

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

COMFORT

CHILLERS

NX²FC

G02
G06

FREE COOLING CHILLERS
FOR HIGH LEAVING WATER TEMPERATURE
FROM 295 kW TO 750 kW

FREE COOLING

HIGH TEMPERATURE

R454B



NX²FC

G02
G06

FREE OUTDOOR AIR TO COOL YOUR BUILDING



Free cooling chillers with scroll compressor technology. From 295 kW to 750 kW.

NX2-FC is the ultimate free-cooling chiller solution with scroll compressors, dedicated to comfort applications.

Designed to maximise the free-cooling activity, the unit mainly uses the outside air to satisfy the cooling capacity.

The rest of the time, during mechanical and hybrid modes, NX2-FC adopts a specifically engineered compressor to give its best during the partial load operation.

THE MOST EFFICIENT AND GREENER FREE-COOLING CHILLER ON THE MARKET

R454B

NX²FC G06

UP TO

	EER	SEER	TFCT (°C)
A	4,00	5,13	4,1
K	3,87	5,00	1,8



EER: Water (in/out) 15/10°C, air (in) 30°C, e.g. 30%, NET VALUE
SEER: Regulation (EU) N. 2016/2281 - NET VALUES: EN14511, EN14825.

TFC: Total free-cooling temperature. Water (in/out) 15/10°C, Et. glycol 30%.

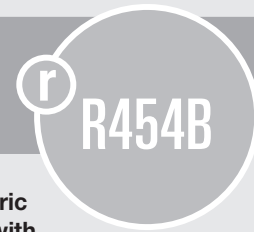
3 ACOUSTIC VERSIONS

Standard (K, A)	Low sound power levels already in the standard version.	
Compressors' acoustical enclosure	Unit with compressor acoustical enclosure	-2 dB(A)
Super Low Noise (SL-K, SL-A)	Special acoustic insulation, devoted fan speed reduction and increased heat exchange surface.	-9 dB(A)

FREE-COOLING CONFIGURATIONS

Base	Standard free-cooling unit.
No Glycol	Free-cooling is possible without the use of glycol on the plant side.

NEW GENERATION GREEN REFRIGERANT



Fully committed to supporting the creation of a greener tomorrow, Mitsubishi Electric Hydronics & IT Cooling Systems presents the G06 series, chillers, and heat pumps with reduced environmental impact.

Thanks to the new generation refrigerant R454B, the environmental impact of NX2-FC-G06 is greatly reduced. Combining reduced refrigerant charge with a low GWP refrigerant, these units boast the lowest amount of CO₂eq in the scroll unit market, thus resulting as the perfect choice for any new forward looking installation.

R454B REFRIGERANT

High density, low **GWP refrigerant**. Its physical properties are **similar to R410A**, so the same type of equipment / components can be used.

GWP: 467

-76% vs R410A
-31% vs R32

REDUCED ENVIRONMENTAL IMPACT



- ▶ **Low GWP**, only 467
- ▶ **Reduced refrigerant charge** (-10% vs R410A)

RELIABILITY



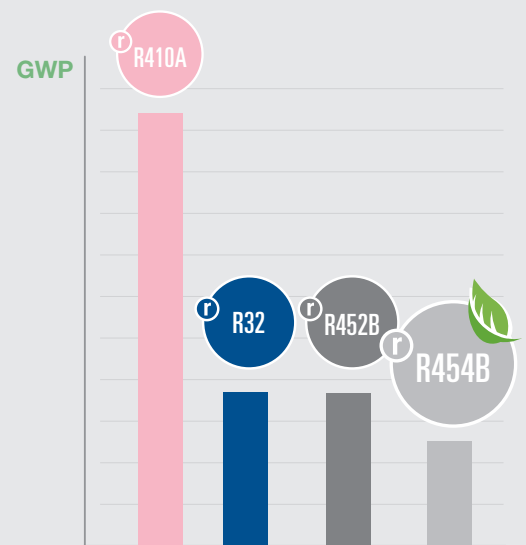
- ▶ Use of **well-known components**
- ▶ Refrigerant circuit **reliability** is maintained

PERFORMANCE & ENVELOPE



- ▶ **Same operating limits** of R410A both in **cooling** and **heating**
- ▶ Higher efficiency (full load +3,5%, seasonal +2% vs R410A)

GWP



MASSIVE FREE-COOLING

Thanks to large free-cooling coils, NX2-FC uses the outdoor air as the main source to produce cooling. With a set-point of 20°C, the total free-cooling operation is possible from outdoor air temperature of 12°C.

UNYIELDING IN EXTREME CONDITIONS



NX2-FC can operate in all climates from -20°C (-30°C with options) to +48°C and, equipped with highly resistant coil coatings, it can withstand even the harshest industrial or marine environments.

PACKAGED SOLUTION

NX2-FC is a complete all-in-one solution ready to be installed. The integrated hydronic modules includes the pumps, the buffer tanks and the main hydraulic components, allowing simplified installation and time-saving commissioning.

READY FOR MISSION CRITICAL APPLICATIONS



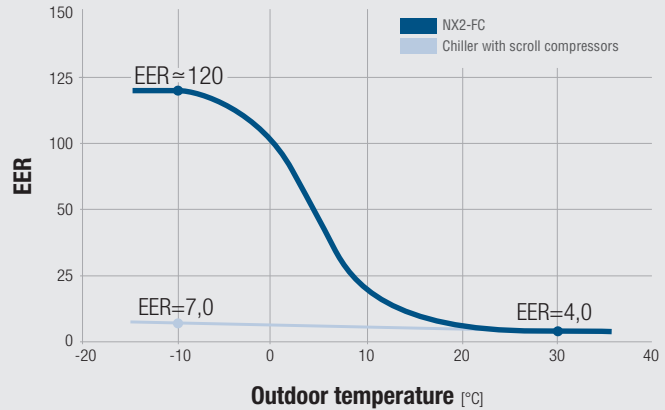
Designed for continuous operation, NX2-FC meets the needs of the uninterruptible industry. Devoted devices and functions maximize the unit's uptime even in case of emergency circumstances.

FREE-COOLING TECHNOLOGY

The ultimate solution to harness the full potential of outdoor air.

In many climates, it is possible to reduce the OPEX (Operating Expenditure) of a cooling plant by taking advantage of favorable environmental conditions, that is any time the outdoor air is colder than the operating water.

The higher the water operating temperature, the greater the annual free-cooling potential.



Note: Operating water temperature (in/out) 30°C/20°C.

MECHANICAL COOLING vs FREE-COOLING

Comparing the efficiency of a NX2-FC and a traditional scroll compressor chiller, the enormous efficiency gap in the free-cooling temperature range is evident.

In total free-cooling, the compressors are off and minimum energy is needed to satisfy the nominal cooling capacity.

Thanks to maximized free-cooling coils, NX2-FC makes the most of free-cooling, always granting a secure and efficient cooling capacity back-up with highly performing compressors.

HOW CLIMAVENETA MASTERS FREE-COOLING

Climaveneta's free-cooling chillers work in three different modes:

- ▶ Total free-cooling
- ▶ Hybrid cooling
- ▶ Mechanical cooling

As the outdoor air temperature drops 1 degree below the returning water temperature, a valve system redirects the water to the special coils and the benefits of the free-cooling begin.

Total free-cooling

- ▶ The outdoor air temperature is low enough to satisfy the entire cooling demand.
- ▶ Compressors are off.

MAXIMUM ENERGY SAVINGS

Hybrid cooling

- ▶ The outdoor air temperature is lower than the returning water temperature but not cold enough to achieve total free-cooling.
- ▶ Compressors are partialized.

OPTIMISED RESOURCE MANAGEMENT

Mechanical cooling

- ▶ Outdoor air temperature is equal to or higher than the returning water temperature.
- ▶ Total cooling capacity provided by the compressors.

CONVENTIONAL CHILLER OPERATION

CHILLERS LAN FUNCTIONS

The control of NX2-FC features embedded functions that leverages the LAN connection between the chillers and the indoor units, in order to enhance the system's efficiency and dependability.

If you're looking for an integrated solution to manage your outdoor chillers. LAN Multi Manager allows one to create single group of chillers (up to 8 units) where one chiller works as the master unit coordinating the others.

CHILLERS LAN FUNCTIONS

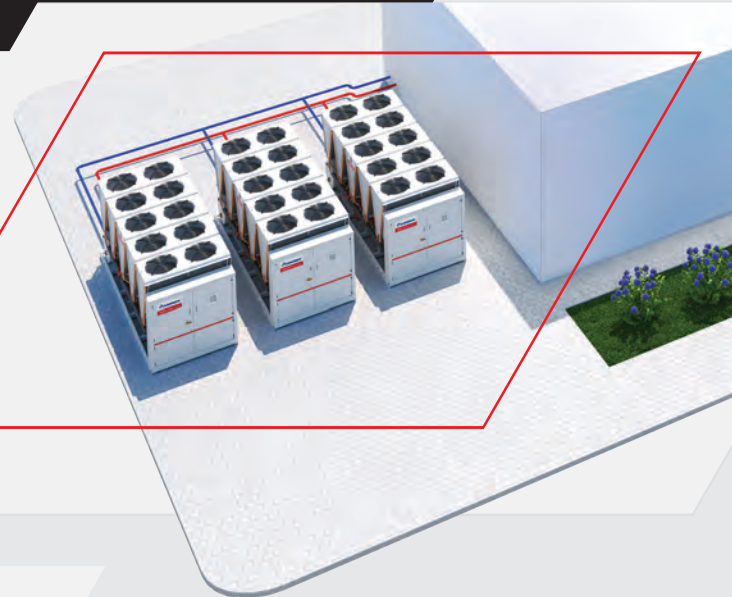
- ✓ Dynamic Master
- ✓ Load distribution or saturation
- ✓ Stand-by management with automatic or forced rotation
- ✓ Resource priority management
- ✓ Group fast restart
- ✓ Pump management
- ✓ Auxiliary inputs

DYNAMIC MASTER

The Dynamic Master logics automatically elect a new Master from all other units connected in the same LAN when the master unit fails.

Thus, the group will continue to operate.

**MANAGEMENT OF
UP TO 8 UNITS PER GROUP**



RESOURCE PRIORITY MANAGEMENT

The rotation of the stand-by units can be automatically managed according to specific time bands, alarms, and cooling load variations.

In the event of a unit breakdown or disconnection from the LAN, stand-by units are forced to activate.

TECHNOLOGICAL CHOICES

W3000+ CONTROL

Management software developed fully in-house.

- ▶ Efficient and reliable operation in all conditions
- ▶ Connectivity with the most commonly used BMS protocols (Opt.)

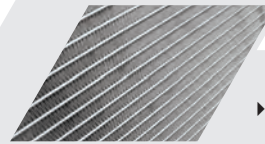


KIPlink USER INTERFACE (Opt.)

Innovative Wi-Fi interface for an easy and enhanced unit management.



Air side condensing coils

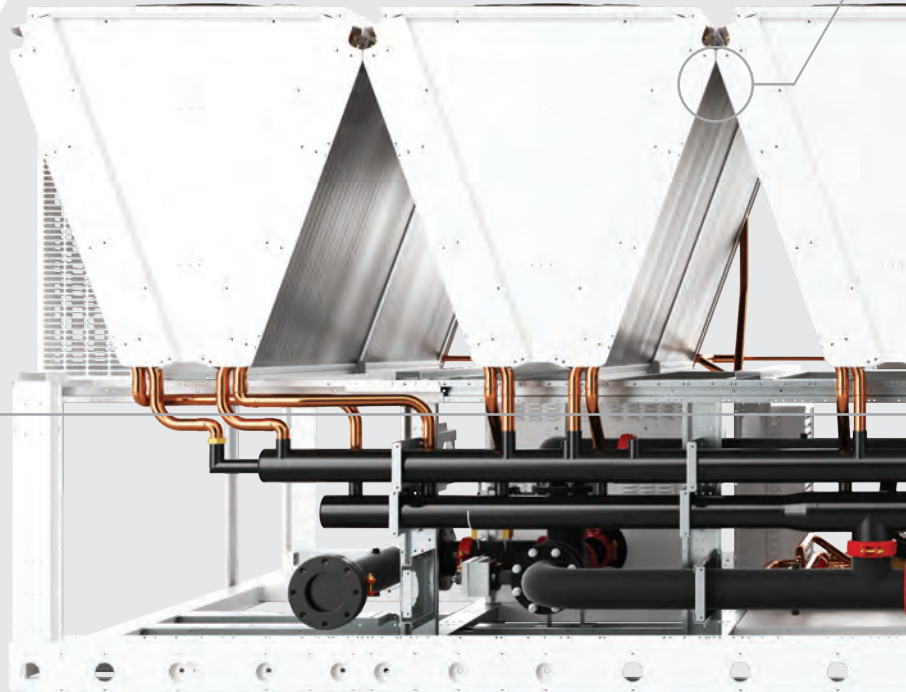


MICROCHANNEL

- ▶ Microchannel coils (standard)
- ▶ E-coating treatment (Optional)

Scroll compressors

- ▶ Tandem or trio configuration for multiple step regulation
- ▶ Acoustical enclosure as standard for SL (Super-low noise) versions
- ▶ Optimized for low pressure ratio thanks to IDVs
- ▶ Ideal for high evaporating temperatures



ALL-IN-ONE SOLUTION



The integrated hydronic module (opt.) includes the pumps, the buffer tank, and all the main hydraulic components, for the best optimization of the installation space, time, and costs.

Trusted reliability, simplified installation, maximized performance: NX2-FC is key for ensuring supreme comfort inside your environment.

Free-cooling coils

TUBE & FINNS

- ▶ Copper-aluminium (standard)
- ▶ Pre-painted fins treatment (optional)
- ▶ Fin guard silver treatment (optional)

EC axial fans

SEASONAL EFFICIENCY: up to **+5%**

NX2-FC / A versions

High performing EC fans for the highest efficiency

NX2-FC / K versions

Variable speed AC fans equipped with phase-cut device

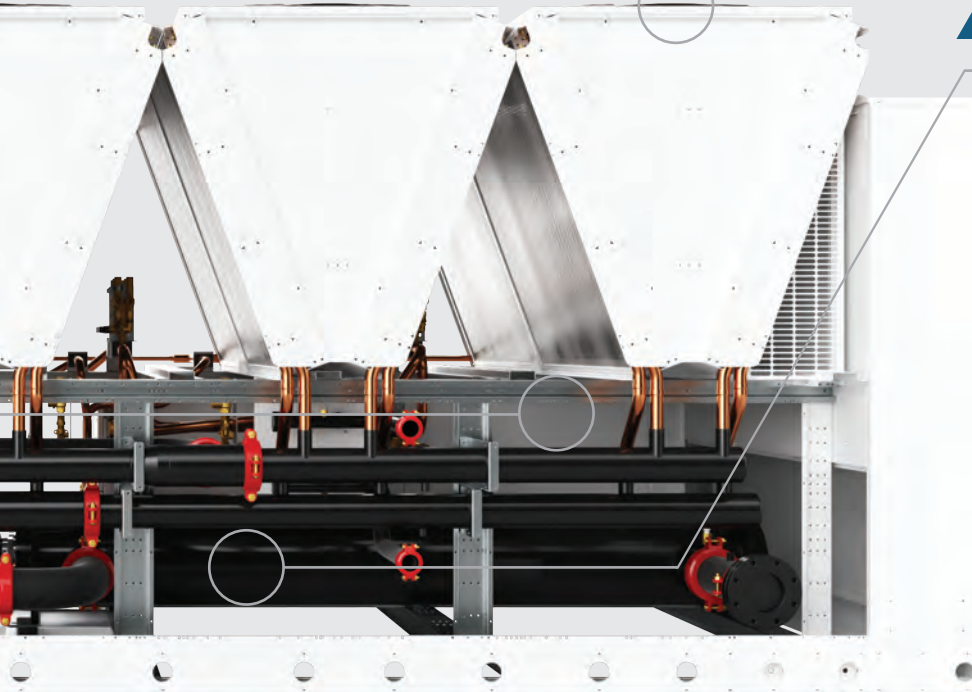
Shell and tube evaporator

Direct expansion shell & tube evaporator, with internal grooved copper tubes.

Water-side: single pass

Refrigerant side (multi-circuit): double pass

- ▶ Robust, reliable, inspectionable
- ▶ Fully protected against ice formation
- ▶ Low pressure drops and optimal heat transfer efficiency



INTEGRATED HYDRONIC MODULES

PUMPS

- ▶ Single or twin pumps
- ▶ Low or high head (approx. 100 or 200 kPa).
- ▶ Fixed or variable speed

PUMPS + BUFFER TANK

- ▶ 1000 litre buffer tank
- ▶ 20 mm insulation lining
- ▶ Including: expansion vessel, safety valve, manometer.

ONLY TERMINALS

- ▶ Control 1 or 2 external pumps
- ▶ On/off or modulating signal



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