

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

COMFORT

CHILLERS

HEAT PUMPS

TX2-W **G04**

**HIGH EFFICIENCY WATER COOLED CHILLERS
AND HEAT PUMPS, WITH OIL-FREE CENTRIFUGAL
COMPRESSORS AND HFO R1234ZE REFRIGERANT,
FROM 191 TO 2069 kW**

r HFO
1234ze



TX2-W G04

**FOLLOW THE RED LINE.
MEET THE GREEN FUTURE.**



Water-source chillers and heat pumps reversible on the water side with oil-free centrifugal compressors. From 191 kW to 2069 kW.



The TX2-W-G04 range is specifically engineered to be at the forefront of green innovation in comfort cooling applications, thanks to the optimized oil free compressors and the HFO R1234ze refrigerant.

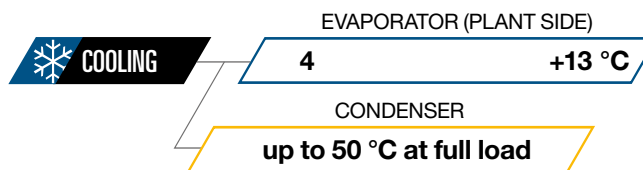
THE MOST EFFICIENT AND GREEN HFO OIL-FREE CHILLER ON THE MARKET

EFFICIENCY UP TO

	EER	SEER
TX2-W-G04	6,21	10,16

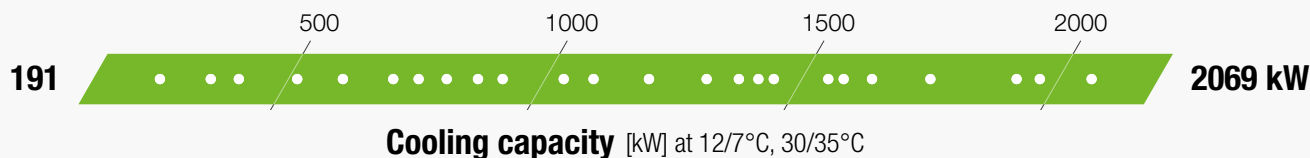
EER: 12/7°C, air 30/35°C (EN14511 values)
SEER: Regulation (EU) N. 2016/2281

WIDE OPERATING RANGE FOR COMFORT APPLICATIONS



WIDE COOLING CAPACITY FOR HFO

TX2-W-G04 comes with a wide cooling capacity coverage, with 24 sizes featuring from 1 to 4 oil-free compressors always with a very compact footprint.



HIGH EFFICIENCIES

By choosing TX2-W-G04 you are getting a unit which employs a unique combination of specifically designed centrifugal compressors and optimized heat exchangers, perfectly suited for this range.

This combination, along with a careful design and the great know how put into the design, push the levels of seasonal efficiency to new heights, making it the perfect choice for any Comfort application.

SUPER SILENT

Oil-free compressors are among the most silent on the market.

What's more, TX2-W-G04 features a special casing structure that makes this unit the best-in-class unit in terms of low sound levels.



BEST kW/m² RATIO

Best Performance/footprint ratio for ensuring a simplified installation and very low shipping costs.

The product dimensions are ideal for container transportation.

G04 VERSION WITH R1234ZE REFRIGERANT

r HFO
1234ze

TX2-W-G04 adopts the almost-zero GWP R1234ze refrigerant, which tackles both indirect (due to primary energy consumption) and direct global warming, thus resulting in the perfect choice for any forward-looking cooling system.

COOLING CAPACITIES UP TO 2069 kW

TX2-W-G04 covers a large range of cooling capacities.

This aspect makes the oil-free chiller the ideal solution both for both small-medium applications and large environments where a reduced footprint is key.

BESPOKE SELECTION SOFTWARE

TX2-W-G04 can be tailored to suit your building needs.

Thanks to a dedicated selection software, you can select the most competitive product size according to the cooling demand, without sacrificing any requirements in terms of efficiency or initial investment.

TX2-W G04 // All-round sustainability

TX2-W-G04 is the result of Mitsubishi Electric Hydronics & IT Cooling Systems' extensive approach to sustainability.

Achieving outstanding performance and ensuring long-term sustainability are challenges that modern HVAC systems need to tackle.

Increasing concerns about the global warming impact of chillers and heat pumps is driving new

regulatory policies to push towards even more efficient units with the lowest carbon footprint.

Today, an all-round approach is the only way to effectively reduce the Total Equivalent Warming Impact (TEWI).

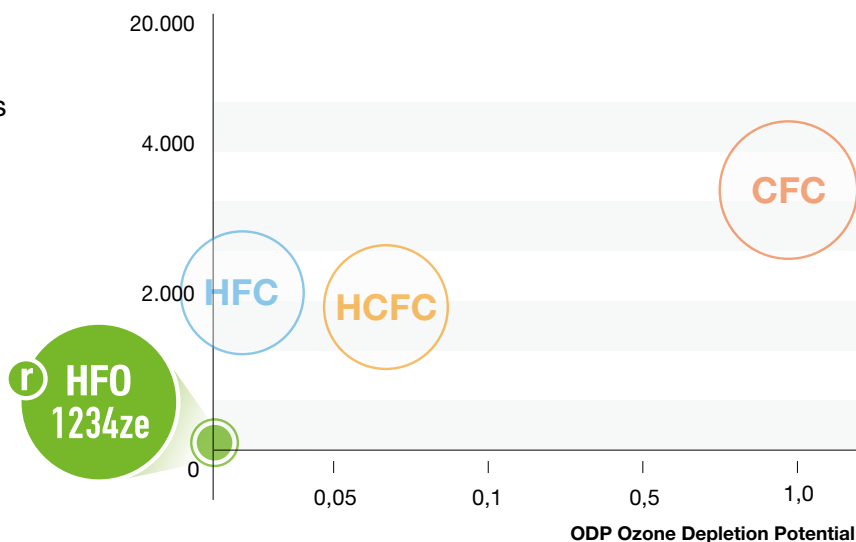
Combining brilliant annual efficiency with the use of a low GWP refrigerant, TX2-W-G04 tackles both the indirect (due to the primary energy consumption) and the direct global warming impact, thus resulting in the perfect choice for any new, forward-looking cooling system.

The environmental impact of the refrigerants is measured by two parameters:

- ▶ **ODP:** Ozone Depletion Potential
- ▶ **GWP:** Global Warming Potential

While in the past the focus was on reducing ODP values to 0, new regulations encourage Member States to work harder on GWP.

GWP Global Warming Potential





HFO 1234ZE REFRIGERANT KEY FEATURES

Fully committed to supporting the creation of a greener tomorrow, Mitsubishi Electric Hydronics & IT Cooling Systems designed TX2-W-G04, a complete chiller range optimized for HFO refrigerant R1234ze, with nearly zero environmental impact.

**4th generation refrigerant HFO 1234ze,
with negligible greenhouse effect and zero impact on the ozone layer.**

Negligible GWP

HFO 1234ze GWP100 year < 1 (R134a GWP100 year = 1300)
GWP values according to IPCC rev. 5th

Rapid molecule disintegration in the atmosphere

HFO 1234ze = 2 weeks (R134a = 14 years)

Approved by international standards

ASHRAE 34, ISO 817: A2L classification (non toxic, mildly flammable)

Compatible with common construction materials

No special components, No extra cost

In-line with environmental regulation objectives

No future retrofit required

**TO LEARN MORE ABOUT
GREEN REFRIGERANTS**

<https://www.melcohit.com/en/what-we-do/green>



TECHNOLOGICAL CHOICES

Negligible inrush current, quiet operation, unrivalled efficiency and extreme flexibility comes from a definite choice: cutting-edge technologies.

Comprehensive refrigerant leak detection solutions

TX2-W-G04 can be equipped with several leak detection systems that will promptly detect any leakage:

- ▶ Internal refrigerant leak detector
- ▶ Leak detection + migration
- ▶ Leak detection with compressor off

The detector has a double-threshold and can deactivate the compressors and disconnect the exchangers.

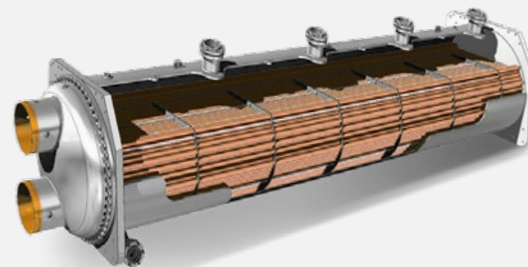


Innovative exchanger couples

The expertise makes the difference

The excellent performance of oil-free centrifugal compressors are enhanced by pairing them with specifically designed (flooded evaporator and shell and tube condenser) to ensure the most minimal approach between the refrigerant phase changing and the water.

This provides an increased cooling capacity and reduces the the compressor load, with immediate benefits to overall efficiency.



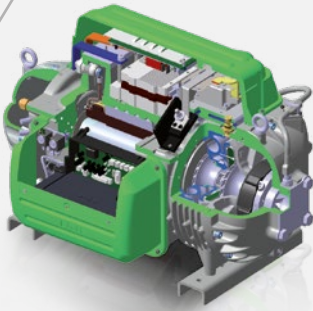
TECHNICAL DATA

TX2-WG04



Centrifugal oil-free compressor

Specially designed for HFO



These top-level compressors bring enormous benefits in terms of efficiency, adjustments, vibrations, and weight. Magnetic levitation eliminates the need for lubricant, with its delicate management and heat exchange loss.



Soft start, integrated in the compressors, lowers the inrush current to only 2 Amps, making the selection of power line systems more favourable.

Thorough knowledge is necessary to harness such a concentration of technology and here is where the Climaveneta brand really makes the difference thanks to its 15-year experience in magnetic levitation compressor units and thousands of projects all over the world.



Acoustic enclosure

The already minimal noise emissions of TX2-W-G04 units can be further reduced by choosing the acoustic enclosure option, available in two versions:

-  **Basic** -14 dB(A)
-  **Plus** -18 dB(A)

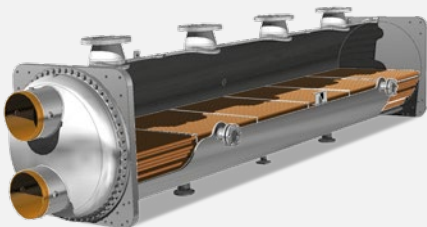


Compact electric panel

Thanks to its careful design, the electric panel can host a number of options, without altering the dimensions of the unit:

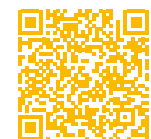
- ▶ Smart current limit
- ▶ Signals to control the water flow in both exchangers
- ▶ Lights on electric board + socket
- ▶ Compressors run status device

There are many other options for customizing the units according to your needs.



TECHNICAL DATA

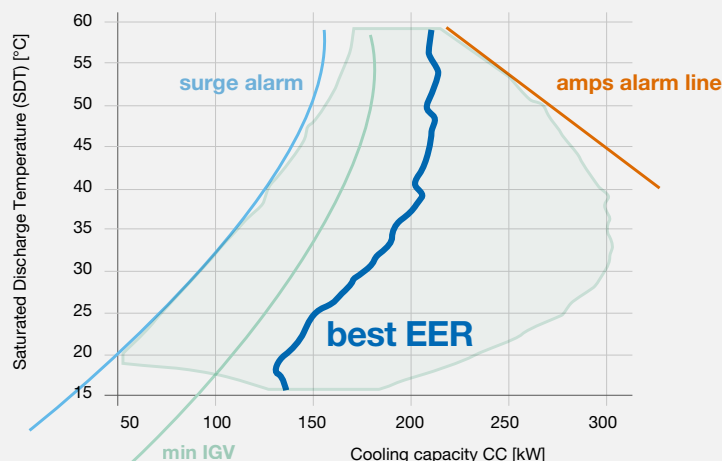
TX2-W **G04**



W3000+

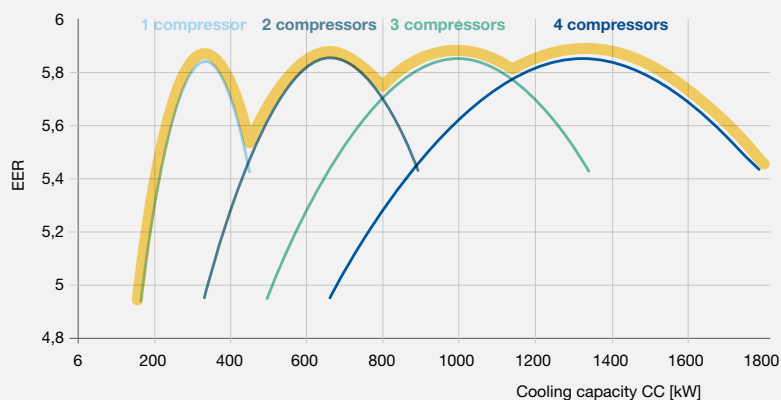
The evolution in the world of controls

ALWAYS THE HIGHEST EFFICIENCY



The brand-new logic, created for W3000+, optimally manages the correct compression ratio, the rotation speed, the position of IGV (Inlet Guide Vane) and the opening of the by-pass valve.

All this to ensure that the compressors - during start-up, in operation, in response to the thermoregulator and during shutdown - are always work in complete safety (away from the limits of the "surge" and "amps").



W3000+ constantly monitors the compressor: the cooling capacity required by the thermoregulator is achieved by making the compressor work only in the envelope's area with the highest efficiency (curve "best EER").

In units with multiple compressors, W3000+ employs the exclusive 'jumping staging' logic, enabling, during partialization, only the most efficient combination of compressors.

USER INTERFACES



- ◀ **KIPLink**
QR Code label
on the front side
(Standard)



- ◀ **User-friendly**
Large Keyboard
+ KIPLink
(Optional)



- ◀ **Touch screen**
interface
+ KIPLink
(Optional)

Touch Screen interface and large keyboard are available to substitute KIPLink.

TX2-W-G04 can count on the advanced logics of W3000+, the advanced control specially designed to master magnetic levitation technology.

KIPLink: LOCAL AND REMOTE MONITORING FUNCTIONS

An exclusive product of Mitsubishi Electric Hydraulics & IT Cooling Systems.

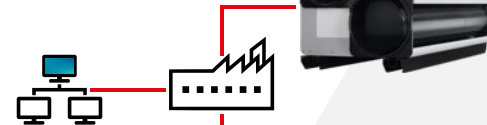
Monitor and control the unit from a LAN device (PC, laptop, mobile phone) with a simple web browser by simply scanning the QR code on the front side of the unit.

- ▶ **Easier on-site operation**
- ▶ **Real-time graphs and trends**
- ▶ **Data logger function**

1 WI-FI
Proximity Smart Keyboard



2 LAN via TCP/IP
Local Monitoring



3 REMOTE via VPN
Same as local monitoring



CUSTOMER VPN
Secure accessibility to LAN

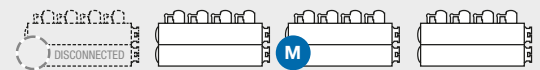
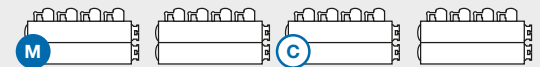
Customer in charge of cyber security

SMART LAN FUNCTIONS

TX2-W-G04 features embedded LAN logics for an easy connection between a group of chillers.

- ▶ **Up to 8 chillers connected to the same group.**
- ▶ **Load sharing and Sequencing.**
- ▶ **Selectable units' start-up sequence.**
- ▶ **Stand by unit management with automatic unit rotation.**
- ▶ **Dynamic master with succession priority.**
One master unit is elected to coordinate the group and if it becomes disconnected the candidate unit takes full control.
- ▶ **Resource priority management.**

MASTER SUCCESSION PRIORITY



M Master Unit **C** Candidate Master Unit

FURTHER OPTIONS

Set-point adjustment

4-20 mA: Enables remote set-point adjustments (analog input).

Double set-point: Enables the remote switch between 2 set-points (digital input).

Control functions

External capacity cap: Limits the unit's cooling capacity to a specific % value, by acting on active resources and their operating frequencies. The unit can exceed this limit in specific conditions.

U.L.C. User Limit Control: Controls a mixing valve (not included) to ensure a safe start-up and operation of the unit even in critical conditions.

Remote probe: Controls the unit's and pump's activation on the base of the water temperature of the buffer tank or hydraulic decoupler.

Smart current limit: Controls the maximum current and power absorption of the unit under a determined value.

Connectivity

Serial card interface module to allow integration with BMS protocols:

Modbus / LonWorks / BACnet MS/TP / BACnet over IP / Konnex / Modbus TCP/IP/ SNMP

Multi Manager options to allow easy connection between a group of chillers

Acoustical enclosures

Integral base acoustic enclosure: the complete acoustic insulation of the unit that can reduce the sound level by 14 dB(A).

Integral plus acoustic enclosure: the supreme acoustic insulation that can reduce the sound level by 18 dB(A).

A WIDE SELECTION OF OPTIONS IS AVAILABLE IN ORDER TO FURTHER CUSTOMIZE THE UNIT AND MEET THE MOST CRITICAL PROJECT REQUIREMENTS.

Refrigerant leak detection

Internal refrigerant leak control: new proprietary algorithm that is able to check, by reading and interpretation of the internal parameters of the refrigerant circuits, if there is a refrigerant leak, without needing an external leak detector.

Leak detector + migration: Refrigerant leak detection and migration system. If the device detects a leak the unit stops and stores the remaining refrigerant inside the evaporator.

Leak Detector with compressor off: Refrigerant leak detection system, supplied factory mounted and wired in the electrical board. In case of leak detection, it will raise an alarm and stop the unit.

Light on electrical board + power socket

230V power socket in the electrical board, CEE 7/3 type (Schuko).

The maximum power available is 500VA.

Electrical board equipped with lights.

Condensing water control with 0-10V signal

0-10V signal for 2-way valve: 0-10V signal on terminal board to control the 2-way valve

0-10V signal for 3-way valve: 0-10V signal on terminal board to control the 3-way valve.

Hydraulic

Evaporator flow switch: Flow switch with AISI 316L stainless steel basket and IP65 protection suitable for installation in industrial plant pipes

Electronic water flow switch: Flow switch with electronic detection of the flow in the pipes.

Evaporator and/or Condenser hydraulic connections on opposite sides



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