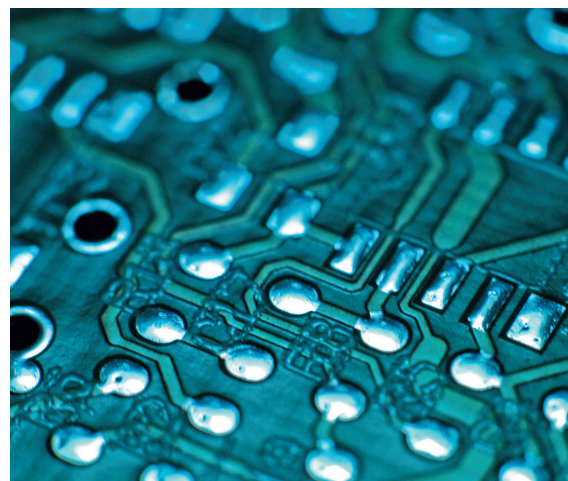


Close control air conditioners

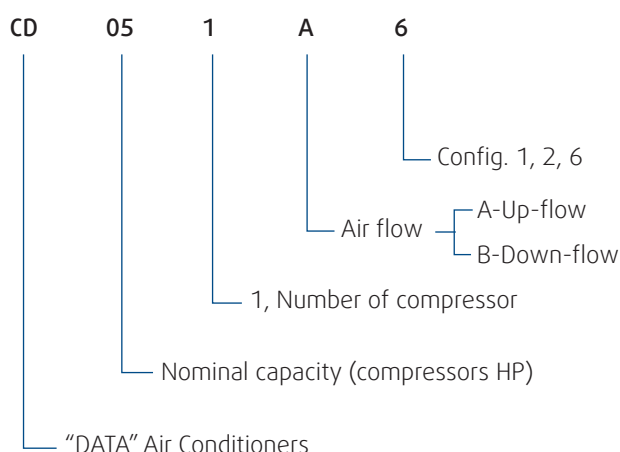
CD data series



CD data series



Unit identification



Technical specifications

The air conditioners belonging to the "DATA" series have been specifically designed and manufactured for close control air conditioning where the handling almost exclusively sensible heat loads is a fundamental requirement.

The typical applications are computer rooms, digital telephone exchanges, switch rooms, weather stations, medical laboratories, CAT and MR scanners, as well as any other application where a sensible heat load must be dissipated without modifying the relative humidity.

The series, which can be either upflow or downflow, offers a large range of accessories and variations in design, allowing for maximum flexibility in the use of the units.

The overall noise level of the units is maintained at a low level by the use of "scroll" compressors, size of the fans used and the face area of the coils.

The compressor and the refrigeration circuit is positioned in a separate compartment out of the airflow ensuring a reduction in the transmission of noise and the possibility of maintenance with the machine in operation.

Standard version

Frame in painted aluminium profiles. Painted aluminium alloy corner joints.

Panels (external and internal) in galvanized sheet steel with an external plastic coating. Panels are mounted with stainless steel screws; inspection panels are fitted on hinges and equipped with easy to open locks requiring a separate key. Room air return grill in galvanized steel with an external plastic coating, for up-flow models only.

Air-tight gaskets on panel edges in polyurethane with dual density.

Internal structure in galvanized sheet steel. Compressor section separate from the air flow.

Internal lining

- Doors: thermal insulation between two aluminium sheets in rigid polyurethane foam class 1, non-flammable, 22 mm thickness, density of 47 kg/m³ and a thermal conductivity of, 0.024 W/(m°C).
- Panels: in thermo-acoustic open-cell expanded polyurethane, 22 mm thickness for the external panels and 15 mm for the internal ones, self-extinguishing class 1, density of 33 kg/m³ and a thermal conductivity of, 0.036 W/(m°C).

Evaporating coil, DX type in copper tubes mechanically expanded into aluminium fins; frame in galvanized steel.

Drain pan in stainless steel with plastic connection to external discharge.

Air filter cleanable type in synthetic fibre, stainless steel frame, G4 efficiency.





Supply air centrifugal fan double inlet, forward inclined blades, impeller statically and dynamically balanced, directly coupled to electric motor with built-in overload protection.

Air flow switch on room supply air fan.

Hermetic compressor "scroll" type with built-in safety valve. 2-pole electric motor with integrated electronic overload protection. Mounted on rubber shock absorbers. Valves for welding mounted on suction and discharge connections (conf. 2).

Refrigerant filter with mechanical and desiccant action, molecular-sieve type.

Liquid sight-glass with colour-change for moisture indication.

Expansion valve with plastic external equalizer.

Refrigerant circuit in copper piping that has been brazed welded with silver alloy. Suction line insulated with closed-cell vapour-proof material.

High-pressure switch with manual reset.

Low-pressure switch with automatic reset.

Safety device in high-pressure section.

Electric control panel complete with:

- Main interlocking power switch.
- Automatic fuse protections are each single utility.
- Compressor motor contactor.

- Fan motor contactors.
- Auxiliary services transformer.
- Components and wiring in compliance with applicable IEC Norms.

Microprocessor control for single or multi-unit management system, with the following characteristics:

- room air temperature control through the activation of the compressor or the electric heater (option);
- supply air temperature limit;
- management of all alarm conditions;
- remote start-stop;
- general alarm;
- password.

Advanced microprocessor, high performances 16 bit programmable control. It is used when customized programmes are required, or an increased number of alarms, or advanced functions for LAN connections.

User interface for the display of unit conditions, status and operating parameters, with the following characteristics:

- display of room temperature and temperature set-point for supply air;
- display of operating parameters;
- control keyboard with two levels of "password";
- alarm reset and unit set-up;
- on/off safety switch;
- watchdog function.

R407C refrigerant and oil charge (anti freeze oil type).

Factory tests and inspection.

Configurations

Configuration 1

Packaged unit water cooled, coming from cooling tower, spring water or city water. It is to use water-regulating valve in case of city or spring water operating to reduce the water consumption.

The unit, described as above, is complete with:

Condenser water cooled, welded-brazed stainless steel plates type.



Configuration 2

Self-contained two sections unit, with air-cooled condenser for remote installation. The unit, described as above, is complete with:

Taps on refrigerant pipes.

Standard supply include also the remote condenser with electrical and pipe connection in field in charge at the mechanical contractor.

Configuration 6

Packaged unit cooled with water-glycol coming from dry-cooler or from water industrial cooling system. The unit is similar at Configuration 1 with the condenser oversized to allow increased temperature and density typical of water-glycol mixture operating.

Accessories and options

Differential pressure switch for clogged filter alarm.

Water leakage alarm complete with control relay and two sensors to be installed in the raised floor.

Fire alarm consist of an optical survey presence smoke directly wired to the microprocessor where the alarm can be customized.

Electric reheating coil, one, two or three stages, available depending from the size, manufactured in extruded aluminium, complete with contactor, thermal overload protection and safety thermostat. It is managed from the microprocessor.

Steam humidifier, immersed electrodes type, modulating version, complete with probe assembled on return air and microprocessor control card.

Dehumidification system, made with fan speed and consequently air flow reduction. Humidity probe on return air.

Fresh air intake kit, separately supplied for field assembly. It is composed of a container with G4 air filter; the container is equipped with a circular connection (80 mm diam.) that has to be connected to the fresh air duct. Drilling and flexible connection are in charge of mechanical contractor. Max available air flow 0,04 m³/s.

Rear return air only for up-flow models. Closed front panel and return air intake on the rear side with flange for connection to the duct system.



Air delivery plenum frame and panels in galvanized steel sheet with plastic coating and internally lined with thermo acoustic polyurethane open cell foam, complete with a diffuser having a double row of adjustable vanes. Can be supplied with front diffuser only or with front and sides diffusers.

Base frame made in heavy steel profiles welded and painted is equipped with adjustable pedestals (adjustment 50 mm) and air deflector. The height, that has to be indicated from the mechanical contractor, is comprised from 150 to 700 mm.

Non-return damper with aluminium fins fitted on nylon bushings. For down-flow version please contact our Sales Dept.

Speed control on supply air fan, phase-cut type for forward blade fans or autotransformer type with four speed for backward blade fans. It can be field set.

Clock module, microprocessor accessory, necessary for alarm report and timing.

Advanced microprocessor for **temperature + humidity** control, complete with card and probe for relative humidity control on return air and the dehumidification system.

Air filter having efficiency F5 or F7 installed instead of the standard filters. Made in syntetic fiber with stainless steel frame are not washable type.

Special coils with an anti corrosion surface treatment.

Internal lininig of the panels in double layers of open-cell polyurethane foam with interposed lead sheet, weight of 6.3 kg/m², 22 mm thickness for external panels and 15 mm for internal ones. It has the same thermal insulation characteristics of the standard and improves of 4 dB(A) the noise of the unit.

Sandwich panels external in galvanized steel sheet plastic coated, internal in pre-painted galvanized steel sheet. Thermal insulation between the two metal sheets in rigid polyurethane foam class1, non-flammable, density 47 kg/m³ and conductivity 0.024 W/(m°C). It has the same thermal insulation characteristics of the standard and improves of 4 dB(A) the noise of the unit. Can be used when high pressure fans are required.

Serial output card rs 485 can be used with both models of microprocessor.

Remote condenser with electrical and pipe connection in field in charge at the mechanical contractor.

Air cooled condenser with:

- **Casing** in prepainted aluminium sheet fixed with rivets, floor supports for air horizontal discharge.
- **Propeller fan**, aluminium blades statically and dynamically balanced, protection grille on air discharge, directly coupled to external rotor electric motor.
- **Condensing coil** made in copper tubes mechanically expanded into aluminium fins, copper header with threaded connection for rotalock valves.
- **Taps** on refrigerant pipes.

Main technical data

Main technical data							
Data Series	Size		031	041	051	061	071
Configuration 1	Total cooling capacity (1)	kW	10.6	13.4	17.0	21.2	23.5
	Sensible cooling capacity (1)	kW	9.7	12.3	15.1	19.5	21.6
	Power input	kW	2.32	2.78	3.57	4.72	5.31
Configuration 2, 6	Total cooling capacity (2)	kW	10.0	12.8	15.3	20.5	22.1
	Sensible cooling capacity (2)	kW	9.3	12.0	13.9	19.3	20.5
	Power input	kW	2.8	3.35	4.26	5.64	6.33
Supply fan EC	Nominal air flow	m ³ /s	0.75	1.11	1.11	1.67	1.67
	External static pressure	Pa	20	20	20	20	20
	Power input	kW	0.4	0.7	0.7	0.85	0.85
	Engaged electric power	kW	0.5	0.736	0.736	2 x 0.5	2 x 0.5
Cooling coil	Face area	m ²	0.38	0.53	0.53	0.87	0.87
	Rows number	n°	3	3	3	3	3
	Fin spacing	mm	1.6	1.6	1.6	1.6	1.6
Compressor	Number of compressors	n°	1	1	1	1	1
	Nominal compressor power	HP	3.5	4	5	6.5	7.5
Configuration 1 water cooled condenser	Water flow	l/s	0.166	0.194	0.25	0.33	0.36
	Water pressure drop	kPa	17.2	17.6	17.5	17.1	17.9
Configuration 6 water cooled condenser	Water-glycol flow 30%	l/s	0.72	0.94	1.08	1.55	1.64
	Water pressure drop	kPa	16.6	16.6	17.1	17.7	17.9
Air cooled condenser model			CG BLN 015	CG BLN 020	CG BLN 020	CG BLN 035	CG BLN 035
Oil charge for circuit		L	1.1	1.1	1.85	1.65	4
Refrigerant charge	Configuration 1, 6	kg	1.0	1.1	1.4	1.8	2.1
	Configuration 2	kg	3.1	3.6	4.5	5.8	6.3
Sound pressure level (up-flow/down-flow) (3)		dB(A)	52/48	55/51	55/51	55/51	56/52
Dimensions	Length	mm	650	840	840	1.238	1.238
	Width	mm	650	650	650	650	650
	Height	mm	1.970	1.970	1.970	1.970	1.970
Operating weight	Configuration 1, 6	kg	160	180	220	300	360
	Configuration 2	kg	155	175	215	290	350

Capacities referred to:

(1) Room air conditions +24°C/50%RH. Condensing water temperature +15/35°C.

(2) Room air conditions +24°C/50%RH. Room air conditions +24°C/50%RH.

External air temperature +32°C. Dry-cooler water temperature +35/40°C.

(3) Sound pressure level measured a 2 mt from the machine, 1 m from the ground, in free field conditions.

The fan power input has not been subtracted from the capacities indicated above.

Cooling capacity

R407C Cooling capacity - Room air conditions °C-%RH									
Size	Conf.	20-50		22-50		24-50		26-50	
		Ct	Cs	Ct	Cs	Ct	Cs	Ct	Cs
		kW	kW	kW	kW	kW	kW	kW	kW
31	1	9.4	9.2	10.1	9.5	10.6	9.7	11.2	9.9
	2,6	8.9	8.6	9.5	8.9	10.0	9.1	10.6	9.3
41	1	12.0	11.4	12.6	11.8	13.4	12.3	14.1	12.7
	2,6	11.5	10.9	12.0	11.2	12.8	11.7	13.5	12.1
51	1	15.1	14.3	16.0	14.6	17.0	15.1	17.9	15.4
	2,6	13.6	12.9	14.4	13.2	15.3	13.6	16.1	13.9
61	1	18.8	18.3	20.0	19.0	21.2	19.5	22.4	20.1
	2,6	18.2	17.8	19.4	18.4	20.5	18.9	21.6	19.5
71	1	20.9	20.4	22.1	21.0	23.5	21.6	24.9	22.1
	2,6	19.6	18.9	20.8	19.4	22.1	20.0	23.4	20.5

Ct Total cooling capacity.

Cs Sensible cooling capacity.

The fan power input has not been subtracted from the capacities indicated above.

Heater capacity

Electric heater capacity						
		Size				
		31	41	51	61	71
Single stage	kW	4.5	6	6	9	9
Three stages	kW	1.8/2.7/4.5	2.4/3.6/6	2.4/3.6/6	3.6/5.4/9	3.6/5.4/9
FLA*	A	6.5	8.7	8.7	13.0	13.0

* Referred to single stage heater.

Humidifier

Humidifier						
		Size				
		31	41	51	61	71
Max steam production	kg/h	3	3	3	3	3
Full load power input	kW	2.3	2.3	2.3	2.3	2.3
Full load current	A	3.3	3.3	3.3	3.3	3.3
Water conductivity min-max	µS/cm²	125-1.250				
Water supply pipe diam.	”G	¾”				
Min int. diam. humid. supply	mm	6				
Water drain pipe diam.	mm	32				

Water and refrigerant connections

Water and refrigerant connections						
Connection		Size				
		31	41	51	61	71
Condenser water connections (conf.1)	"G	¾"	½"	½"	½"	½"
Nominal pressure drop	kPa	17.2	17.6	17.5	17.3	17.3
Liquid line (conf. 2)	Ø	½"	½"	½"	½"	¾"
Gas supply line (conf. 2)	Ø	⅝"	⅝"	⅝"	⅝"	⅞"
Condenser water connections (conf.6)	"G	¾"	1"	1"	1¼"	1¼"
Nominal pressure drop	kPa	16.6	16.6	17.1	17.1	17.9
Humidifier water supply	"G	¾"	¾"	¾"	¾"	¾"
Min int. diam. humid. supply	mm	6	6	6	6	6
Humidifier water drain	mm	32	32	32	32	32
Condensate drain	mm	20	20	20	2 x 20	2 x 20

Electrical data

Electrical data						
		Size				
		31	41	51	61	71
Full load power input (1)	kW	7.8	10.4	11.3	15.8	16.5
FLA (1)	A	18.3	21.4	23.1	27.7	29.7
LRA	A	59.3	65.3	80.8	118.5	116.5
Copper wire size (2)	5 x mm ²	10	10	10	16	16
Electrical supply	V/ph/Hz	400 ± 10% / 3 + N/50				

(1) At the maximum operating admitted conditions. Unit complete with humidifier and electric heater.

(2) Wire size valid for distances up to 30 mt. Max. voltage drop 3%.
For the operating data please refer to the unit wiring diagram.

Air filters

Air filters							
			Size				
			31	41	51	61	71
Up flow	Quantity	n.	2	2	2	4	4
	Dimensions	mm	525x440	700x440	700x440	545x440	545x440
	Thickness	mm	48	48	48	48	48
Down flow	Quantity	n.	1	1	1	2	2
	Dimensions	mm	545x595	735x595	735x595	565x595	565x595
	Thickness	mm	98	98	98	98	98

Operating range

Operating range							
			Size				
			31	41	51	61	71
Inlet air conditions	°C-UR	min	18				
		max	30				
Total air flow	m³/s	min	0.54	0.75	0.75	1.24	1.24
		max	0.93	1.30	1.30	2.12	2.12
Max condenser water flow	l/s	conf.1	0.33	0.39	0.50	0.66	0.72
		conf.6	1.4	1.9	2.2	3.1	3.3
Hydraulic pressure	kPa	max	600				

Please contact our Technical Dept. for 2-way valves limits.

Glycol correction factors

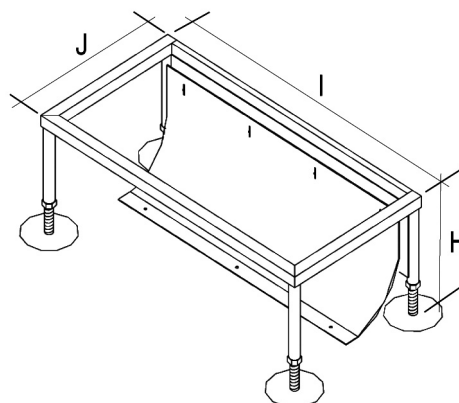
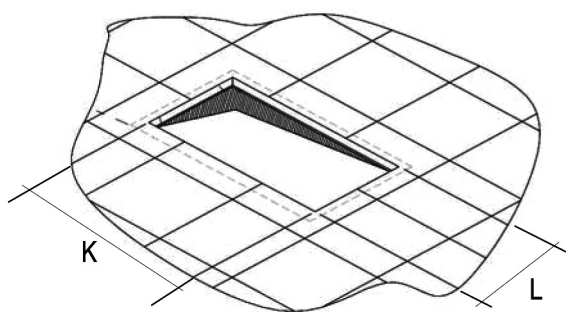
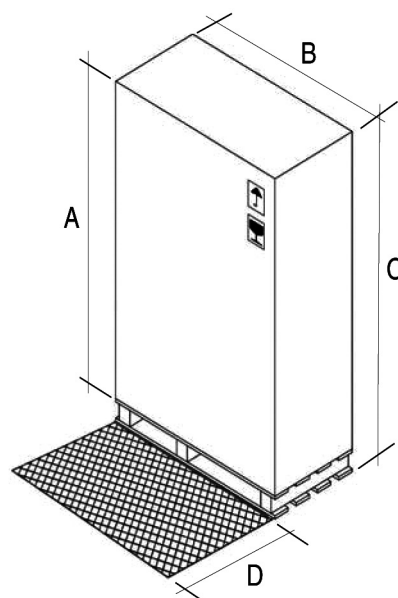
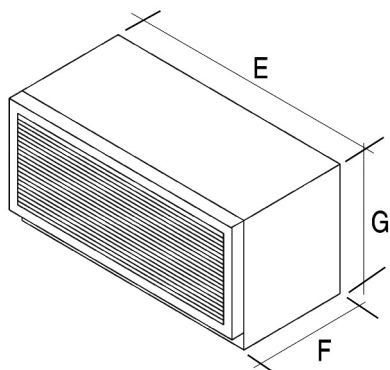
Glycol correction factors							
Glycol percentage		0%	10%	20%	30%	40%	50%
Freezing point	°C	0	-5	-10	-15	-20	-30
Capacity factor		1	0.98	0.95	0.93	0.91	0.88
Water flow factor		1	1.01	1.04	1.08	1.14	1.20
Pressure drop factor		1	1.05	1.13	1.21	1.26	1.32

Dimensions and weights

Packing - Plenum - Baseframe - Floor hole						
		Size				
		31	41	51	61	71
A	mm	700	700	700	700	700
B	mm	700	900	900	1.300	1.300
C	mm	2.120	2.120	2.120	2.120	2.120
D	mm	650	840	840	650	650
E	mm	650	840	840	1.238	1.238
F	mm	650	650	650	650	650
G	mm	600	600	600	600	600
H*	mm	150/700	150/700	150/700	150/700	150/700
I	mm	590	780	780	1.178	1.178
J	mm	590	590	590	590	590
K	mm	550	740	740	1.138	1.138
L	mm	530	530	530	530	530
Weight**	kg	170	190	230	310	370

* The eight has to be indicated by the mechanical contractor; adjustment 50 mm.

** Shipping weight.

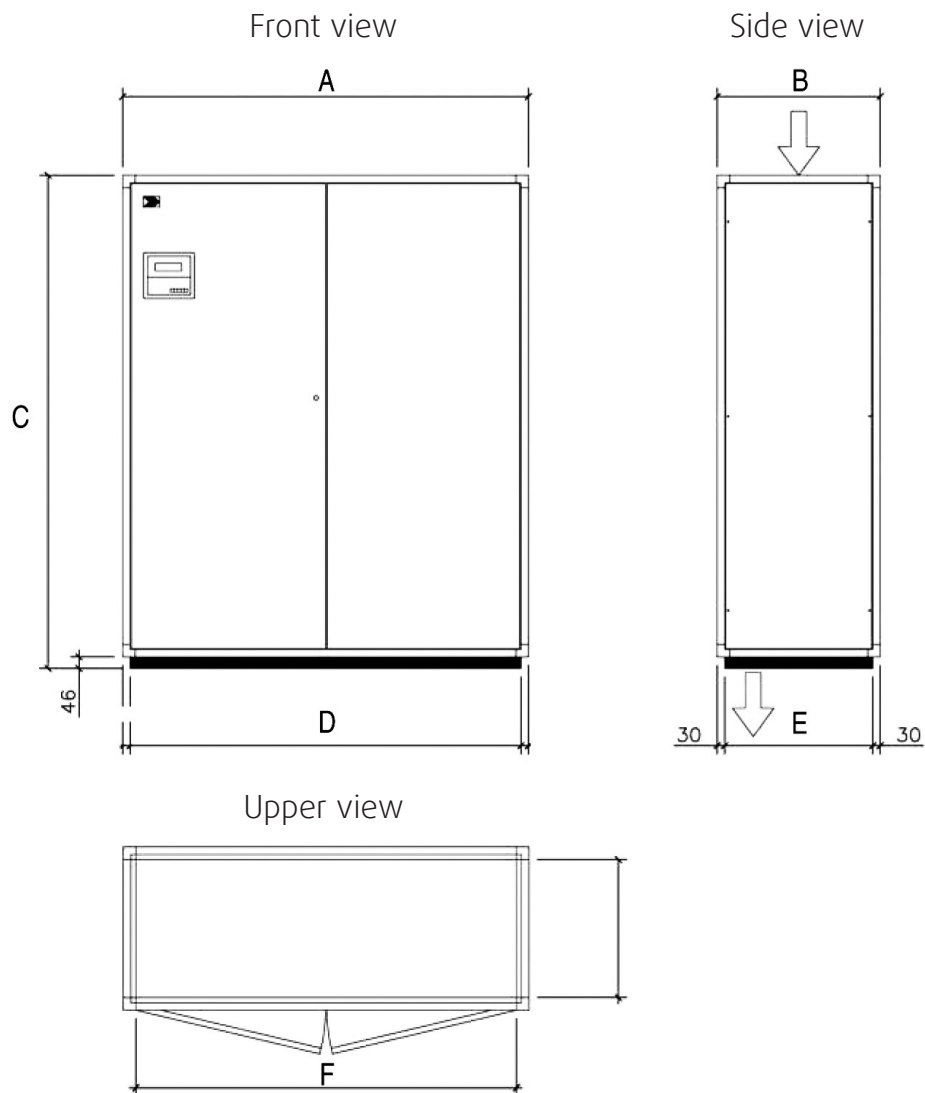


Down flow & Up Flow dimensions

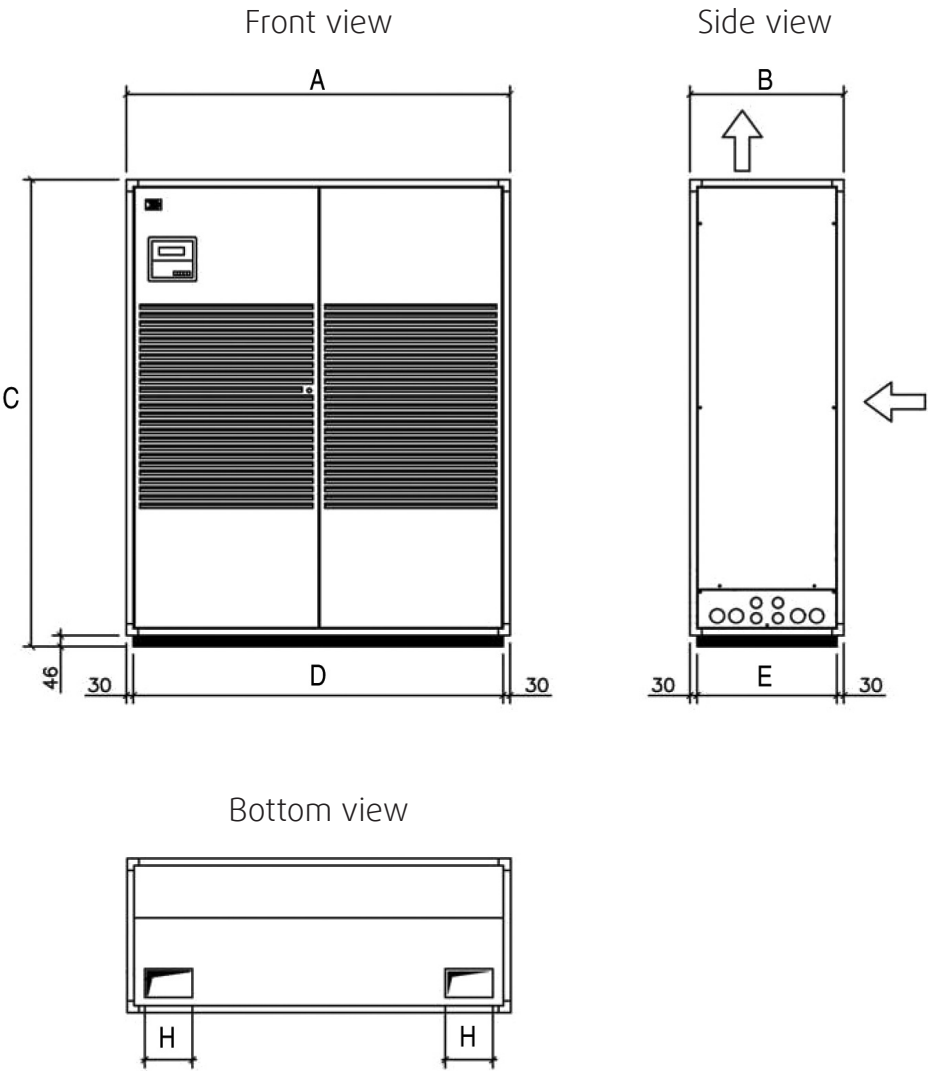
Down flow & Up flow versions						
		Size				
		31	41	51	61	71
A	mm	650	840	840	1.238	1.238
B	mm	650	650	650	650	650
C	mm	1.970	1.970	1.970	1.970	1.970
D	mm	590	780	780	1.178	1.178
E	mm	590	590	590	590	590
F	mm	552	742	742	1.140	1.140
G	mm	552	552	552	552	552
H	mm	150	150	150	150	150
I	mm	325	400	400	306	306
L	mm	-	-	-	282	282
M	mm	163	146	146	172	172
N	mm	282	243	243	245	245
O	mm	293	343	343	343	343

Please contact our Technical Dept. for detailed info about in/out position.

Down flow version



Up flow version





Systemair AC srl
Via XXV Aprile, 29
20825 Barlassina (MB)
Italy

Tel. +39 0362 680 1
Fax +39 0362 680 693

infoAC@systemair.it
www.systemair.com