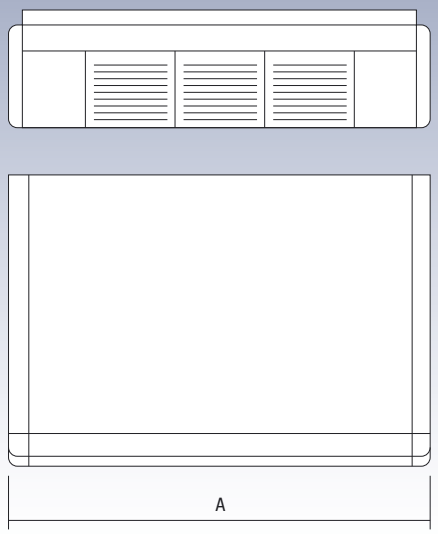


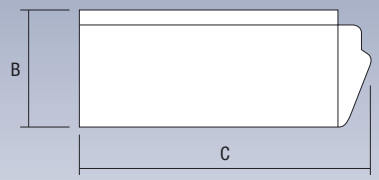
	afc1	afc2	afc3	afc4	afc5
A	517	697	867	1037	1207
E	470	650	820	990	1160



Dimensions – ceiling models

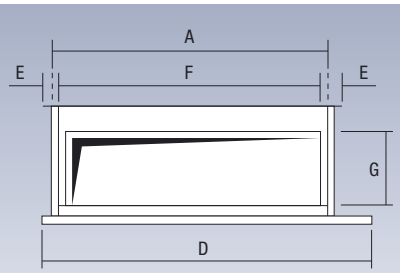
Surface ceiling – model sc

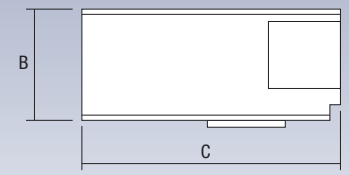


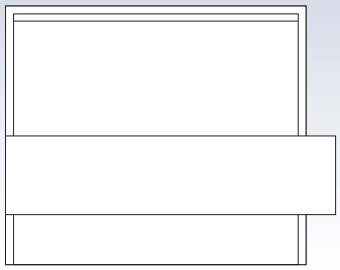


	afc1	afc2	afc3	afc4	afc5
A	815	990	1160	1335	1510
B	225	225	225	225	225
C	560	560	560	560	560

Concealed ceiling – model cc



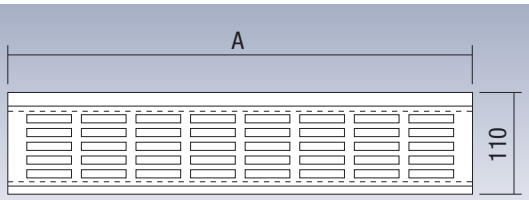




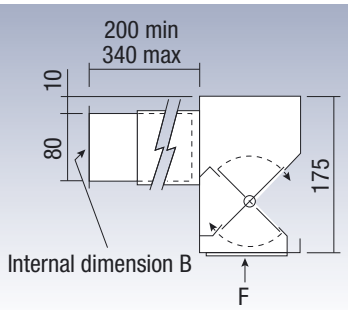
	afc1	afc2	afc3	afc4	afc5
A	517	697	867	1037	1207
B	213	213	213	213	213
C	500	500	500	500	500
D	655	835	1005	1175	1345
E	25	25	25	25	25
F	487	667	837	1007	1177
G	155	155	155	155	155

Accessory

Mixing box fresh air/recycled air



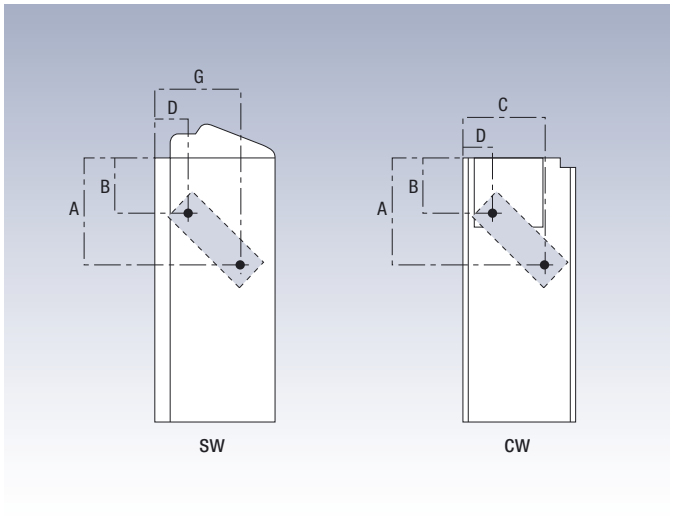
	afc1	afc2	afc3	afc4	afc5
A	517	697	867	1037	1207
E	470	650	820	990	1160



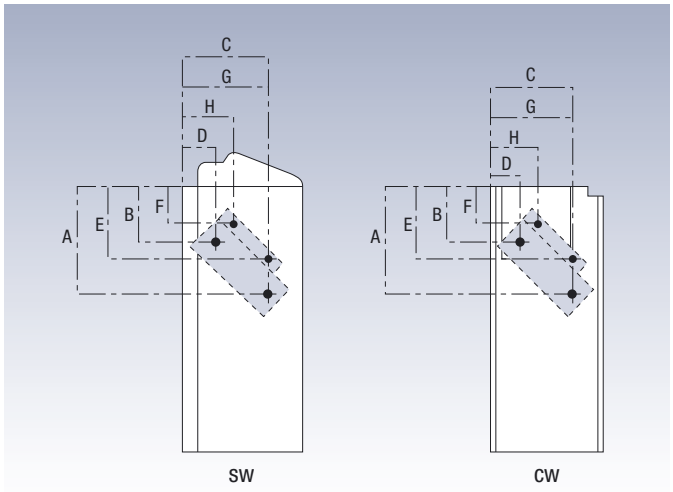
Connections – wall models

Standard version, pipe connection on the right when viewed from the front.

3 row battery



3 + 1 row battery



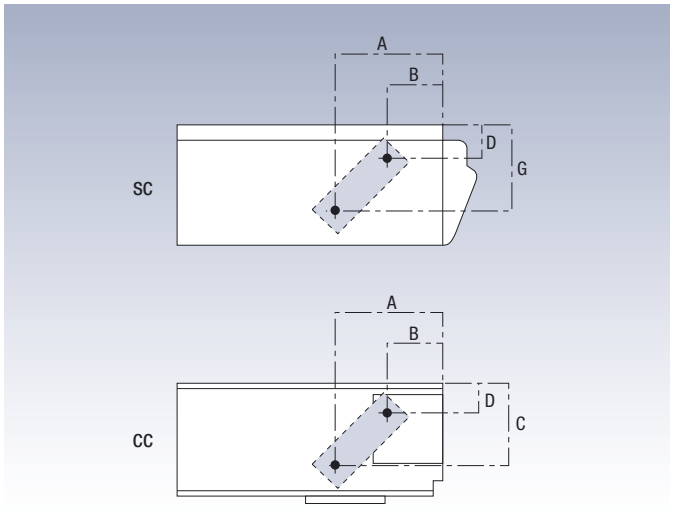
	A	B	C	D	E	F	G	H
sw – B 3r	204	80	174	50	N/A	N/A	N/A	N/A
cw – B 3r	204	80	174	50	N/A	N/A	N/A	N/A
sw – B 3+1r	204	80	174	50	123	48	164	90
cw – B 3+1r	204	80	174	50	123	48	164	90

N.B: Battery connection: 1/2" B.S.P. female.
Condense tray connection: 20mm Ø

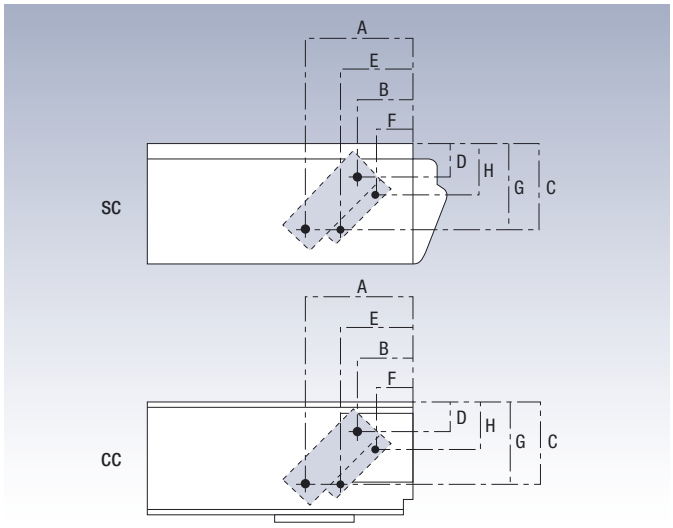
Connections – ceiling models

Standard version, pipe connection on the right when viewed from the front.

3 row battery



3 + 1 row battery



	A	B	C	D	E	F	G	H
sc – B 3r	204	80	174	50	N/A	N/A	N/A	N/A
cc – B 3r	204	80	174	50	N/A	N/A	N/A	N/A
sc – B 3+1r	204	80	174	50	123	48	164	90
cc – B 3+1r	204	80	174	50	123	48	164	90

N.B: Battery connection: 1/2" B.S.P. female.
Condense tray connection: 20mm Ø

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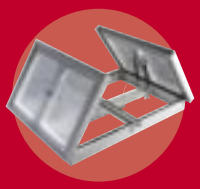

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