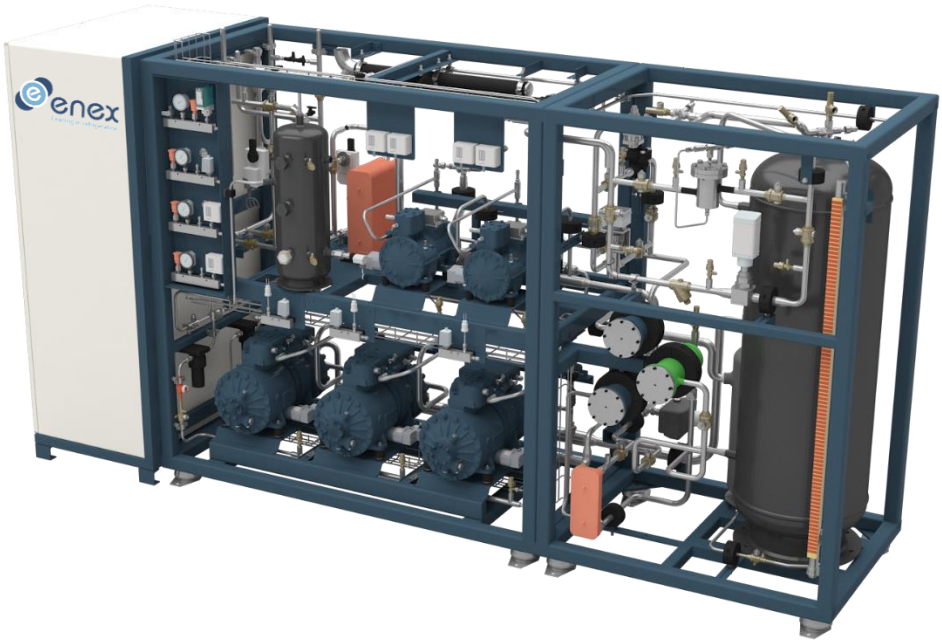
*Release June 2022*

## REFRIGERATION UNITS

# NEVA Series

**Cooling capacities from 15 to 110 kW in Medium Temperature**
**Cooling capacities from 10 to 53 kW in Low Temperature**



Enex presents NEVA, refrigeration units characterized by high efficiency and ease of use, specifically designed for medium-large supermarkets and in the Ho.Re.Ca. sector. Among the variety of this range, in addition to the models for medium temperature only, there are booster models that provide both medium and low temperature. Also NEVA, like the other ranges, uses the natural $CO_2$ refrigerant - carbon dioxide - and therefore can be used without any legislative limitation and without the uncertainties and disadvantages associated with the use of synthetic refrigerants.

Enex has been the first company ever to develop $CO_2$ only solutions since 2004. $CO_2$ (R744) is a natural fluid with zero OPD, GWP = 1. Neutral refrigerant by excellence, $CO_2$ is neither toxic nor flammable: among natural gases it is in fact the one with fewer contraindications so that represents the perfect choice for the future, not subject to the F-gas regulation on fluorinated gases.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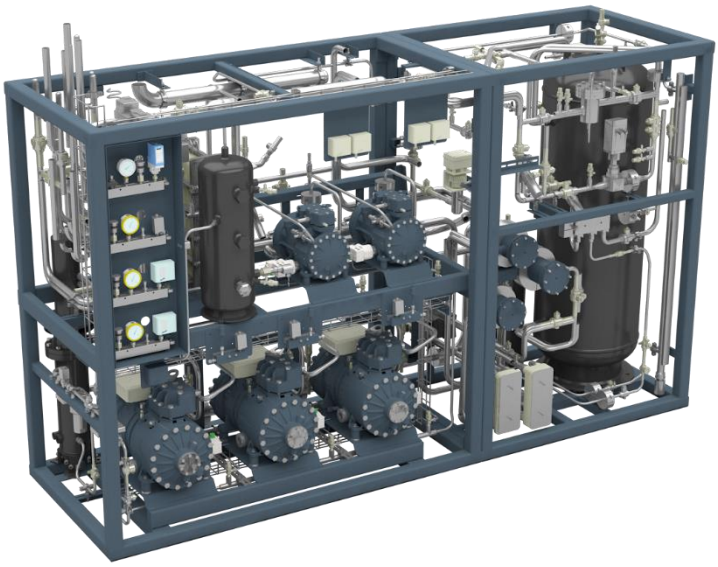
# MAIN FEATURES

NEVA Series has been designed to ensure ease of use and to be a highly energy efficient range, characterized by the following strengths:

- High efficiency: optimal realization of the booster cycle with insertion of intercooler and regenerative heat exchanger;
- Robust and compact structure;
- Stainless steel pipes;
- Low noise;
- Automatic backup of critical components for stable and continuous operation;
- Easily accessible components;
- Plug and play unit;
- Standard version: design pressure 45 bar on the LP / 60 bar on the IP / 120 bar on the HP side;
- Large liquid receiver;
- Complete ducting of the relief valve discharge;
- CE / PED certification Cat. IV.

NEVA Series refrigeration units represent the most effective solution to overcome the environmental problems related to synthetic refrigerants, harmful to the environment.

The image is for illustrative purpose and it is referred to NEVA.
Unit Type:
3/30kW + LT 1/10kW (3 + 2)



# OPTIONS

- Heat recovery for space and / or sanitary water heating
- Design pressure 60 bar on LP side
- Backup cooling unit also available with independent 24V DC power supply battery
- Visual indicator of the liquid level
- Liquid level transmitter
- Integrated water condenser
- enVECTOR® for greater efficiency and capacity increase
- Customizable control system based on client specifications

Options can be provided also according specific needs of the plant or designed on demand of the customer.

# GENERAL TECHNICAL DATA

NEVA Series includes 12 sizes and a great variety of options. For these reasons, the technical data may vary according to the initial specifications provided and / or agreed with the customer.
Here the general technical data:

| Model (*) | | Neva 3/30kW | Neva 3/30kW + LT 2/10kW | Neva 3/50kW | Neva 3/50kW + LT 3/30kW | Neva 3/70kW | Neva 3/70kW + LT 3/30kW | Neva 4/50kW | Neva 4/50kW + LT 2/15kW | Neva 4/80kW | Neva 4/80kW + LT 3/35kW | Neva 4/110kW | Neva 4/110kW + LT 4/50kW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cooling Capacity Low Temperature (-33°C) | [kW] | - | 10,0 | - | 33,0 | - | 33,0 | - | 15,0 | - | 35,0 | - | 53,0 |
| Cooling Capacity Medium Temperature (-9°C) | [kW] | 31,0 | 20,0 | 52,0 | 15,0 | 73,0 | 37,0 | 51,0 | 34,0 | 83,0 | 44,0 | 110,0 | 51,0 |
| **Low Temperature Data (**)** | | | | | | | | | | | | | |
| Compressors number | [ - ] | - | 2 | - | 3 | - | 3 | - | 2 | - | 3 | - | 4 |
| Cooling capacity | [kW] | - | 10,0 | - | 33,0 | - | 33,0 | - | 15,0 | - | 35,0 | - | 53,0 |
| **Medium Temperature Data (**)** | | | | | | | | | | | | | |
| Compressors number | [ - ] | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 |
| Cooling capacity | [kW] | 31,0 | 20,0 | 52,0 | 15,0 | 73,0 | 37,0 | 51,0 | 34,0 | 83,0 | 44,0 | 110,0 | 51,0 |
| **Electrical Data** | | | | | | | | | | | | | |
| Nominal Power Input (**) | [kW] | 18,5 | 20,9 | 30,6 | 38,8 | 43,6 | 51,8 | 30,5 | 34,4 | 50,7 | 59,3 | 67,0 | 79,9 |
| Nominal Electric Current Input (**) | [A] | 34,5 | 39,6 | 54,1 | 71,4 | 80,2 | 97,5 | 57,2 | 64,6 | 92,7 | 111,0 | 126,8 | 152,7 |
| **Connections piping diameters (K65 connections)** | | | | | | | | | | | | | |
| Suction Pipe Low Temperature | [mm] | - | 22 | - | 28 | - | 28 | - | 22 | - | 35 | - | 35 |
| Suction Pipe Medium Temperature | [mm] | 28 | 28 | 35 | 22 | 35 | 28 | 35 | 22 | 35 | 28 | 42 | 35 |
| Gas Cooler Supply Pipe | [mm] | 22 | 22 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 35 | 35 |
| $CO_2$ Liquind Line Pipe | [mm] | 22 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 35 | 35 |
| **Dimensions** | | | | | | | | | | | | | |
| Lenght max | [mm] | 4200 | 4200 | 4200 | 4200 | 4200 | 4200 | 4800 | 4800 | 4800 | 4800 | 4800 | 4800 |
| Width max | [mm] | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 |
| Height max (***) | [mm] | 2550 | 2550 | 2550 | 2550 | 2550 | 2550 | 2550 | 2550 | 2550 | 2550 | 2550 | 2550 |
| Estimed Weight (****) | [kg] | 2500 | 2500 | 2500 | 2900 | 2500 | 2900 | 3100 | 3300 | 3100 | 3400 | 3100 | 3500 |

NOTES:
The data expressed are referring to condition with air ambient temperature 34°C, discharge pressure in medium temperature condition 92 bar and gas cooler outlet temperature 36°C.
* Category PED IV
** Without Inverter
*** Dimensions does not include the base feets of the unit
**** The weight does not include the Gas Cooler
Intercooler predisposition included

# SPECIFICATIONS DESCRIPTION OF STANDARD UNITS

Structure: frame in welded steel and painted with epoxy powders RAL5008 (other colors on request);

Covering panels (on request): in painted galvanized sheet or painted aluminum, with soundproofing coating;

MT and LT compressors on a single frame in a booster configuration, with provision for connecting the intercooler (external). High efficiency coalescent type oil separator. Oil receiver and oil level regulation for single compressor with optical electronic controller;

Piping: in AISI304L TIG welded stainless steel. Pressed stainless steel fittings. The pipes are clamped with industrial type fixings. Cold pipes are thermally insulated with Armaflex insulation or equivalent with closed cells with low vapor permeability;

HP regulating valves and flash gas: stainless steel step-motor, installed with shut-off valves and filter. Mechanical backup valves installed in parallel, with shut-off valves (as an option);

Exchangers: the heat exchangers for heat recovery or installed for anti-liquid protection functions are of the AISI 316L stainless steel plate type. The regenerative exchanger is of the tube bundle type with high pressure inside the tubes. Coating with fat bandage, vapor barrier and closed cell rubber insulation. A standard emergency bypass is provided;

Tanks: in painted carbon steel. Cold storage tanks are insulated as described below. Standard design pressure 60 bar (80 bar on request - other possible options);

Insulation: Armaflex or equivalent with closed cells, combined with protection, for cold parts, with fat bandage and vapor barrier;

Condenser / gas cooler (optional supply): pipes and bends in K65, design pressure 130 bar. Tube/row pitch geometry 25 x 22 mm;

Liquid ejector (optional): according to the system concept developed and patented by Enex, to allow evaporators overfeeding to be controlled. Aluminium block with removable cartridge;

Electrical panel with degree of protection IP54 (galvanized sheet painted RAL 7035 textured) or IP67 (optional stainless steel) with controllers of different brands. Inverter on one compressor per bank minimum;

Compressors: optimized for operation under specific conditions, with manifold obtained by casting, designed to limit oil temperature, with mobile mechanical parts of robust construction which have been emplyed for over 10 years of reliable and trouble-free operation. In particular, hardening pin treated with carbon deposit and very thick connecting rod. Forced lubrication with pump also for piston pin and connecting rod eye;

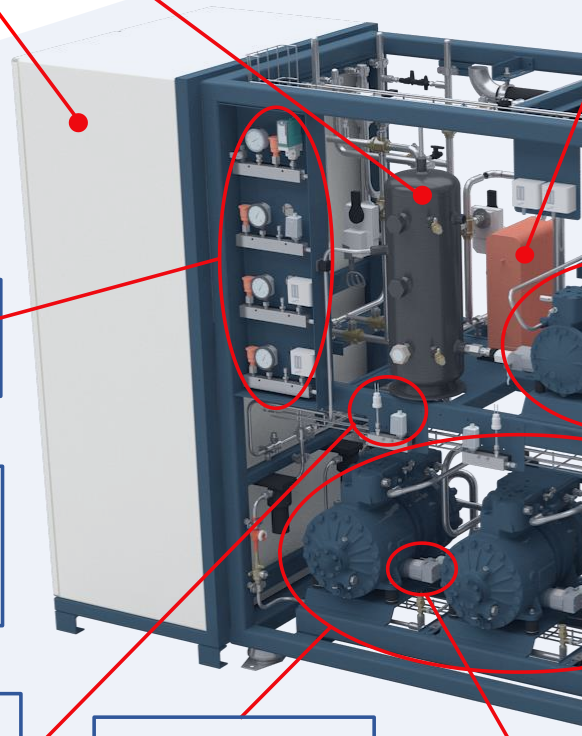
PAG oil for longer life.

# DISTINCTIVE TECHNOLOGICAL CHOICES OF THE RANGE

"S"

"B"

"EL/EV"




# VERSIONS

◆ Version “S”
- single stage MT
- design IPR standard

◆ Version “B”
- booster version
- design IPR standard
- intercooler as an optional
- auxiliary compressor as an optional

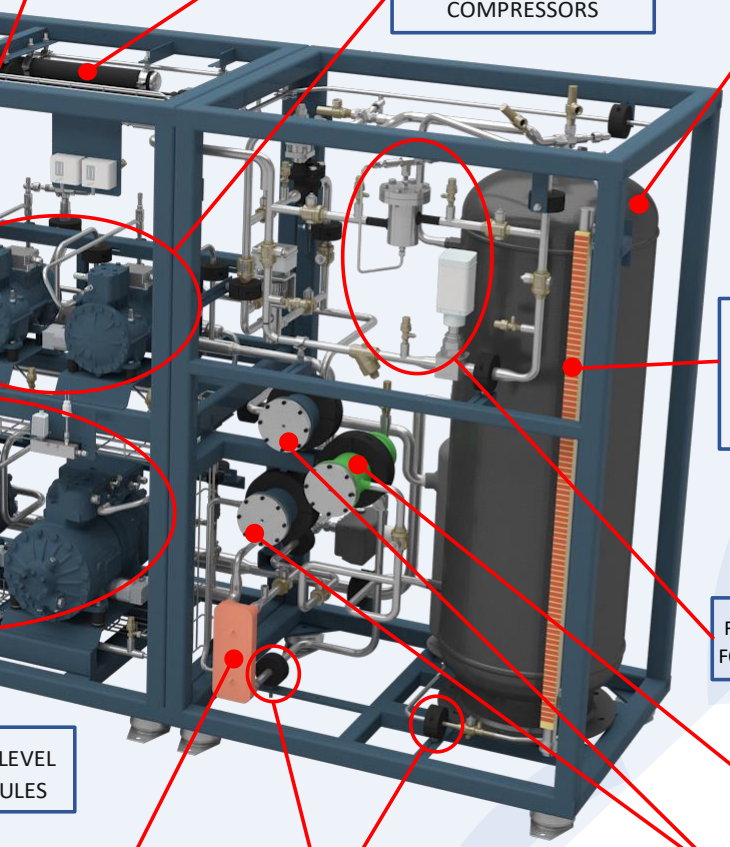
◆ Version “EL/EV”
- booster version
- design IPR standard
- intercooler as an optional
- auxiliary compressor as an optional for flash vapor
- overfeed of the enJECTOR® liquid for MT and LT
- enJECTOR® V for vapor compression

Different versions can be provided also according to specific needs of the plant or designed on demand of the customer.

# ENEX PATENTS & INNOVATIONS

*Enex developed numerous innovations in the field of $CO_2$ refrigeration, some of which have given rise to important patents such as the "overfeeding of evaporators". NEVA refrigeration units can be equipped with this exclusive innovation on request.*

enJECTOR®



EAT RECOVERY
ATE EXCHANGER

COLLECTOR FOR DUCTING OF RELIEF VALVES FOR AN EASY AND SAFE INSTALLATION

LIQUID RECEIVER WITH TRIPLE PROTECTING COATING (RISK OF CORROSION ELIMINATED)

LOW TEMPERATURE COMPRESSORS

HIGH EFFICIENCY OIL SEPARATOR

EXTERNAL LEVEL INDICATOR TO AVOID RISK OF LEAKAGES (NO SIGHT GLASSES ON THE RECEIVER) OPTIONAL

REDUNDANT CONTROL VALVES FOR HIGHER SAFETY (OPTIONAL)

LEVEL
ULES

DRIER FILTER ON LIQUID LINE

ANGER
RE
Y

ROBUST PIPE BRACKETS TO AVOID RISK OF BREAKAGE

MECHANICAL FILTERS ON MEDIUM TEMPERATURE AND LOW TEMPERATURE SUCTION LINES

# TECHNOLOGICAL ADVANTAGES ARISING FROM ENEX KNOW HOW

- High efficiency: optimal realization of the booster cycle with insertion of intercooler and regenerative heat exchanger;
- Robust frame and compact design;
- Stainless steel pipes;
- Low noise;
- Automatic backup of critical components for stable and continuous operation;
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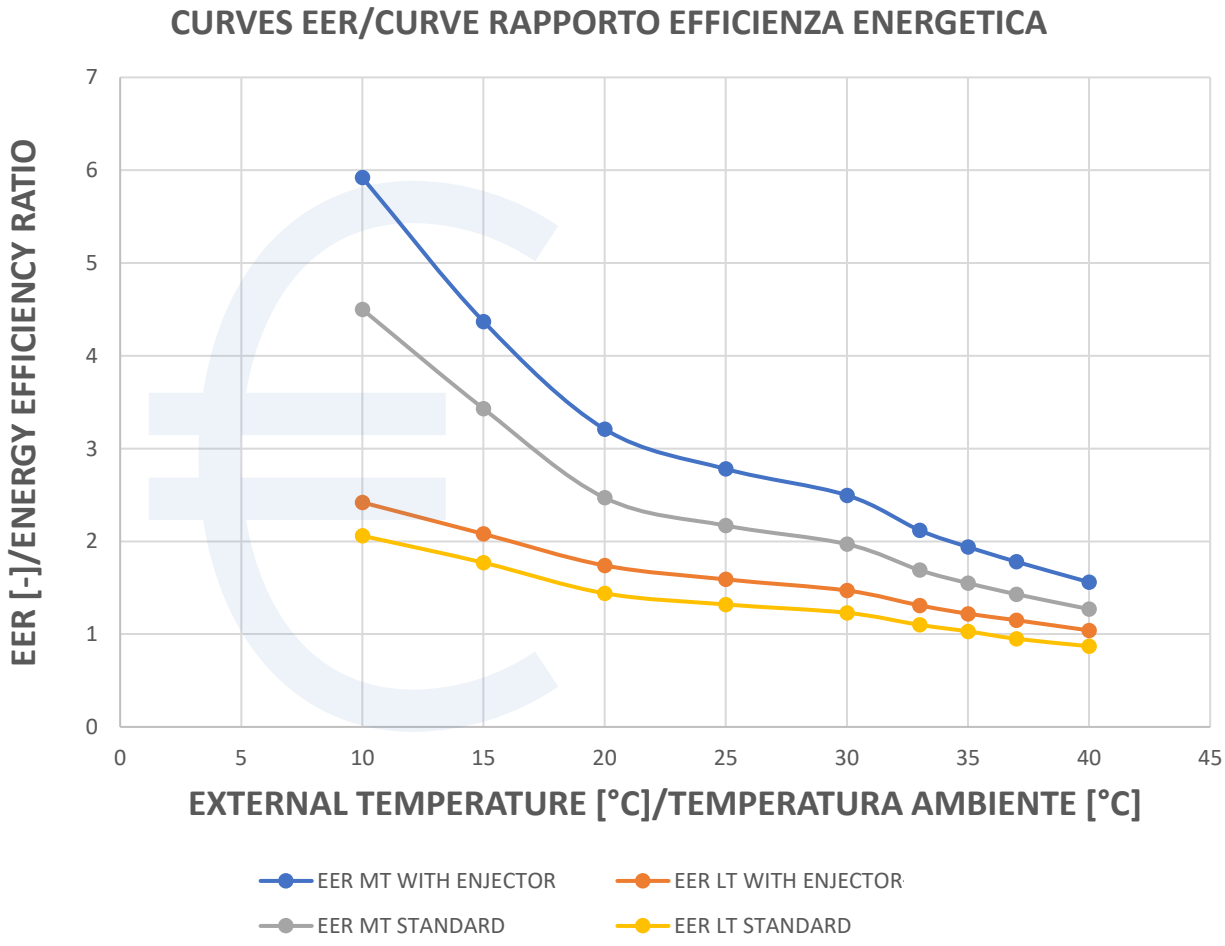
- Standard version: design pressure 45 bar on the LP / 60 bar on the IP / 120 bar on the HP side;
- Large liquid receiver;
- Complete ducting of the safety valve drains;
- CE / PED certification Cat. IV.

# ENERGY PERFORMANCE AT VARIATION OF THE EXTERNAL AIR TEMPERATURE



INNOVATION AS ENERGY

| 2004 | >3000 | 25 |
| --- | --- | --- |
| Foundation year | Transcritical systems installed | Countries in the world where Enex is present |

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