MITSUBISHI ELECTRIC
HYDRONICS & IT COOLING SYSTEMS S.p.A.

IT COOLING

PRODUCT OVERVIEW

- ROOM COOLING
- RACK/ROW COOLING
- MULTIFUNCTION UNITS
- INFRASTRUCTURE
- CHILLERS AND FREE-COOLING CHILLERS
- TELECOM/SHELTER COOLING
- CONTROL, SUPERVISION AND OPTIMISATION SYSTEMS
- HEAT REJECTION PRODUCTS

NEW GREEN REFRIGERANT SERIES

- R1234ze — G04 SERIES
- R513A — G05 SERIES
- R454B — G06 SERIES

melcohit.com

RC IT COOLING'S MISSION

With over 50 years experience in the HVAC industry, RC has been a major player widely recognized for its leadership in IT Cooling solutions. Building on this strong legacy, Mitsubishi Electric Hydronics & IT Cooling Systems SpA has decided to turn RC into the Group's specialized brand for data center cooling

Worldwide distribution and service network

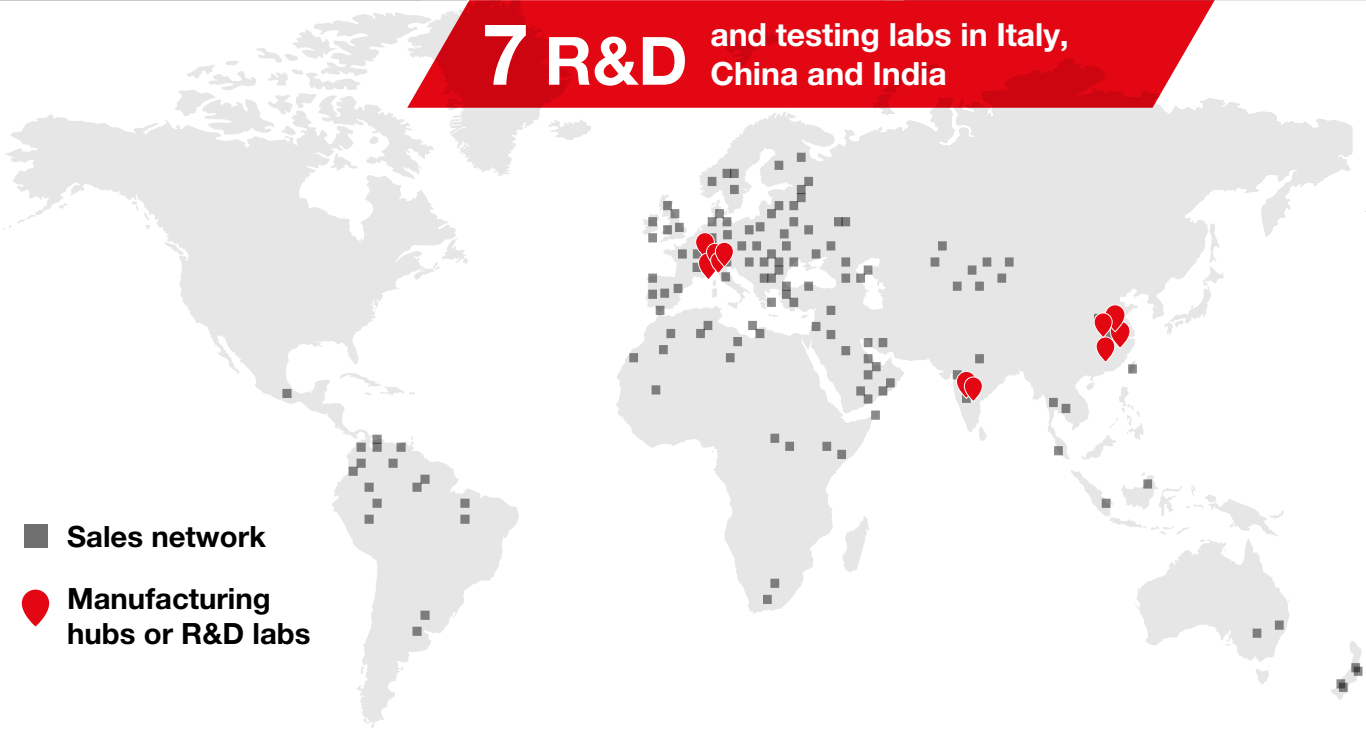
Over 50 years of experience

Dedicated products & specialized solutions

Vast portfolio of proprietary & patented technologies

12 specialized manufacturing hubs

7 R&D and testing labs in Italy, China and India



The result is a brand new business organisation providing the most complete product range, which combines the best technologies, solutions and innovations from RC and Climaveneta.

RC IT COOLING
leading-edge cooling technologies and solutions for IT applications are designed to provide even the most challenging Data Center and Telecom projects with:

- **Smart integration of the most advanced technologies**
- **Reduced operating costs**
- **Complete reliability and extended lifetime**
- **Widest use of the available power capacity**
- **Optimised footprint**
- **Increased sustainability**

Advanced technologies for efficient data centers.

RC IT Cooling leadership in data center cooling systems is backed by 50 years of experience in the smart integration of premium technologies for complex IT cooling projects.

Magnetic levitation

An extended range of chillers with magnetic levitation centrifugal compressors from 200kW to 4MW, both air source and water source, available also in free cooling and evaporative free cooling versions, to deliver highest efficiency in every application.

Active Free Cooling

Active FreeCooling

An advanced free cooling system available both as direct and indirect free cooling (no glycol), to exploit the outdoor air to cool the data center.

Smart Thermal Energy Management

Smart ThermalEnergy Management

An innovative heat recovery system that allows the smart use of rejection heat from the data center for comfort heating and other neighbouring applications.

Active Redundancy

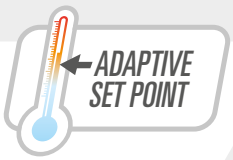
Active Redundancy

Real active redundancy delivered through the combined adoption of innovative EC PUL fans, inverter DC brushless compressors and a smart algorithm that balances heating load also among stand-by units.

New G04, G05, G06 and G00 series using green refrigerants

Following on vast experience in using green refrigerants, RC has already employed extensively green HFO refrigerants such as R513A and R454B in many ranges, in order to continue to be at the forefront with green best practices.

Adaptive set point



An advanced algorithm instantaneously detects the real thermal loads of indoor units and conveys this information to chiller, for selection of the most efficient operating mode (e.g. dynamic variation of chillers et points and operating mode, free cooling mode, active redundancy mode).

Inverter Driven Compressor

The possibility to modulate cooling capacity results in increased efficiency as well as in the possibility to effectively implement smart management solutions such as active redundancy.

Hydronic Plant Connect

Fully developed in-house, HPC perfectly matches the need for cooling, reliability, and energy savings, guaranteeing excellent performances while fully respecting the required IT cooling demands.

V-AIR

High efficiency EC technology fans are extensively adopted for their advantages both in internal units as well as in remote condensers with energy reduction up to 15% compared to traditional EC fans.

ROOM COOLING

Direct expansion close control units

t-NEXT DX with remote air cooled condenser	6,37	149	AIR COOLED · AXIAL · EC FAN
t-NEXT DW with built-in water cooled condenser	7,89	156	WATER COOLED · AXIAL · EC FAN
t-NEXT DF DX dual fluid / air cooled	12,2	136	AIR COOLED · DUAL FLUID · EC FAN
t-NEXT DF DW dual fluid / water cooled	11,2	145	WATER COOLED · DUAL FLUID · EC FAN
t-NEXT FC DW free cooling / water cooled	7,88	157	WATER COOLED · FREE COOLING · EC FAN
i-NEXT DX inverter compr./ with remote air cooled condenser	10,4	135	INVERTER · AIR COOLED · EC FAN
i-NEXT DW inverter compr./ with built-in water cooled condenser	11	140	INVERTER · WATER COOLED · EC FAN
i-NEXT DF DX inverter compr./dual fluid/air cooled	12,3	142	INVERTER · AIR COOLED · DUAL FLUID · EC FAN
i-NEXT DF DW inverter compr./dual fluid/water cooled	12,3	147	INVERTER · WATER COOLED · DUAL FLUID · EC FAN
i-NEXT FC DW inverter compr./free cooling/water cooled	11	140	INVERTER · WATER COOLED · FREE COOLING · EC FAN

50 100 150 kW

Chilled water close control units

w-NEXT3 chilled water	6	26	CHILLED · EC FAN
w-NEXT3 DF dual fluid	9	16	CHILLED · DUAL COIL · EC FAN
W-NEXT-S dual coil	6,7	213	CHILLED · EC FAN
w-NEXT DF dual coil	13,6	140	CHILLED · DUAL COIL · EC FAN
w-NEXT HD S/K high density	14,3	183	CHILLED · HIGH DENSITY · EC FAN
w-NEXT2 S/K chilled water, 2-section	57,8	227	CHILLED · EC FAN
w-NEXT2 DF chilled water, 2-section, dual coil	58,2	227	CHILLED · DUAL COIL · EC FAN

50 100 150 200 kW

Close control units for low thermal load applications

i-MTR2-G02-M0 full inverter / direct expansion	12	18	INVERTER · EC FAN · COOLING

10 15 20 kW

Close control units for high temperature, high Delta T

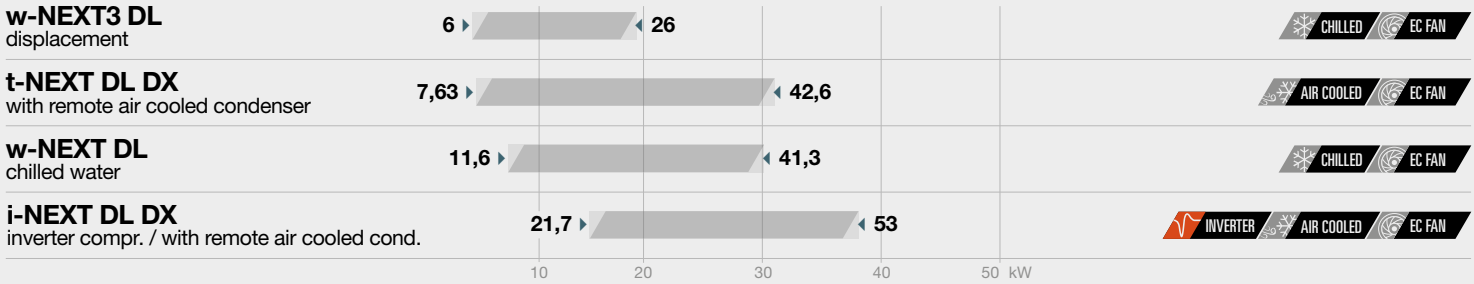
NEXT-X-TYPE chilled water, X coil technology	49,3	173	COILS · CHILLED · EC FAN

50 100 150 kW

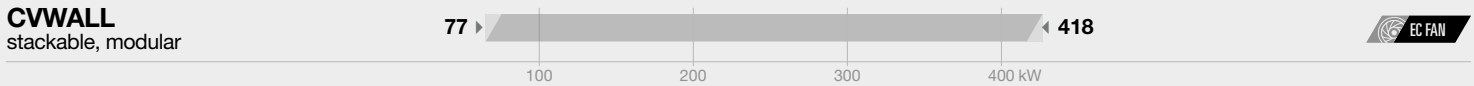
- **Highest energy efficiency**
- **Total dependability**
- **Ideal for high temp. IT environments**

X TYPE

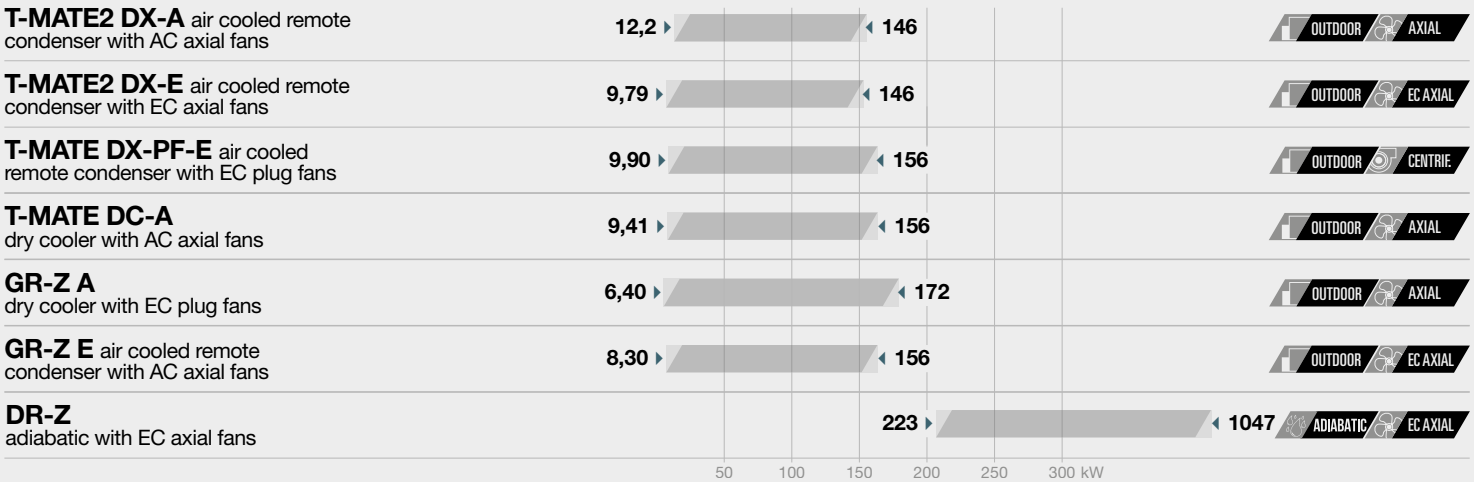
Close control units with displacement air delivery



FANWALL UNIT FOR DATA CENTER COOLING



REMOTE CONDENSERS AND DRY COOLERS



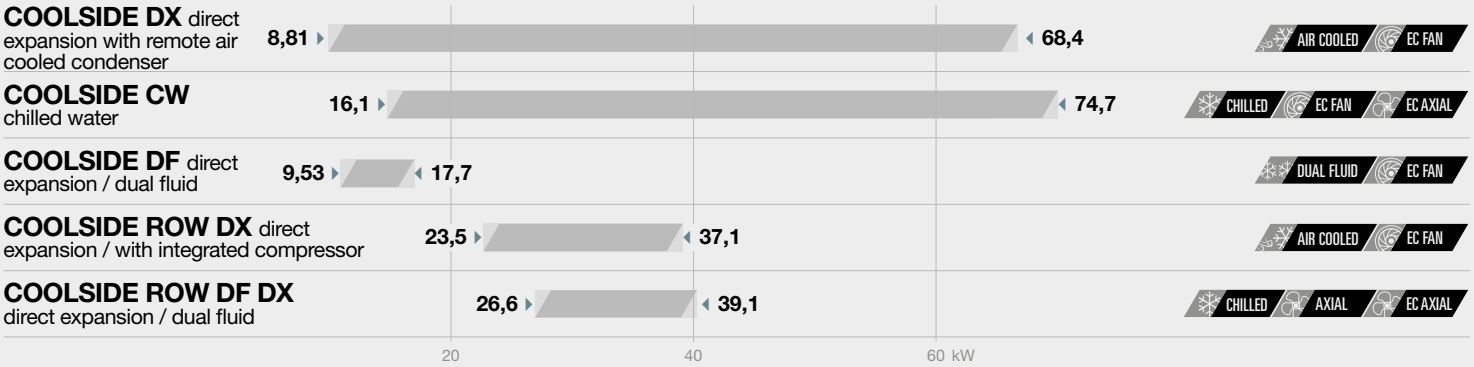
RACK/ROW COOLING

- **Maximization of the internal capacity of the infrastructure**
- **Elimination of hot spots**
- **Minimum floorspace occupancy**

ADAPTIVE SET POINT

Active FreeCooling

Close-coupled air conditioners



INFRASTRUCTURE

RC RACK

High quality cabinets for the protection and housing of servers

Floor-standing cabinets suitable for the housing of the server. The supporting structure is made of sheet steel with a thickness of 20/10 and can reach a capacity of 2000 kg.

RC AISLE CONTAINMENT

Aisle Containment solutions for high density applications

Aisle Containment solutions for the physical separation of the hot and cold air streams.

RC PDUs

Premium Rack Power Technology

Power distribution units (PDUs) that manage power usage for servers, storage and network equipment.

RAISED FLOORS

Raised floor solutions for high efficiency data centers

The raised floor is designed to easily adapt to future evolutions of IT spaces, avoiding expensive building work.This solution fulfills the need for versatile design of data centers.

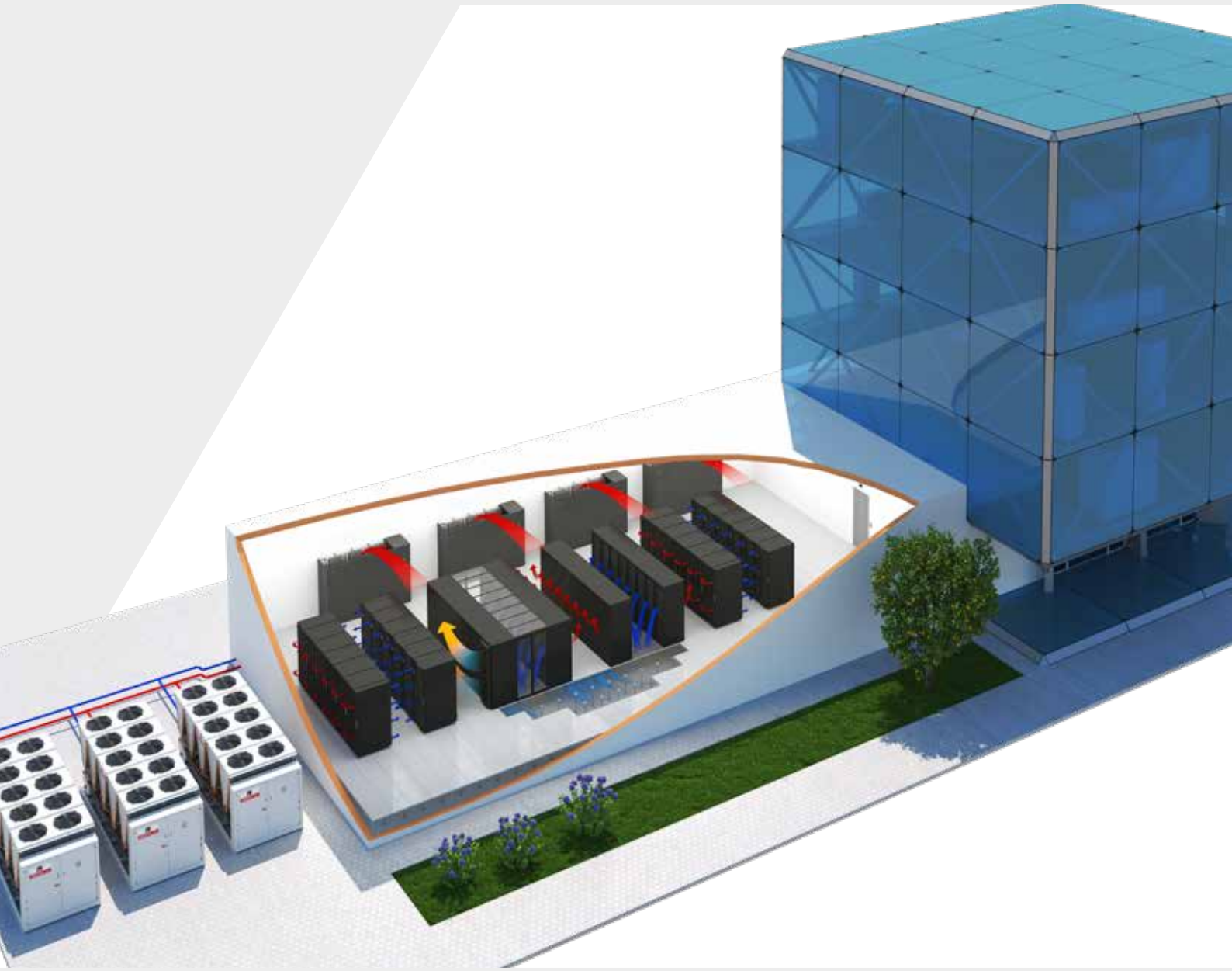
HEAT REJECTION PRODUCTS

Remote condensers

NCE / FCE 7,90 ▸ ◂ 929 kW

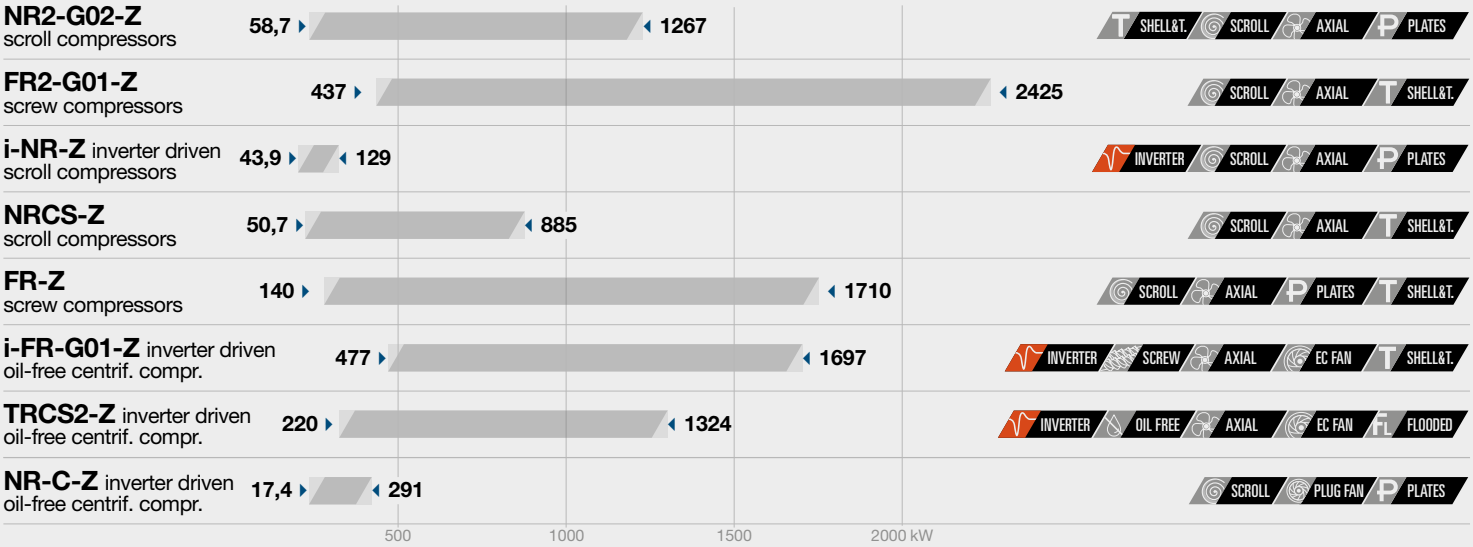
AXIAL

200 400 600 800 1000 kW

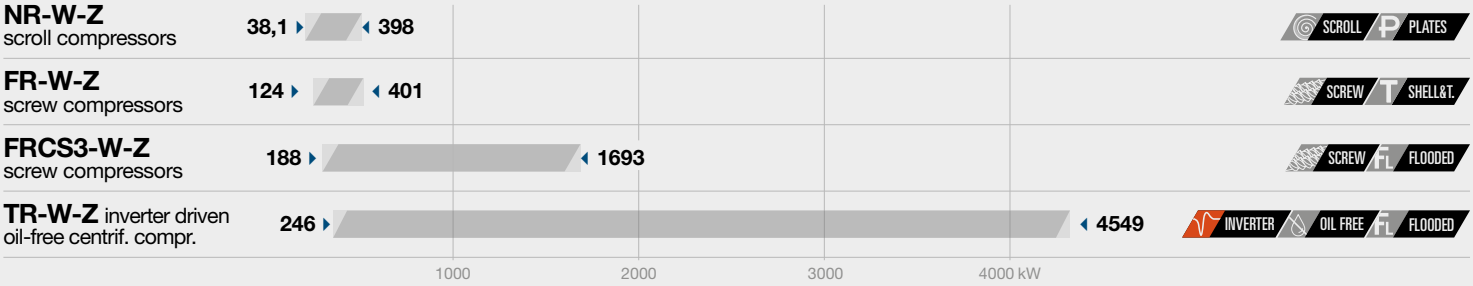


CHILLERS AND FREE-COOLING CHILLERS

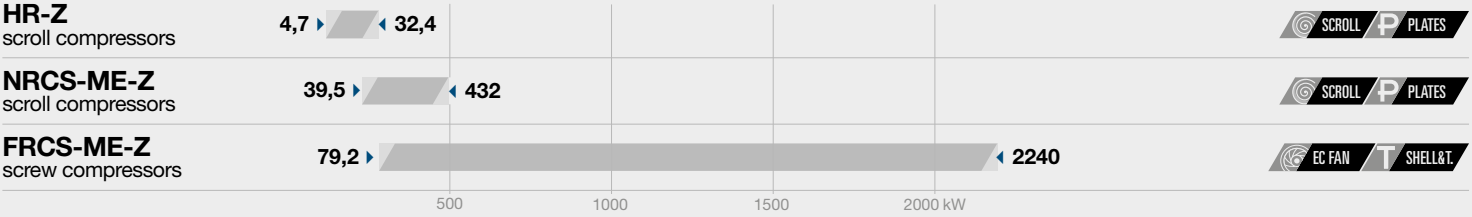
Air cooled chillers



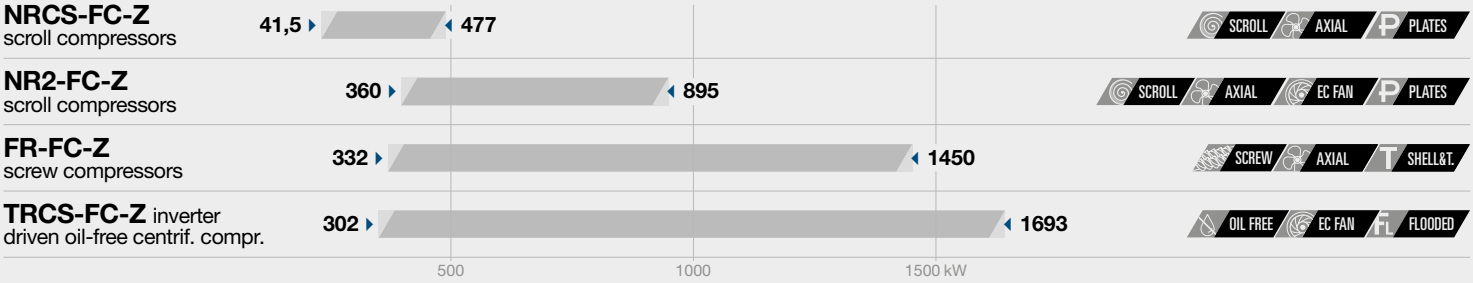
Water cooled chillers



Condenserless chillers



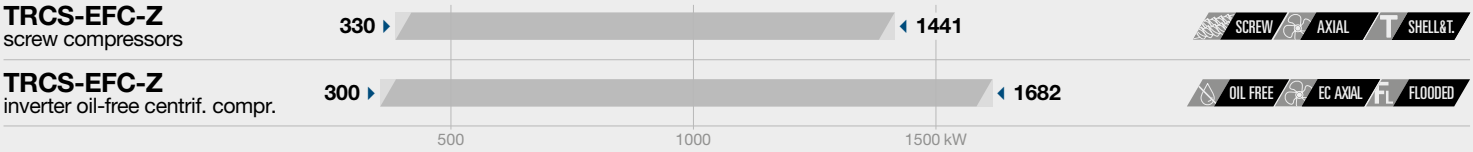
Air cooled chillers with free-cooling technology



- **Highest energy efficiency**
- **Ideal for IT environments**
- **Lowest noise emissions**

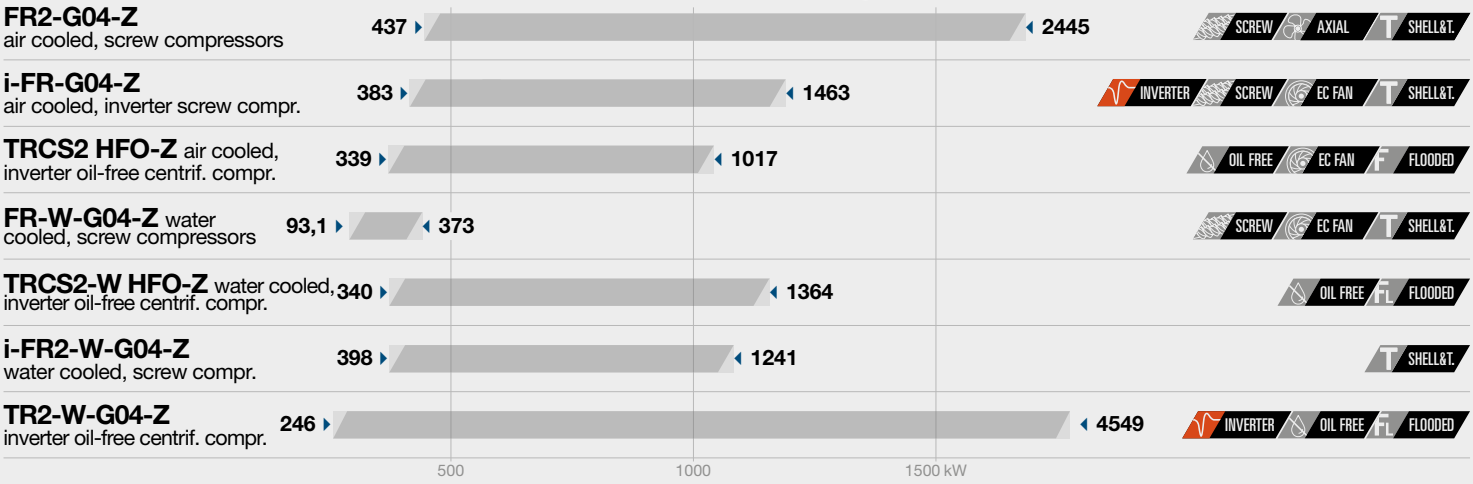
MAGNETIC LEVITATION · VAIR Variable Air Flow · INVERTER DRIVEN COMPRESSOR · EVAPORATIVE Cooling · Active FreeCooling

Air cooled chillers with evaporative free-cooling technology



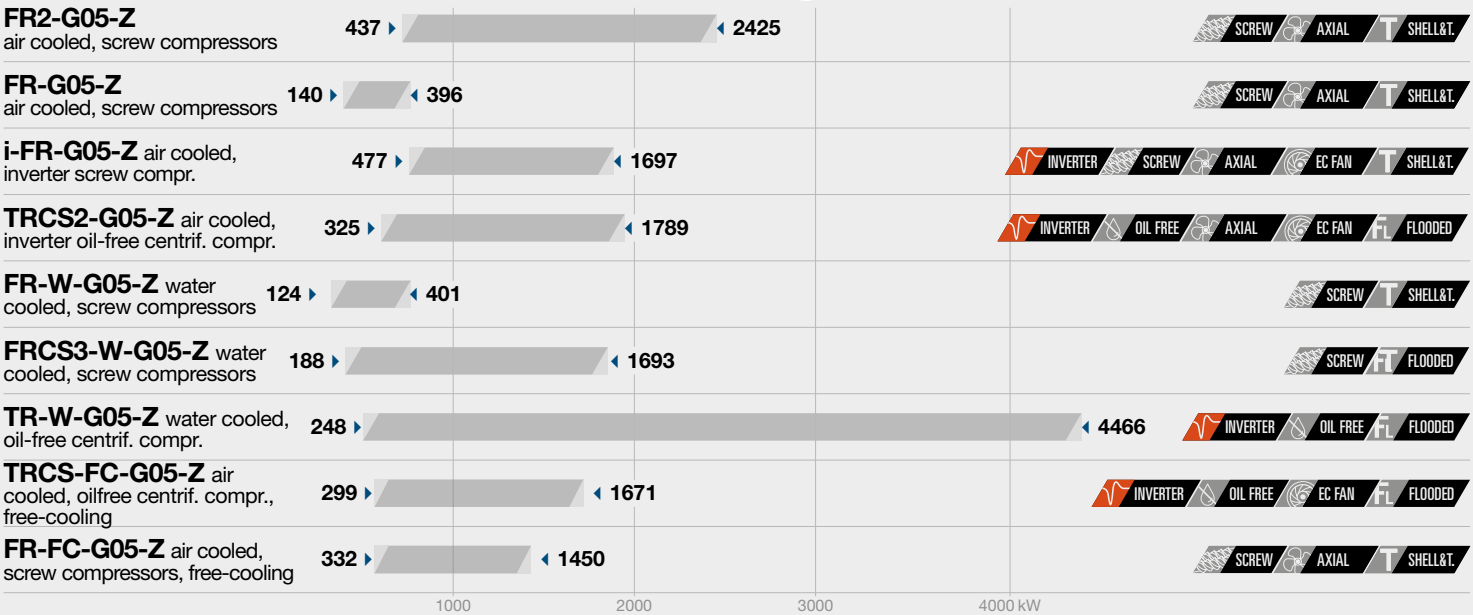
Air and water cooled chillers with HFO 1234ze

G04 SERIES R1234ze



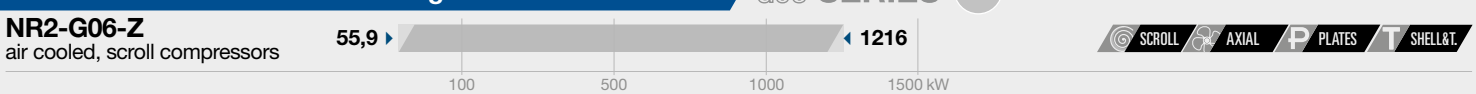
Air and water cooled chillers with R513A

G05 SERIES R513A



Air Cooed chillers and free-cooling chillers with R454B

G06 SERIES R454B

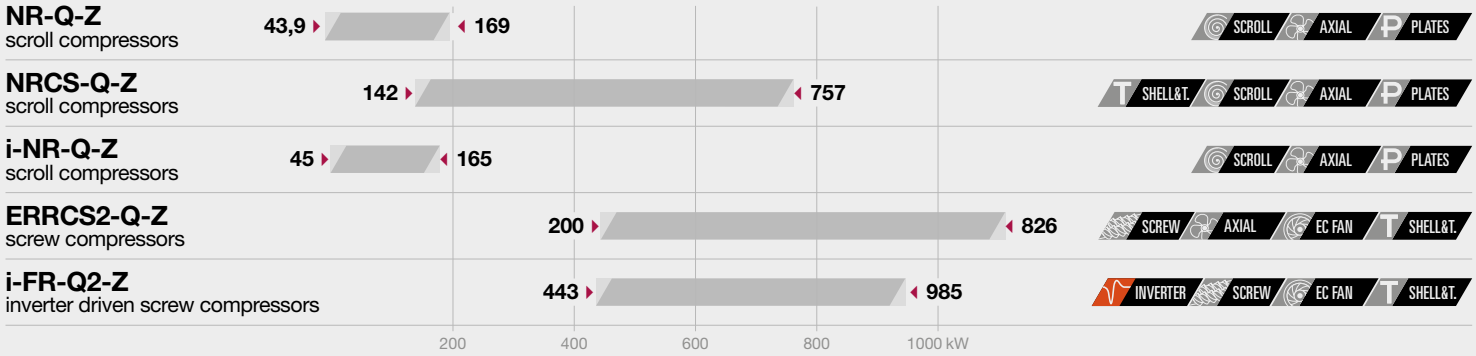


MULTIFUNCTION UNITS

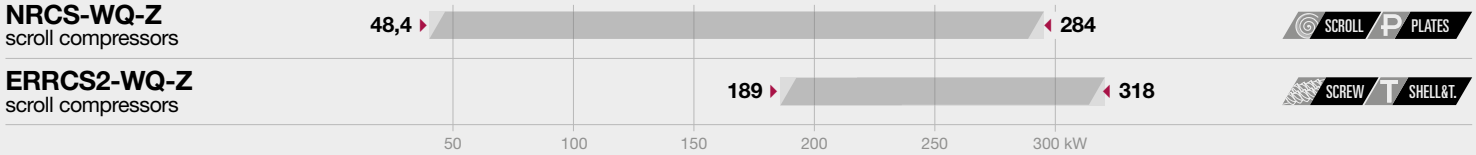
- Smart heat recovery system
- A single unit for multiple uses
- System simplification

VAIR Variable Air Flow · INVERTER DRIVEN COMPRESSOR · Smart ThermalEnergy Management

Air source heat pumps

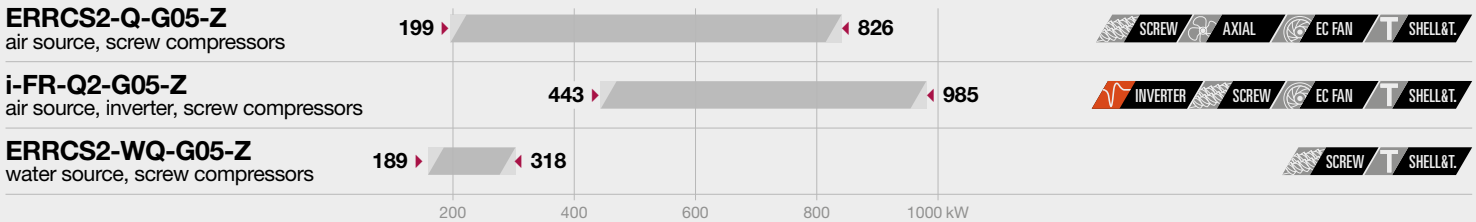


Water source heat pumps



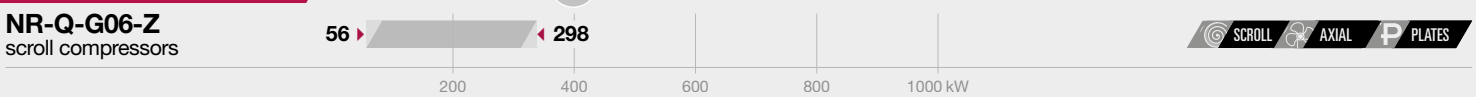
Air and water source 4-pipe heat pumps with R513A

G05 SERIES R513A



Air cooled chillers

G06 SERIES R454B

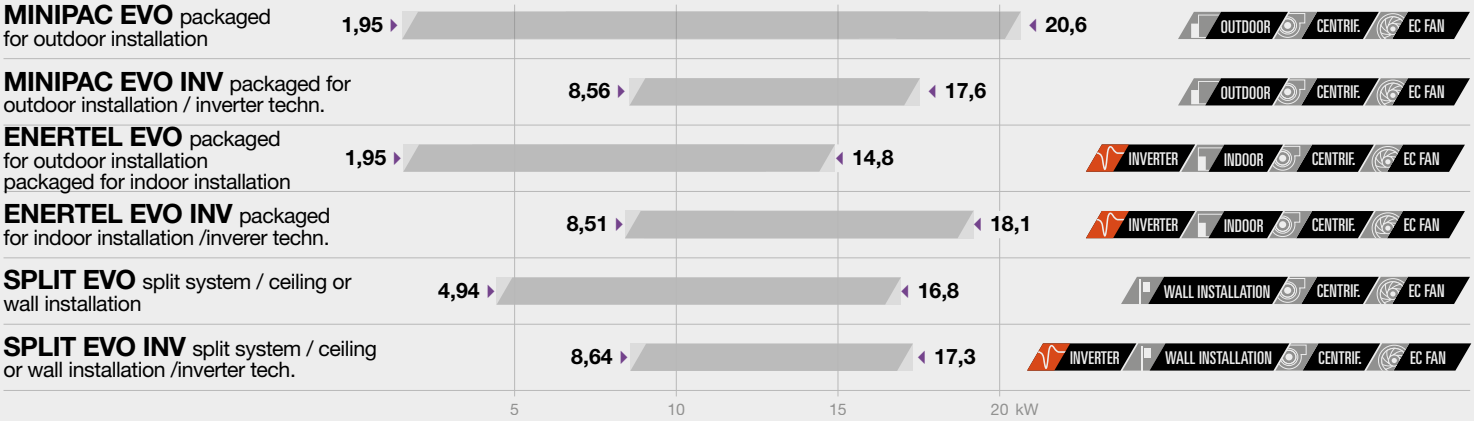


TELECOM/SHELTER COOLING

- **Reliability and extended operation**
- **High capacity sensitive cooling**
- **Black out management**

VAIR Variable Air Flow · INVERTER DRIVEN COMPRESSOR · Active FreeCooling

Air conditioners for telecom applications with free-cooling and full DC inverter technology



CONTROL, SUPERVISION AND OPTIMISATION SYSTEMS

Group devices

- **ClimaPRO**
  Plant Room Optimisation System
  Plant Room Optimiser for real time,smart management of energy indecesfor the single units and the entire plant room.
- **MANAGER 3000**
  Specialized group control forthe data center air conditioners.
- **HPC - Hydronic Plant Connect**
  HPC is a new control logic, completely integrated in the units' controller, that allows one to manage the entire hydronic IT cooling plant.

HPC
Hydronic Plant Connect

Supervision and monitoring systems

- **FWS3 / FWS3000**
  Remote monitoring systems.
- **RC Cloud**
  Cloud based remote monitoring system.

Human Machine Interfaces

- **KIPlink**
  Control interface for smart phones and tablets.

MORE THAN 1000 PROJECTS ALL OVER THE WORLD

BANEDANMARK TIER III

Ringsted - Denmark

Period: 2020 - 2021

Application type: Data Center

System type: Hydronic System, HPAC System

Cooling capacity: 771

Installed Units:
3x i-NR-Z/SL 0302P,
1x i-FR-G04-Z/SL-A 2602,
8x COOLSIDE,
2x Aisle Containment

DNV-GØDSTRUP HOSPITAL

Herning - Denmark

Period: 2020

Application type: Healthcare / Hospitals, Data Center

System type: Hydronic System, HPAC System

Cooling capacity: 766

Installed Units:
2x TRCS2-W HFO-Z/HC/S,
24x Coolside CW-I 0060,
2x w-NEXT DL/S 042,
2x w-NEXT DL 022,
2x w-NEXT DL 042,
84x RACK

Every project is characterized by different usage conditions and system specifications for many different latitudes. All these projects share high energy efficiency, maximum integration, and total reliability due to the unique experience of RC branded solutions.

WIIT DATACENTER MILAN

Milan - Italy

Period: 2017-2018

Investor: WIIT

Application: Data Center

Plant type: Hydronic System

Cooling capacity: 700 kW

Installed machines:
10x NEXT EVO INV DX U;
18x TEAM MATE STD

FORTUM DISTRICT HEATING

Kirkkonummi - Finland

Period: 2017-2018

Application: Data Center

Plant type: Hydronic System

Cooling capacity: 27150 kW

Heating capacity: 26486 kW

Installed machines:
2x FRCS2-W HFO/H/CA/S 5422,
8x ACU EXPANDED

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