



EMICON

INNOVATION AS ENERGY



AN ENEX TECHNOLOGIES COMPANY

EMIBYTE for IT COOLING

Products catalogue

Index

About	4
Our numbers	6
Our segments	8
DX.A DIRECT EXPANSION CLOSE CONTROL UNIT AIR CONDENSER WITH ON/OFF COMPRESSOR	16
DXi.A DIRECT EXPANSION CLOSE CONTROL UNIT AIR CONDENSED WITH INVERTER COMPRESSOR	24
DXi.AF DIRECT EXPANSION CLOSE CONTROL UNIT AIR CONDENSED WITH ADDITIONAL FREECOOLING COIL, INVERTER COMPRESSOR	28
DXi.H DIRECT EXPANSION CLOSE CONTROL UNIT WATER COOLED WITH INVERTER COMPRESSOR	32
DXi.HF DIRECT EXPANSION CLOSE CONTROL UNIT WATER COOLED WITH ADDITIONAL FREECOOLING COIL AND INVERTER COMPRESSORS	38
WU WATER COOLED CLOSE CONTROL UNIT	42
WUL WATER COOLED CLOSE CONTROL UNIT (EXTENDED VERSION)	46
IRDXi DIRECT EXPANSION CLOSE CONTROL UNIT AIR CONDENSED FOR HIGH DENSITY RACKS - 30 - 60 cm	50
IRWU WATER COOLED CLOSE CONTROL UNIT FOR HIGH DENSITY RACKS - 30 - 60 cm	52
RCE / RCE-S EXTERNAL CONDENSING FOR PRECISION AIR CONDITIONING UNITS	54
CONFIGURATIONS	60

About

Enex Technologies is a transformative world leader in natural and energy efficient cooling, heating, ventilation and refrigeration equipment that began in the 1930s by producing ammonia natural refrigeration equipment, later adding CO₂, water and propane as natural refrigerants with low global warming potential.

1934
SAMIFI
FRANCE
INNOVATION AS ENERGY

1968
kobol
HEAT EXCHANGERS NATURALLY

1948

MORGANA
HEAT EXCHANGERS NATURALLY

1984
EMICON
INNOVATION AS ENERGY

1983
ROENEST
HEAT EXCHANGERS NATURALLY

1993
Hidros
INNOVATION AS ENERGY

1999
ETHRATECH
INNOVATION AS ENERGY

1997
Arctic
INNOVATION AS ENERGY

2004
enex
INNOVATION AS ENERGY

Pioneers and innovators in natural HVACR since the 1930s



Our numbers

200M€
Revenues

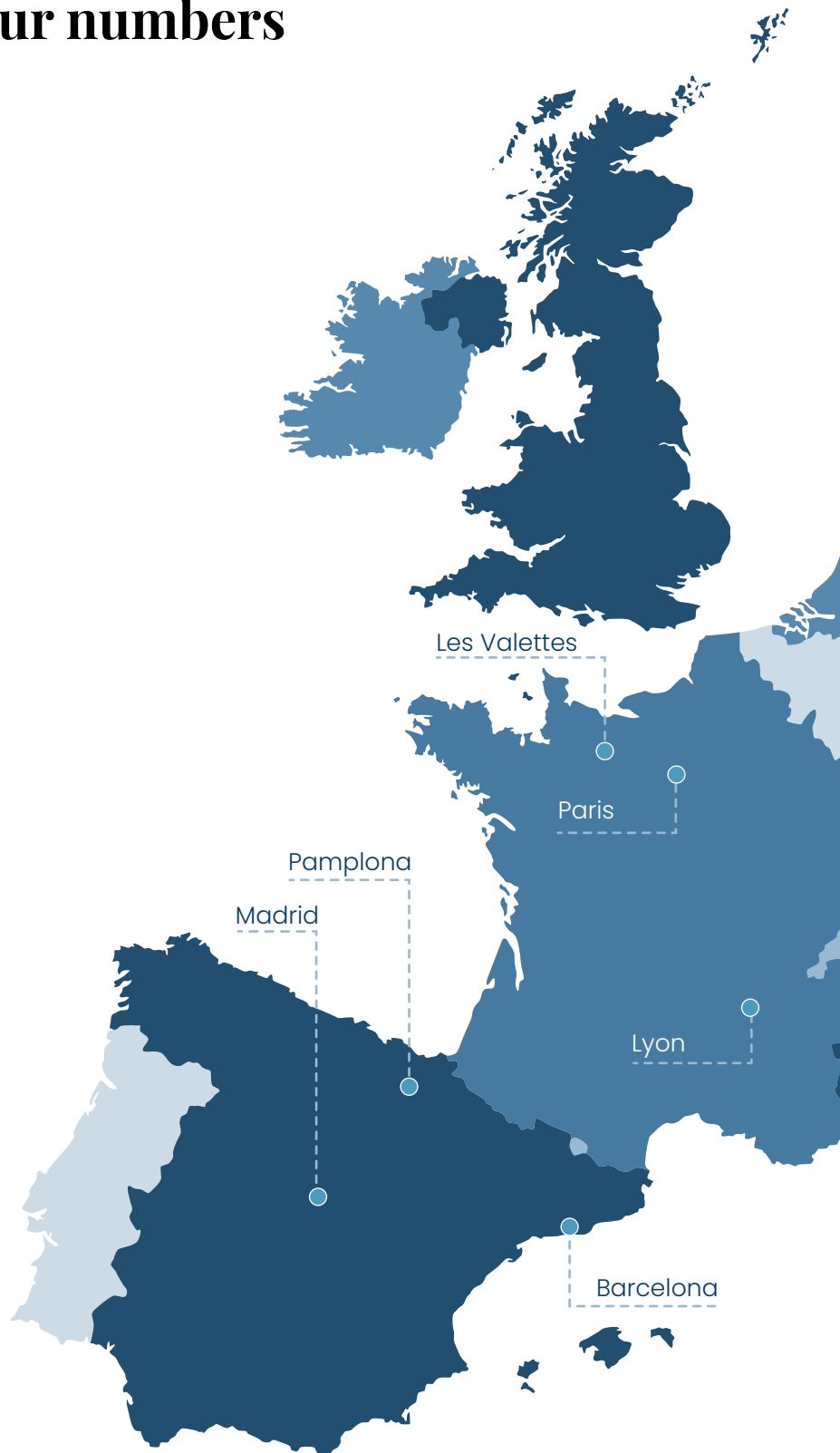
1000+
Employees

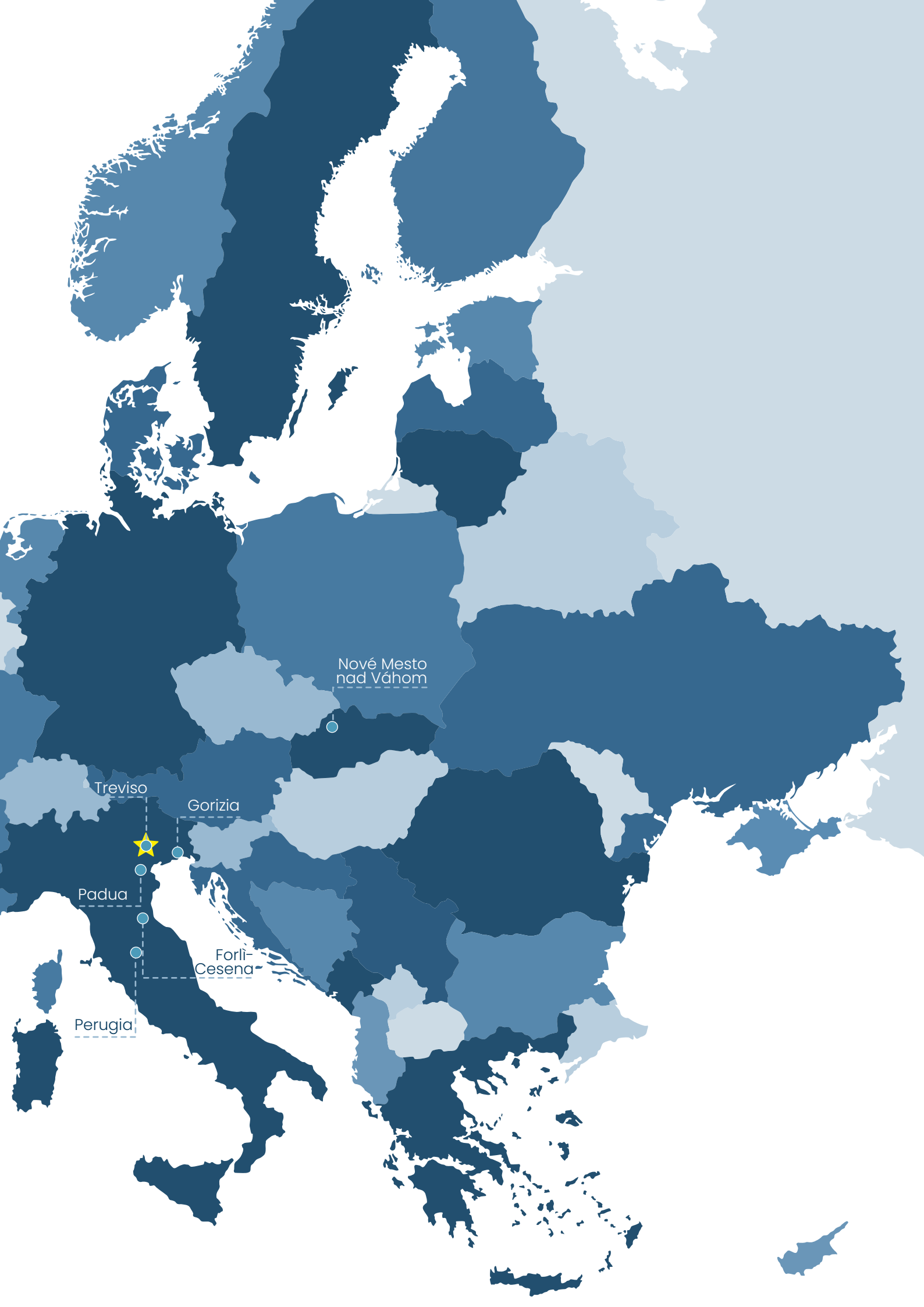
12
Factories

125
Countries

★ Headquarter

● Manufacturing, R&D site and
commercial office





Nové Mesto
nad Váhom

Treviso

Gorizia

Padua

Forlì-
Cesena

Perugia

Our segments

Our leading natural refrigerant, energy efficiency and energy transition technologies transform the HVACR industry.



COOLING

Our chillers are designed to operate efficiently with all refrigerants, generating cold water for climatization or industrial processes.



REFRIGERATION

Our commercial and industrial refrigeration systems are designed for high performance, quality, reliability and carbon footprint reduction through the use of natural refrigerants Ammonia and CO₂.



HEATING

Our high efficiency heat pump range using natural refrigerant CO₂ is a simple-to use, elegant solution for applications requiring high quantities of sanitary hot water.

We are driven by strong values to create a better and more sustainable world



ENVIRONMENT

Buildings consume 40% of the energy used in the developed world. HVACR systems use 60% of the energy in buildings. Our high efficiency solutions are central to reducing global warming, and we strive every day to help our customers reduce their carbon footprint by using natural refrigerants.



INNOVATION

Always leading. From pioneering the efficient and safe use of natural refrigerants to helping the industry move away from gas heat towards systems that use electricity.



COMMUNITIES

We are a European industrial champion, building clean factories that support new jobs, growth and expansion to new markets.



DIVERSITY & INCLUSION

At Enex Technologies we ensure that every colleague feels respected, valued and motivated to support our customers, every day.

THE EMICON

LABS

CLIMATIC ROOMS

EMICON has **climatic rooms** and **testing stations** where units produced are subject to strict **functional** and **performance** tests, with the possibility of simulating the real design climatic conditions. A double hydronic circuit (hot and cold) allows to carry out **operation tests on all types** of units, both for IT Cooling and hydronic units, packaged, 2 or 4 pipes, air cooled, water cooled and split, up to a cooling capacity of 1500 kW.

It is possible, for our customers, to attend the functioning and performance test. Thanks to some webcams, it is possible to **remotely attend the test**.

CHARACTERISTICS

The climatic room is an environment inside of which, by means of auxiliary and heat recovery systems, we create a **controlled microclimate** in terms of air **temperature** and **humidity**, where the heat transfer fluids are treated according to the specific characteristics of the unit.

The types of units that can be tested are **air or water cooled units**, available as **chiller** or **reversible heat pump** versions according to **EN14511** standard.

The operating limits of fluid temperature can vary between **-5°C** and **65°C**. The ambient temperature (inside the room) can reach a maximum of 52°C for summer operation and a minimum of -7°C for winter cycle.

CLOSE CONTROL UNITS

EMICON's Laboratory allows the **performance test** of chilled water and air cooled direct expansion **close control units**, with the possibility to simulate climatic conditions from 15°C to 35°C.

PROPANE

We recently built a the test area **exclusively** dedicated to chillers and heat pumps operating with natural **Propane refrigerant (R290)**, making us able to carry out performance and functional tests of units with a cooling capacity up to 700 kW both in cooling only and in winter cycle reversible configurations. The use of **ATEX** components, refrigerant leak detection systems, connected to acoustic signals and forced-type exhaust systems guarantee a **high safety degree** in this area.



Mission critical **Cooling & Thermal management** has been Emicon core focus since 1984. Our range of precision air conditioning solutions have been designed for a wide range of applications where **close control, high precision cooling** is essential, including **data centres**, telecom switching stations, theatres, museum and high technological density environments in general. Throughout its history, the data center and server room has consistently been asked to do more: handle **more capacity**, deliver **more availability** and achieve **more efficiency**. Thanks to the resourcefulness and dedication of the people responsible for managing these business-critical facilities, they have largely responded. The question now is can they continue to do so within the existing paradigms, or are we on the verge of fundamental changes in data center technologies, designs and processes?



EMIBYTE

KNOWLEDGE AND CONSOLIDATED ITALIAN QUALITY AT THE CENTER OF YOUR DATA

The result to this main question nowadays is **EMIBYTE**, the new partner in **IT cooling** with his new series of products entirely designed and produced in the **Emicon factories**.

Reliable, integrated cooling, from **chiller** and computer room **air conditioners**, tackles the issues head on to lower costs and reduce downtime risk. We provide **all levels of heat removal** for different sized rooms and applications. Whether you're building new, retrofitting, or modernizing, achieve a **healthy data center environment** with our **EMIBYTE** cooling solutions.

LEGEND



Air cooled



Water cooled



Remote condensing



Free cooling



High efficiency



Silenced version



Ultra-silenced version



Cooling only



Scroll Compressors



Scroll inverter Compressors



R410a Refrigerant (Kc)



Axial fan with EC motor



Plug-fan with EC motor

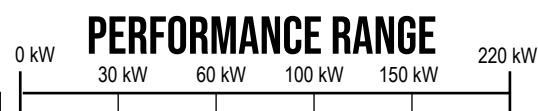
SERIE

FEATURES

COMPRESSOR

FANS

REFRIGERANT



DX.A



DXi.A



DXi.AF



DXi.H



DXi.HF



WU



WUL



IR.DXi



IR.WU



RCE



RCE-S



COMPONENTS

FULLY CUSTOMIZABLE AND INTUITIVE TOUCH SCREEN DISPLAY

The new 4.3" touch screen designed to maximise the users system management experience. System usability is enhanced by the web server pages shown on the display relating to each individual controller connected to the network, allowing users to monitor the situation across the entire system from just one single location. Ethernet connectivity makes installation even more practical, without any constraints in terms of location relative to the monitored system.



BUILT-IN TEMPERATURE AND HUMIDITY PROBE

Can share the values read with the colour display making the comprehension of operating data easier.

Micro-USB port

At the front, concealed by a faceplate, for easier access.



INVERTER SCROLL COMPRESSOR

The best solution in terms of variable cooling capacity

PRECISE TEMPERATURE CONTROL

Inverter compressor-based technology allows close monitoring and control of room temperature.

ULTRASONIC HUMIDIFIER

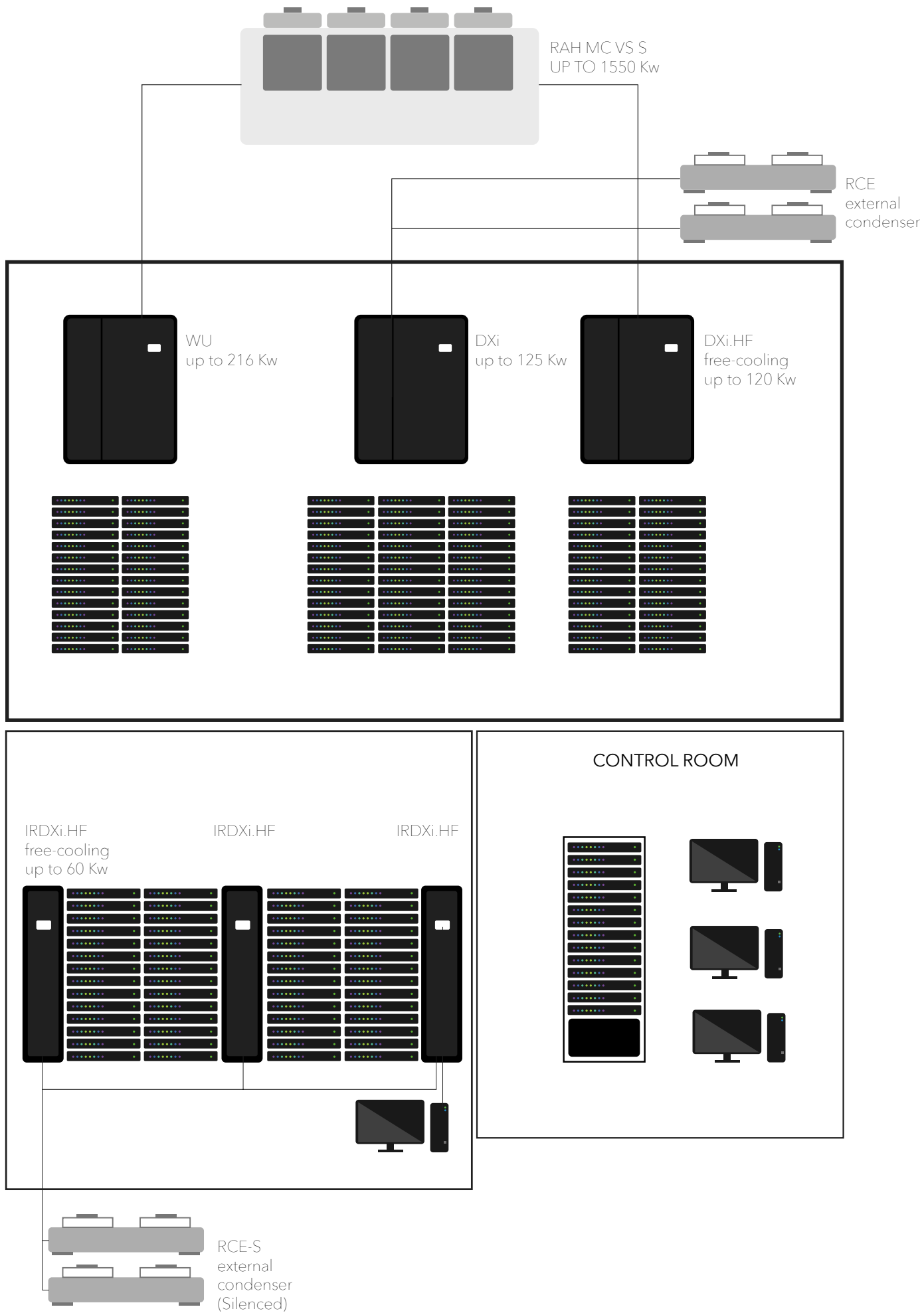
Ultrasonic Humidifier option is the new ultrasound cool mist large room humidifier. It has been developed to control and maintain the desired level of humidity for a specific environment or in any large room or storage area constant.



EC PREMIUM FAN

The new generation of Emicon EC Fan 2.0 is the core of EMIBYTE Precision Air Conditioner, significantly minimizing noise levels and increasing the efficiency of the unit.





DXi.AF

DIRECT EXPANSION CLOSE CONTROL UNIT

AIR CONDENSED WITH ADDITIONAL FREECOOLING COIL, INVERTER COMPRESSOR

R410a



AIR

FC



EC



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. The INVERTER compressor allows the cooling capacity modulation according to the real internal load, particularly efficient at the partial loads and optimizing the power absorbed and eliminating the start current. Units fitted with electronic expansion valve and EC INVERTER fans, upflow or downflow.



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.AF		181	251	381	392	531	532
Cooling capacity (Total) ⁽¹⁾ ESP 20 Pa	kW	18,6	24,9	35,3	37,0	51,3	49,1
Cooling capacity (Sensible) ⁽¹⁾ ESP 20 Pa	kW	16,5	23,3	33,2	33,4	43,4	43,1
Tot. absorbed power ⁽²⁾ ESP 20 Pa	kW	5,23	7,37	10,1	10,5	14,8	14,3
SHR		0,88	0,93	0,94	0,90	0,84	0,87
Air flow	m³/h	5777	8260	11656	11656	14696	14696
Fan	n°	1	1	1	1	2	2
Max. ESP	Pa	568	359	374	374	397	396
EER	W/W	3,56	3,38	3,50	3,52	3,47	3,43
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							
Cooling capacity (Total) ⁽¹⁾ ESP 20 Pa	kW	17,3	25,2	35,3	35,3	45,9	45,9
Tot. absorbed power ⁽²⁾ ESP 20 Pa	kW	0,75	1,02	1,42	1,49	1,64	1,71
SHR		0,88	0,88	0,87	0,87	0,88	0,88
Water flow	m³/h	3,08	4,48	6,28	6,28	8,14	8,14
Tot. pressure drop	kPa	21,7	38,5	29,8	29,8	41,9	41,9
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	6	6	6	6
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	9	9	9	15	15
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	12	12	12	18	18
Absorbed current	A	13,7	18,2	18,2	18,2	27,3	27,3
Hot water coil							
Heating capacity ⁽³⁾	kW	10,6	16,7	24,5	24,5	31,1	31,1
Water flow	m³/h	1,8	2,9	4,3	4,3	5,43	5,43
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
Condensing water pump							
Nominal flow	l/h	390	390	390	390	390	390
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	6	6	6	6
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	297	352	446	463	560	575
Weight (Configuration V)	Kg	301	356	452	469	566	581
Weight (Configuration D)	Kg	303	359	454	471	570	585
Weight (Configuration B)	Kg	301	356	452	469	566	581

(1) Ambient temperature 24°C, Relative humidity 50%, Condensing temperature 48°C, Evaporation temperature 9°C.

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

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

DXi.AF		631	652	742	761	931	952
Cooling capacity (Total) ⁽¹⁾ ESP 20 Pa	kW	61,3	66,8	69,2	76,2	89,0	96,8
Cooling apacity (Sensible) ⁽¹⁾ ESP 20 Pa	kW	52,0	53,4	61,6	63,3	78,8	81,4
Tot. absorbed power ⁽²⁾ ESP 20 Pa	kW	17,5	19,6	19,9	22,3	25,8	29,2
SHR		0,84	0,79	0,89	0,83	0,88	0,84
Air flow	m³/h	17838	17838	21183	21183	26048	26048
Fan	n°	2	2	2	2	3	3
Max. ESP	Pa	354	355	399	400	432	433
EER	W/W	3,50	3,41	3,48	3,42	3,45	3,32
Maximum absorbed power	kW	27,7	30,8	32,7	35,9	44,5	48,8
Maximum absorbed current	A	46,6	48,4	51,2	57,9	76,3	73,8
Starting current	A	156	44,4	47,2	168	185	68,9
Power supply	V/ph/Hz	400/3/50+N+PE					
Free - cooling							
Cooling capacity (Total) ⁽¹⁾ ESP 20 Pa	kW	54,3	54,3	65,4	65,4	80,8	80,8
Tot. absorbed power ⁽²⁾ ESP 20 Pa	kW	2,17	2,17	2,49	2,49	2,89	2,89
SHR		0,88	0,88	0,88	0,88	0,88	0,88
Water flow	m³/h	9,67	9,67	11,62	11,62	14,33	14,33
Tot. pressure drop	kPa	32,2	32,2	31,0	31,0	27,3	27,3
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	6	6	6	6	6
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 CaCO₃	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	18	24	24	27	27
Absorbed current	A	27,3	27,3	36,5	36,5	41,0	41,0
Oversized electrical heaters							
Steps	n°	3	3	3	3	3	3
Power	kW	24	24	27	27	36	36
Absorbed current	A	36,5	36,5	41,0	41,0	54,7	54,7
Hot water coil							
Heating capacity ⁽³⁾	kW	37,4	37,4	48,9	48,9	60,8	60,8
Water flow	m³/h	6,5	6,5	8,5	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	10,45	10,45	12,6	12,6
Condensing water pump							
Nominal flow	l/h	390	390	390	390	390	390
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	6	6	6	6	6
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	680	684	807	810	996	994
Weight (Configuration V)	Kg	687	692	815	818	1006	1004
Weight (Configuration D)	Kg	691	695	819	822	1011	1009
Weight (Configuration B)	Kg	687	692	815	818	1006	1004

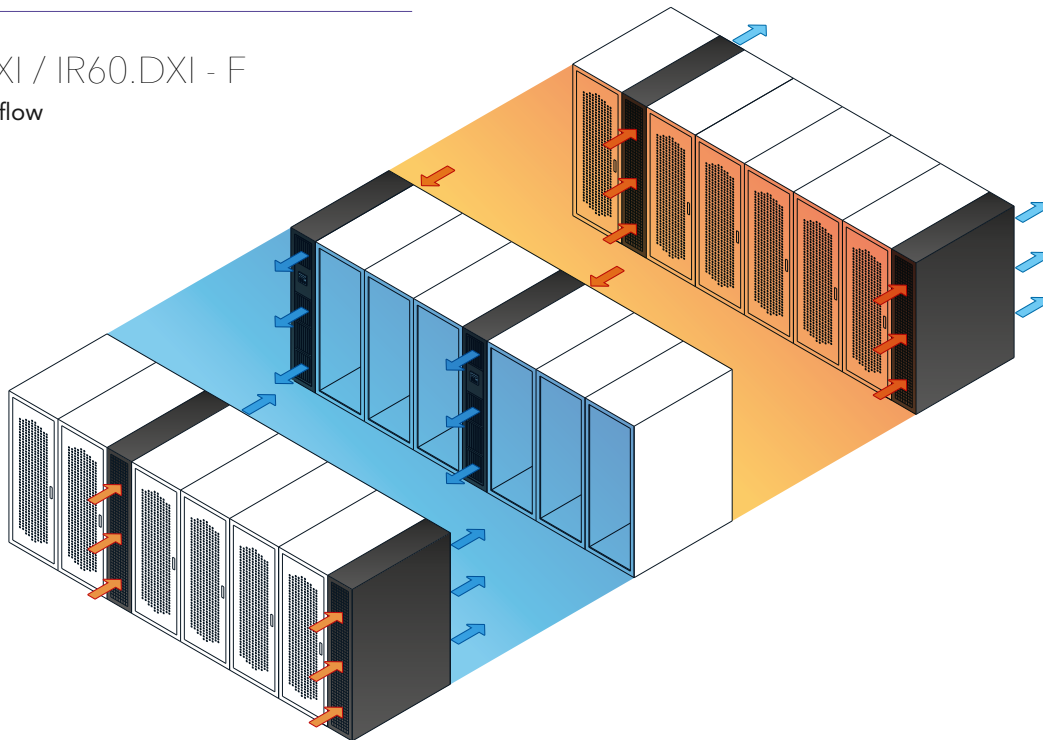
(1) Ambient temperature 24°C, Relative humidity 50%, Condensing temperature 48°C, Evaporation temperature 9°C. (3) Water temperature 40/45°C, Ambient temperature 20°C, Relative humidity 50%.

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

CONFIGURATIONS

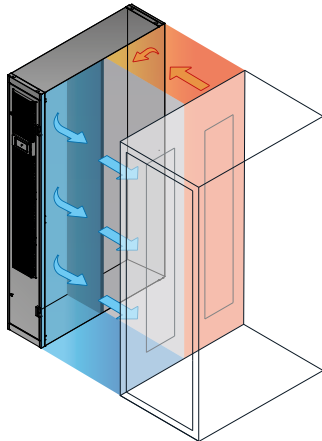
IR30.DXI / IR60.DXI - F

Frontal air flow



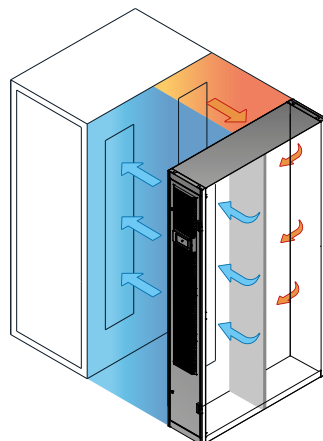
IR30.DXI - LR

Side air flow to the right



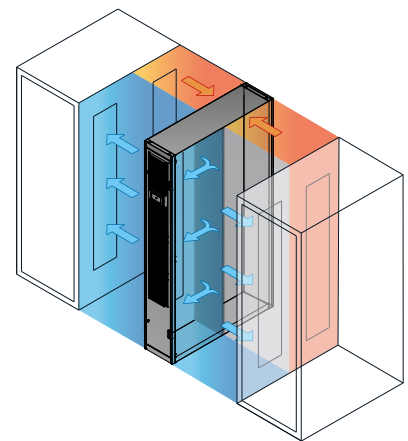
IR30.DXI - LL

Side air flow to the left

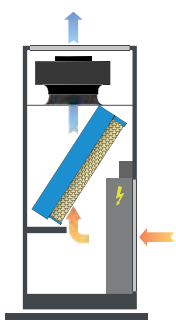


IR30.DXI - CL

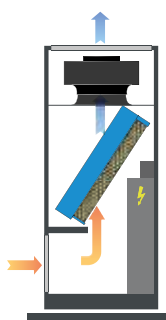
Side air flow right and left (Close Loop)



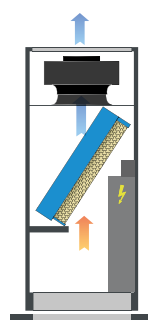
AIR FLOW CONFIGURATIONS: DX / DXI / WU



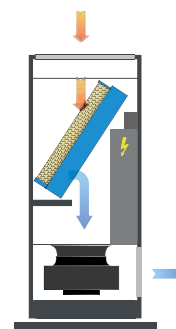
U



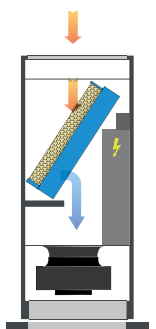
B



V



E



D

10

[illegible]



1601000004GB.24-02



www.enextechnologies.com • info@enextechnologies.com