

ROOM COOLING

x-NEXT3

HEAT REJECTION PRODUCTS

GR2 & DR2

Complete Direct Expansion solution for IT cooling
Applications

30 – 140 kW





x-NEXT3-G02



1. Family overview

2. The application
3. Technical insight
4. Quality
5. Configurations
6. Performance
7. Control system
8. Further options
9. How to sell

The range – x-NEXT3

ROOM COOLING

x-NEXT3-i-G02

x-NEXT3-f-G02

Indoor air conditioner, air-cooled and water-cooled

- **VSD** and ON/OFF scroll compressors
- **EC** fans with **proprietary design** impeller
- **MCHX** evaporating coil
- 3 modules for a cooling capacity range from 30 to 140 kW



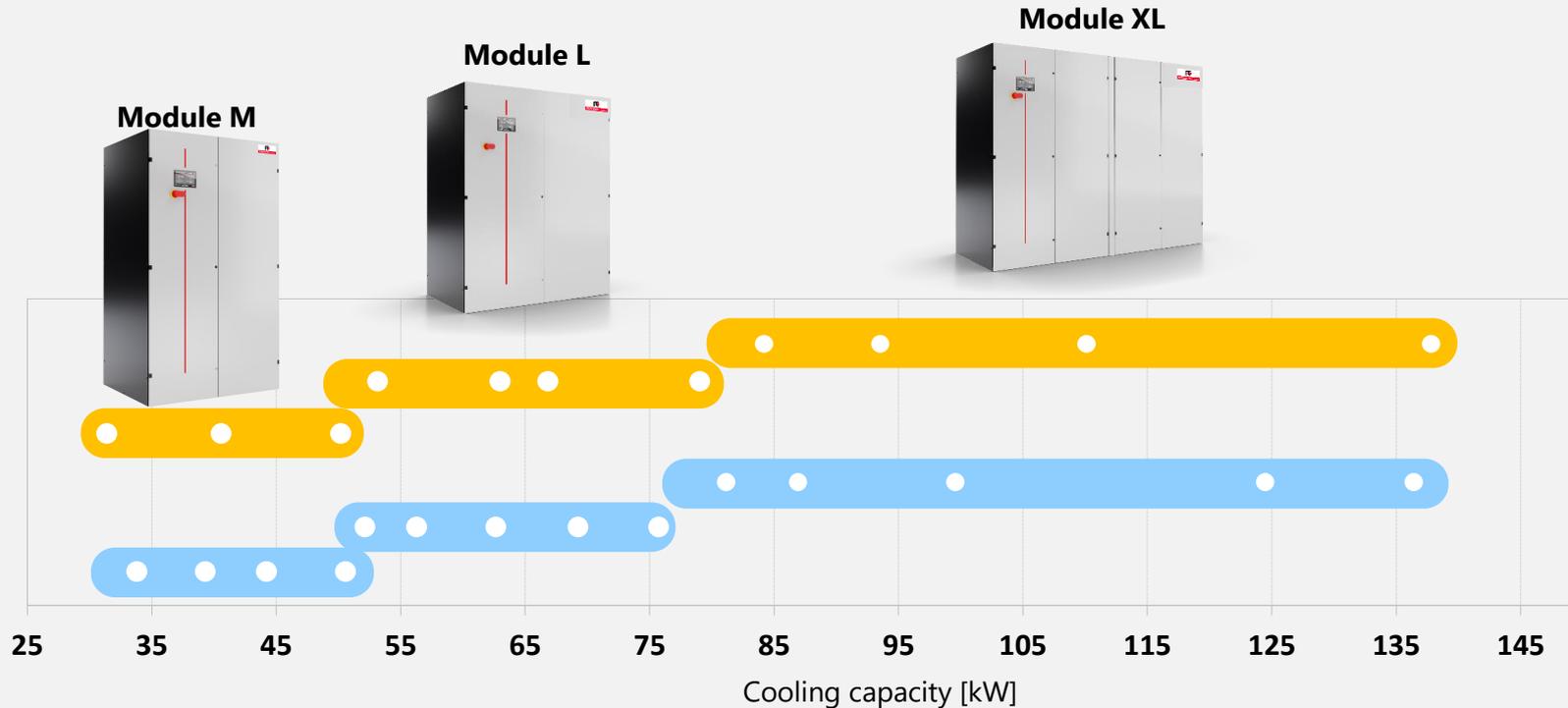
The range

ROOM COOLING

x-NEXT3-G02

VSD compressor

ON/OFF compressor



@Return air 30 °C, 35% RH, Condensing Temperature 45 °C

Nomenclature



x-NEXT3-i-G02-DX-U-029

1 System*x* – Direct expansion**4 Refrigerant****G02** – R410A**2 Family name****NEXT3** – Air conditioner**6 Air supply****O** – Over**U** – Under**3 Compressor type***i* – Inverter driven*f* – Fixed speed**7 Size****029** – Model/Cooling capacity**5 Version****DX** – Direct expansion**DX DF** – Dual fluid: Direct expansion + Chilled water coil**DW** – Direct expansion, water cooled**DW FC** – Direct expansion + FC coil, water cooled**DW DF** – Dual fluid: Direct expansion + Chilled water coil, water cooled

The range – GR2 & DR2

HEAT REJECTION PRODUCTS

GR2

Remote condenser

- **MCHX or Tube & Fins coil**
- **EC or AC fans**
- 12 sizes for a heat rejection from 11 to 176 kW

DR2

Dry-cooler

- **Tube & Fins coil**
- **EC or AC fans**
- 9 sizes for a heat rejection from 13 to 163 kW



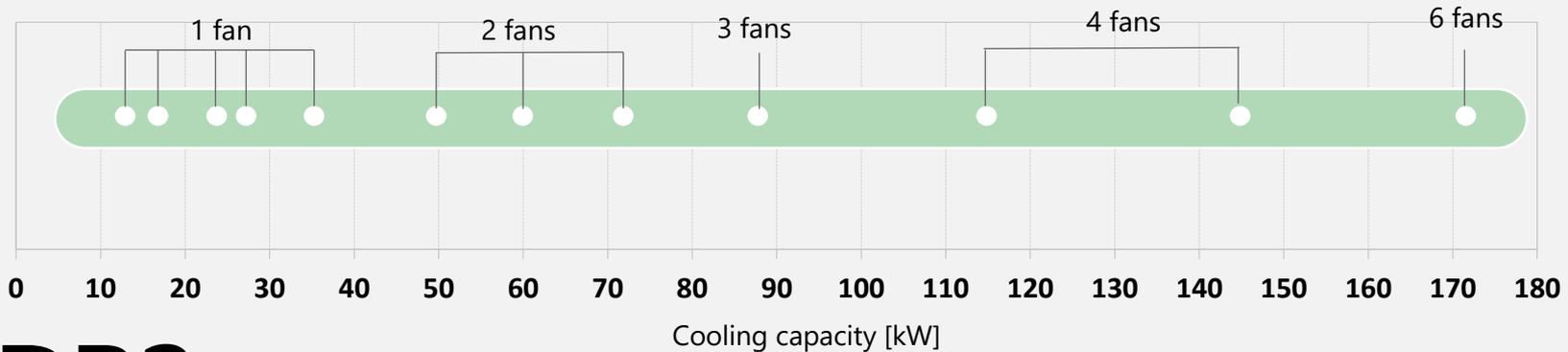
The range

HEAT REJECTION PRODUCTS

GR2

12 sizes

@External air 35 °C, Condensing temperature 50 °C



DR2

9 sizes

@External air 35 °C, Water Inlet/outlet 50/45 °C



Nomenclature

1
2
3
4
5
GR2-MC-SL-E-014

1 Family name

GR2 – Remote condenser
DR2 – Dry-cooler

2 Coil type

MC – Microchannel
 (only for GR2)
TF – Tube and fins

3 Acoustic version

[–] – Standard
SL – Super low noise

4 Fan type

E – Axial EC
A – Axial AC

5 Size

014 – Model/Cooling capacity



x-NEXT3-G02



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System and target

COMPLETE PACKAGE SOLUTION

- INDOOR unit
- OUTDOOR unit

Ideal for:

- ENTERPRISE DC
- COLOCATION DC
- UPS ROOMS
- BATTERY ROOMS

FAST DEPLOYMENT

x-NEXT3 improves the scalability and rapid installation typical of direct expansion systems.

Strong points



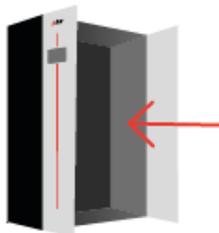
Full inverter technology

01. Energy saving at partial loads
02. Precise and reliable capacity regulation in any conditions
03. Lasting investment. The capacity increase accompanies the growth of your datacenter.



Unmatched performance

x-MEXT brings efficiency to another level. This performance coupling with excellent compactness creates a combination that makes it the most competitive solution in the market.



Full frontal accessibility

Service-oriented design leads each component to be easily access for routine and extraordinary maintenance.



x-NEXT3-G02



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Main components

Microchannel coil

Evaporator with **microchannel heat exchanger** to increase performance and minimise footprint.

VSD scroll compressor

Variable-speed scroll compressor allowing continuous modulation.

In combination On/Off compressor for tandem solution (1+i)

EC fan

EC fan with impeller in recycled plastic material, **devoted designed** for x-NEXT3.



Interfacing device



7' Touch screen (opt.6195)



Compact Keyboard



KipLink (opt.6196)

GR2 & DR2

Heat rejection units equipped with **EC** or AC axial fans. Available with microchannel coils or Tube & Fins and several **surface treatments**



Main components – Microchannel coil

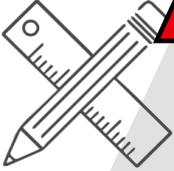


All-Aluminium coils fins and tubes* joined by furnace brazed microchannels

- **-30% refrigerant charge reduction** vs. traditional solutions
- **Lower pressure drops** vs. traditional solutions
- **Space saving** dimensions

*Cu/Al coil for XL module

Main components – EC fans



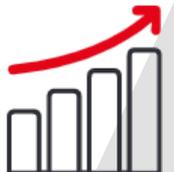
PROPRIETARY DESIGN

Tested and **designed specifically for x-NEXT3** and to meet the air supply requirements of data centres



RECYCLED MATERIAL

The impeller is made from a **recycled** plastic material



EFFICIENCY

BLDC motor and blades designed to **maximise** EER

Main components – VSD compressor



1

Energy saving at partial loads

2

Precise and reliable capacity regulation in any conditions

3

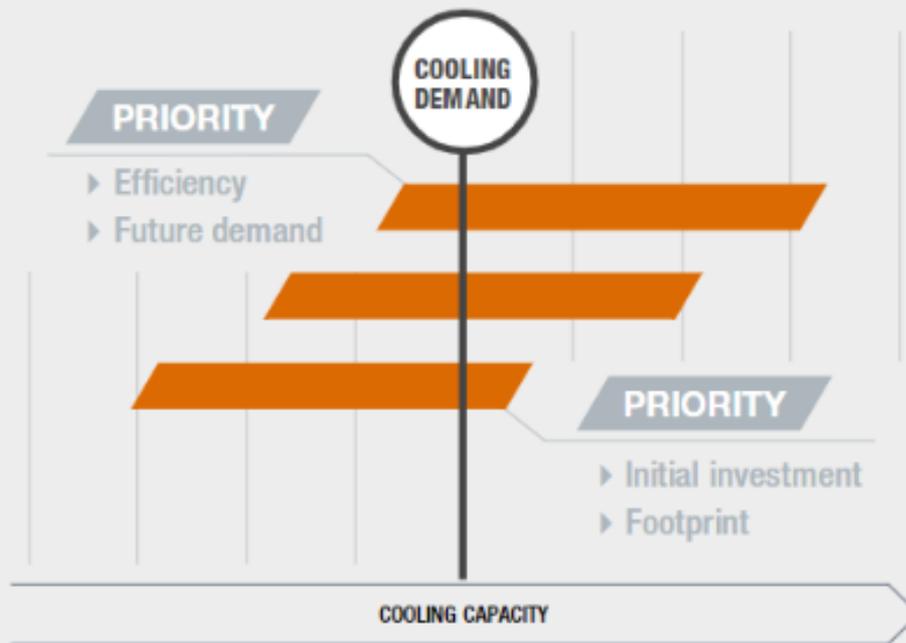
The capacity increase **accompanies the growth** of your datacenter.

Selection



FLEXIBLE SELECTION

The smart design of the units combined with the ELCAWorld selection software allows you to always choose the right unit for every project, prioritizing efficiency, additional future plant demands or reducing the initial investment and the footprint.



Choose YOUR target



EFFICIENCY



INITIAL INVESTMENT



FOOTPRINT



FUTURE PLANT DEMANDS

Compressor type distribution – VSD range



Model	029	040	051
Circuits	1	1	1
Compressor	inv	inv	inv



Model	052	067	076
Circuits	1	1	1
Compressor	inv	1 + inv	1 + inv



Model	078	090	108	140
Circuits	2	2	2	2
Compressor	2 x inv	2 x inv	2 x(1+inv)	2 x (1+inv)

Compressor type distribution – ON/OFF range



Model	035	038	042	047
Circuits	1	1	1	1
Compressor	On/off	On/off	On/off	On/off



Model	048	054	061	070	075
Circuits	1	1	1	1	1
Compressor	On/off	On/off	2 x On/off	2 x On/off	2 x On/off



Model	076	085	098	125	136
Circuits	2	2	2	2	2
Compressor	2 x on/off	2 x on/off	2 x on/off	4 x on/off	4 x on/off

Standard equipment

EEV



The electronic expansion valve is used to **precisely control overheating** under various environmental conditions

DISPLAY



6-button keyboard and graphic display on which **all information is displayed**

FLOOD SENSOR



The system includes an electronic relay installed in the electrical panel of the machine and a water detector.

CLOGGED FILTER SENSOR



The system includes a differential pressure switch installed in the electrical panel or in the front of the indoor unit

2-WAY VALVE

The water flow control in the finned coil is carried out by a 2-way modulating ball valve (Only DF Version)

SOUNDPROOF JACKET



The system includes a soundproof jacket for each compressor to obtain a **reduction of the sound level** of the unit (only Inverter compressor)



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Mitsubishi Electric approach



Mitsubishi Electric Quality

x-NEXT3-G02 grants the highest quality standards, thanks also to the adoption of specific Japanese design techniques.

Defect Prevention

Replacement

Kako Tora studies and solves defects encountered by previous similar ranges.

Poka Yoke prevents possible new defects and makes maintenance and service activities as easy as possible.

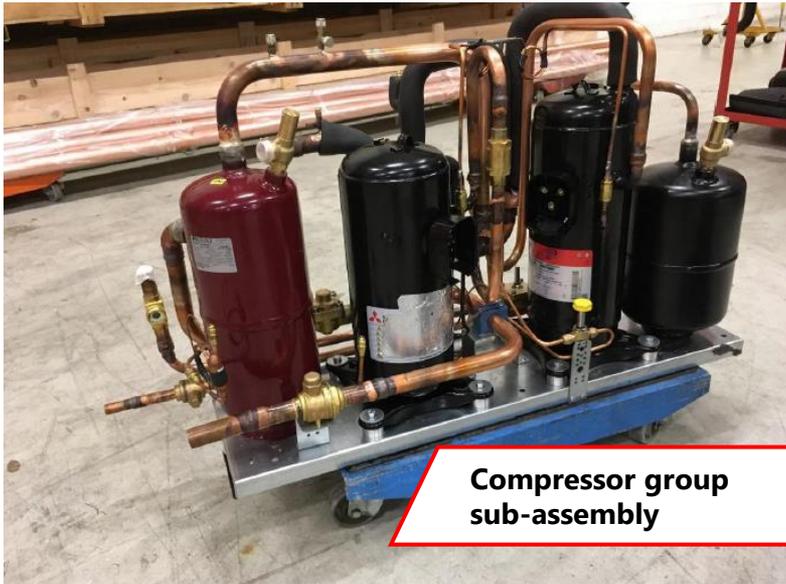
Facilitation

Eliminate the error

Design process - Industrialization

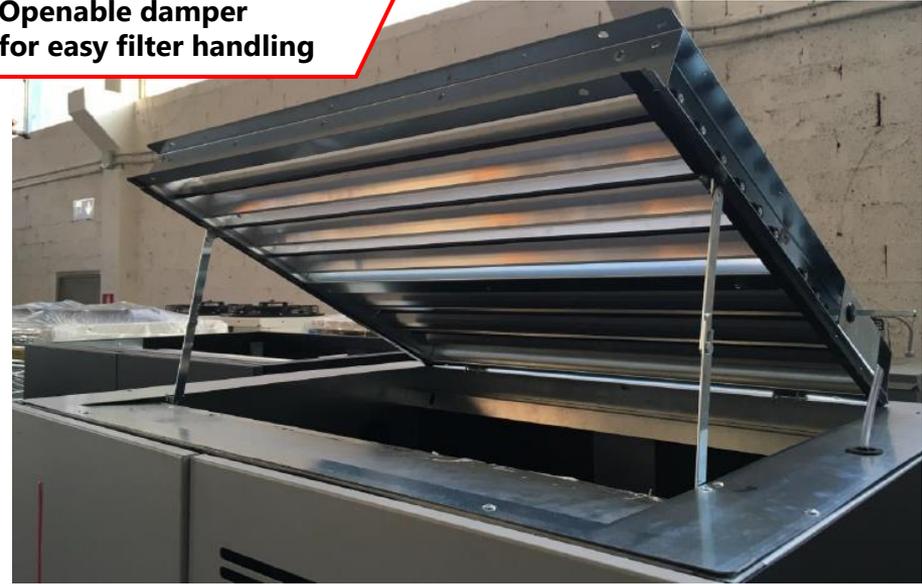
HIGH LEVEL OF INDUSTRIALIZATION

- **Sub-assembly** design
- **Simplification** of the plenum and damper proposal
- **Reduction** of spare part number

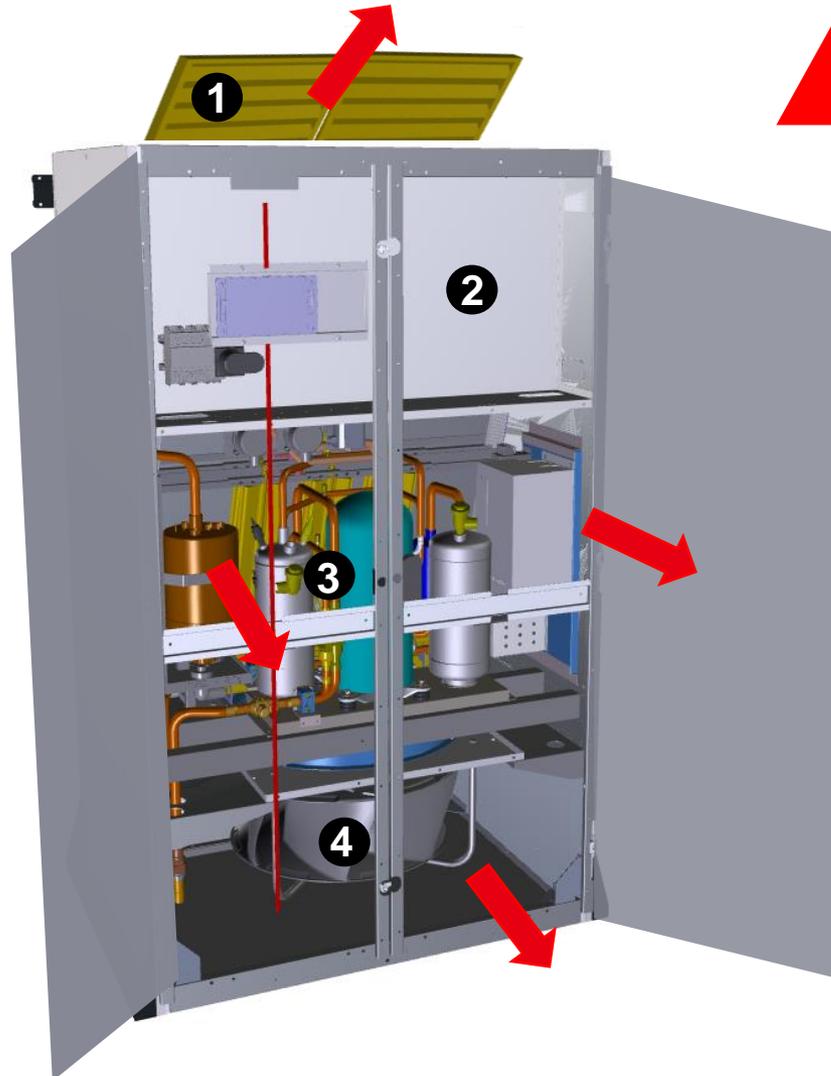


**Compressor group
sub-assembly**

**Openable damper
for easy filter handling**



Design process - Maintenance



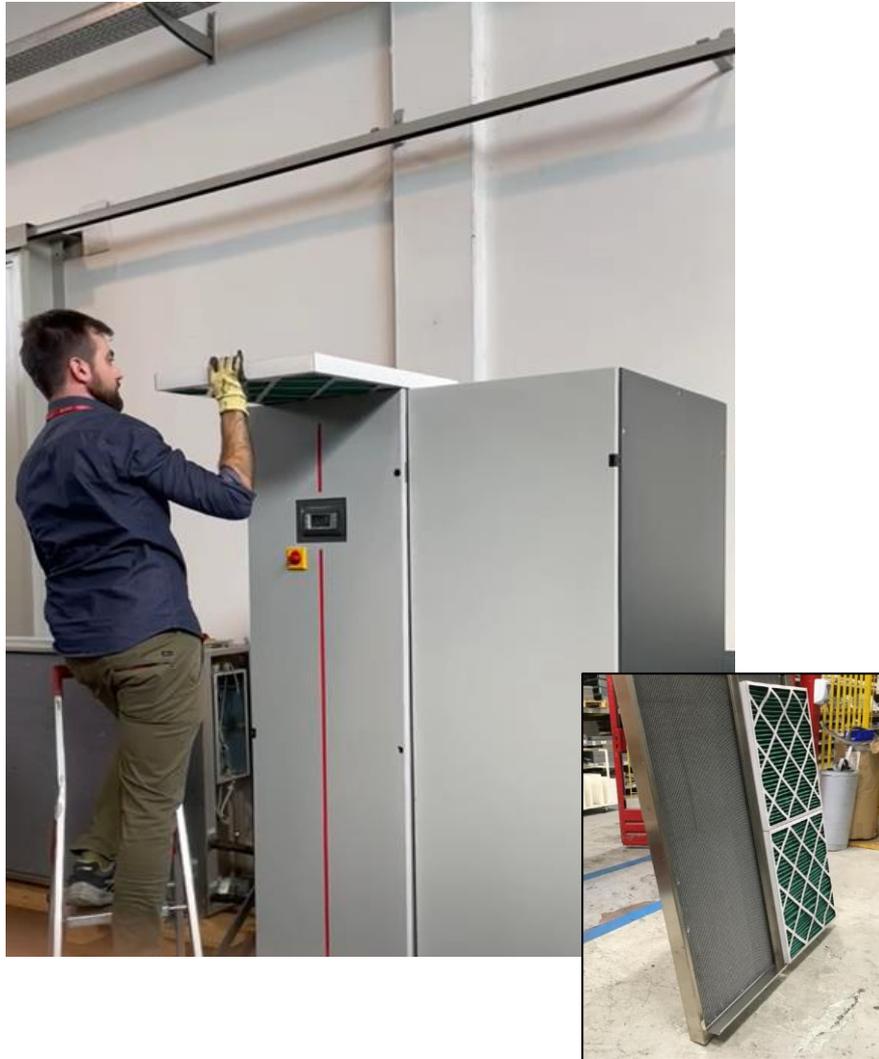
FULL FRONTAL ACCESSIBILITY

- 1** FILTERS
- 2** ELECTRIC BOX
- 3** REFRIGERANT CIRCUIT
HUMIDIFIER
INVERTER
- 4** FAN SECTION

Accessibility



Filter Removal





x-NEXT3-G02



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Versions

DX

to be matched with remote air-cooled condenser.



DX-DF

dual fluid system, chilled water coil + DX coil

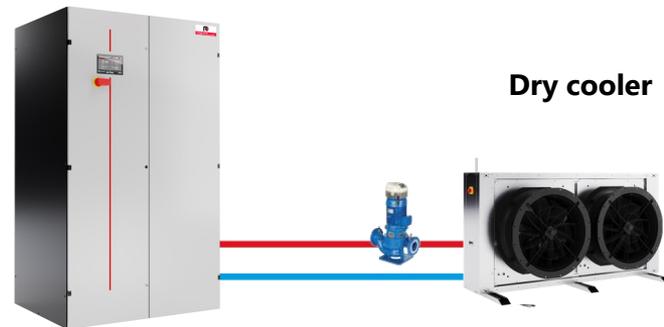
FC available



DW

equipped with built-in water-cooled condenser.

FC available
INTEGRATED



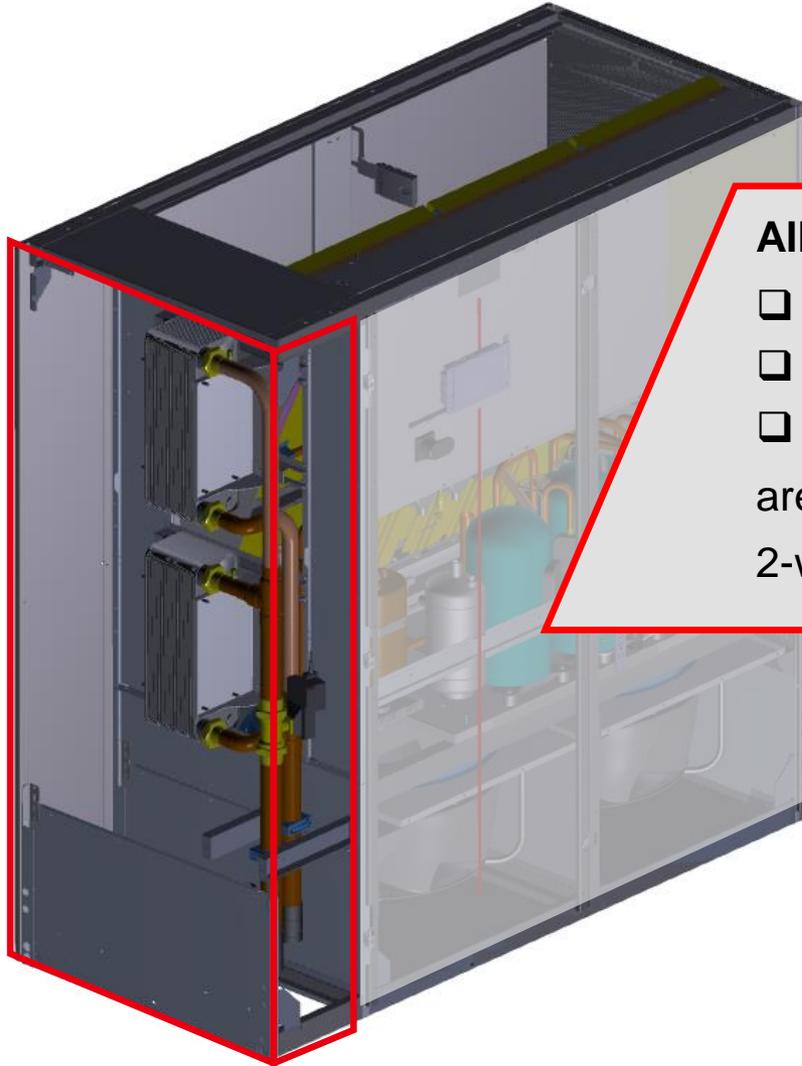
DW-DF

dual fluid system, chilled water coil + DX coil

FC available



Versions – DW

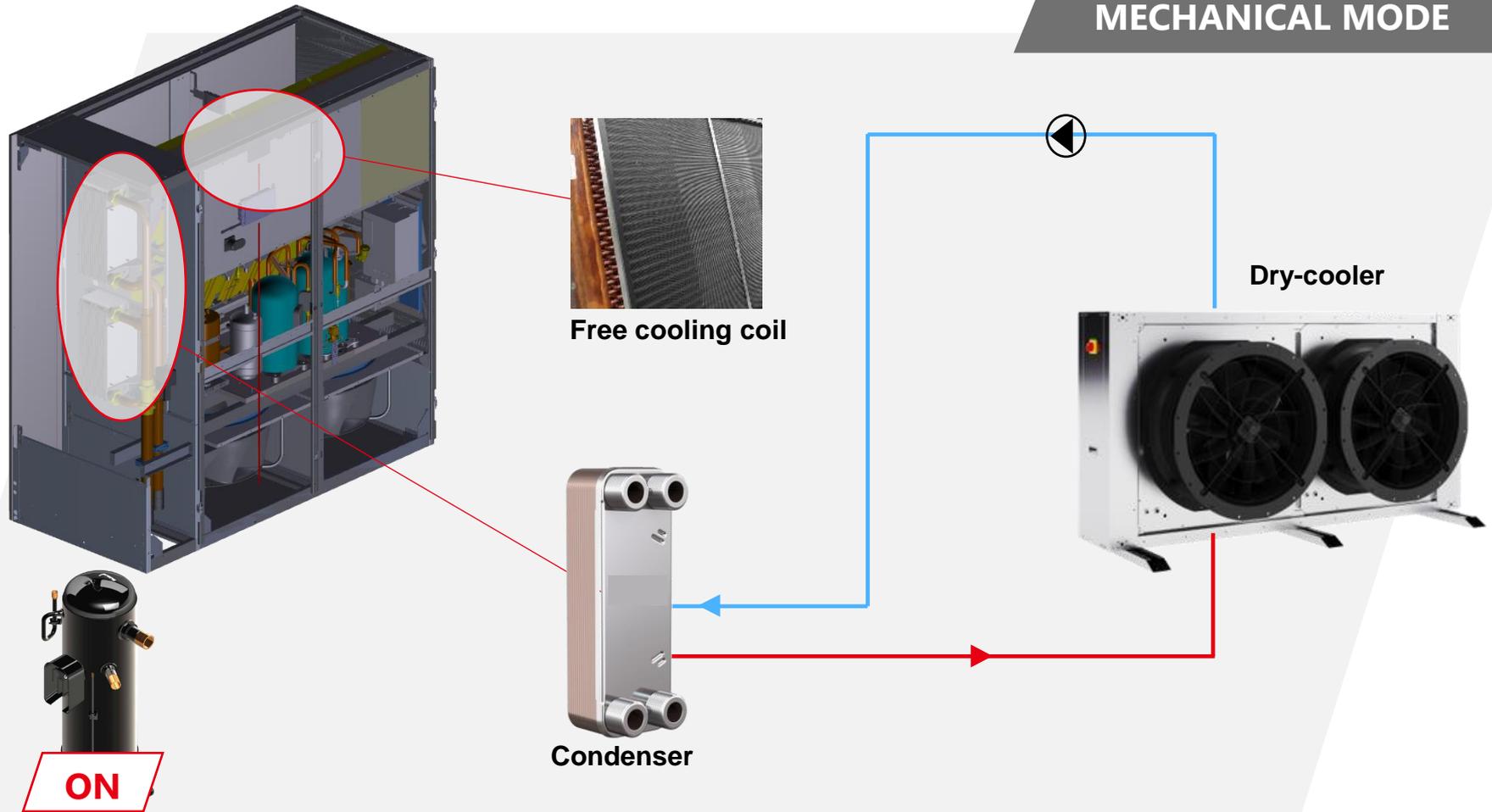


All Water-cooled versions:

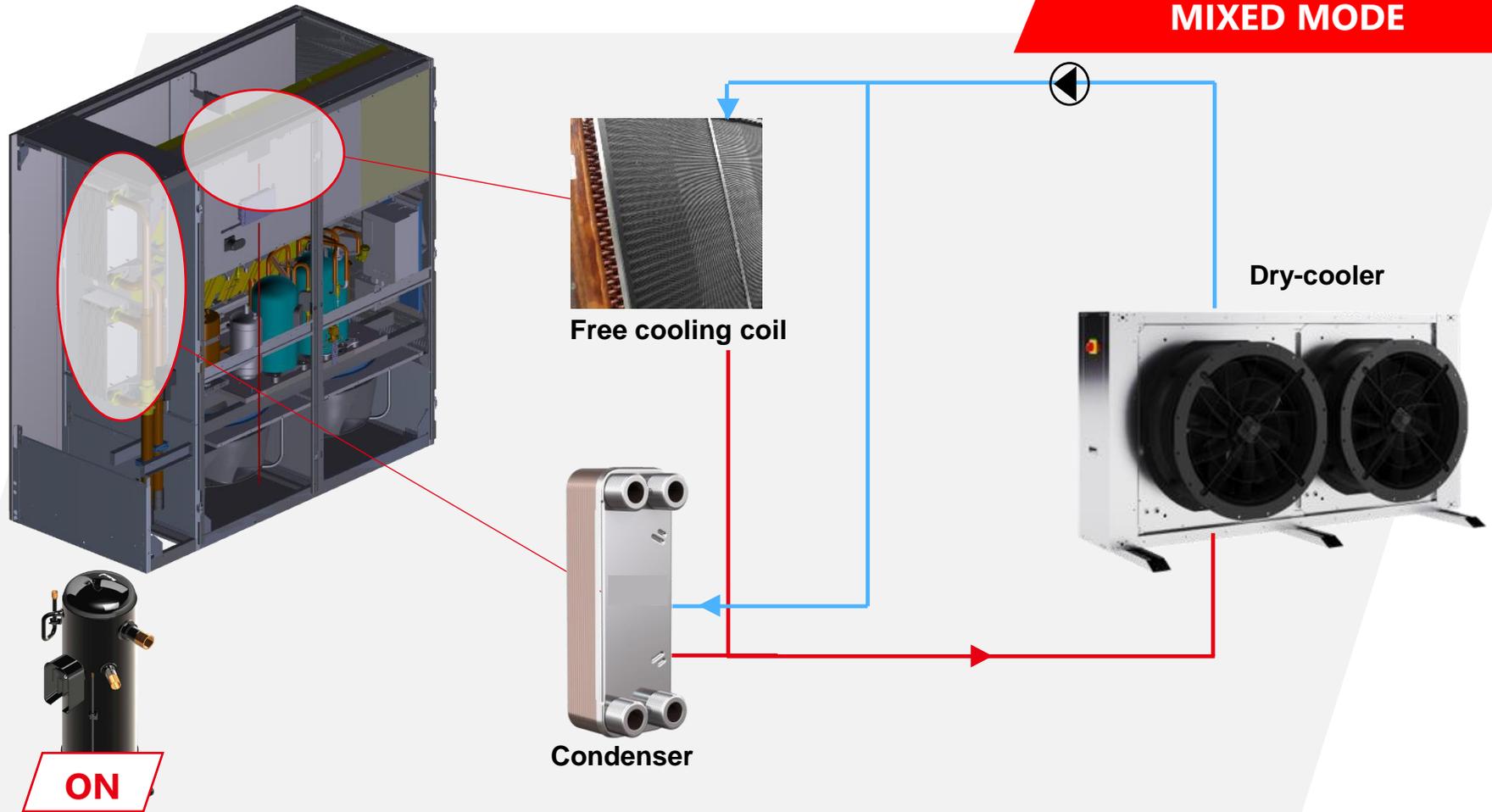
- DW
- DW DF
- DW FC

are equipped with a plate condenser and a 2-way valve for condensation control.

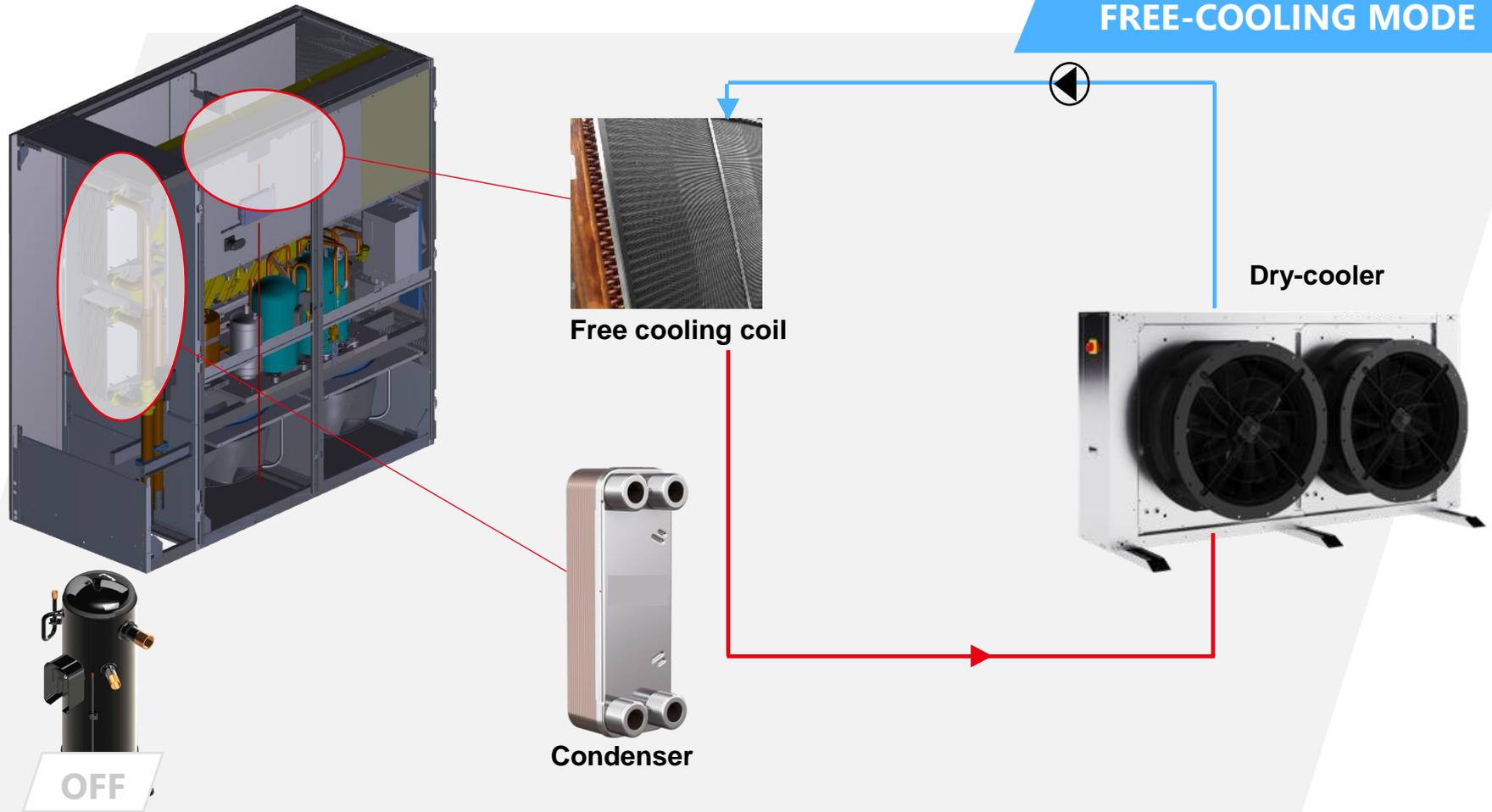
Versions – DW FC



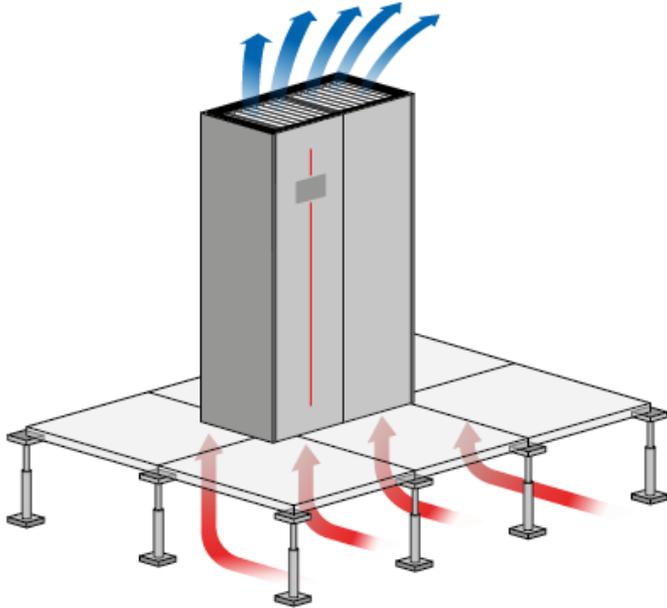
Versions – DW FC



Versions – DW FC



Air supply



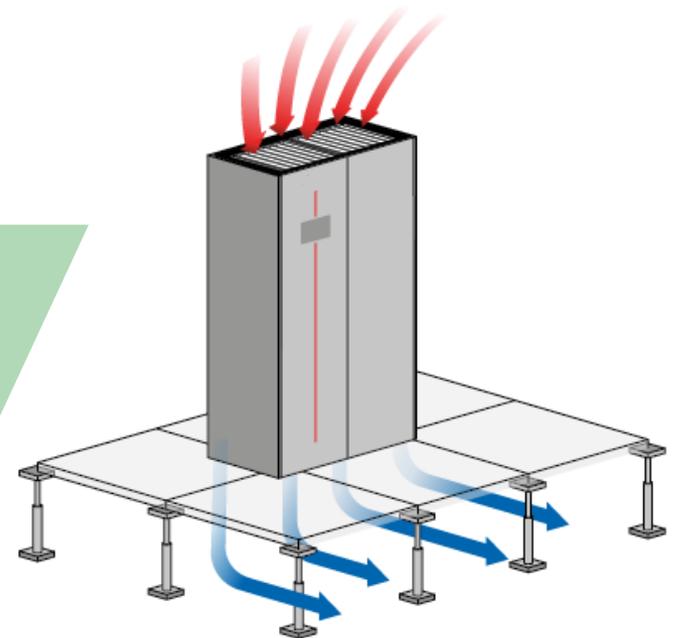
OVER air flow delivery and return from the **bottom**.

Ideal for data centers with raised floor.

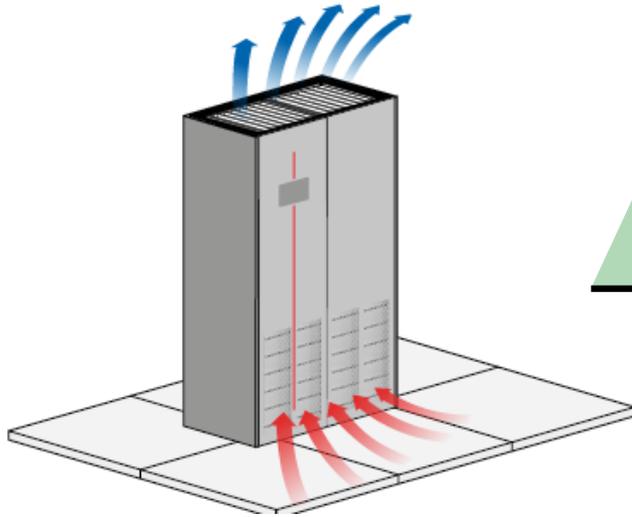
UNDER air flow delivery and return from the **top**.

Improves system efficiency by following the natural air stratification in the room.

Ideal for data centers with raised floor.



Air supply



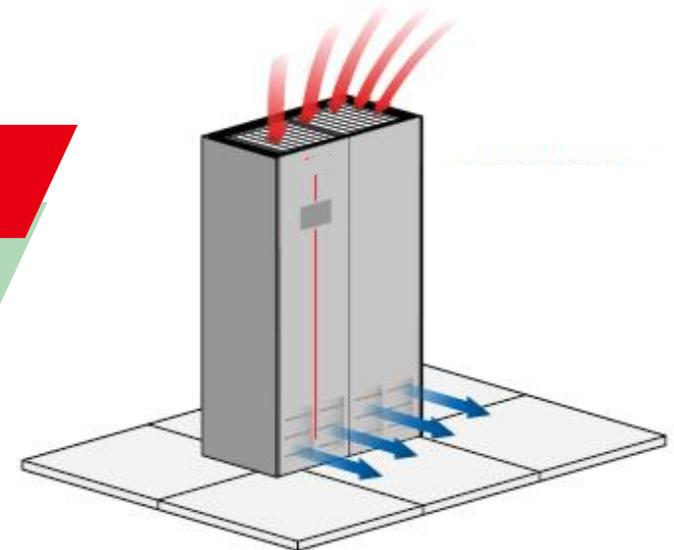
OVER air flow delivery and return from the **front**.

Ideal for data centers without raised floor.

NEW

FRONTAL air flow delivery and return from the **top**.

Ideal for data centers without raised floor.





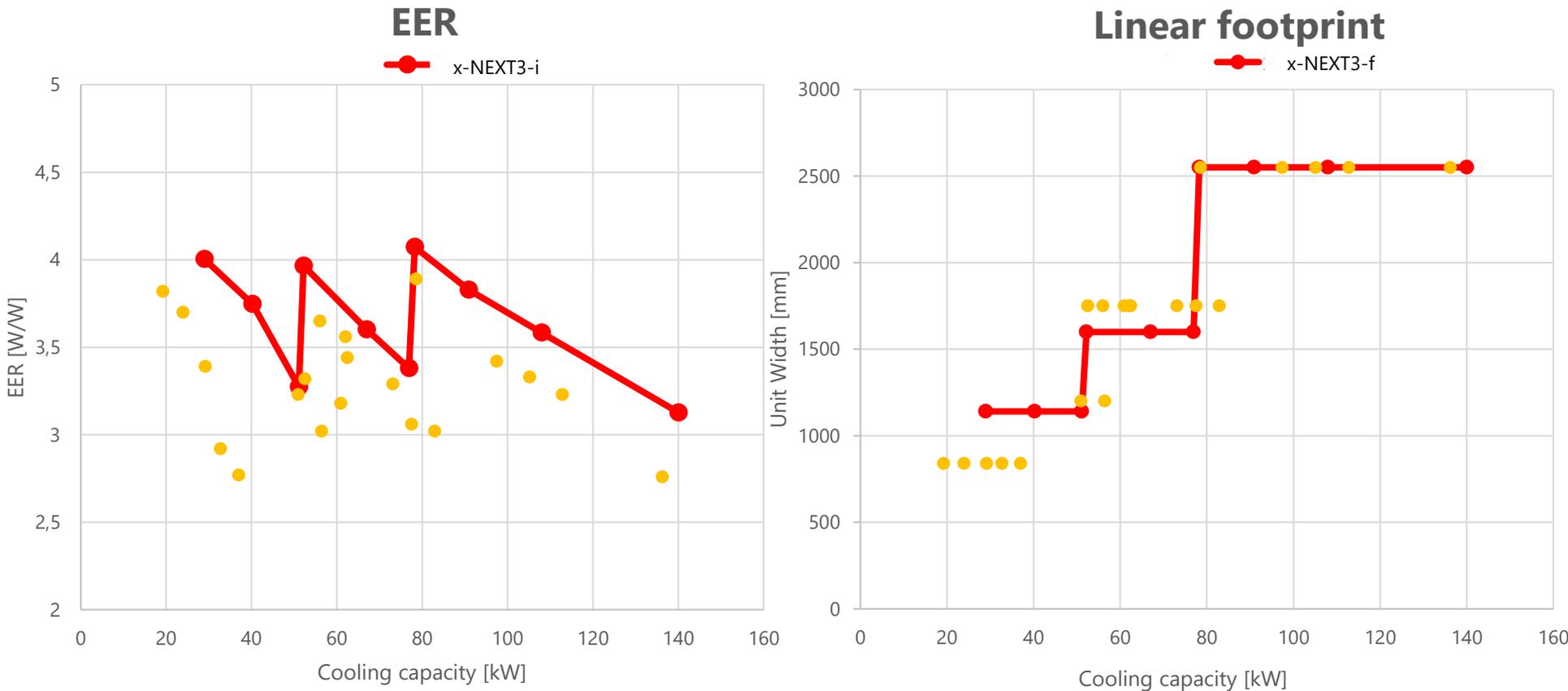
x-NEXT3-G02



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8. Further options
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Competitors' analysis: VSD range

Best efficiency-footprint trade-off in the market



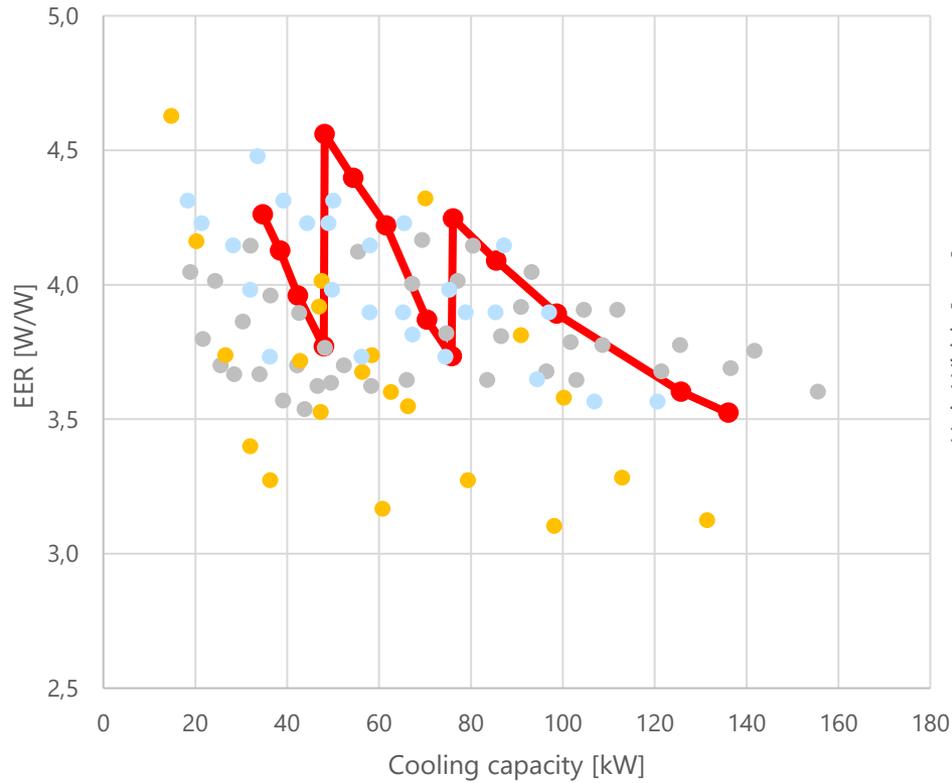
Comparison with currently the best inverter unit on the market

Competitors' analysis: ON/OFF range

Best efficiency-footprint trade-off in the market

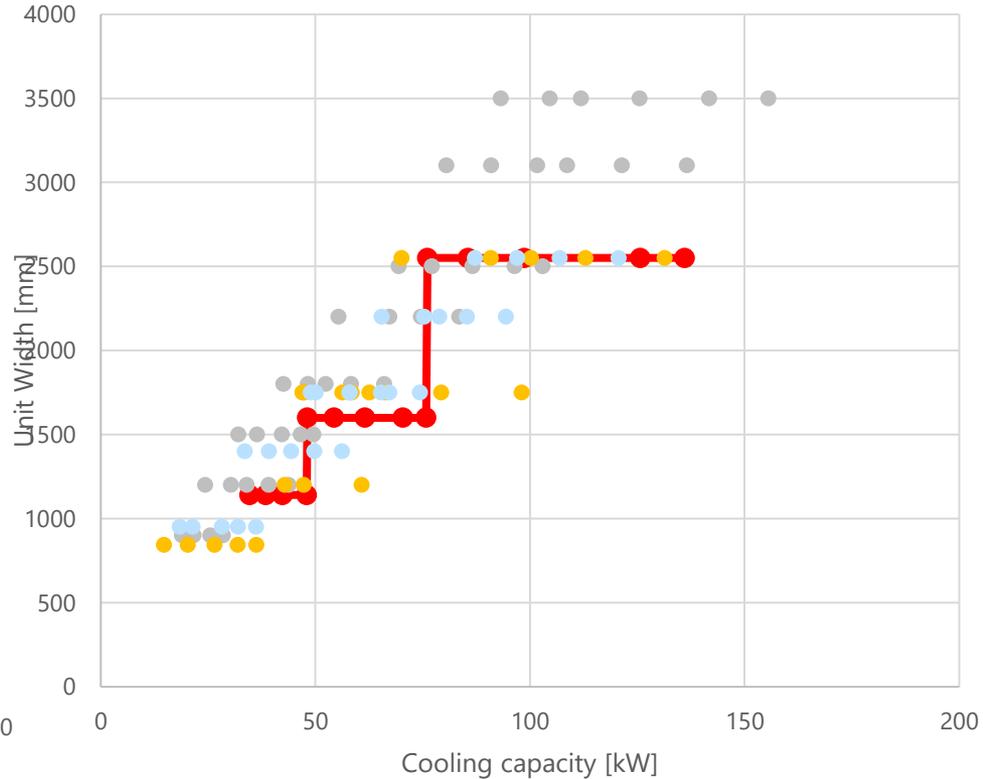
EER

x-MEXT-f



Linear footprint

x-MEXT-f



Operating limits

Area “A”: Unit operating envelope

Room air temperature:

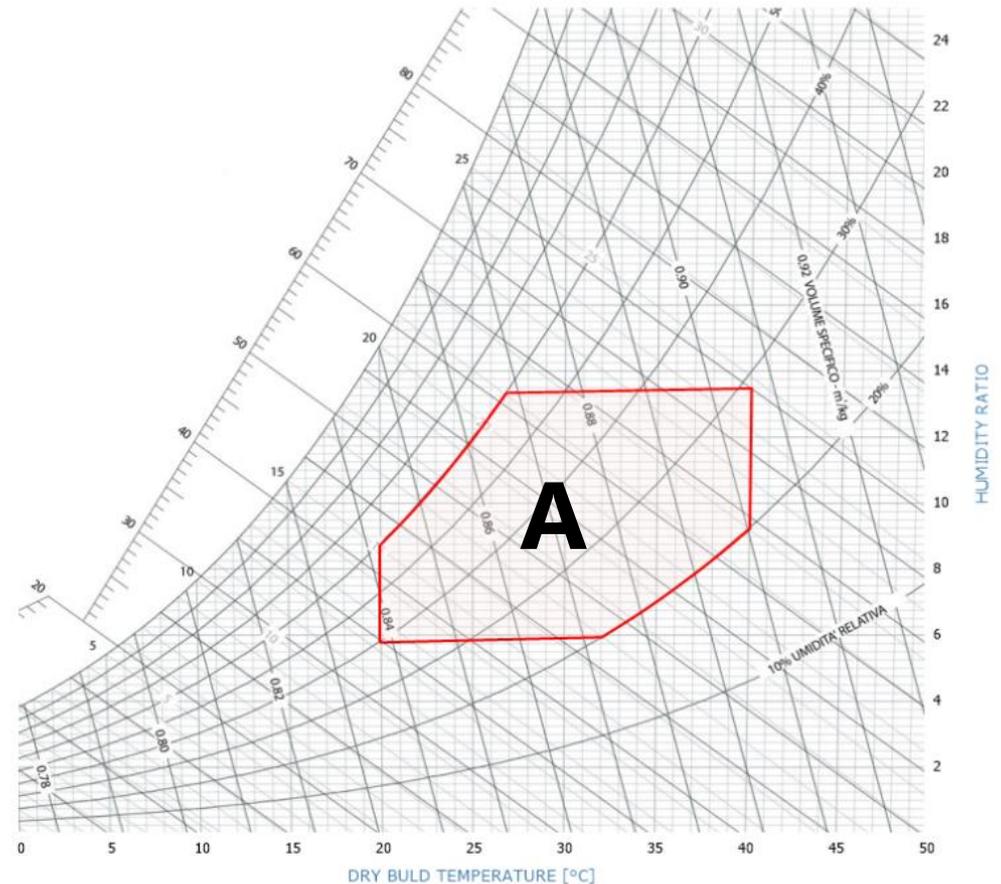
12,5°C	minimum wet bulb temperature.
24,5°C	maximum wet bulb temperature.
20°C	minimum dry bulb temperature.
40°C	maximum dry bulb temperature.

Room air relative humidity:

20%	minimum relative humidity.
60%	maximum relative humidity

EXTERNAL AIR TEMPERATURE

50°C	Maximum ambient air temperature.
-35°C	Minimum ambient air temperature for units equipped EC fans.
-40 °C	Minimum ambient air temperature for units equipped AC fans.





x-NEXT3-G02



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Control

EVOLUTION+ control software

Proprietary settings for faster adaptive responses to different dynamics, in all operating conditions.

Fully in-house developed

- **Thermoregulation**
Based on intake or supply air measurement.
- **Monitoring**
Complete visualization of the operation status. User-friendly navigation.
- **Diagnostics**
Complete alarm management, with and alarm history.
- **Security**
3 levels of password: user, service, manufacturer.
- **Connectivity**
BMS: Modbus, LonWorks, BACnet MS/TP, BACnet-over-IP, Modbus over IP, SNMP.



Accessories – TOUCH SCREEN 7' (opt. 6195)

The 7" touch screen display (opt.) with easy-to-read color graphics ensures the immediate visualization of the units' status and provides simple alarms and event management.



INTUITIVE ICONS

for a better user experience

MULTILANGUAGE

for a better user experience

QUICK MENU ACCESS

REAL TIME DISPLAY

for a better user experience

Accessories – KIPLINK (opt. 6196)

KIPLINK

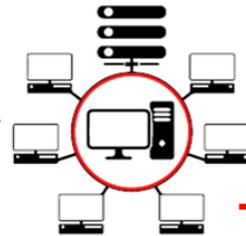
3 REMOTE FROM ANYWHERE

Same as LOCAL via VPN



Customer VPN

Secure accessibility to LAN
(cyber security in charge of customer)



2 LOCAL MONITORING LAN via TCP/IP



Ethernet

1 PROXIMITY SMART KEYBOARD WI-FI



Available via MEHITS
APP



LOCAL WI-FI



LAN PORT

LAN logics

LAN functions

- **Dynamic Master**
- Back up unit management (stand-by)
- Active Fan on Standby (AFS)
- Temperature and humidity average management
- **Active Distribution Load (ADL)**
- H&L Local Temperature Protection
- Active Pressure Load (APL)
- **LAN alarm management**
-
-

**Already available in the unit!****Up to 15 units per group!***

*The unit must be connected through LAN cable



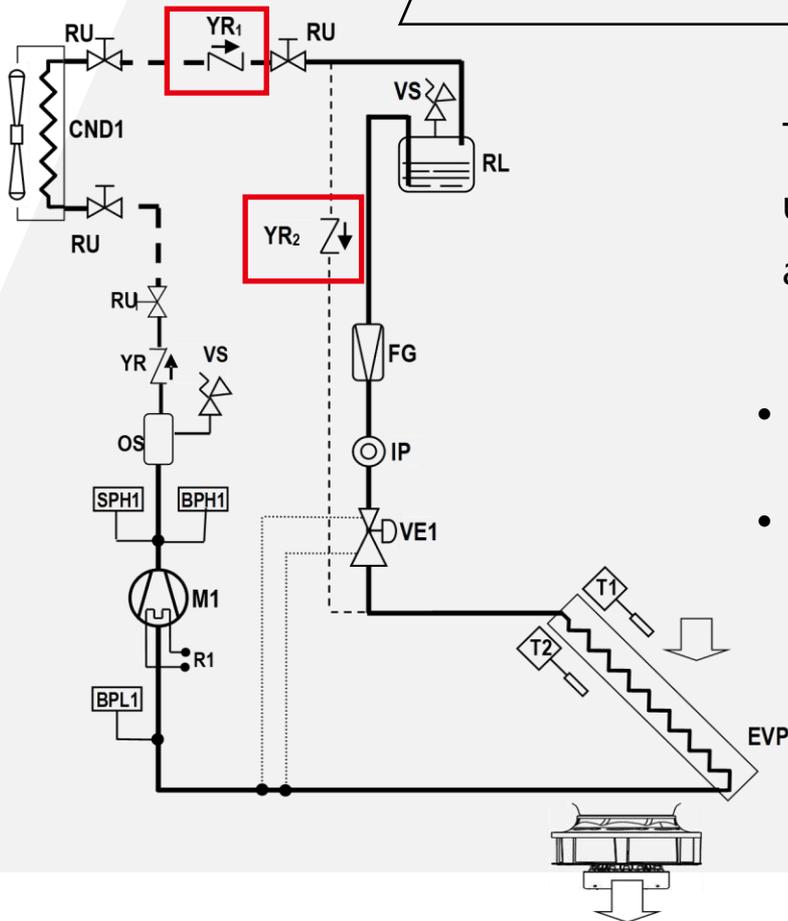
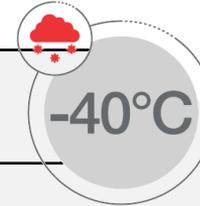
x-NEXT3-G02



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2. The application
3. Technical insight
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6. Performance
7. Control system
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Accessories – EXTREME conditions KIT (opt. B691/B692/B693)

Opt. B691 - LOW TEMPERATURE KIT

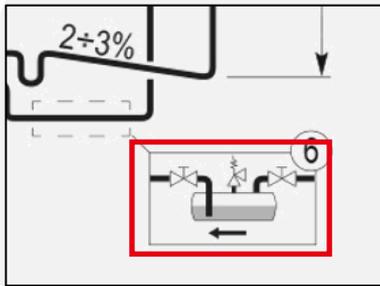


The accessory is necessary to ensure correct start-up and operation of the unit at very low outside air temperatures: **between -20°C and -40°C.**

- A check valve (YR1) **prevents the migration of refrigerant** in its liquid state to the condenser.
- A check valve (YR2) factory installed on the machine. **Limits any pressure rise** in the section of the liquid line between the expansion valve and the check valve (YR1).

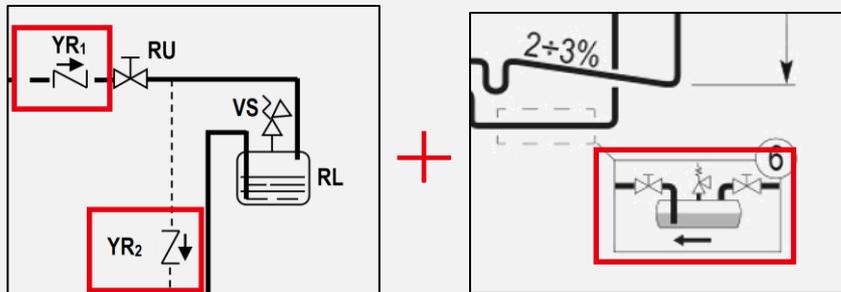
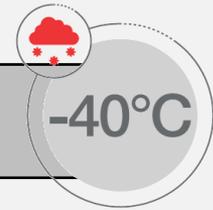
Accessories – EXTREME conditions KIT (opt. B691/B692/B693)

Opt. B693 - ADDITIONAL RECEIVER



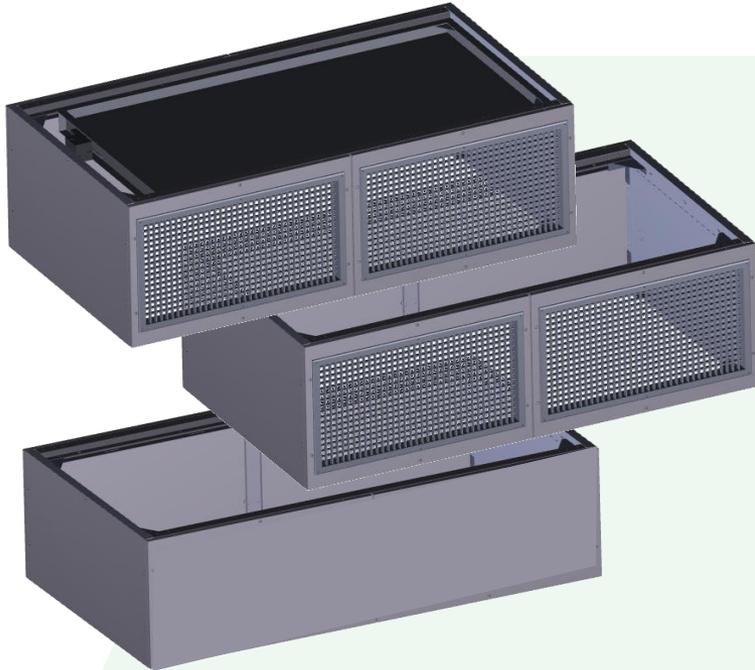
In those installations with equivalent lengths of refrigerant lines **more than 25 m (up to 100m)**, the installation of an additional liquid receiver is recommended, to be installed on the liquid line outside the unit (by the installer).

Opt. B692 - LOW TEMPERATURE KIT + ADDITIONAL RECEIVER



An additional liquid receiver can be requested in addition to the low temperature kit to be installed on the liquid line outside the unit

Accessories – PLENUM & DAMPER



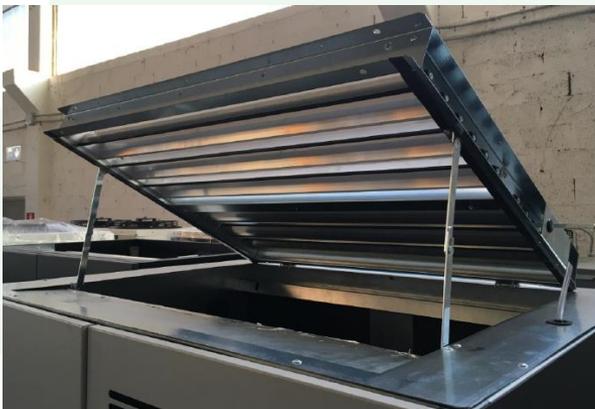
PLENUM

Plenum management **has been optimised:**

1. Improve set of plenums
2. Rationalizations
3. Space saving design (plenum with integrated dumper)
4. 60% COARSE bag filters to **increase efficiency**

DAMPER

New damper movement system simplifies access to filters for the maintenance

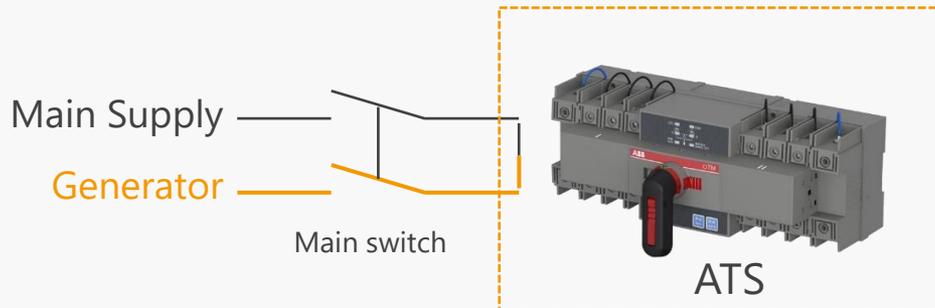


Accessories – DUAL POWER SUPPLY & FAST RESTART (opt. P111/4503)

DUAL POWER SUPPLY (opt. P111)

The unit, **equipped with an ATS***, can be connected to two separate power lines, to **enhance the system's dependability**.

In case of a **main line power outage**, the ATS* automatically **switches over to the backup line**, granting uninterrupted power supply to the unit.

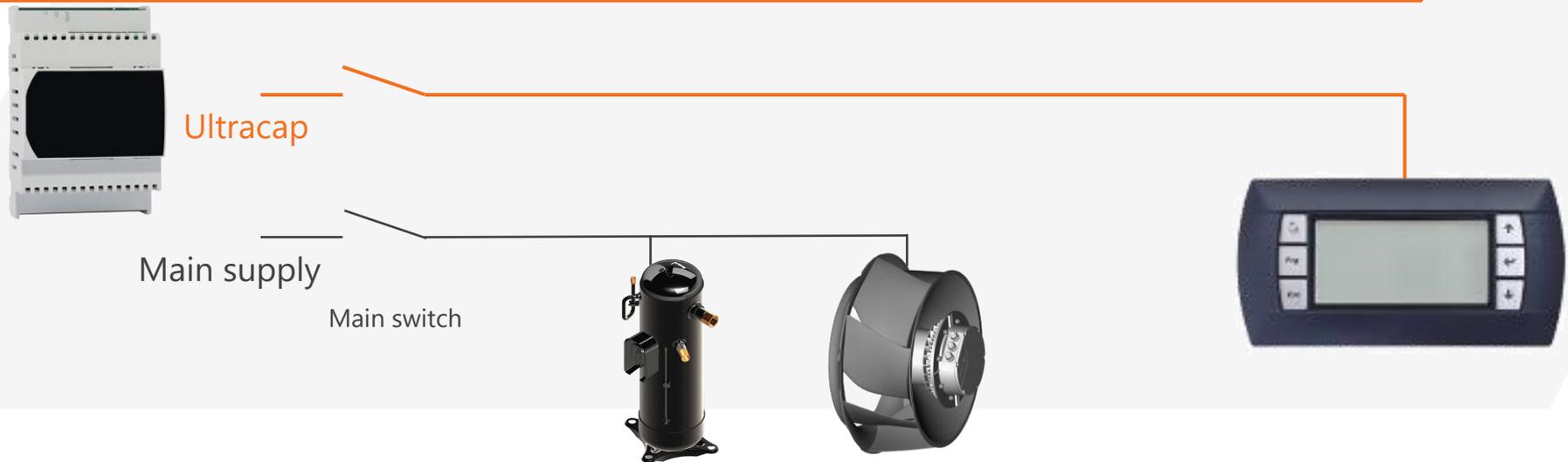


* ATS: Automatic Transfer Switch



Accessories – DUAL POWER SUPPLY & FAST RESTART (opt. P111/4503)

FAST RESTART (opt. 4503)



In the event of brief blackouts, it keeps the unit's microprocessor powered for a few minutes and ensures the **rapid resumption** of machine operation when normal power supply conditions are restored.

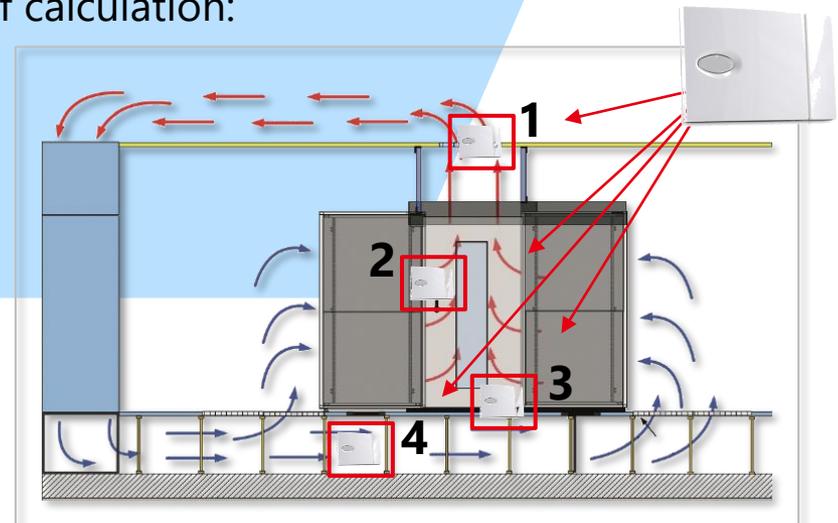
Accessories – Remote probes (opt. P071/P072/P073/P074)



In addition to the on-board temperature probes, the unit's control can manage **up to 4 remote T/RH probes**, to measure the return and the delivery air temperature in different positions inside the DC room.

The customer can choose between different types of calculation:

- Temperature of the **first** probe enabled
- **Average** temperature of the probes
- **Highest** temperature of the probes
- **Lowest** temperature of the probes.





x-NEXT3-G02



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9. How to sell

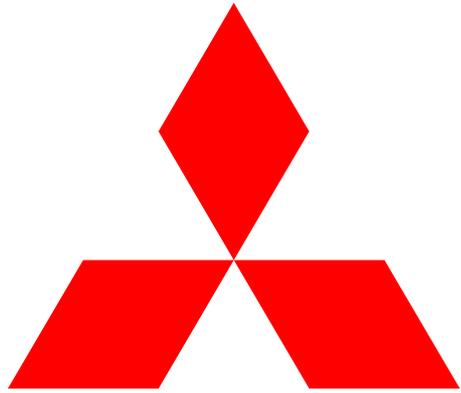
SELLING POINTS

- **Best in class EER**
- **Full inverter technology**
- Very **compact** Footprint
- **Unique** technologies: **Proprietary** fan + **MCHX** coil



HOW TO SELL

- **How:** Full 3D package solution, selling point, performance, ELCAWorld selection software.
- **Where:** Enterprise and Colocation DC (<1000 kW).
New building and Replacement market
- **Who:** Installer and system integrator



**MITSUBISHI
ELECTRIC**

Changes for the Better