

DXW

Direct expansion water condensation



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The air conditioners belonging to the DXW series direct expansion air condensation, have been specifically designed and manufactured for close control air conditioning where the handling of almost exclusively sensible heat loads is a fundamental requirement and where is not present a central chilled water plant.

The typical applications are high-performance computer rooms, internet data center, digital telephone exchanges, switch rooms, weather stations, medical laboratories, archives, museums as well as any other application both of small or large dimension, where the sensible heat load must be dissipated and is possible also regulate ambient humidity (optional).

The sizing of EC fans, Electronically Commutated the latest "Plug-In" and the exchange surfaces, allows the containment of emissions noise and electronic. The units are designed to present the smallest footprint possible, reducing the cost of the occupied floor space, and full frontal access for easy inspection and service.

The DXA units have compressor on board; the heat from the technical room is dissipated by an external inned coil condenser, connected during installation. In comparison to DXA set-up, these units have the advantage that the refrigerant circuit is realized in factory and pre-charged with refrigerant, not needing the laying of refrigerant lines.

VERSIONS

- **C00:** Only Cooling, base version, only cooling coil without humidification and dehumidification.
- **C0D:** Cooling and Dehumidification with electrical heater post heating, no humidification.
- **CH0:** Cooling and Humidification by non-pressurised steam humidifier by means of electrodes immersed.
- **CHD:** Cooling/Humidification/Dehumidification with electrical heater post heating, and non-pressurised steam humidifier by means of electrodes immersed.

DXW

Model		061	071	091	111	141	161	191	211	261	321	401	501
Total cooling capacity ⁽¹⁾	kW	6,4	7,5	9,3	11,6	14,7	16,5	19,6	22,5	25,8	33,8	37,5	45,6
Sensible cooling capacity ⁽¹⁾	kW	5,6	7,2	8,1	9,6	11,7	14,2	16,6	19,0	21,3	28,1	30,8	37,7
SHR		0,87	0,96	0,87	0,83	0,79	0,86	0,85	0,84	0,83	0,83	0,82	0,83
Max power input compressor	kW	1,8	2,1	2,6	2,9	3,8	3,9	4,6	5,4	6,0	8,0	8,8	10,0
Nominal air low	m³/h	1800	2050	2600	2800	3300	4500	4700	5400	6100	8500	8300	11300
Fans	n°xkW	1x0,13	1x0,16	1x0,26	1x0,32	1x0,23	1x0,33	1x0,41	1x0,70	1x0,68	1x1,48	2x0,42	2x0,70
Nominal pressure drop	Pa	140	140	110	90	250	250	250	250	250	250	250	250
Type of compressor		Rotative				Hermetic scroll							
N. compressors / N. Circuit		1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1	1 / 1
Power supply		230V/1N/50Hz				400/3N/50	400V/3/50Hz						
Max power input	A	10,4	13,4	16,2	7,9	9,7	10,1	15,0	15,0	16,0	22,0	25,0	31,0
Max current input	A	43,0	62,0	64,0	48,0	63,0	63,0	75,0	101,0	95,0	118,0	118,0	140,0
Humidifier nominal capacity ⁽²⁾	kg/h	1,5	1,5	3	3	5	5	5	5	5	5	5	5
Heat.capacity of electrical heaters	kW	1,5	1,5	1,5	1,5	5,0	5,0	5,0	5,0	5,0	5,0	10,0	10,0
Water low ⁽³⁾	m³/h	1,45	1,57	1,91	2,49	3,14	3,44	4,26	4,88	5,39	7,20	8,13	9,40
Condenser pressure drop ⁽³⁾	kPa	31	36	26	45	43	51	31	42	51	51	46	45
SPL indoor unit "Under" ⁽⁴⁾	dB(A)	54	57	62	64	50	56	57	59	62	68	57	60
SPL indoor unit "Over" ⁽⁴⁾	dB(A)	57	60	65	67	52	59	60	62	65	72	60	63

DXW

Model		262	322	402	452	482	582	652	752	902	1002
Total cooling capacity ⁽¹⁾	kW	30,5	33,1	39,3	46,0	50,0	57,7	67,0	75,0	89,6	99,4
Sensible cooling capacity ⁽¹⁾	kW	25,5	28,7	32,6	39,4	42,0	49,0	56,2	63,2	74,0	81,4
SHR		0,84	0,87	0,83	0,86	0,84	0,85	0,84	0,84	0,83	0,82
Max power input compressor	kW	7,5	7,6	9,2	10,8	11,9	13,9	16,0	17,6	19,9	23,0
Nominal air low	m³/h	7200	8200	8900	11500	11900	14500	16100	17300	21100	22000
Fans	n°xkW	1x0,91	1x1,32	2x0,31	2x0,74	2x0,86	2x1,01	2x1,41	2x1,23	3x1,06	3x1,22
Nominal pressure drop	Pa	250	250	250	250	250	250	250	250	250	250
Type of compressor		Hermetic scroll									
N. compressors / N. Circuit		2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Power supply		400V/3/50Hz									
Max power input	A	20,6	23,6	30,0	30,0	32,0	42,0	44,0	50,0	62,0	68,0
Max current input	A	103,0	128,0	150,0	202,0	190,0	222,0	236,0	236,0	280,0	348,0
Humidifier nominal capacity ⁽²⁾	kg/h	5	5	5	5	8	8	8	8	8	8
Heat.capacity of electrical heaters	kW	5,0	5,0	10,0	10,0	10,0	10,0	10,0	15,0	15,0	15,0
Water low ⁽³⁾	m³/h	6,62	7,10	8,51	9,90	10,69	2x6,16	2x7,13	2x7,6	2x8,18	2x10,60
Condenser pressure drop ⁽³⁾	kPa	43	50	50	50	46	2x37	2x35	2x46	2x44	2x45
SPL indoor unit "Under" ⁽⁴⁾	dB(A)	66	68	58	64	65	69	71	72	72	73
SPL indoor unit "Over" ⁽⁴⁾	dB(A)	69	71	61	67	68	72	74	75	75	76

Performance refer to the following conditions:

(1) 24°C db 17,1°C wb; 50% R.H. - 45°C condensing

(2) When water conductivity is between 350-750 uS/cm³

(3) Sound pressure level at 1 mt in free field

(4) Sound pressure level at 10 mt in free field (EN13487)

DXW

FRAME

Frame in galvanized steel sheet with vertical rods and external panels painted with epoxy powder black gray colour RAL 7021. Fixing screws in galvanized steel. Doors are mounted on hinges and equipped with easy to open lock with key. Insulation acoustically and thermally, in open-cell polyurethane, class 1 self-extinguishing anti dripping (UL94-HF1), density of 25 Kg/m³ and thermal conductivity of 0,035 W/Mk at 10°C, insulation thickness of 20mm.

COMPRESSORS

The compressors utilised are scroll type. All compressors are fitted with a crankcase heater and each compressor has a klixon embedded in the motor winding for thermal overload protection. They are mounted in a separate compartment within the casing in order to isolate them from the condenser air stream. The crankcase heater is always energised when the compressor is in stand-by. Access to the compressor compartment is by removal of a front panel and, because they are isolated from the main airstream, maintenance of the compressors is possible whilst the unit is operating.

The compressors used are all in tandem configuration. This results in much higher efficiencies at part loads compared to units with independent refrigerant circuits.

FINNED PACK COOLING COIL

In copper-aluminium with large front surface to reduce air transit speed. The copper tubes mechanically expanded into aluminium fins to increase the heat exchange factor. All the units are equipped with a drip tray in stainless steel.

SUPPLY FAN

It is a high performance electrically commutated (EC) plug fan, backward aerofoil

blades, directly coupled to the electric motor. The electric motor is a high efficiency DC brushless type with external rotor, to guarantee an ideal cooling of the windings and the absence of power lost due to pulleys and belt transmission. The fan is statically and dynamically balanced class 6.3 according to ISO1940. The electric motor has a separate electronic commutator (driver). Serial interface card with modbus protocol RTU.

FILTERS

Standard efficiency class G4, Various options are available for filters with higher efficiency levels.

REFRIGERATING CIRCUIT

In conformity with the PED directive, complete with thermostatic expansion valve, filter, liquid gauge, solenoid valve, liquid receiver, safety valve and high and low pressure switches.

ELECTRICAL PANEL

With main interlocking switch and phase sequence relay. The secondary circuit is powered at low voltage of 24 Vac.

MICROPROCESSOR

Each unit of the DATA CENTER series is equipped with an advanced control, a microprocessor at 16 bit and a FLASH memory to guarantee high speed software performance and the possibility of managing multi-language configuration masks and different serial communication protocols. All the electronic boards can be connected to a local network named pLAN (Local Area Network) that is able to manage 8 units at most. (For more information, see the control service manual). Also, the management of a electronic expansion valve (EEV) is available.

USER INTERFACE

Display the 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 "menu" under "password", alarm reset and unit set-up, on/off safety switch, watchdog function.

CONTROL AND PROTECTION DEVICES

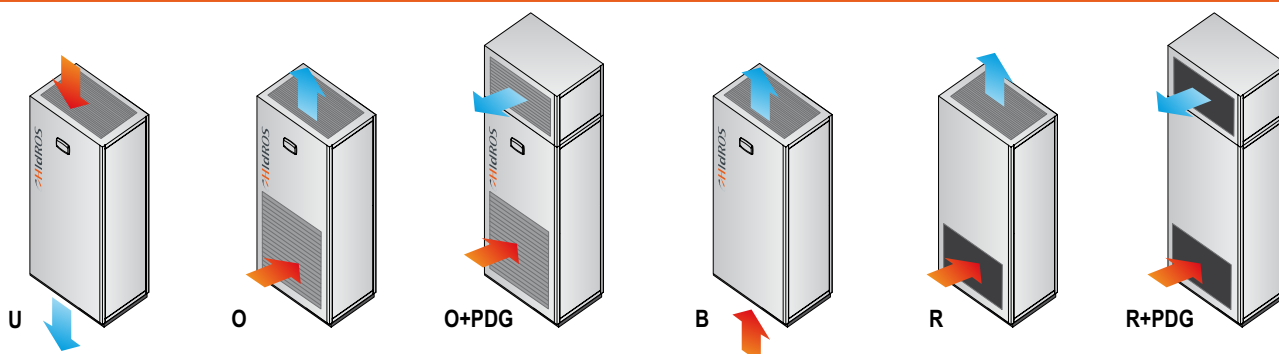
All units are supplied with the following control and protection devices: high pressure switch with manual reset, low pressure switch with automatic reset, high pressure safety valve, compressor thermal overload protection, fans thermal overload protection, probe, air electrical temperature and humidity (option).

WATER COOLED CONDENSERS

Water cooled condensers capacitors are of brazed plate type, made of stainless steel AISI 316 and are factory insulated with closed cell material

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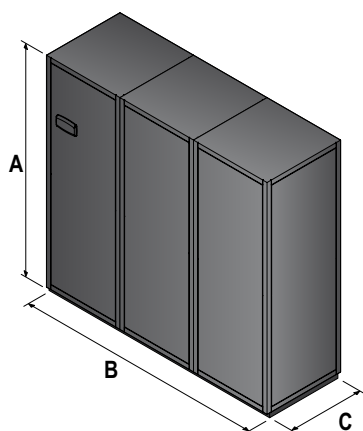
CONFIGURATIONS



DXW

Description	Code	
Dirty filter alarm	DFA	○
Flooding alarm	FAA	○
Smoke/Fire alarm	SFA	○
Power failure alarm	PFA	○
Water coil + 3-way valve	WCV	○
Capacity step control (hot gas by-pass)	HBP	○
Continuous capacity control (hot gas by-pass + liquid injection)	HBI	○
Sound-insulation caps on compressors	SIC	○
High/low refrigerating pressure gauges	HLM	○
Electronic thermostatic valve	EEV	○
Plenum for air diffusion into environment, with grille (for O/B/R versions only)	PDG	○
External air intake with filter	EAF	○
Base frame, height adjustable H=300/500 ±25 mm (for U version only)	BFX	○
Base frame, with detector and height adjustable H=300/500 ±25 mm (for U version only)	BDX	○
Non return air gate, motor-driven (for U version only)	NRG	○
Overpressure type non return air gate (for O/B/R versions only)	ONG	○
RS485 type serial board	SB5	○
Remote control panel	RCP	○
Alarm log clock board	ACB	○
Air discharge temperature sensor	OTS	○
Filter section with F5 grade (according to EN 779)	FF5	○
Filter section with F7 grade (according to EN 779)	FF7	○
2-way pressure valve for tower water	2VT	●
3-way pressure valve for tower water	3VT	○

● Standard, ○ Optional, – Not available



Mod.	A* (mm)	B (mm)	C (mm)	Kg
061	1750	670	500	160
071	1750	670	500	190
091	1750	670	500	200
111	1750	670	500	230
141	1980	770	650	250
161	1980	770	650	305
191	1980	770	650	345
211	1980	770	650	375
261	1980	1280	890	420
321	1980	1280	890	510
401	1980	1680	890	610
501	1980	1680	890	680
262	1980	1280	890	440
322	1980	1280	890	550
402	1980	1680	890	580
452	1980	1680	890	620
482	1980	1680	890	660
582	1980	2060	890	710
652	1980	2060	890	840
752	1980	2580	890	970
902	1980	2580	890	1020
1002	1980	2580	890	1060

* For versions Over (O, O+PDG, R, R+PDG) consider 100 mm in addition to quote