

DXi.HF

DIRECT EXPANSION CLOSE CONTROL UNIT

WATER COOLED WITH ADDITIONAL FREECOOLING COIL
AND INVERTER COMPRESSORS

R410a



H2O

FC



Close control air-conditioners for vertical installations and cooling only, with optional heating by means of heating element, optional humidifier and dehumidifier for precise temperature and humidity control.

Particularly suitable for precision air conditioning in servers and IT rooms and all technological applications in general.

Direct expansion FREE-COOLING unit with INVERTER compressor is water cooled and it has to be connected to a remote dry cooler. INVERTER compressor allows the cooling capacity modulation according to the effective thermal load. This solution is suitable for applications with high partial loads and optimises the power input by reducing inrush current.

The unit is also equipped with electronic expansion valve, EC INVERTER fans, condenser and additional Free-cooling coil.



VERSIONS

D - Downflow air supply

U - Up flow air supply

E - Front supply (Displacement)

B - Up supply, (Rear return)

V - Up supply (Down suction)

ACCESSORIES

- Remote user terminal
- Electric Heating coil
- Humidifier
- Vibration isolation frame with rubber mountings
- Interface electronic board
- Air distribution plenum
- Condensing pump discharge
- Interface card for TCP/IP Protocol
- Longwork, modbus, bacnet
- Touch screen graphic terminal
- Power supply different from standard

Features

Unit for installing inside or outside the room to be air-conditioned. Maximum resistance to rust thanks to the galvanized sheet metal structures and panels with bevelled corner uprights to enhance its unique, clean and attractive design. The panels are lined with sound-insulating material to limit noise levels. Last generation of BLDC INVERTER compressor designed to deliver maximum cooling efficiency when you need it most. This latest variable speed compressor technology allows CRAC system manufacturers as Emicon to achieve superior performance. New generation EC Inverter centrifugal fan made in high class technological material with 5 backward curved blades. Impeller with bionic 3D profile thanks to an innovative design in the form of a blade geometry with specific buckling. Special V-shaped rear edge allows a wide characteristic field. Together with the rotating diffuser that opens, exceptional performances of the impeller and the entire system are thus obtained. In combination with the undulated surface of the blade surface, a diffused sound emission takes place which guarantees a very low noise level.

Standard COARSE 60% (ISO EN 16890) EU4/G4 filtering section is fitted. The filter is self-extinguishing. The microprocessor controls the compressor activation times thereby regulating the cooling capacity; it also controls the operating alarms with the possibility of interfacing to supervisor and remote-servicing systems.

Refrigerant circuit consisting of Electronic Expansion Valve, sight glass filter dryer on liquid line, pressure transducer with indication, control and protection functions on low and high refrigerant pressure, high pressure safety switch with manual reset, liquid receiver with accessories. Thanks to the double coil (Free-cooling water and Direct Expansion) the unit provides the highest saving match with full availability of the DX solution. The usage of Free cooling coil and the BLDC Inverter compressor allows maximizing the saving in mixed mode operation, so whenever the free-cooling is not able to fully take the load the compressors can work just to complete the missing cooling needs. Therefore Emicon DXI-HF can provide extremely high energy saving granting the highest availability of the application.

Control

Semi-graphic display 132x64 pixel, programmable software, record storage of 200 alarms, general alarm, automatic reset after blackout, integral LAN system, standby management, automatic rotation, serious alarms, operating contemporaneousness, clock function modality.



TECHNICAL DATA

DXi.HF		181	251	381	392	531	532
Cooling capacity (Total) ⁽¹⁾ ESP 20 Pa	kW	18,9	23,1	34,7	37,9	47,8	45,5
Cooling capacity (Sensible) ⁽¹⁾ ESP 20 Pa	kW	16,5	23,0	32,8	33,5	42,7	42,6
Tot. absorbed power ⁽²⁾ ESP 20 Pa	kW	4,35	5,67	4,55	8,48	10,9	10,9
SHR		0,87	0,99	0,94	0,88	0,89	0,93
Water flow	m³/h	3,99	4,96	6,88	8,01	10,11	9,73
Air flow	m³/h	5777	8260	11656	11656	14696	14696
Fan	n°	1	1	1	1	2	2
Max. ESP	Pa	570	361	375	376	398	398
EER	W/W	4,34	4,07	7,63	4,47	4,39	4,17
Maximum absorbed power	kW	10,6	11,5	16,4	18,6	24,3	23,0
Maximum absorbed current	A	21,0	21,2	25,6	37,6	36,9	42,4
Starting current	A	17,8	17,8	21,6	34,4	32,0	39,0
Power supply	V/ph/Hz	400/3/50+N+PE					
Free-cooling data							
Cooling capacity (Total) ⁽³⁾ ESP 20 Pa	kW	18,8	25,9	36,3	37,9	48,9	48,7
Tot. absorbed power ⁽²⁾ ESP 20 Pa	kW	0,85	1,12	0,88	1,56	1,88	1,82
SHR		0,84	0,87	0,88	0,84	0,84	0,84
Water flow	m³/h	3,98	4,94	6,85	7,98	10,07	9,69
Total pressure drops	kPa	48,3	50,5	39,3	36,0	74,3	52,6
Humidifier							
Steam production (nominal)	kg/h	5	8	8	8	8	8
Steam production (max.)	kg/h	8	8	8	8	8	8
Max. absorbed power	kW	3,75	6,0	6,0	6,0	6,0	6,0
Max. absorbed current	A	5,5	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300/1250	300/1250	300/1250	300/1250	300/1250	300/1250
Total hardness (min/max)	mg/l CaCO ₃	100/400	100/400	100/400	100/400	100/400	100/400
Electrical heaters							
Steps	n°	2	3	3	3	3	3
Power	kW	6,0	9,0	9,0	9,0	15,0	15,0
Absorbed current	A	9,12	13,7	13,7	13,7	22,8	22,8
Oversized electrical heaters							
Steps	n°	3	3	3	3	3	3
Power	kW	9,0	12,0	12,0	12,0	18,0	18,0
Absorbed current	A	13,7	18,2	18,2	18,2	27,3	27,3
Hot water coil							
Heating capacity ⁽⁴⁾	kW	10,6	16,7	24,5	24,5	31,1	31,1
Water flow	m³/h	3,98	4,94	6,85	7,98	10,08	9,69
Pressure drop (coil + 3 way valve)	kPa	48	56	46	46	53	53
Coil internal volume	dm³	2,1	3,3	4,7	4,7	5,8	5,8
Compressors							
Circuits / Compressors	n°/n°	1/1	1/1	1/1	2/2	1/1	2/2
On / Off Compressors	n°	--	--	--	--	--	--
Inverter Compressors	n°	1	1	1	2	1	2
Condensing water pump							
Nominal flow	l/h	390,0	390,0	390,0	390,0	390,0	390,0
Max. flow (prevalence = 0 m)	l/h	500	500	500	500	500	500
Max. discharge height (flow=0 m³/h)	m	5,4	5,4	5,4	5,4	5,4	5,4
Condensing water pump + humidifier							
Nominal flow	l/h	-	600	600	600	600	600
Max. flow (prevalence = 0 m)	l/h	-	900	900	900	900	900
Max. discharge height (flow=0 m³/h)	m	-	6,0	6,0	6,0	6,0	6,0
Dimensions and weight							
Frame	n°	3	4	4,5	4,5	5	5
Width	mm	980	1160	1505	1505	1860	1860
Depth	mm	750	850	850	850	850	850
Height	mm	1980	1980	1980	1980	1980	1980
Weight (Configuration U)	Kg	302	357	455	484	573	596
Weight (Configuration V)	Kg	306	361	461	490	579	603
Weight (Configuration D)	Kg	308	363	464	493	583	606
Weight (Configuration B)	Kg	306	361	461	490	579	603

(1) Ambient temperature 24°C, Relative humidity 50%, Water temperature 30/35°C.

(2) The fans electrical power has to be added to the ambient load.

(3) Free cooling: Ambient temperature 24°C, Relative humidity 50%, water inlet temperature 7°C, constant water flow

(4) Water temperature 40/45°C, Ambient temperature 20°C, Relative humidity 50%.

DXi.HF		631	652	742	761	931	952
Cooling capacity (Total) ⁽¹⁾ ESP 20 Pa	kW	61,3	59,1	64,7	73,2	86,9	86,4
Cooling apacity (Sensible) ⁽¹⁾ ESP 20 Pa	kW	51,4	51,4	60,5	61,9	77,4	77,2
Tot. absorbed power ⁽²⁾ ESP 20 Pa	kW	13,9	13,2	14,6	16,6	19,9	19,7
SHR		0,83	0,87	0,93	0,84	0,89	0,89
Water flow	m³/h	12,97	12,48	13,67	15,47	18,41	18,33
Air flow	m³/h	17838	17838	21183	21183	26048	26048
Fan	n°	2	2	2	2	3	3
Max. ESP	Pa	356	356	401	401	434	434
EER	W/W	4,41	4,48	4,43	4,41	4,37	4,39
Maximum absorbed power	kW	45,7	48,8	56,7	59,9	45	49
Maximum absorbed current	A	73,9	75,7	87,7	94,4	76	74
Starting current	A	184	71,7	83,7	204	185	47
Power supply	V/ph/Hz	400/3/50+N+PE					
Free-cooling data							
Cooling capacity (Total) ⁽³⁾ ESP 20 Pa	kW	59,4	59,0	68,7	71,1	87,1	86,9
Tot. absorbed power ⁽²⁾ ESP 20 Pa	kW	2,43	2,31	2,66	2,81	3,25	3,02
SHR		0,85	0,844	0,84	0,84	0,84	0,84
Water flow	m³/h	12,92	12,43	13,62	15,41	18,33	18,25
Total pressure drops	kPa	62,6	45,8	37,3	56,6	52,3	30,4
Humidifier							
Steam production (nominal)	kg/h	8	8	8	8	8	8
Steam production (max.)	kg/h	8	8	8	8	8	8
Max. absorbed power	kW	6,0	6,0	6,0	6,0	6,0	6,0
Max. absorbed current	A	8,7	8,7	8,7	8,7	8,7	8,7
Specific conducibility at 20°C (min/max)	µS/cm	300/1250	300/1250	300/1250	300/1250	300/1250	300/1250
Total hardness (min/max)	mg/l CaCO ₃	100/400	100/400	100/400	100/400	100/400	100/400
Electrical heaters							
Steps	n°	3	3	3	3	3	3
Power	kW	18,0	18,0	24,0	24,0	27,0	27,0
Absorbed current	A	27,3	27,3	36,5	34,6	39,0	39,0
Oversized electrical heaters							
Steps	n°	3	3	3	3	3	3
Power	kW	24,0	24,0	27,0	27,0	36,0	36,0
Absorbed current	A	36,5	36,5	41,0	39,0	52,0	52,0
Hot water coil							
Heating capacity ⁽⁴⁾	kW	37,4	37,4	48,9	48,9	60,8	60,8
Water flow	m³/h	12,92	12,43	13,62	8,5	10,6	10,6
Pressure drop (coil + 3 way valve)	kPa	34	34	48	48	42	42
Coil internal volume	dm³	7,1	7,1	10,5	10,5	12,6	12,6
Compressors							
Circuits / Compressors	n°/n°	1/2	2/2	2/2	1/2	1/2	2/2
On / Off Compressors	n°	1	--	--	1	1	--
Inverter Compressors	n°	1	2	1	1	1	2
Condensing water pump							
Nominal flow	l/h	390,0	390,0	390,0	390,0	390,0	390,0
Max. flow (prevalence = 0 m)	l/h	500	500	500	500	500	500
Max. discharge height (flow=0 m³/h)	m	5,4	5,4	5,4	5,4	5,4	5,4
Condensing water pump + humidifier							
Nominal flow	l/h	600	600	600	600	600	600
Max. flow (prevalence = 0 m)	l/h	900	900	900	900	900	900
Max. discharge height (flow=0 m³/h)	m	6,0	6,0	6,0	6,0	6,0	6,0
Dimensions and weight							
Frame	n°	6	6	7	7	8	8
Width	mm	2210	2210	2565	2565	3100	3100
Depth	mm	850	850	850	850	850	850
Height	mm	1980	1980	1980	1980	1980	1980
Weight (Configuration U)	Kg	686	711	833	819	1003	1022
Weight (Configuration V)	Kg	693	718	841	828	1014	1032
Weight (Configuration D)	Kg	696	722	845	832	1019	1037
Weight (Configuration B)	Kq	693	718	841	828	1014	1032

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(4) Water temperature 40/45°C, Ambient temperature 20°C, Relative humidity 50%.