EVEREST 290

CATALOG


EMICON
INNOVATION IN ENERGY

THE PROJECT
ALWAYS FORWARD, POWERFULLY

EMICON is a manufacturer of climate control equipment that is tailored to both commercial applications and IT cooling, where reliability and performance are vital parameters in every project design. Emicon manufactures products covering multiple sectors from commercial climate control through to **IT cooling** with a large range of industry leading **Chillers**, **Heat pumps**, **CRAC units** and **Roof-Top packages**. The designs are highly flexible and incorporate numerous versions and accessories which allow selections to be tailored to the application. In addition, the flexibility of the manufacturing division allows non-standard designs to be considered.

THE ENVIRONMENT
EFFICENCY AND SUSTAINABILITY

For Emicon, **Research and Development** into materials and products to enhance their efficiency and lower their environmental impact is fundamental to the group culture. The company is represented in the industry bodies that continually advise on climate change impact and are thus at the forefront of current knowledge. These efforts have resulted in Emicon launching new ranges of units that utilize materials and **refrigerants with the lowest Global warming impact** such as **HFO 1234ze**, a gas with very high efficiency and low GWP (=6), as well as natural refrigerants such as **R290** (GWP=3).

THE ENVIRONMENTAL POLICY

In addition to meeting the customer's requirements and maintaining a leading market position, EMICON maintains a quality culture in its operations that **safeguards the environment** by protecting the ecosystem and **preventing pollution** by adherence to national environmental standards. We invest heavily in **personnel training**, which generates a culture of **involvement** and **motivation** and maintains a healthy work environment. Emicon also ensure that the necessary infrastructures for safe and proper performance of their employees work activities are in place.

EMICON
INNOVATION AS ENERGY
AN ENEX TECHNOLOGIES COMPANY

PRODUCTION SITES

EMICON OFFICES

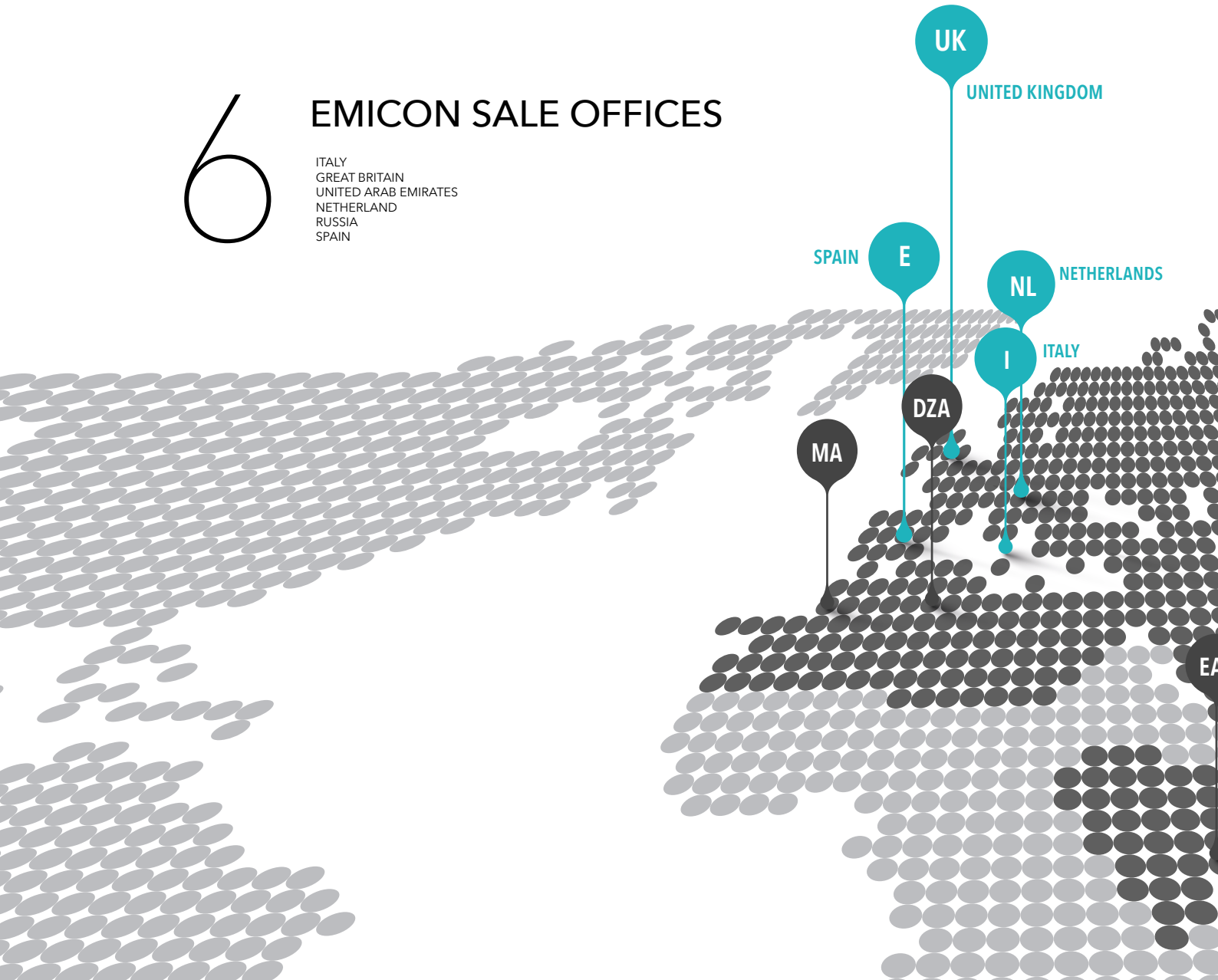
DISTRIBUTORS

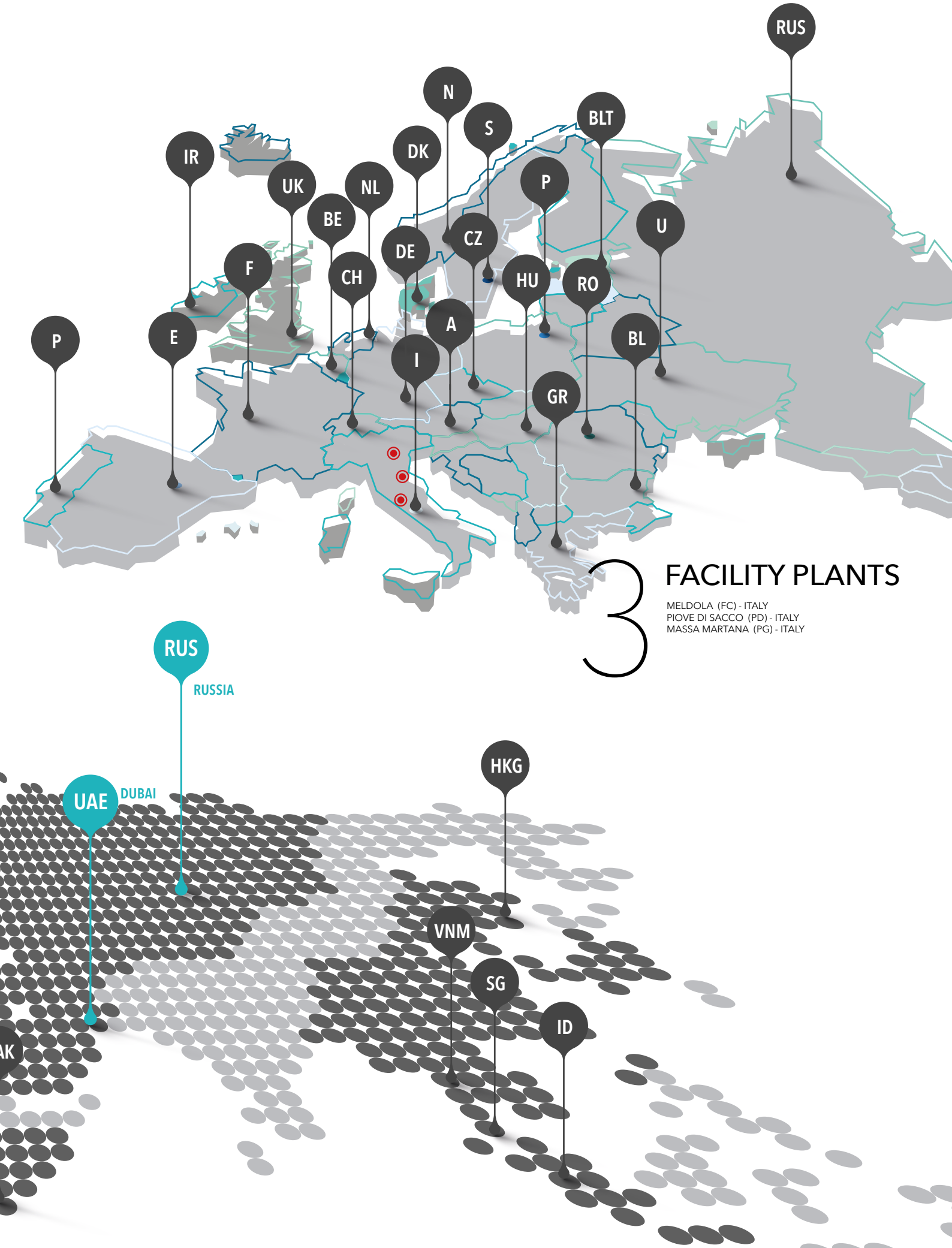
40 EXPORT COUNTRIES

EMICON WORLDWIDE

6 EMICON SALE OFFICES

ITALY
GREAT BRITAIN
UNITED ARAB EMIRATES
NETHERLAND
RUSSIA
SPAIN





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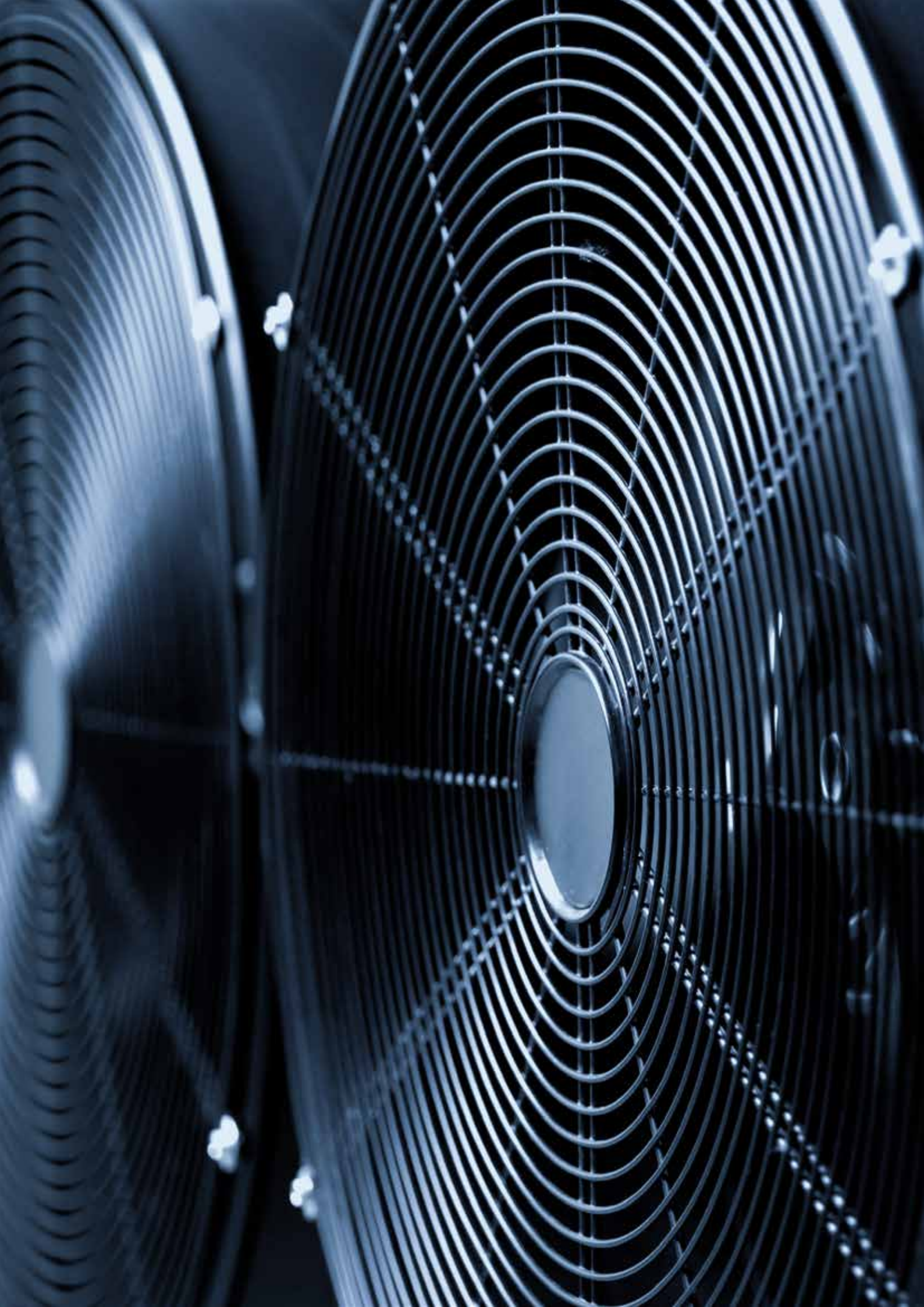
FACILITY PLANTS

MELDOLA (FC) - ITALY
PIOVE DI SACCO (PD) - ITALY
MASSA MARTANA (PG) - ITALY



PHILOSOPHY

PASSION AND EFFICIENCY

In the last decade, the **air conditioning world** has experienced a continuous, remarkable and still alive evolution process, which has led to a different approach to the market and to the products by the manufacturers. The main worldwide companies, which operate in the comfort field (mainly in residential applications), have found in the **Italian technology** the answer to a lack of know-how in chillers and air conditioning field.
In fact the companies, following a common globalization process, have started an intensive campaign of international acquisitions, but this has led some negative consequences, such as the loss of some pluses in terms of organization and production, which moreover had made the Italian companies well know all over the world in the past.

Residential air conditioning field is based on highly industrialized, standardized and large-scale productions, with distribution through mass channels; the **professional chiller** and **precision air conditioning world** follows, instead ,much more complex dynamics: the technical solutions, the production organization, as well as the choice of the distribution channel, must take care of the **"specificity of the application"**; the manufacturer must be able to grant a **flexible production system**, associated with an adequate development of technology, applied in a dynamic way, able to meet the peculiarity of the different installation needs. Unifying the two worlds would mean a pauperization of the entire European and specifically of the Mediterranean "solutions" market, the Italian industry was leader in.

EMICON, as a "historical" representative of the **Italian industry**, has never stopped its **commitment in the research and development** of its products for professional conditioning, keeping the same quality level of its worldwide competitors, also thanks to the use of national excellence with specific skills, as well as a strong partnership and acquisitions policy, maintaining in this way an open and **flexible approach to the market**, with a wide range of standard and tailor made solutions.

The **improvement** of this complex industrial model implies a very careful selection of **human resources**, paying the greatest attention to the competence and experience of all the technical, sales and production staff.

EMICON recognizes in the **talent and professionalism** of its workers, both internal and external ones, a heritage to be preserved, through the creation of a comfortable and familiar work ambient, despite the large structural dimensions achieved.
The industrial philosophy of EMICON is aimed at the acquisition of some **excellences in the air conditioning field**, the creation of new business realities -still in progress- and the continuous investments in the already existing production facilities in Italy, thereby consolidating the Group's growing leadership role in the **professional air conditioning market.**

THE EMICON LABS

CLIMATIC ROOMS

EMICON has **climatic rooms** and **testing stations** where units produced are subject to strict **functional** and **performance** tests, with the possibility of simulating the real design climatic conditions. A double hydronic circuit (hot and cold) allows to carry out **operation tests on all types** of units, both for IT Cooling and hydronic units, packaged, 2 or 4 pipes, air cooled, water cooled and split, up to a cooling capacity of 1500 kW.

It is possible, for our customers, to attend the functioning and performance test. Thanks to some webcams, it is possible to **remotely attend the test.**

CHARACTERISTICS

The climatic room is an environment inside of which, by means of auxiliary and heat recovery systems, we create a **controlled microclimate** in terms of air **temperature** and **humidity**, where the heat transfer fluids are treated according to the specific characteristics of the unit.
The types of units that can be tested are **air or water cooled units**, available as **chiller** or **reversible heat pump** versions according to **EN14511** standard.
The operating limits of fluid temperature can vary between **-5°C** and **65°C**. The ambient temperature (inside the room) can reach a maximum of 52°C for summer operation and a minimum of -7°C for winter cycle.

CLOSE CONTROL UNITS

EMICON's Laboratory allows the **performance test** of chilled water and air cooled direct expansion **close control units**, with the possibility to simulate climatic conditions from 15°C to 35°C.

PROPANE

We recently built a the test area **exclusively** dedicated to chillers and heat pumps operating with natural **Propane refrigerant (R290)**, making us able to carry out performance and functional tests of units with a cooling capacity up to 700 kW both in cooling only and in winter cycle reversible configurations. The use of **ATEX** components, refrigerant leak detection systems, connected to acoustic signals and forced-type exhaust systems guarantee a **high safety degree** in this area.


HIGHLY SUSTAINABLE
R290
NATURAL
REFRIGERANT

PROPANE

ADVANTAGES

PROPANE, both pure and mixed with other hydrocarbon gases, can be employed in many areas.
Mainly used as fuel or refrigerant gas (**R290** code identified).
The mixture is used in industrial process for decades and thanks to the almost toxicity absence can be used in **MEDICINE** as well.
Due to its **low environmental impact** and high availability, the use of propane is likely to increase.

In this continuous **innovation** context and **technological research** aimed to obtain more efficiency thanks to the use of natural gases, Emicon has laid the groundwork to become **leader** in this market thanks to his continuous **research** and the **development** thinking always to the **environmental issue.**
In this way Emicon his able to export his technical competence in all the Europe area maintaining a **very high quality and efficiency standard.**

ERP 2021

The new Emicon Propane range is made to follows the 2021 ERP Europe **efficency standards** requirements.
The **2016/2281** European regulation imposes a minimum seasonal efficiency value for the water condensed units a SEER of 5,20 and for air condensed units a minimum SEER of 4,10.

NOISE REDUCED

Using a soundproofed cabinet of compressors and the axitop fans is possible to obtain a **lower unit's sound pressure. The cabinet coating** could be of standard soundproofed material or higher soundproofed material following the required standards, allowing the unit installation where the sound pressure norms are really strictly.

ENERGY SAVING

Reduced investment and operating costs, compatibility with the present **environmental topics**, and reduced energy consumption represent the key factors in the selection of advanced units equipped with **electronically controlled components**. The use in no-stop working regimes confirms high savings in operating costs, allowing **energy-saving** strategies and technological integration of the systems in any sector, particularly industrial, but also in medium and large residential environments.

FUNCIONING LOGIC

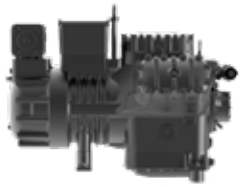
Electronic microprocessor regulation controls and manages the actuators (timing, rotation and safety). The electronic expansion valve regulates the overheating and **optimizes the unit's operations**, reducing the energy consumption. The microprocessor also monitors the water temperature, performing self-diagnosis of the anomalies and allowing the **management of remote supervision**. Internal memory records the operating status at the alarm set off, reporting it on the unit display or **remotely** if the **hiWEB** option is installed.

STANDARD SAFETY DEVICES

EXTRACTION FAN

The refrigerant extraction fans starts when the gas sensor reveals a gas presence inside of the compressor's cabinet. The fresh air is pushed inside the cabinet allowing the elimination of the mixture air/gas potentially explosive; the fans flow is able to clean completely the air in less then 10 seconds.

ATEX CERTIFIED COMPRESSOR



The unit is equipped with high efficency semi hermetic alternative compressors suitable for use in a explosion hazard zone (Zone 2) due to the presence of flammable gases following the ATEX 2014/34/UE European norm. (group 2).

ATEX gas leak DETECTOR

The propane gas sensor consists of an electronic detector combined with a catalytic sensor capable of detecting the presence of propane gas in the air in concentrations equal to 10 % of the minimum level required for combustion (LFL). The sensor is calibrated at two concentration levels (20 % and 30 % of the LFL), at which it activates two levels of alarm with automatic or manual reset. When the alarm goes off, all electrical devices in the unit disconnects from the power supply, except for the sensor and the extraction fan.

ATEX
components
and TECHNICAL
MEASURES
for extreme
RELIANCE and
SAFETY

ELECTRICAL PANEL
separated from the compressor compartment

The electrical panel is designed in compliance with EN 60204, and separated from the compressor compartment. This prevents the infiltration of refrigerant gas in case of leakage. The separate inverter compressor compartment is equipped with ventilation system.

REDUCED VIBRATIONS
on the refrigerant circuit

All units are provided with vibration dampers on the refrigerant circuit, both on the discharge and the suction side. The compressor is installed on rubber mounts in order to reduce noise and vibrations on the unit frame.

SAFETY gas SENSOR

The discharge line of the safety valve has to be connected with a pipe with a diameter larger or equal to the valve discharge connection. The refrigerant has to be channelled at minimum 3 meters away from the unit and any other ignition source. The safety valve discharge area has to be demarcated and interdicted.

REFERENCES


POCKOCMOC

mazda


MEDICALPARK

vodafone

POLITECNICO
DI TORINO

BT Group


FENDI


TIM


Royal Albert Hall


Yandex

PHILHARMONIE
DE PARIS


amazon.de


ADX
سوق أبوظبي للأوراق المالية
ABU DHABI SECURITIES EXCHANGE


BNP PARIBAS

ENGIE

BnF
Bibliothèque
nationale de France

ERICSSON

NEW RANGE MODULAR

Besides the advantages of Propane units, the Everest290 series has other significant benefits given by its **MODULARITY**.

CAPACITY-ENHANCEMENT

Everest290 series units can **combine** up to a maximum of **10 modules**. This configuration guarantees the achievement of high heating and cooling capacity.

EXTENSIBILITY

The independent logic enables the system expansion at any time, easily and effectively. The progressive addition of modules allows up to **10 units** on a single system.

PART-LOAD **EFFICIENCY**

In a multi-module configuration, in case of the need for a **partial load**, thanks to a large number of steps available, it is still possible to achieve **very high efficiency**.

LESS **REFRIGERANT**

The overall charge of the individual module is reduced through the accurate design of the refrigerant circuit, especially by using mini-channel type heat exchanger coils and brazed plate heat exchangers.
In addition, in a modular configuration, each refrigerant circuit is insulated, **allowing minimal waste** in the case of refrigerant leakage.

EVEREST 290

UNINTERRUPTED OPERATION

EMICON's Innovative **"Master in Rotation"** logic guarantees high reliability of the entire system. It is possible to disconnect one or more component units of the module without any limitation. This allows routine and extraordinary maintenance operations, or interventions for any other customer need, without interrupting all the other modules.

EASY MAINTENANCE

The hydraulic circuit includes a **connection kit** between the various modules. It allows the isolation of part of the circuit when removing and reinserting the individual unit from the modular system, without draining the hydraulic circuit. Modules can be **replaced quickly** and easily using the **Slide-In/Out System**.

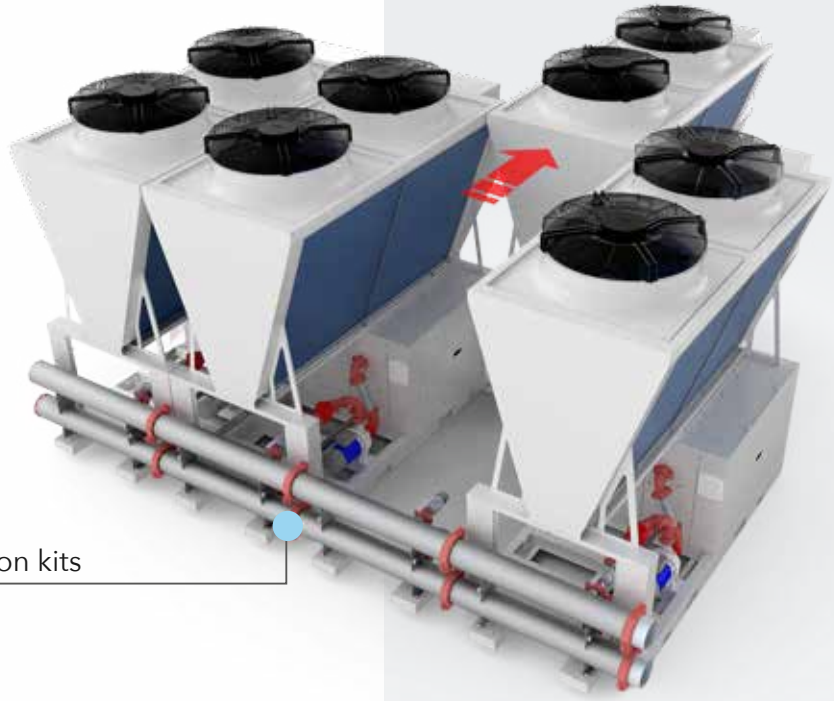
ACCESSIBILITY

All the main components are fully accessible from the front side of the unit for maintenance.

Slide-In/Out System

PRACTICALITY

Independent refrigerant circuits



Connection kits

Front maintenance

EVEREST 290 PAE Kp

AIR COOLED MULTIFUNCTION MODULAR UNITS FOR 2-PIPE SYSTEMS FOR OUTDOOR INSTALLATION

WITH SCROLL COMPRESSORS AND AXIAL FANS

Cooling capacity from 66 kW / Heating capacity from 88 kW

R290

AIR

EC

ERP 2021

CONTO TERMICO 2.0

VERSIONS

PAE Kp - standard version

EVEREST R290 - PAE Kp series air/water heat pump is a modular monoblock unit for outdoor installation. It is particularly suitable for residential, commercial, and industrial applications that require the production of hot water at high temperatures, at the highest efficiency levels possible.
This unit is specifically designed to reach optimal efficiency levels in heating mode, being able to operate down to outdoor air temperatures of -20°C and ensuring hot water production up to 70°C.

The unit design minimizes overall dimensions while ensuring high cooling performance. This is achieved through the use of innovative and high-quality components.
Scroll compressors are optimized for high compression ratios. They are used in tandem configuration in conjunction with electronic control of the airflow rate on the source side.

This enables the achievement of high seasonal efficiency ratings.

The refrigerant used is Propane, a non-toxic hydrocarbon, even at high concentrations, with almost a null ozone depletion potential, negligible global warming potential and thermodynamic properties which allow to reach high efficiency values.

All the units are completely factory assembled, tested and supplied with refrigerant non-freezing oil charge; so, once on installation site, they only need to be positioned and connected to the hydraulic and power supply lines.

Units CE certified in compliance with the European regulation 2016/2281 ERP 2021.

MAIN COMPONENTS

FRAME
The structure, strong and compact, is made of a base and frame in high-thickness galvanized steel elements assembled with galvanized steel rivets. All galvanized steel parts placed externally are protected on the surface level with an oven powder coating system in RAL 7035 colour. The basement is designed in order to allow the unit to be forked and handled by standard lifting devices. The refrigerant circuit (except for the source side exchanger) is hermetically sealed from the rest of the unit. Internally, it also contains a refrigerant leakage sensor. In case of severe sensor alarm, the power supplied to all equipment is interrupted, except for the ATEX extraction fans, which activate in order to remove the potentially explosive atmosphere from the cabinet.

COMPRESSOR
The compressors, specially designed to operate with R290, are Scroll type with orbiting spirals, optimized for heat pump operating mode and high compression ratios. They are installed in tandem configuration, mounted on rubber isolation dampers, and equipped with direct-start engines cooled by the suctioned refrigerant gas. They are also fitted with built-in thermistor protection with manual reset, which safeguards them from overloads. The compressors are charged with PAG oil and fitted with crankcase heaters. Their terminal block has an IP54 protection rating. The on-board microprocessor controls the activation and deactivation of the compressors, which therefore regulates the thermo-cooling power delivered.

HEAT EXCHANGER
The heat exchanger is stainless steel "single-circuit" plate type, thermally insulated by a flexible closed-cell insulating mat of high thickness and UV-resistant. The evaporator is also equipped with a safety flow switch on the water flow side that does not allow the unit to operate in case of lack of water flow rate in the heat exchanger.

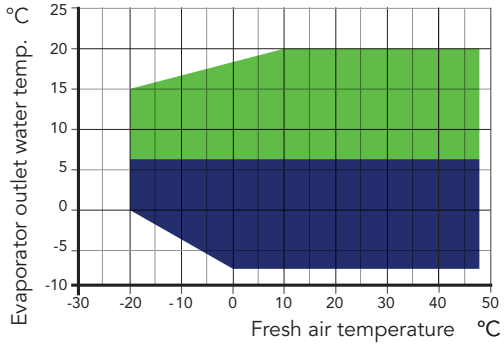
COILS
The coils are made with micro-finned copper pipes arranged in staggered rows and mechanically expanded inside an aluminium-finned pack with hydrophilic treatment. The fin shape ensures maximum heat exchange efficiency. The innovative mini-channel technology, besides guaranteeing maximum performance in terms of heat exchange, allows the refrigerant charge to be at the minimum necessary values for the correct operation of the unit. The maximum operating pressure on the refrigerant side of the heat exchange coils corresponds to 31 bar relative.

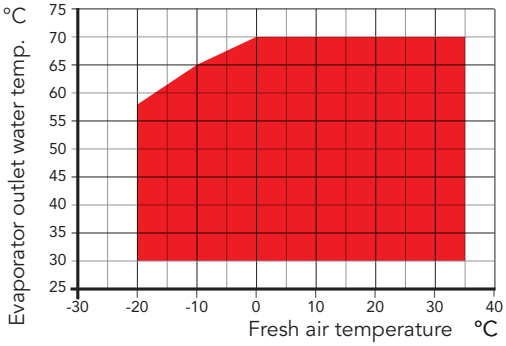
FANS
Axial fans, with external rotor directly coupled to a three-phase electronically commutated motor (EC) they have the possibility of a continuous regulation of the speed by means of a 0-10V signal completely managed by the microprocessor. Aluminum blades with wings profile are suitably designed to avoid any turbulence in the air detachment zone, granting in this way the max efficiency with the minimum noise level. The fan is equipped with galvanized steel protection grid painted after the construction. Thanks to a more accurate adjustment of air flow, they allow operation of the unit with external temperature down to -20 °C.

COOLING CIRCUIT
The cooling circuit includes a 4-way cycle reversing valve, liquid receiver, liquid/gas separator, and electronic thermostatic expansion valves operating in parallel (to allow the unit to function constantly along the entire working range). It also includes a liquid passage and humidity indicator, filter drier, safety valve, high-pressure switches with manual and automatic reset, service valve for the addition of the refrigerant, and anti-freeze probe.

ELECTRICAL BOARD
The electrical board is designed in accordance with the European standards 61439-1 EN 60204. Its structure is watertight and it contains all the components of the control system, those required for starting the unit, and the thermal protection of the electric motors, connected and factory-tested.
It houses all the power and control components: the microprocessor electronic board, with keyboard and display for the visualization of the various functions, main disconnecting switch for the door lock, and isolation transformer for the auxiliary circuit supply.
It also contains circuit breakers, fuses, and contactors for the compressor and fan motors, the terminals for the cumulative alarms and remote ON/OFF, the terminal board of the spring-type control circuits, and the possibility of connection to BMS management systems.
In case of a lack of ventilation in the compressor compartment, the unit blocks all the electrical drives.

OPERATING RANGE





Cooling mode

Cooling mode withglycol

Heating mode

ACCESSORIES

Everest 290 - PAE Kp		
Amperometer + Voltmeter	A+V	o
Soundproofing jacket on compressors	CI	o
Compressors inrush counter	CS	o
Anti-corrosive electro coating protection of condensing coils	ECP	o
High pressure double safety valve	HRV2	o
Victaulic insulation on pump side	I1	•
RS 485 Serial interface	IH	o
TCP/IP Protocol serial interface	IWG	o
Water collector kit without insulation	KCA	◊
Water collector insulation kit	KCC	◊
Gateway board kit up to 5 modules	KG5	◊
Gateway board kit from 6 to 10 modules	KG10	◊
Gateway board kit up to 5 modules provided with hiweb	KGH5	◊
Gateway board kit from 6 to 10 modules provided with hiweb	KGH10	◊
Power/junction board kit up to 5 modules	KP5	◊
Power/ junction board kit from 6 to 10 modules	KP10	◊
Victaulic cap + socket kit/weld	KTT	◊
Phase monitor	MF	•
Handling with lifting hooks	MG	o
Handling brackets for forklift	MM	•
Pressure gauges	MT	o
Rubber-type vibration dampers	PA	◊
Spring-type vibration dampers	PM	◊
Remote display - Single-module	PQ	◊
Remote display - Multiple modules	PQM	◊
Anti-freeze heater on evaporator	RA	o
Compressor overload relays	RL	•
Copper/Copper coil	RR	o
Brine Version	VB	o
Heating cable on internal water pipes	VH	o

• Standard, o Optional (on-board), ◊ Optional (external kit)

TECHNICAL DATA

Everest 290 - PAE Kp		
Cooling [1]		
Cooling capacity	kW	66,3
Total input power	kW	26,4
Total nominal current	A	50,8
EER	-	2,51
Water flow	m^3/h	11,3
Pressure drop	kPa	27,4
Circuit	n°	1
Compressors	n°	2
Heating [2]		
Heating capacity	kW	88,9
Total input power	kW	22,2
Total nominal current	A	45,9
COP	-	4,0
Water flow	m^3/h	15,4
Pressure drop	kPa	43,6
Refrigerant data R290		
Refrigerant charge	kg	6,5
Global warming potential (GWP)		3
Equivalent CO_2 charge	kg	19,5
Axial fans		
Number	n°	2
Total air flow	m^3/h	32480
Total fan power input	kW	1,6
Total fan current	A	3,0
Weights		
Transport weight	kg	835
Operating weight	kg	840
Dimensions		
Length	mm	2560
Depth	mm	1100
Height	mm	2450
Sound data		
Sound pressure level [4]	dB(A)	87
Sound power level [5]	dB(A)	55
Power supply		
Voltage/Phase/Frequency	V/ph/Hz	400/3/50
General electrical data		
Maximum input power	kW	44,0
Maximum input current	A	79,2
Inrush current	A	231,2

(1) Fluid: water - in/out temperature: 12/7°C - air 35°C.
(2) Fluid: water - in/out temperature: 30/35°C - air 7°C - UR.87%
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

EVEREST 290 PAE WA Kp

AIR COOLED MULTIFUNCTION MODULAR UNITS FOR 2-PIPE SYSTEMS FOR OUTDOOR INSTALLATION

WITH SCROLL COMPRESSORS AND AXIAL FANS

Cooling capacity from 105 kW / Heating capacity from 88 kW

R290

AIR

EC

ERP 2021

CONTO TERMICO 2.0

ECOBONUS 65%

VERSIONS

PAE WA Kp - standard version

EVEREST R290 - PAE WA Kp series air/water heat pump is a modular monoblock unit for outdoor installation. It is particularly suitable for residential, commercial, and industrial applications that require the production of hot water at high temperatures, at the highest efficiency levels possible.
This unit is specifically designed to reach optimal efficiency levels in heating mode, being able to operate down to outdoor air temperatures of -20°C and ensuring hot water production up to 65°C.

The unit design minimizes overall dimensions while ensuring high cooling performance. This is achieved through the use of innovative and high-quality components.
Scroll compressors are optimized for high compression ratios. They are used in tandem configuration in conjunction with electronic control of the airflow rate on the source side.

This enables the achievement of high seasonal efficiency ratings.

The refrigerant used is Propane, a non-toxic hydrocarbon, even at high concentrations, with almost a null ozone depletion potential, negligible global warming potential and thermodynamic properties which allow to reach high efficiency values.

All the units are completely factory assembled, tested and supplied with refrigerant non-freezing oil charge; so, once on installation site, they only need to be positioned and connected to the hydraulic and power supply lines.

Units CE certified in compliance with the European regulation 2016/2281 ERP 2021.

MAIN COMPONENTS

FRAME
The structure, strong and compact, is made of a base and frame in high-thickness galvanized steel elements assembled with galvanized steel rivets. All galvanized steel parts placed externally are protected on the surface level with an oven powder coating system in RAL 7035 colour. The basement is designed in order to allow the unit to be forked and handled by standard lifting devices. The refrigerant circuit (except for the source side exchanger) is hermetically sealed from the rest of the unit. Internally, it also contains a refrigerant leakage sensor. In case of severe sensor alarm, the power supplied to all equipment is interrupted, except for the ATEX extraction fans, which activate in order to remove the potentially explosive atmosphere from the cabinet.

COMPRESSOR
The compressors, specially designed to operate with R290, are Scroll type with orbiting spirals, optimized for heat pump operating mode and high compression ratios. They are installed in tandem configuration, mounted on rubber isolation dampers, and equipped with direct-start engines cooled by the suctioned refrigerant gas. They are also fitted with built-in thermistor protection with manual reset, which safeguards them from overloads. The compressors are charged with PAG oil and fitted with crankcase heaters. Their terminal block has an IP54 protection rating. The on-board microprocessor controls the activation and deactivation of the compressors, which therefore regulates the thermo-cooling power delivered.

HEAT EXCHANGER
The heat exchanger is stainless steel "single-circuit" plate type, thermally insulated by a flexible closed-cell insulating mat of high thickness and UV-resistant. The evaporator is also equipped with a safety flow switch on the water flow side that does not allow the unit to operate in case of lack of water flow rate in the heat exchanger.

COILS
The coils are made with micro-finned copper pipes arranged in staggered rows and mechanically expanded inside an aluminium-finned pack with hydrophilic treatment. The fin shape ensures maximum heat exchange efficiency. The innovative mini-channel technology, besides guaranteeing maximum performance in terms of heat exchange, allows the refrigerant charge to be at the minimum necessary values for the correct operation of the unit. The maximum operating pressure on the refrigerant side of the heat exchange coils corresponds to 31 bar relative.

FANS
Axial fans, with external rotor directly coupled to a three-phase electronically commutated motor (EC) they have the possibility of a continuous regulation of the speed by means of a 0-10V signal completely managed by the microprocessor. Aluminum blades with wings profile are suitably designed to avoid any turbulence in the air detachment zone, granting in this way the max efficiency with the minimum noise level. The fan is equipped with galvanized steel protection grid painted after the construction. Thanks to a more accurate adjustment of air flow, they allow operation of the unit with external temperature down to -20 °C.

COOLING CIRCUIT
The cooling circuit includes a 4-way cycle reversing valve, liquid receiver, liquid/gas separator, and electronic thermostatic expansion valves operating in parallel (to allow the unit to function constantly along the entire working range). It also includes a liquid passage and humidity indicator, filter drier, safety valve, high-pressure switches with manual and automatic reset, service valve for the addition of the refrigerant, and anti-freeze probe.

ELECTRICAL BOARD
The electrical board is designed in accordance with the European standards 61439-1 EN 60204. Its structure is watertight and it contains all the components of the control system, those required for starting the unit, and the thermal protection of the electric motors, connected and factory-tested.
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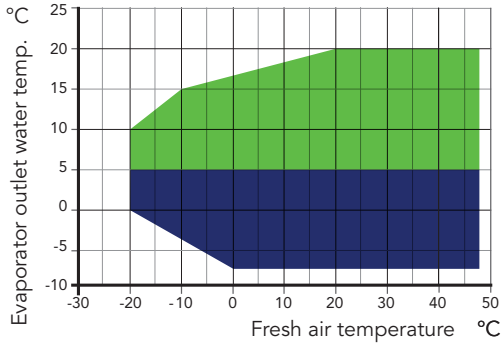
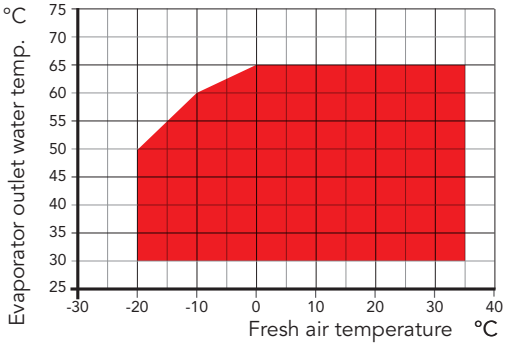
OPERATING RANGE





Cooling mode

Cooling mode withglycol

Heating mode

ACCESSORIES

Everest 290 - PAE WA Kp		
Amperometer + Voltmeter	**A+V**	o
Soundproofing jacket on compressors	**CI**	o
Compressors inrush counter	**CS**	o
Anti-corrosive electro coating protection of condensing coils	**ECP**	o
High pressure double safety valve	**HRV2**	o
Victaulic insulation on pump side	**I1**	•
RS 485 Serial interface	**IH**	o
TCP/IP Protocol serial interface	**IWG**	o
Water collector kit without insulation	**KCA**	◊
Water collector insulation kit	**KCC**	◊
Gateway board kit up to 5 modules	**KG5**	◊
Gateway board kit from 6 to 10 modules	**KG10**	◊
Gateway board kit up to 5 modules provided with hiweb	**KGH5**	◊
Gateway board kit from 6 to 10 modules provided with hiweb	**KGH10**	◊
Power/junction board kit up to 5 modules	**KP5**	◊
Power/ junction board kit from 6 to 10 modules	**KP10**	◊
Victaulic cap + socket kit/weld	**KTT**	◊
Phase monitor	**MF**	•
Handling with lifting hooks	**MG**	o
Handling brackets for forklift	**MM**	•
Pressure gauges	**MT**	o
Rubber-type vibration dampers	**PA**	◊
Spring-type vibration dampers	**PM**	◊
Remote display - Single-module	**PQ**	◊
Remote display - Multiple modules	**PQM**	◊
Anti-freeze heater on evaporator	**RA**	o
Compressor overload relays	**RL**	•
Copper/Copper coil	**RR**	o
Brine Version	**VB**	o
Heating cable on internal water pipes	**VH**	o

• Standard, o Optional (on-board), ◊ Optional (external kit)

TECHNICAL DATA

Everest 290 - PAE WA Kp		
Cooling [1]		
Cooling capacity	kW	105,0
Total input power	kW	29,6
Total nominal current	A	55,0
EER	-	3,55
Water flow	m^3/h	18,0
Pressure drop	kPa	55,5
Circuits	n°	1
Compressors	n°	2
Heating [2]		
Heating capacity	kW	88,2
Total input power	kW	22,5
Total nominal current	A	46,3
COP	-	3,92
Water flow	m^3/h	15,3
Pressure drop	kPa	43,5
Refrigerant data R290		
Refrigerant charge	kg	6,5
Global warming potential (GWP)		3
Equivalent CO_2 charge	kg	19,5
Axial fans		
Number	n°	2
Total air flow	m^3/h	32470
Total fan power input	kW	1,54
Total fan current	A	3,01
Weights		
Transport weight	kg	835
Operating weight	kg	840
Dimensions		
Length	mm	2560
Depth	mm	1100
Height	mm	2450
Sound data		
Sound pressure level [4]	dB(A)	87
Sound power level [5]	dB(A)	55
Power supply		
Voltage/Phase/Frequency	V/ph/Hz	400/3/50
General electrical data		
Maximum input power	kW	44,0
Maximum input current	A	79,2
Inrush current	A	231,2

(1) Fluid: water - in/out temperature: 23/18°C - air 35°C.
(2) Fluid: water - in/out temperature: 30/35°C - air 7°C - UR.87%
(3) Sound power level in accordance with ISO 3744.

(4) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

EVEREST 290 GPE Kp

AIR COOLED MULTIFUNCTION MODULAR UNITS FOR 4-PIPE SYSTEMS FOR OUTDOOR INSTALLATION

WITH SCROLL COMPRESSORS AND AXIAL FANS

Cooling capacity from 72 kW / Heating capacity from 86 kW

VERSIONS

GPE Kp - standard version

EVEREST R290 - GPE Kp series air/water polyvalent unit for modular installation. It is particularly suitable for residential, commercial, and industrial applications that require the production of hot water at high temperatures, at the highest efficiency levels possible.
This unit is specifically designed to reach optimal efficiency levels in heating mode, being able to operate down to outdoor air temperatures of -20°C and ensuring hot water production up to 65°C.

The unit design minimizes overall dimensions while ensuring high cooling performance. This is achieved through the use of innovative and high-quality components.
Scroll compressors are optimized for high compression ratios. They are used in tandem configuration in conjunction with electronic control of the airflow rate on the source side.

This enables the achievement of high seasonal efficiency ratings.

The refrigerant used is Propane, a non-toxic hydrocarbon, even at high concentrations, with almost a null ozone depletion potential, negligible global warming potential and thermodynamic properties which allow to reach high efficiency values.

All the units are completely factory assembled, tested and supplied with refrigerant non-freezing oil charge; so, once on installation site, they only need to be positioned and connected to the hydraulic and power supply lines.

Units CE certified in compliance with the European regulation 2016/2281 ERP 2021.

MAIN COMPONENTS

FRAME
The structure, strong and compact, is made of a base and frame in high-thickness galvanized steel elements assembled with stainless steel rivets. All galvanized steel parts placed externally are protected on the surface level with an oven powder coating system in RAL 7035 colour. The basement is designed in order to allow the unit to be forked and handled by standard lifting devices. The refrigerant circuit (except for the source side exchanger) is hermetically sealed from the rest of the unit. Internally, it also contains a refrigerant leakage sensor. In case of severe sensor alarm, the power supplied to all equipment is interrupted, except for the ATEX extraction fans, which activate in order to remove the potentially explosive atmosphere from the cabinet.

COMPRESSOR
The compressors, specially designed to operate with R290, are Scroll type with orbiting spirals, optimized for heat pump operating mode and high compression ratios. They are installed in tandem configuration, mounted on rubber dampers, and equipped with direct-start engines cooled by the suctioned refrigerant gas. They are also fitted with built-in thermistor protection with manual reset, which safeguards them from overloads. The crankcase oil sump, PAG type, is equipped with a heating resistor. The compressors terminal block has an IP54 protection rating. Activation and deactivation of the compressors are controlled by the on-board microprocessor, which regulates the thermo-cooling power delivered.

HEAT EXCHANGER
The heat exchanger is stainless steel "single-circuit" plate type, thermally insulated by a flexible closed-cell insulating mat of high thickness and UV-resistant. The evaporator is also equipped with a safety flow switch on the water flow side that does not allow the unit to operate if there is a lack of water in the heat exchanger.

COILS
The coils are made with micro-finned copper pipes arranged in staggered rows and mechanically expanded inside an aluminium-finned pack with hydrophilic treatment. The fin shape ensures maximum heat exchange efficiency. The innovative mini-channel technology, besides guaranteeing maximum performance in terms of heat exchange, allows the refrigerant charge to be at the minimum necessary values for the correct operation of the unit. The maximum operating pressure on the refrigerant side of the heat exchange coils corresponds to 31 bar (relative).

FANS
Axial fans, with external rotor directly coupled to a three-phase electronically commutated motor (EC) they have the possibility of a continuous regulation of the speed by means of a 0-10V signal completely managed by the microprocessor. Aluminum blades with wings profile are suitably designed to avoid any turbulence in the air detachment zone, granting in this way the max efficiency with the minimum noise level. The fan is equipped with galvanized steel protection grid painted after the construction. Thanks to a more accurate adjustment of air flow, they allow operation of the unit with external temperature down to -20 °C.

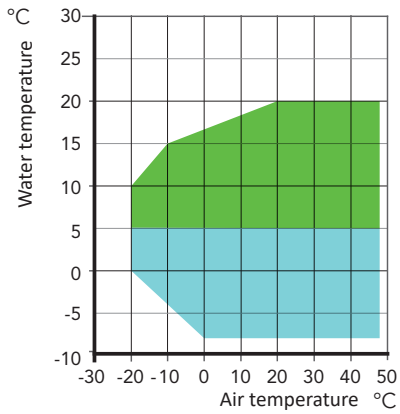
COOLING CIRCUIT
The cooling circuit includes a 4-way cycle reversing valve, liquid receiver and liquid/gas separator. It is provided with electronic thermostatic expansion valves operating in parallel (to allow the unit to work constantly along the entire working range). The circuit also includes a liquid passage and humidity indicator, filter drier, safety valve, high-pressure switches with manual and automatic reset, and service valve for the addition of the refrigerant and anti-freeze probe.

HYDRAULIC CIRCUIT
The hydraulic circuit consists of a 2-pole centrifugal electric pump. It allows water to circulate inside the unit, while a check valve prevents the recirculation in case of a switched-off pump and unit combined with others running on the same water circuit. The water pipes inside the unit and the Victaulic joints are factory insulated with thermally insulating material of proper thickness.

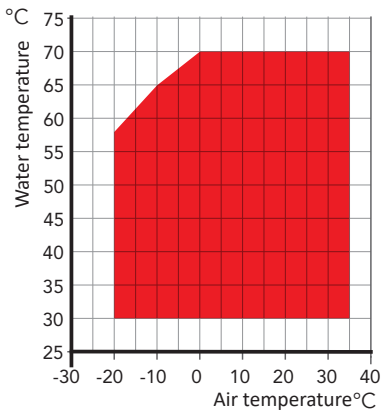
ELECTRICAL BOARD
The electrical board is designed in accordance with the European standards 61439-1 EN 60204. Its structure is watertight and it contains all the components of the control system, those required for starting the unit, and the thermal protection of the electric motors, connected and factory-tested. It houses all the power and control components: the microprocessor electronic board, with keyboard and display for the visualization of the various functions, main disconnecting switch for the door lock, and isolation transformer for the auxiliary circuit supply.It also contains circuit breakers, fuses, and contactors for the compressor and fan motors, the terminals for the cumulative alarms and remote ON/OFF, the terminal board of the spring-type control circuits, and the possibility of connection to BMS management systems.
In case of a lack of ventilation in the compressor compartment, the unit blocks all the electrical drives.

OPERATING RANGE

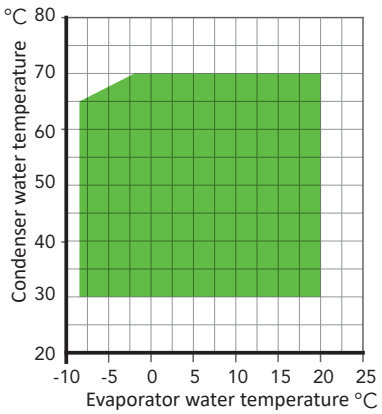
Cooling mode



Heating mode



Cooling during heating



Cooling mode

Cooling with glycol

Heating mode

ACCESSORIES

Everest 290 - GPE Kp		
Amperometer + Voltmeter	**A+V**	o
Soundproofing jacket on compressors	**CI**	o
Compressors inrush counter	**CS**	o
Anti-corrosive electro coating protection of condensing coils	**ECP**	o
High pressure double safety valve	**HRV2**	o
Victaulic insulation on pump side	**I1**	•
RS 485 Serial interface	**IH**	o
TCP/IP Protocol serial interface	**IWG**	o
Water collector kit without insulation	**KCA**	◊
Water collector insulation kit	**KCC**	◊
Gateway board kit up to 5 modules	**KG5**	◊
Gateway board kit from 6 to 10 modules	**KG10**	◊
Gateway board kit up to 5 modules provided with hiweb	**KGH5**	◊
Gateway board kit from 6 to 10 modules provided with hiweb	**KGH10**	◊
Power/junction board kit up to 5 modules	**KP5**	◊
Power/ junction board kit from 6 to 10 modules	**KP10**	◊
Victaulic cap + socket kit/weld	**KTT**	◊
Phase monitor	**MF**	•
Handling with lifting hooks	**MG**	o
Handling brackets for forklift	**MM**	•
Pressure gauges	**MT**	o
Rubber-type vibration dampers	**PA**	◊
Spring-type vibration dampers	**PM**	◊
Remote display - Single-module	**PQ**	◊
Remote display - Multiple modules	**PQM**	◊
Anti-freeze heater on evaporator	**RA**	o
Compressor overload relays	**RL**	•
Copper/Copper coil	**RR**	o
Brine Version	**VB**	o
Heating cable on internal water pipes	**VH**	o

• Standard, o Optional (on-board), ◊ Optional (external kit)

TECHNICAL DATA

Everest 290 - GPE Kp		
Cooling [1]		
Cooling capacity	kW	72,1
Total input power	kW	26,6
Total nominal current	A	51,1
EER	-	2,71
Water flow	m^3/h	12,3
Pressure drop	kPa	32,4
Circuits	n°	1
Compressors	n°	2
Heating [2]		
Heating capacity	kW	86,7
Total input power	kW	22,2
Total nominal current	A	44,6
COP	-	3,91
Water flow	m^3/h	15,0
Pressure drop	kPa	18,6
Cooling while heating [3]		
Cooling capacity	kW	79,5
Heating capacity	kW	101,0
Total input power	kW	21,5
Current consumption	A	45,4
TER	-	8,4
Water flow rate in heating mode	m^3/h	15,0
Pressure drop in heating mode	kPa	41,7
Water flow rate in cooling mode	m^3/h	12,3
Pressure drop in cooling mode	kPa	32.5
Refrigerant data R290		
Refrigerant charge	kg	6,5
Global warming potential (GWP)		3
Equivalent CO_2 charge	kg	19,5
Axial fans		
Number	n°	2
Total air flow	m^3/h	34120
Total fan power input	kW	1,8
Total fan current	A	3,4
Weights		
Transport weight	kg	920
Operating weight	kg	935
Dimensions		
Length	mm	2560
Depth	mm	1100
Height	mm	2450
Sound data		
Sound pressure level [4]	dB(A)	87
Sound power level [5]	dB(A)	55
Power supply		
Voltage/Phase/Frequency	V/ph/Hz	400/3/50
General electrical data		
Maximum input power	kW	44,0
Maximum input current	A	79,2
Inrush current	A	231,2

(1) Fluid: water - in/out temperature: 12/7°C - air 35°C.
(2) Fluid: water - in/out temperature: 30/35°C - air 7°C - UR.87%
(3) Cold user side: in/out temperature: 12/7°C - Hot user side: in/out temperature: 30/35°C.
(4) Sound power level in accordance with ISO 3744.
(5) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

Accessories description

A+V - Amperometer and voltmeter: Electrical devices used to measure the electrical current absorbed and the electrical supply voltage of the unit.

AE - Electrical power supply different than standard: 230 V three-phase, 460 V three-phase. Frequency 50/60 Hz

AXT - Axial fan diffuser: It allow a reduction of energetic consumption and of noise pressure thanks to the optimization of the air flow.

BF - Low ambient temperature operation (down to -20°C): Electronic device, frequency converter type, for the continuous modulating control of the condensing pressure through the variation of the fan rotation speed.

BT - Low ambient temperature operation (down to -10 °C): Electronic device for the continuous modulating voltage control of the condensing pressure through the variation of the fan rotation speed.

CI - Soundproofing jacket on compressors: made of soundproofing material, wrapped all around compressors so to further reduce the overall sound level of the unit.

CS - Compressors inrush counter: Electromechanical device positioned inside the electrical board, recording the total inrush starts of compressors.

CFU - Soundproofed compressors cabinet: Insulation of compressors by a cabinet coated with with higher thickness and fire proof material.

EC - Axial fans with electronic commutated motor: with external rotor directly coupled to a three-phase electronically commutated motor (ec) they have the possibility of a continuous regulation of the speed by means of a 0-10v signal completely managed by the microprocessor.

ECP - Anticorrosive electro coating protection of condensing coils: Treatment of the coils composed by electro deposition process of epoxy paint particle forming an uniform and continuous film over the whole surface of exchanger, creating a flexible and smooth coating that is particularly resistant to corrosive agents. This type of treatment is indicated in case of installation in high contaminants concentration industrial environments (>100ppm), high atmospheric pollution urban areas (>125 ug/m^3) or near costal areas.

GP - Condensing coil protection grid: Metal grid to protect against accidental impacts..

GP1 - Protection grid: Painted metal grid to protect the technical compartment. (Not available with CF, CFU e CFT)

HRV2 - High pressure double safety valve: Equipped with exchange shut-off valve to allow maintenance operations or his replacement without having to stop the unit.

I1 - Victaulic insulation on pump side: Insulation of the joints by close-cell polyurethane material, to prevent condensation, pump side.

I2 - Victaulic insulation buffer tank side: Insulation of the joints by close-cell polyurethane material, to prevent condensation, buffer tank side.

IH - RS 485 Serial interface: Electronic card to be connected to the microprocessor to allow connection of the units to supervision systems, for a remote control and monitoring of the unit.

IH BAC - BACNET Protocol Serial Interface: Gateway to be connected to the microprocessor to allow the connection of the unit to external supervision system with bacnet protocol in order to fully and remotely assistance.

IWG - TCP/IP Protocol serial interface: Electronic card to be connected to the microprocessor to allow connection of the units to supervision systems with SNMP or TCP/IP protocol, for a remote control and monitoring of the unit.

KCA - Water collector kit without insulation: Kit consisting of water collectors (6" diameter), ball valves, support brackets, and all the necessary for the hydraulic connection between the unit and the collectors.

KCC - Water collector insulation kit: Shells made of thermal insulating material of proper thickness for the water collector insulation (KCA). (Supplied in kit).

KG10 - Gateway framework kit up to 10 units: Data communication framework for unit groups (up to 10). The setup for the panel installation is on the back of the front-cover of each unit. The prearrangement for the panel installation is placed on the front-cover back of each unit.

KG5 - Gateway framework kit up to 5 units: Data communication framework for unit groups (up to 5). The provision for mounting the panel is on the back of the front cover of each unit. The prearrangement for the panel installation is placed on the front-cover back of each unit.

KGH10 - Gateway framework kit up to 10 units provided with hiweb: Data communication framework and (serial) interface for unit groups (up to 10). It allows the monitoring and supervision of the main working parameters of the system by accessing the Hi-Web platform from the local Wi-Fi network.

KGH5 - Gateway framework kit up to 5 units provided with hiweb: Data communication framework and (serial) interface for unit groups (up to 5). It allows the monitoring and supervision of the main working parameters of the system by accessing the Hi-Web platform from the local Wi-Fi network.

KP10 - Power / executor framework kit up to 10 modules: Electrical panel consisting of 10 circuit breakers and a main disconnecting switch for the interruption of the electrical power from the main power supply to the individual units (up to 10).

KP5 - Power / executor framework kit up to 5 modules: Electrical panel consisting of 5 circuit breakers and a main disconnecting switch for the interruption of the electrical power from the main power supply to the individual units (up to 5).

KTT - Victaulic cap + socket kit/weld: Kit consisting of Victaulic caps, Victaulic sockets, and Victaulic couplings (including insulation) necessary for sealing one end of the water collector and for connecting the other end to the user circuit.

MF - Phase monitor: Electronic device that checks the correct sequence and/or the lack of one of the 3 phases, switching off the unit if necessary.

MG - Lifting hooks: Side brackets firmly fixed to the basement allow the unit to be lifted with hooks and cables.

MM - Handling brackets for forklift

MP - Enhanced microprocessor board: Alternative to the standard microprocessor, it has an increased hardware with Ethernet port so to allow the connection of the accessory TS and allows to connect up to 16 units in local network for master-slave management (when more of 2 units have to be connected, an hub Ethernat device is required).

MSC - Advanced Cascade system: It can manage up to n.6 units

MT - Pressure gauges: These enable the standing charge and the operating pressures to be monitored.

P1 - Pump group: Chilled water pump group made of a single pump, expansion vessel, safety valve water gauge, water charge and discharge valves, air purging valves, electric control of the pump. The pump is of enbloc 2-pole type.

P1H- Higher available pressure pump group: Chilled water pump group made of a single pump, expansion vessel, safety valve water gauge, water charge and discharge valves, air purging valves, electric control of the pump. The pump is of enbloc 2-pole type.

P2 - Double pump group (only one working): Chilled water pump group made by two pumps in parallel, expansion vessel, safety valve, water gauge, water charge and discharge valves, air purging valves, water shut-off valve on suction and check valve on discharge for each single pump, electric control of the pump. The pump is of enbloc 2-pole type.

P2H - Higher available pressure double pump group (only one working): Chilled water pump group made by two higher available pressure pumps in parallel, expansion vessel, safety valve, water gauge, water charge and discharge valves, air purging valves, water shut-off valve on suction and check valve on discharge for each single pump, electric control of the pump. The pump is of enbloc 2-pole type.

PA - Rubber-type vibration dampers: Vibration bell type dampers for insulating the unit from the support base (supplied in kit), composed of a bell base in galvanized steel and rubber compound.

PCP - Anti-corrosive protection of the condensing coils (Powder coating): painting of the exchanger surface by application of a black colored epoxy resin suitable to ensure a protection against atmospheric agents, for coastal installations, industrial environments with an average concentration of pollutant (< 100 ppm) and urban areas with lower middle levels of atmospheric pollution (< 125 ug/m3). (Alternative to ECP).

PM - Spring-type vibration dampers: Spring-type vibration dampers support, for insulating the unit (supplied in kit), mainly indicated for installation in difficult and aggressive environments. Made of two steel plates containing a suitable quantity of harmonic steel springs.

PQ - Remote display/
PQM - Remote display in case of multiple units/
PQS - Remote display in case of single units: Electronic card to be connected to the microprocessor to allow connection of the units to supervision systems, for a remote control and monitoring of the unit.

PW - Part-Winding: Equipment for step compressors starting, reducing of about 35% the inrush current of each compressor.

RA - Anti-freeze heater on evaporator: Electrical heater installed on the evaporator, in order to prevent freezing and provided with thermostat.

RD - Shut-off valve on compressors discharge side: They are used to isolate compressors during service operation.

RF - Power factor correction system cosfi ≥0,9: Elec-

trical device made by suitable condensers for compressor rephasing that ensure a cosfi value ≥0,9, so to reduce absorption from electrical network.

RH - Shut-off valve on compressors suction side: They are used to isolate compressors during service operation.

RL - Compressor overload relays: Electromechanical protection devices against compressors overload.

RM - Condensing coil with pre-painted fins: Double-layer treatment of condensing coils aluminium fins surface, to be used if there is an high concentration of corrosive agents in the environment.

RP - Partial heat recovery: (about 20%) of condensing heat through a refrigerant/water plate exchanger (desuperheater) always in series to the compressors. It is used when you want to partially recover condensing heat capacity for production of sanitary water.

RR - Copper/Copper coil: Special condensing coils with copper pipes and fins.

RV - Personalized frame painting in alternative RAL colour.

TDS - Double layer treatment of the coil: Finned pack epoxy treatment and its frame, suitable for industrial very corrosive environmental or where there is an high concentration of chlorides.

TE - Electronic thermostatic valve: Electronic thermostatic valve that reduces the response times of the unit. Useful in case of frequent changes on cooling demand, so as to improve efficiency.

VB - Brine Version: Unit suitable for working with evaporator outlet water temperatures lower than 0°C. A 20 mm evaporator insulation will be provided.

VH - Heating cable on internal water pipes: Electric heaters are wrapped around the water pipes of the unit. They are provided with anti-freeze function and equipped with an autonomous thermostat.

VP - 3-way Pressostatic valve

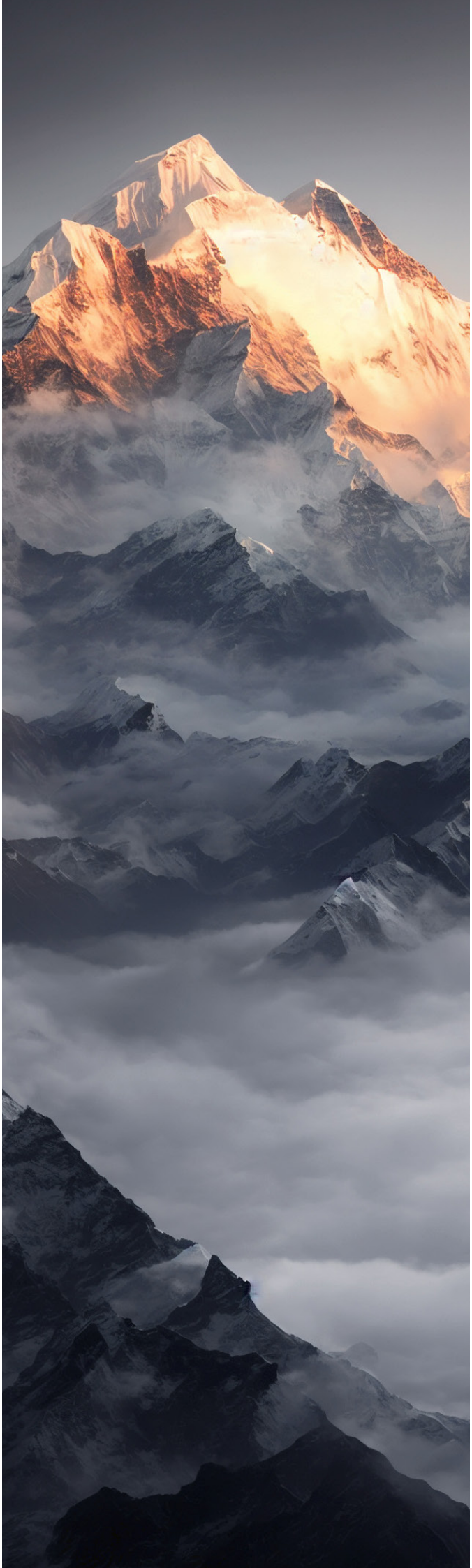
VSC - Inverter for compressors: Compressor inverter: the option provides the installation of an inverter for compressor's frequency control (units of up to 2 compressors). The units with 4 compressors foresee 2 inverters.
If this accessory is selected, the dimensions of the machine may increase"

VSP: Inverter for pump: This option provides the installation of an inverter combined to user pump module.

VSP1H - Inverter for high-pressure pump: This option provides the installation of an inverter combined to user high-pressure pumps module.

VSP2 - Inverter for pumps (only one working): This option provides the installation of an inverter combined to user pumps module.

VSP2H - Inverter for high-pressure pumps (only one working): This option provides the installation of an inverter combined to user high-pressure pumps module.



EMICON
INNOVATION AS ENERGY
AN ENEX TECHNOLOGIES COMPANY

Emicon AC Spa
via Alessandro Volta 49 - 47014
Meldola (FC) Italy

www.emicon.it
info@emicon.it