

Chillventa Specialist Forums 2024
Chillventa Fachforen 2024

**CONNECTING
EXPERTS.**





Unleash the potential of R744 condensing units

Advanced and sustainable machines for next-generation refrigeration systems

Matteo Omicioli

RIVACOLD
MASTERING COLD

Federico Ferrari

Life Is On

eliwell
by Schneider Electric

The evolution of CO₂ condensing units

Compact refrigeration with natural refrigerant

Rivacold wanted to propose a renewed condensing unit range with improved efficiency and flexibility:



New compressor

BLDC rotary double stage



New design

from double compressor booster system to single compressor



New customized controller

dedicated functions for the updated layout



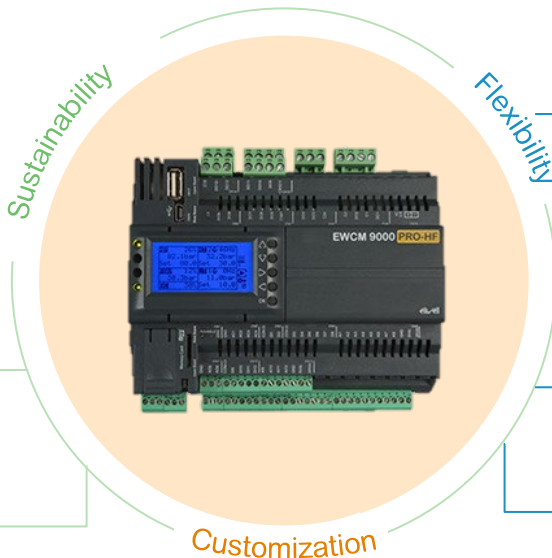
EWCM 9000 PRO: all for CO₂ management

Full CO₂ management with gas cooler and receiver pressure regulation

Two heat recovery stages

Wide modulation thanks to up to 3x modulating compressors

Sustainability



Modular hardware with I/O expansions

Up to 3x independent suction lines (MT, LT, parallel)

Easy PC connection via USB, no converters needed

Optional commissioning web server on board

Customization



Refrigeration Expert Center

The **Expert Team Added Value**

Sharing refrigeration knowledge and **speeding up time to market**



Refrigeration Expert Center

Dedicated baselines development for OEMs and system integrators

Meet the Expert Center team!

Hall 5 Booth 5-320



Ready baselines

compressor racks,
chillers and more



CFCs & HCFCs

HFCs

Latest technologies

e.g. refrigerants,
compressors



Templates & Libraries

simplifying
programming



Interactive Trainings

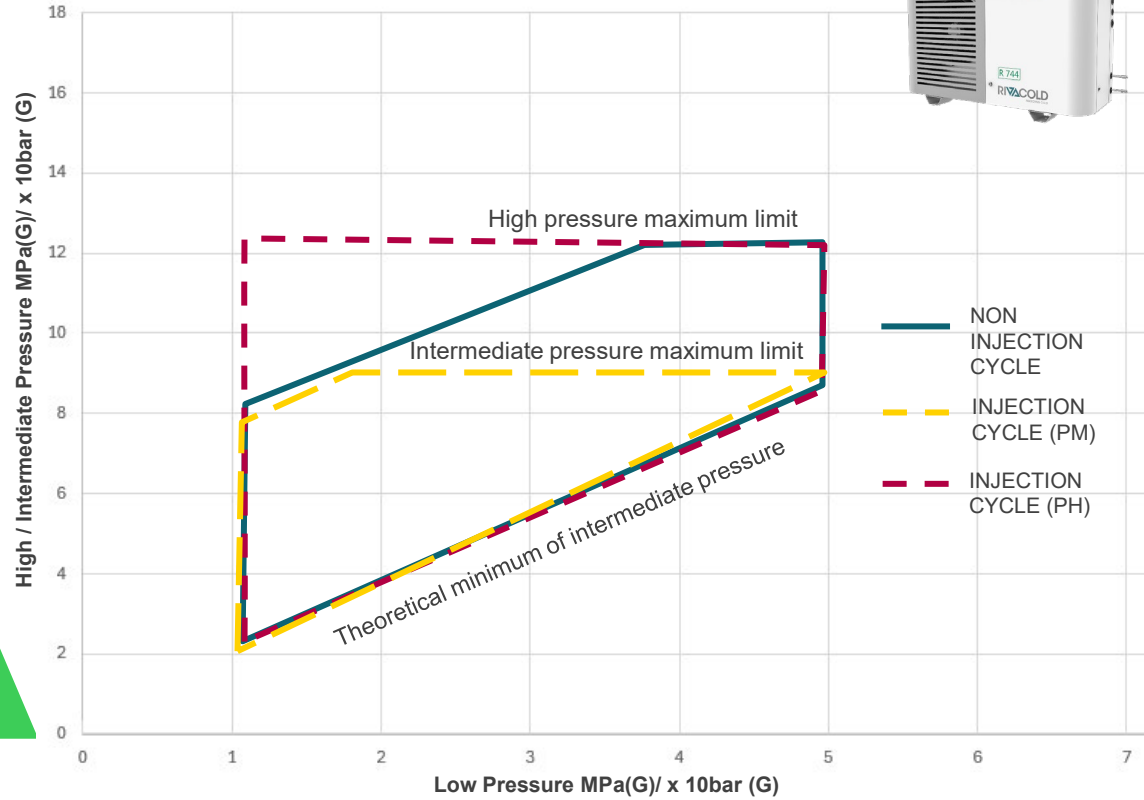
digital learning,
f2f meetings

Double-stage compressor condensing unit

Dedicated functionalities



- Envelop control
- Dedicated oil management
- Bypass valve to reduce startup current
- Built in web server with dedicated synoptic
- Wizard process for an easy first configuration





UNICA CO₂
Range

- Condensing unit and split system
- Medium or low temperature with the same model
- Three sizes: 2hp - 4hp - 10hp
- MT from 3.7 to 14.4 kW
- LT from 1.5 to 7.9 kW
- Pressure design 120/80/80bar
- PED category I (2hp and 4hp)
- PED category II (10hp)



ENERGY
SAVING

14%



NATURAL
REFRIGERANT

TEWI
-48%



LOW
NOISE



EASY
FIX

UNICA CO₂

R744 CONDENSING UNIT FOR SUPERMARKETS



CHILLVENTA

EFFICIENCY



The UNICA CO₂ circuit has been optimized to achieve **high performance** in terms of **energy efficiency**.

The BLDC compressor, the EC fans, the specific components required by the use of the R744 gas and a customized electronic control software allow a **saving of 14%** compared to a HFC system with semi-hermetic compressor and AC inverter.



UNICA CO₂

R744 CONDENSING UNIT FOR SUPERMARKETS



CHILLVENTA

EFFICIENCY

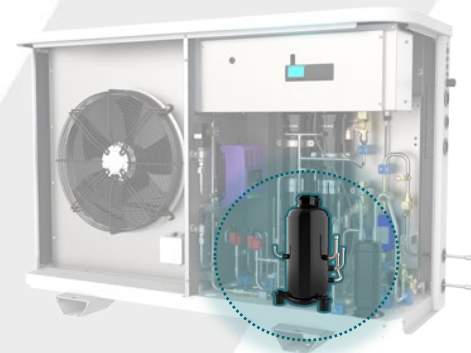


The two-stage **BLDC vertical compressor**, in addition to being **super quiet** and allowing a **more compact shape** of the unit, has a very wide operating range (envelope).

Thanks to this feature, the **same UNICA CO₂ model** can be configured **both in MT and in LT**.



ENERGY
SAVING



RIVACOLD
MASTERING COLD

Public

Life Is On

eliwell
by Schneider Electric

UN!CA CO₂

R744 CONDENSING UNIT FOR SUPERMARKETS



CHILLVENTA

EFFICIENCY



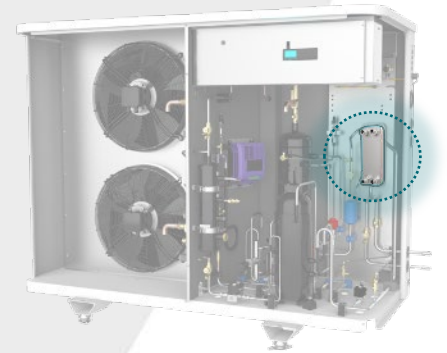
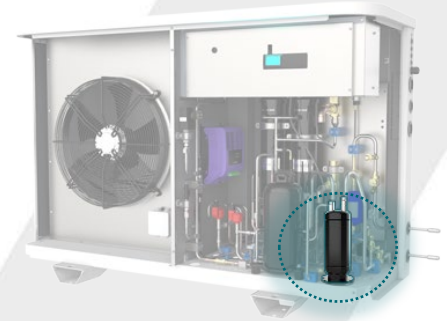
In the UN!CA CO₂ 2 hp and 4 hp models, the suction **liquid separator** increases the **safety** of the compressor, avoiding liquid returns.

In the 10 hp model, the **ECO plate** (regenerative exchanger) allows a correct feeding of the thermostatic valves, guaranteeing a **constant cooling of the liquid** and a contribution to the **total efficiency of the system of about 3%**.

Furthermore, ensuring **optimal overheating of the suction gas**, increases the **safety of the compressor**.



ENERGY
SAVING



LIQUID
GAS

RIVACOLD
MASTERING COLD

Life Is On

eliwell
by Schneider Electric

UNICA CO₂

R744 CONDENSING UNIT FOR SUPERMARKETS



CHILLVENTA

EFFICIENCY

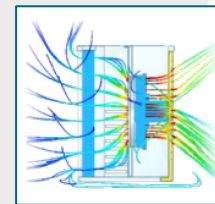
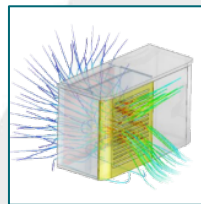
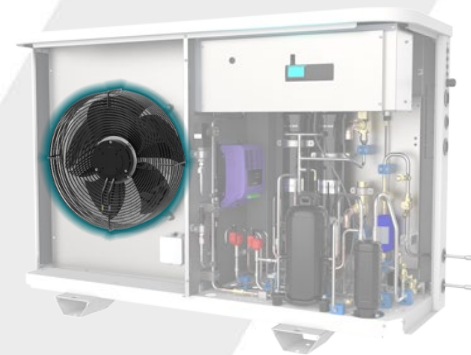


The **air outlet slots** and the **position of the fan** have been optimized in order to make the **heat exchange between air flow and coil even more efficient** and allow **uniform distribution of air over the entire surface of the gas cooler / intercooler**.

The gas cooler, as many other parts of Unica, is entirely **designed and manufactured by Rivacold in Italy**.



ENERGY
SAVING



RIVACOLD
MASTERING COLD

Public

Life Is On

eliwell
by Schneider Electric

UNICA CO₂

R744 CONDENSING UNIT FOR SUPERMARKETS



CHILLVENTA



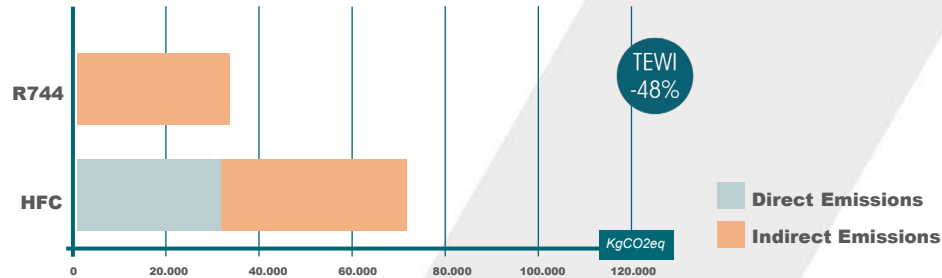
ECO SUSTAINABILITY



The use of a **natural gas** such as R744 (GWP = 1) in an efficient system as UNICA CO₂ reduces both direct and indirect emissions, protecting our environment.



NATURAL REFRIGERANT



UNICA CO₂

R744 CONDENSING UNIT FOR SUPERMARKETS



CHILLVENTA

UNICA CO₂ uses a series of technical solutions to **reduce noise and vibrations**, including **bituminous bands**, **viscoelastic masses**, **EC fans** and a complete set of **sound-absorbing panels**.

These design choices, combined with numerous tests and refinements in the **VRL laboratory**, have made **UNICA CO₂ super quiet**.



QUALITY & RELIABILITY



RIVACOLD
MASTERING COLD

Public

Life Is On

eliwell
by Schneider Electric

UN!CA CO₂

R744 CONDENSING UNIT FOR SUPERMARKETS



CHILLVENTA

UN!CA CO₂ also means **maximum accessibility**. Hinged panels, with opening by a ¼ turn key, allow you to inspect the machine quickly and easily.



EASY
FIX



EASY INSTALLATION
& MAINTENANCE



RIVACOLD
MASTERING COLD

Public

Life Is On

eliwell
by Schneider Electric

UNICA CO₂

R744 CONDENSING UNIT FOR SUPERMARKETS



CHILLVENTA

Setting up the parameters is easy. A wizard allows you to carry out the task in a few minutes, also deciding whether to **configure the machine for TN or BT applications.**



EASY
FIX



**EASY INSTALLATION
& MAINTENANCE**



RIVACOLD
MASTERING COLD

Public

Life Is On

eliwell
by Schneider Electric

UNICA CO₂

R744 CONDENSING UNIT FOR SUPERMARKETS



CHILLVENTA

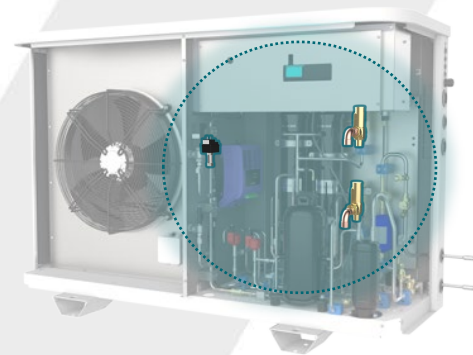


EASY INSTALLATION
& MAINTENANCE



EASY
FIX

UNICA CO₂ is equipped with **safety devices** to protect the overpressure system in compliance with the **PED directive**.



RIVACOLD
MASTERING COLD

Life Is On

eliwell
by Schneider Electric

Thanks For Your Attention!



Visit us at
Hall 6 Booth 6-321



Visit us at
Hall 5 Booth 5-320