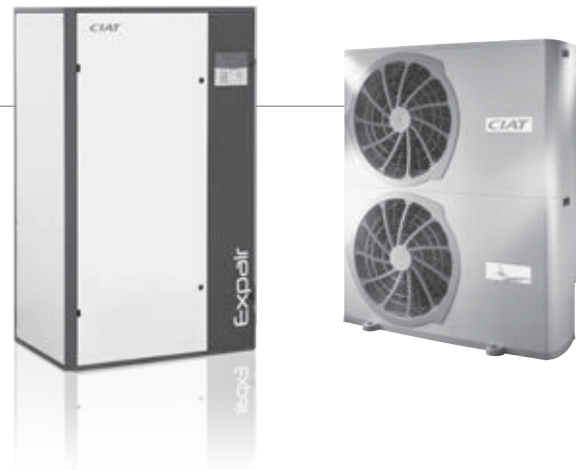




→ Precision air handling cabinets

“
Reduced footprint
Dual-wall construction
Built-in variable frequency drive
PLC control
Variable speed condenser fan



Cooling capacity: 5 to 50 kW
 Air flow: 1 000 to 12 000 m³/h

EXPAIR



USE

Precision air handling cabinet particularly suited to air treatment requirements (filtration, temperature and hygrometry control) in computer and telecommunications facilities and rooms for special use (electronics, metrology, sensitive storage, medical, controlled atmosphere rooms).

Dual-wall construction. Fan controlled by a variable frequency drive to ensure flow/pressure balance on site.

The unit is quickly and easily installed and particularly easy to use.

EXPAIR CW

Cabinet supplied with chilled water.

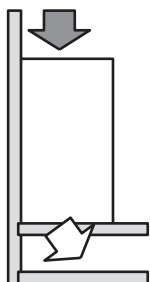
EXPAIR DXA

Stand-alone cabinet with separate air condensing unit. (R410A).

ASSEMBLY

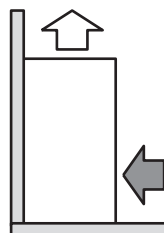
UNDER configuration : inverted discharge

Assembly 1



Discharge into raised floor

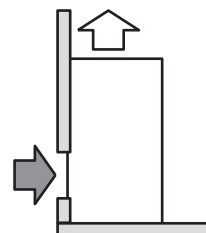
Assembly 3



Intake from front

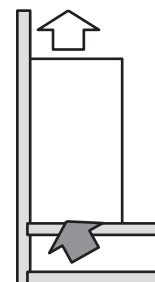
OVER configuration : discharge from top

Assembly 4



Intake from rear

Assembly 5



Return air below

RANGE

Unit	CW	5	8	12	16		27		39		59	
	DXA	5	8	10	12	15	19	24	31	36	38	48
Rated air flow rate (1)		1300	2000	2500	3000	4000	5000	6000	7000	8000	10000	12000
Associated CL condensing unit (2)		28	28	35	35	50	65	75	2x50	2x65	2x65	2x75

(1) Air flow rate adjustable by built-in variable frequency drive.
 (2) Two condensing units per air handling cabinet for 31 and 48 models.

QUICK SELECTION

EXPAIR CW

Unit	CW 5	CW 8	CW 12	CW 16		CW 27		CW 39		CW 59	
Air flow (m³/h)	1300	2000	2500	3000	4000	5000	6000	7000	8000	10000	12000
Cooling capacity (kW)	5	8	10.5	14.7	18.5	23.5	27	34	38	48	55
Water flow (m³/h)	0.86	1.4	1.8	2.5	3.2	4	4.6	5.8	6.5	8.2	9.4
Pressure drop (mCE)	4.3	4.9	5.1	4.7	7	4.1	5.2	7.3	8.9	5.5	6.9

Characteristics: total cooling capacity, pure water at 7°C/12°C, air at 24°C, 45 % RH. Pressure drop with control valve.
 Cooling capacity for maximum DT on air of 12°C.

Correction factors	7 / 12°C	8 / 13°C
22 °C / 45%	0.84	0.79
24 °C / 45%	1	0.9

EXPAIR DXA

Unit	DXA 5	DXA 8	DXA 10	DXA 12	DXA 15	DXA 19	DXA 24	DXA 31	DXA 36	DXA 38	DXA 48
External units, quantity and type	1xCL 28	1xCL 28	1xCL 35	1xCL 35	1xCL 50	1xCL 65	1xCL 75	2xCL 50	2xCL 65	2xCL 65	2xCL 75
Air flow (m³/h)	1300	2000	2500	3000	4000	5000	6000	7000	8000	10000	12000
Cooling capacity (kW)	5	8	10.6	11	15	19	23.2	30.1	35	38	47

Characteristics: total cooling capacity, air at 24°C, 45 % RH, 32°C external temperature.

Correction factors	30 °C	32 °C	35 °C	40 °C
24 °C/50%	1.02	1	0.98	0.93
26 °C/50%	1.06	1.04	1.02	0.98

Correction factors to be applied to the cooling capacity depending on the external temperatures and the inlet air conditions.

QUICK SELECTION

Hot water coil

Unit	CW	5	8	12	16	27	39	59				
	DXA	5	8	10	12/15	19/24	31/36	38/48				
Air flow (m³/h)		1300	2000	2500	3000	4000	5000	6000	7000	8000	10000	12000
Heating capacity (kW)		4.5	6.2	7.5	11.9	13.7	17.8	19.5	25.8	27.6	37.5	40.9
Water flow (m³/h)		0.21	0.27	0.33	0.5	0.6	0.8	0.9	1.1	1.2	1.65	1.8
Pressure drop (mCE)		1.3	2.6	4.3	2.1	2.8	1	1.2	1.7	1.9	2.8	3.3

Characteristics: heating capacity, air at 20°C, pure water at 80°C/60°C, pressure drop with control valve.
Correction factors to be applied to the heating capacity for water temperatures of 90°C/70°C: 1.23 and 45°C/35°C: 0.37.

Electric heater

Unit	CW	5	8	12	16	27	39	59
	DXA	5	8	10	12/15	19/24	31/36	38/48
Heating capacity (kW)		3	3	6	9	12	18	24

Ventilation

Unit	CW	5	8	12	16	27	39	59
	DXA	5	8	10	12/15	19/24	31/36	38/48
Air flow (m³/h)		1300	2000	2500	4000	6000	8000	12000
Maximum available pressure with G4 or F7 filtration		240	98	113	125	160	65	57

Maximum available pressure depending on air flow rate. Subtract approx. 20 Pa if hot water coil present on EXPAIR.
The operating point may be adjusted directly using the built-in voltage generator.
All combinations of air flow rate and available pressure are therefore possible up to the maximum values shown in the table above.

DESCRIPTION

Casing

- Double-wall construction.
- Pre-lacquered removable grey RAL 7035 panel:
 - external pre-lacquered sheet, thickness 1.0 mm
 - class M0 glass wool, thickness 25 mm
 - internal galvanised sheet, thickness 0.8 mm

Filtration

- F2S1 filter cells, 90% efficiency according to ASHRAE gravimetric test (G4).
- Optional F7 opacimetric filter.
- Optional dual filtration (G4 + F7)*
- Filter cells held in compression on a counter-frame with a seal to prevent all leaks.
- Blockage level monitored by an analogue pressure sensor.

Cold coil section

- Coil copper pipes and aluminium fins.
- Condensates drain pan.
- CW model with 2- or 4-way control valve fitted and connected. Heat-insulated connection hoses available as an option.
- Model DXA with thermostatic expansion valve.

* not available on DXA 5/8/10 and CW 5/8/12 models

Ventilation section

- Direct drive centrifugal fan.
- Electric motor (3-Ph / 400 V / 4 poles / class F).
- Variable frequency drive fitted for air flow control.
- Air flow detected by an analogue pressure sensor.

Internal unit electrical cabinet

Power, control and regulation cabinet including:

- Supply: 400 V / 3-Ph / 50 Hz + N + E
- Main cut-off (emergency stop type) on front panel.
- 400 V / 3-Ph / 24 V transformer with protection.
- Protection and control for fan motor, and depending on options for humidifier and electric heater.
- CIAT µAir CONNECT2.
- Dry temperature of return air tested.
- Return humidity control:
 - Humidity control during auxiliary operation (optional)
 - Humidity control during dehumidification (optional)
- Optional features include water leak detection, fire thermostat and supply air low limit.
- Remote control and fault summary contact.
- Optional condensate pump.

Accessories

- Support base for discharge into raised floor
 - low version (225-320 mm)
 - high version (320 to 525 mm)
- Supply plenum
- Acoustic plenum with noise trap
- Motorised intake damper
- Water leak detection
- Fire thermostat
- Hydraulic connection kit (chilled water and hot water coils)
- LON gateway
- C/O sensor (only on CW)

Description of external unit (DXA model)

- CL type air condensing unit
- Supply: 400 V / 3-Ph / 50 Hz + N + E
- SCROLL hermetic compressor
- HP and LP safety pressostats
- Isolating and adjustment valves
- 1 cooling circuit
- Refrigerant: R410A
- Condensation pressure adjusted by electronic circuit board and pressure sensor. Speed variation on condenser fan
- Faults signalled to internal unit

OPTIONS

Electric heater

- Operation linked to fan
- Two-stage control (3 kW electric heater excepted)
- Two-stage or TRIAC control on EXPAIR
- Two high limit safety thermostats, automatic and manual reset

Hot water coil

- Coil with one row of copper tubes and aluminium fins.
- 2- or 4-way control valve fitted and connected.
- Optional connection hoses.

Humidifier

- Immersed electrode humidifier with CPY board for feeding back information relating to the humidifier directly to the CIAT μ Air CONNECT2 PLC:
 - Stainless steel electrodes with large surface area
 - 3 kg steam per hour rated flow rate < 3000 m3h
 - 8 kg steam per hour rated flow rate > 3000 m3h
 - Steam cylinder contained in one easily-removable item
 - Filling solenoid valves
 - Drain pump
 - Electronic circuit board controlling operation.
 - Diffusion jet
 - Water supply connection kit
- Only operates on mains water (conductivity 350 to 1250 μ S/cm, hardness 13 to 30°F), non demineralised or softened water

CONTROL

Control and supervision of units

CIAT μ Air CONNECT2



- 160-character display containing instruction manual, operating reports, faults and corrective actions. Configurable PLC
- Two fault levels
- Operating time counter
- RS 485 output using JBus or ModBus protocol
- Can manage rotations, backups and auxiliaries between units.
- LON gateway
- C/O sensor (only on CW)

ELECTRICAL CHARACTERISTICS

Internal unit (CW and DXA models)

		CW 5 DXA 5	CW 8 DXA 8	CW 12 DXA 10	CW 16 DXA 12/15	CW 27 DXA 19/24	CW 39 DXA 31/36	CW 59 DXA 38/48
Fan motor assembly	Voltage (V)	400V						
	Power (kW)	0.55		0.75		1.1	1.5	2.25
	Current (A)	2.6		3.3		5	6.6	9.9
Control circuit	Voltage (V)	24						
	Current (A)	1						
Electric heater (option)	Voltage (V)	400						
	Power (kW)	3	6	9	12	18	24	
	Current (A)	4.3	8.7	13	17.3	26	34.6	
Humidifier (option) max. value	Voltage (V)	400						
	Power (kW)	2.25			6			
	Current (A)	3.2			8.7			
Total current without option	Current (A)	3.6		4.3		6	7.6	10.9
	Main switch rating (A)	16						
Total current all options	Current (A)	11.1	11.1	15.5	26	32.1	42.3	54.2
	Main switch rating (A)	16			40			63

External unit (DXA model)

Unit	5	8	10	12	15	19	24	31	36	38	48
No. and type of external units	1x28	1x28	1x35	1x35	1x50	1x65	1x75	2x50	2x65	2x65	2x75
No./type of electrical power supply	1 / 3ph 400V / 50Hz + N +E							2 / 3ph 400V / 50Hz + N +E			
Max. total current (A)	5	7.5	8.5	8.3	11.3	12.6	15.7	2x11.3	2x12.6	2x12.6	2x15.7

SOUND PRESSURE LEVEL

Internal unit (CW and DXA models)

Unit	CW	5	8	12	16	27	39	59				
	DXA	5	8	10	12/15	19/24	31/36	38/48				
Air flow (m³/h)		1300	2000	2500	3000	4000	5000	6000	7000	8000	10000	12000
Sound pressure level (dBA)		49	53	58	57	61	59	63	60	63	60	64

Sound pressure level of internal unit (CW and DXA) at 2 m, free field, with blower connected, ± 3 dB

External unit (DXA model)

Unit DXA	5	8	10	12	15	19	24	31	36	38	48
Models	28	28	35	35	50	65	75	2x50	2x65	2x65	2x75
Sound pressure level (dBA)	39	39	45	45	43	47	47	46	50	50	50

Sound pressure level of external unit at 5 m, 1.5 m four ground level, directivity 2 and ± 3 dB

CONNECTIONS/WEIGHT

Internal unit

Unit	Chilled water	CW 5	CW 8	CW 12	CW 16	CW 27	CW 39	CW 59
	Direct expansion	DXA 5	DXA 8	DXA 10	DXA12/15	DXA19/24	DXA 31/36	DXA 38/48
Weight of internal unit (kg)		115	120	125	280	310	375	480

Chilled water coil (CW)

Inlet/outlet connections	G 1/2" M	G 3/4" M	G 3/4" M	G 3/4" M	G 1" M	G 1" M	G 1" M	G 1 1/4" M
Condensate drain*	Ø 32mm							

Direct expansion coil (DXA)

Suction pipes	G 5/8" M	G 5/8" M	G 3/4" M	G 7/8" M	G 7/8" M	G 1 1/8" M	G 1 1/8" M	G 2X7/8" M	G 2X7/8" M	G 2X1 1/8" M	G 2X1 1/8" M
Liquid pipes	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	2x1/2"	2x1/2"	2x1/2"	2x1/2"
Condensate drain*	Ø32mm										

Hot water coil

Inlet/outlet connections	G 1/2" M	G 1/2" M	G 1/2" M	G 1/2" M	G 1/2" M	G 3/4" M	G 3/4" M	G 3/4" M
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Chilled water coil connections: inlet on threaded coupling and outlet on threaded control valve.

Condensate drain connection on smooth coupling.

* Drain connections if optional pump fitted: dia. 6 mm

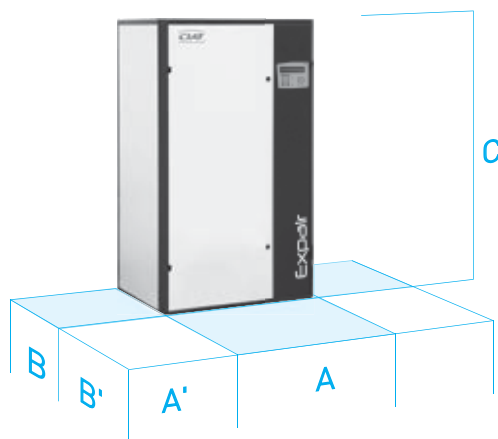
Outdoor unit

Direct expansion units	DXA 5	DXA 8	DXA 10	DXA 12	DXA 15	DXA 19	DXA 24	DXA 31	DXA 36	DXA 38	DXA 48
Outdoor units (qty/type)	1x28	1x28	1x35	1x35	1x50	1x65	1x75	2x50	2x65	2x65	2x75
Weight of outdoor unit (kg)	64	69	69	69	101	112	118	101	112	112	118

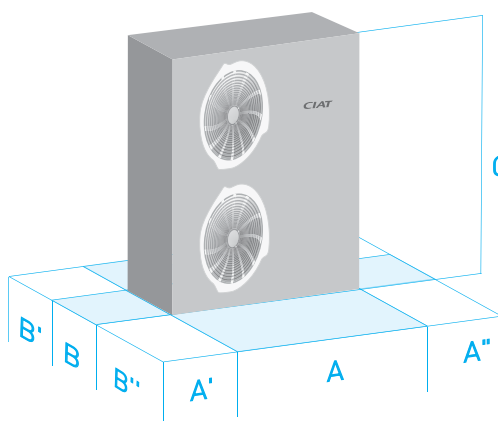
Refrigerant connections

Suction pipes	5/8"	5/8"	3/4"	3/4"	3/4"	7/8"	7/8"	2x3/4"	2x7/8"	2x7/8"	2x7/8"
Liquid pipes	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	1/2"	2x3/8"	2x3/8"	2x3/8"	2x1/2"
Condensate drain	Ø32mm										

DIMENSIONS

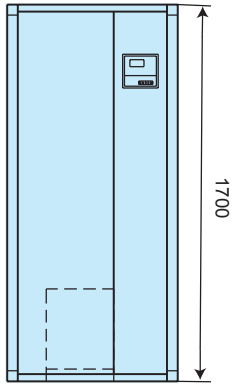


Internal unit						
Units	Dimensions (mm)					Weight (kg)
	A	A'	B	B'	C	
CW5 DXA5	675	125	500	183	1700	115
CW8 DXA8	675	125	500	183	1700	120
CW12 DXA10	675	125	500	183	1700	125
CW16 DXA12/15	850	125	780	183	1900	280
CW27 DXA 19/24	1150	125	780	183	1900	310
CW39 DXA 31/36	1490	120	780	183	1900	375
CW59 DXA 38/48	1990	120	780	183	1900	480

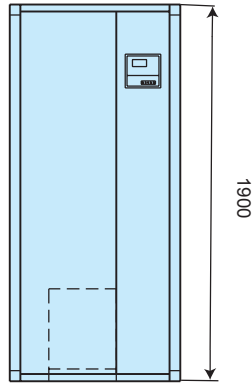


Outdoor unit								
Units	Dimensions (mm)							Weight (kg)
	A	A'	A''	B	B'	B''	C	
28	1035	300	300	449	300	1500	658	69
35	1035	300	300	449	300	1500	658	69
50	1035	300	300	449	300	1500	1258	101
65	1035	300	300	449	300	1500	1258	112
75	1035	300	300	449	300	1500	1258	118

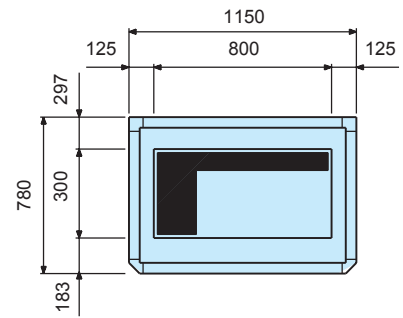
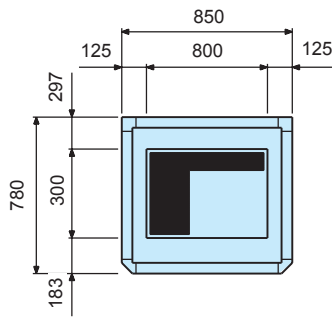
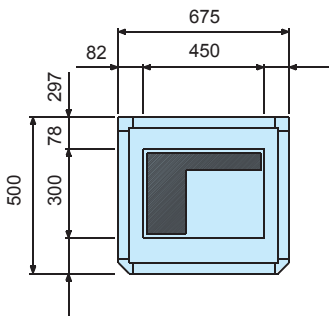
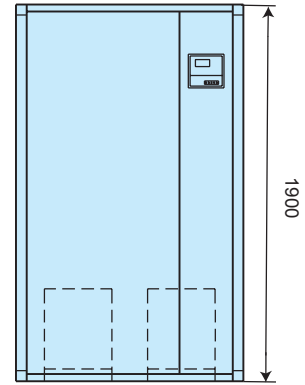
CW 5/8/12
DXA 5/8/10



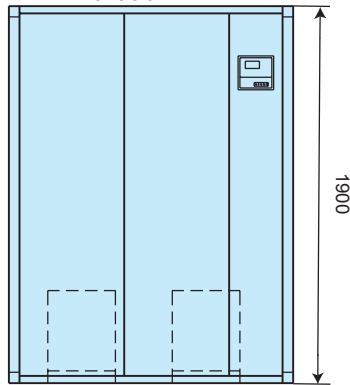
CW 16
DXA 12/15



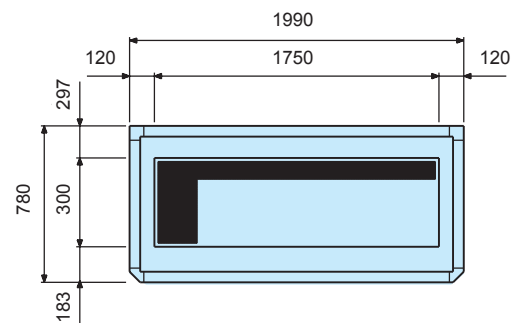
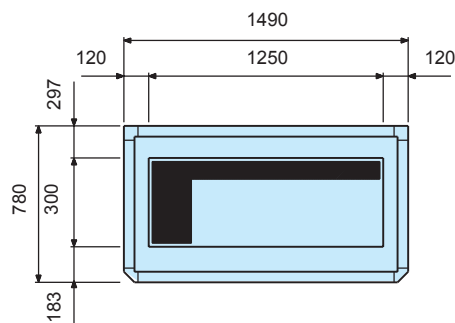
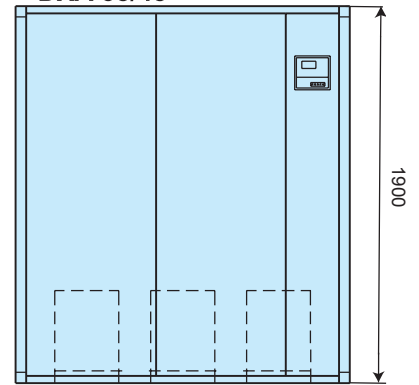
CW27
DXA 19/24



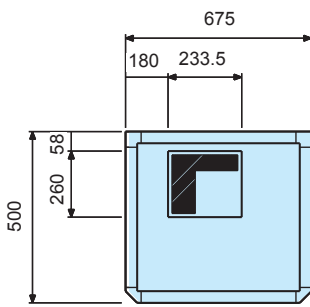
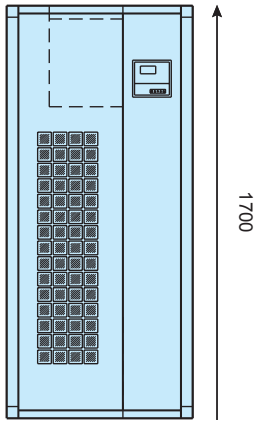
CW 39
DXA 31/36



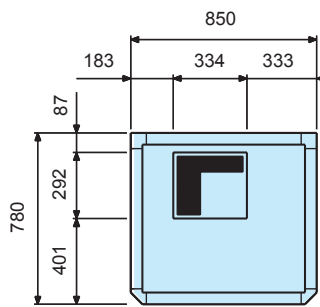
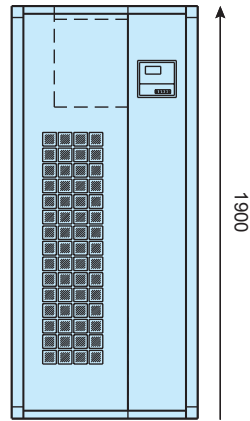
CW 59
DXA 38/48



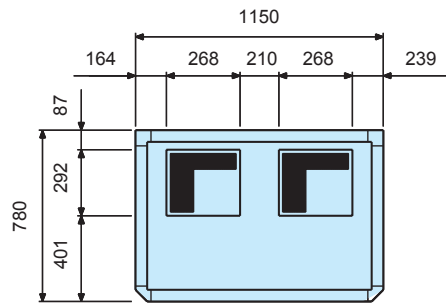
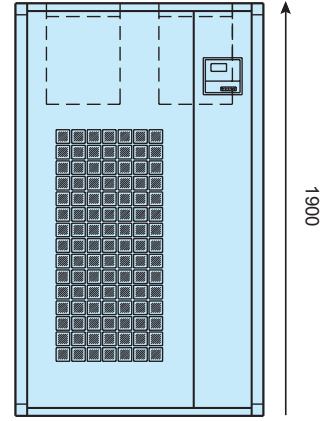
CW 5/8/12
DXA 5/8/10



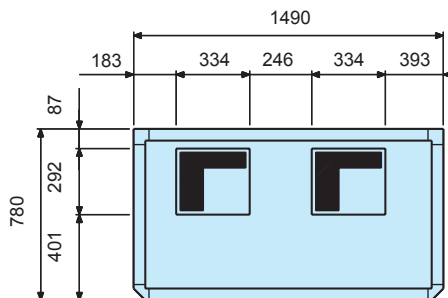
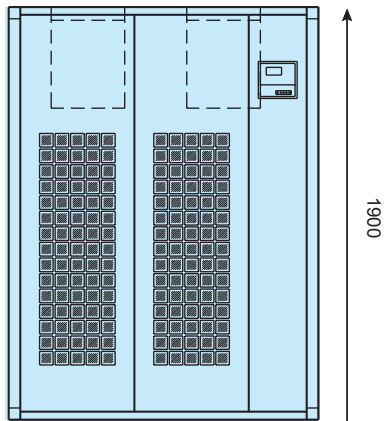
CW 16
DXA 12/15



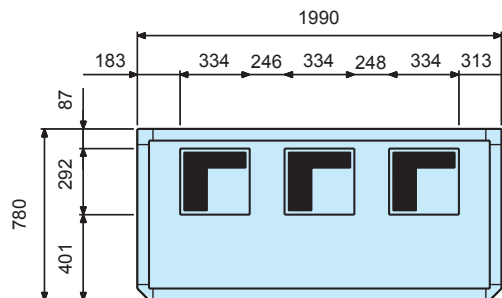
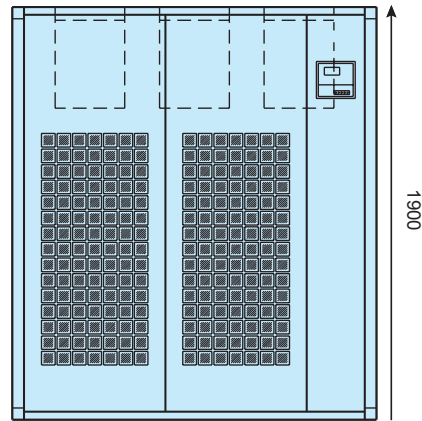
CW 27
DXA 19/24



CW 39
DXA 31/36



CW 59
DXA 38/48

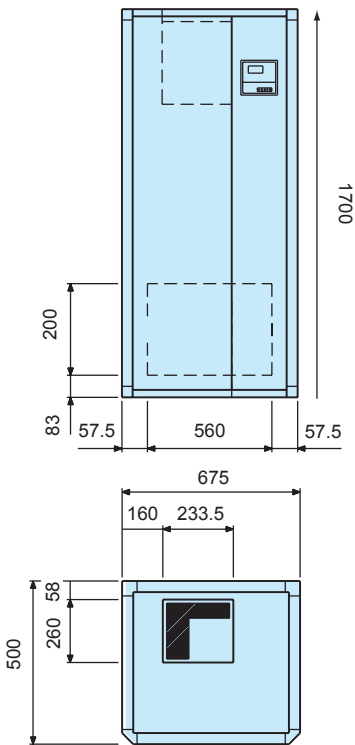


DIMENSIONS

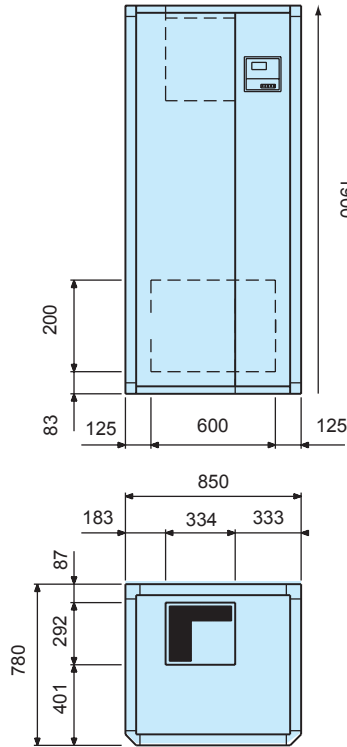
Internal unit (CW and DXA models)

■ Configuration OVER 4

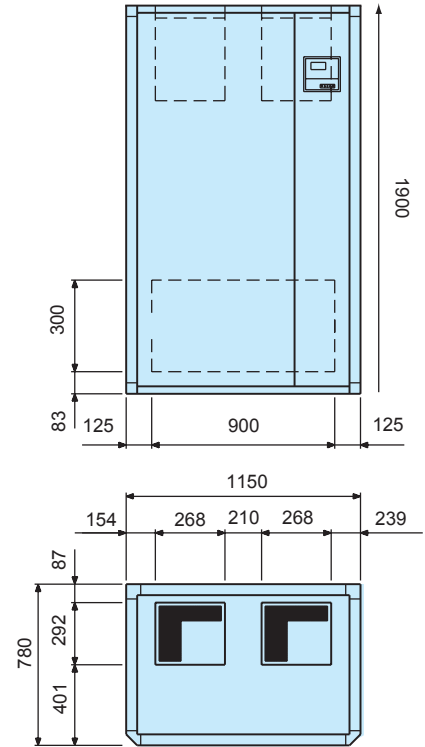
**CW 5/8/12
DXA 5/8/10**



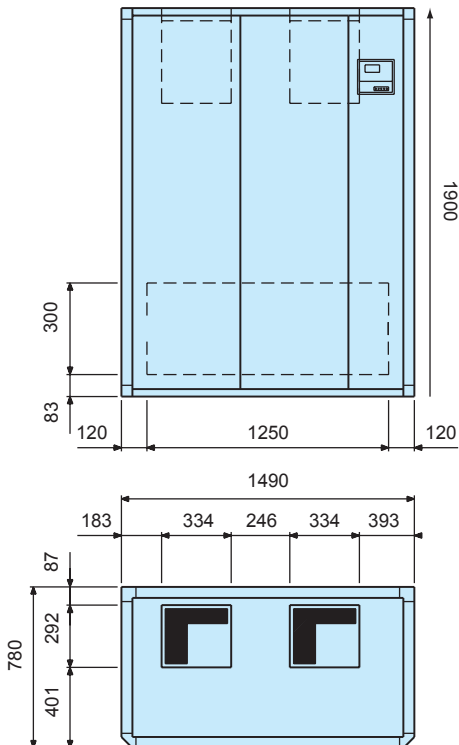
**CW 16
DXA 12/15**



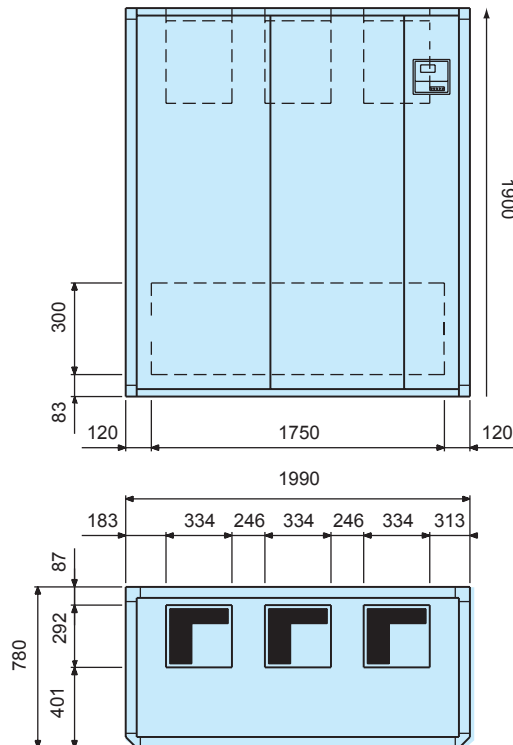
**CW 27
DXA 19/24**



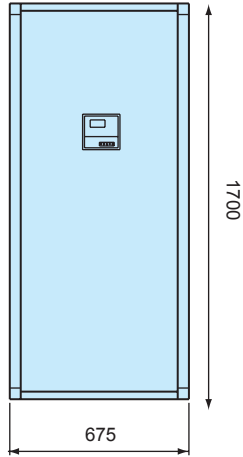
**CW 39
DXA 31/36**



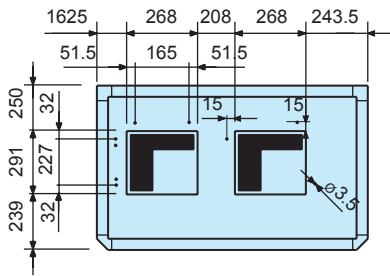
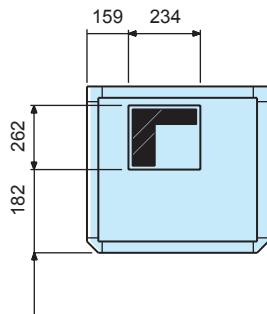
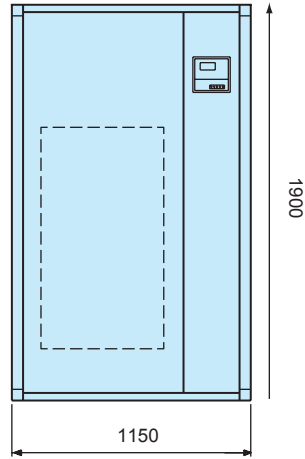
**CW 59
DXA 38/48**



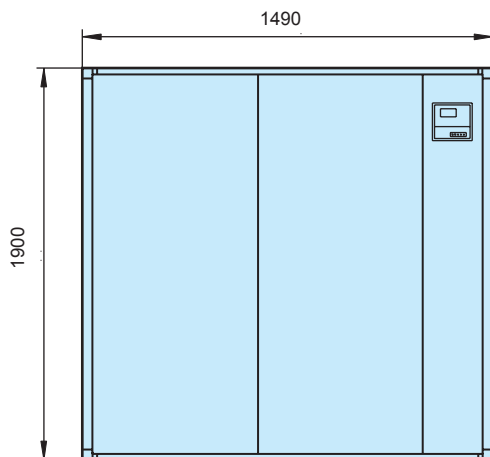
CW 5/8/12
DXA 5/8/10



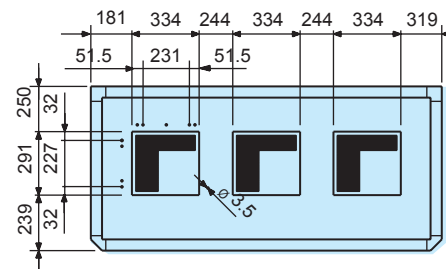
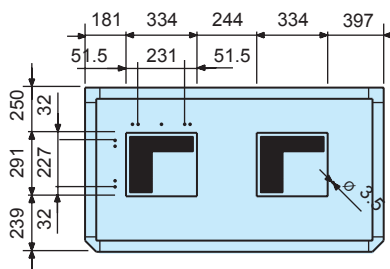
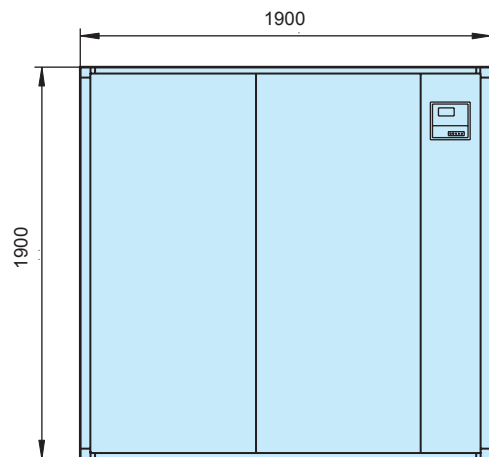
CW 27
DXA 19/24



CW 39
DXA 31/36



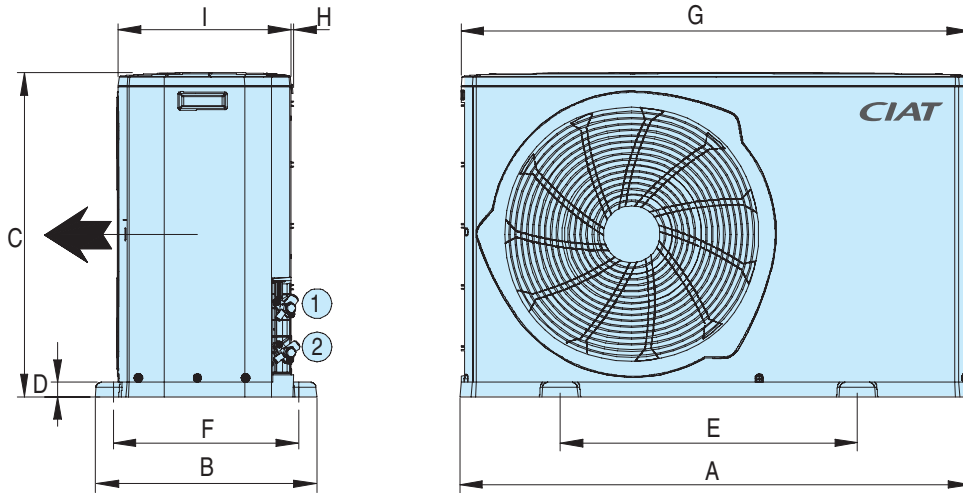
CW 59
DXA 38/48



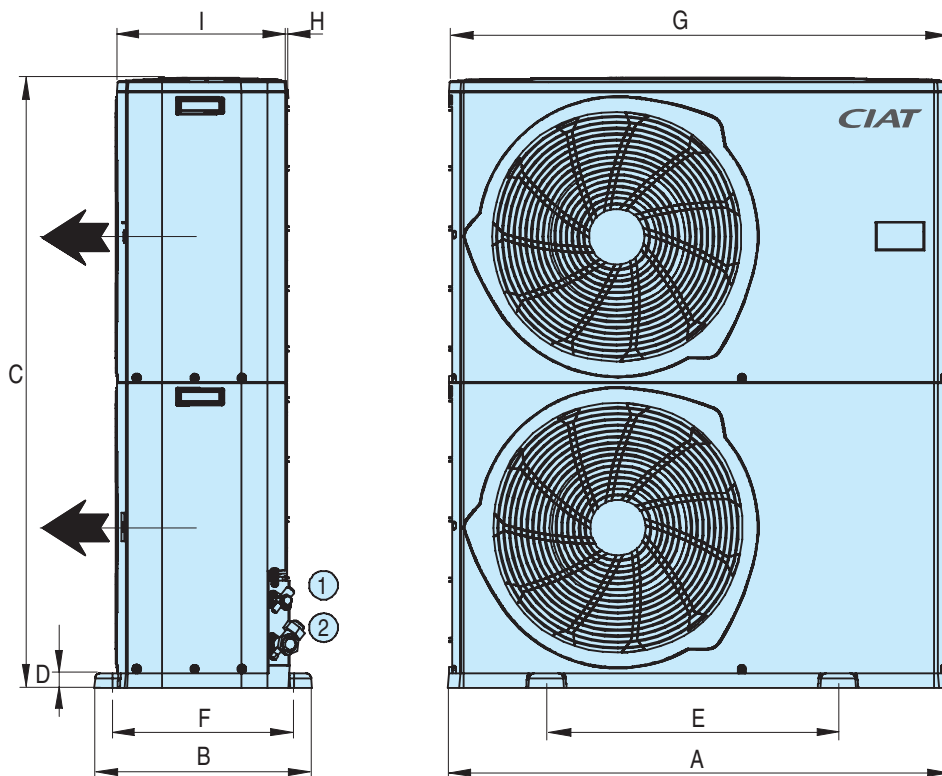
DIMENSIONS

External unit

■ 28 and 35 models



■ 50, 65 and 75 models



CL	A	B	C	D	E	F	G	H	I
28 and 35	1.035	449	658	30	602	375	1.030	5	350
50, 65 and 75	1.035	449	1.258	30	602	375	1.030	5	350

EXTERNAL AIR FLOW

① LIQUID LINE

② SUCTION GAS LINE



→ Precision air handling cabinets

EXPAIR

This document is non-contractual. As part of its policy of continual product improvement, CIAT reserves the right to make any technical modification it feels appropriate without prior notification.

Head office

Avenue Jean Falconnier - B.P. 14
01350 - Culoz - France
Tel.: +33 (0)4 79 42 42 42
Fax: +33 (0)4 79 42 42 10
info@ciat.fr - www.ciat.com



CIAT Service

Tel. : 08 11 65 98 98 (0,15 € / mn)
Fax : 08 26 10 13 63 (0,15 € / mn)



Compagnie Industrielle d'Applications Thermiques - S.A. with a registered capital of 26 728 480 € - R.C.S. Bourg-en-Bresse B 545 620 114