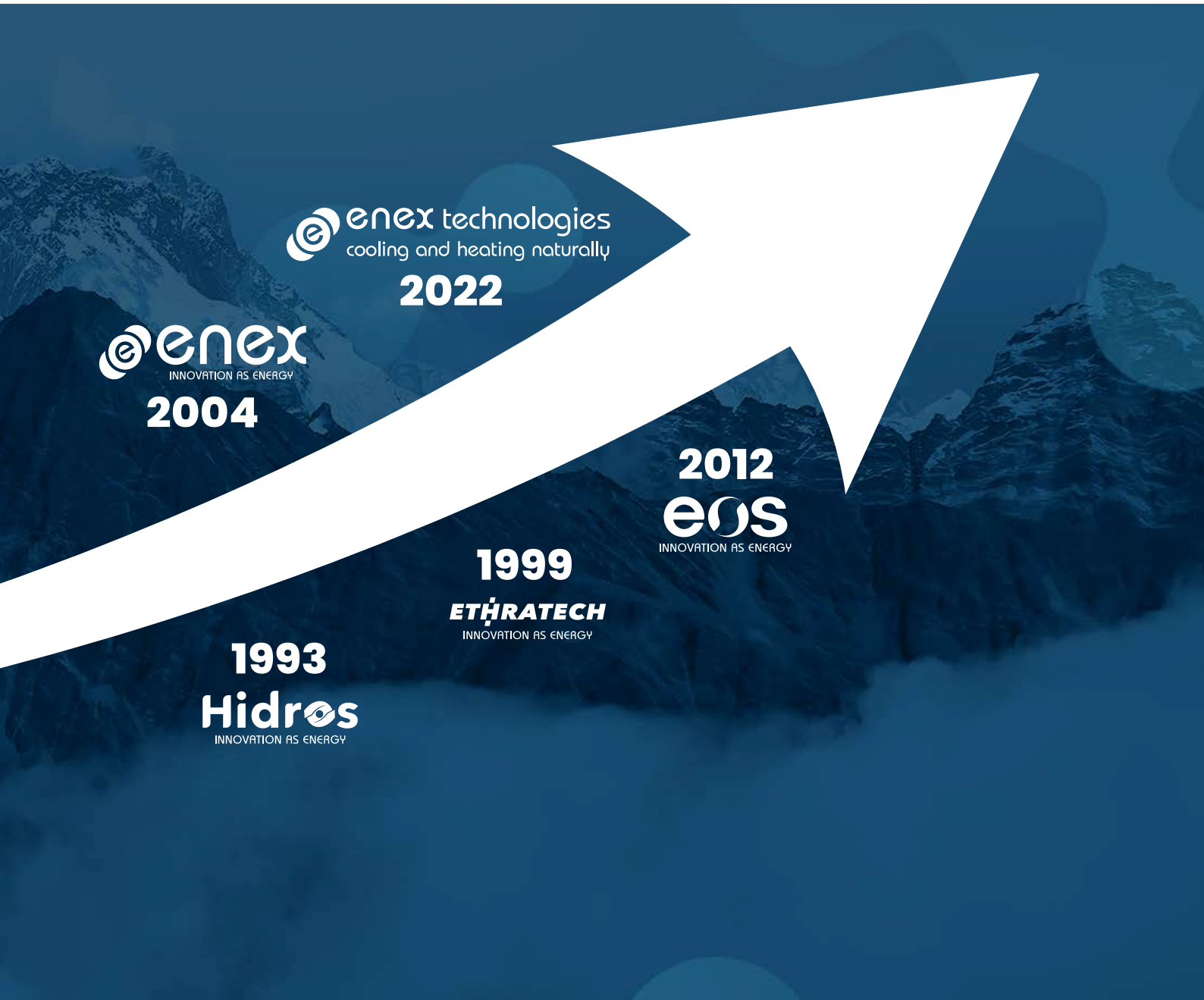
PROPANE
Efficiency and Sustainability
Products Catalogue

Index

About

Enex Technologies is a transformative world leader in natural and energy efficient cooling, heating, ventilation and refrigeration equipment that began in the 1930s by producing ammonia natural refrigeration equipment, later adding CO_2, water and propane as natural refrigerants with low global warming potential.

Pioneers and innovators in natural HVACR since the 1930s



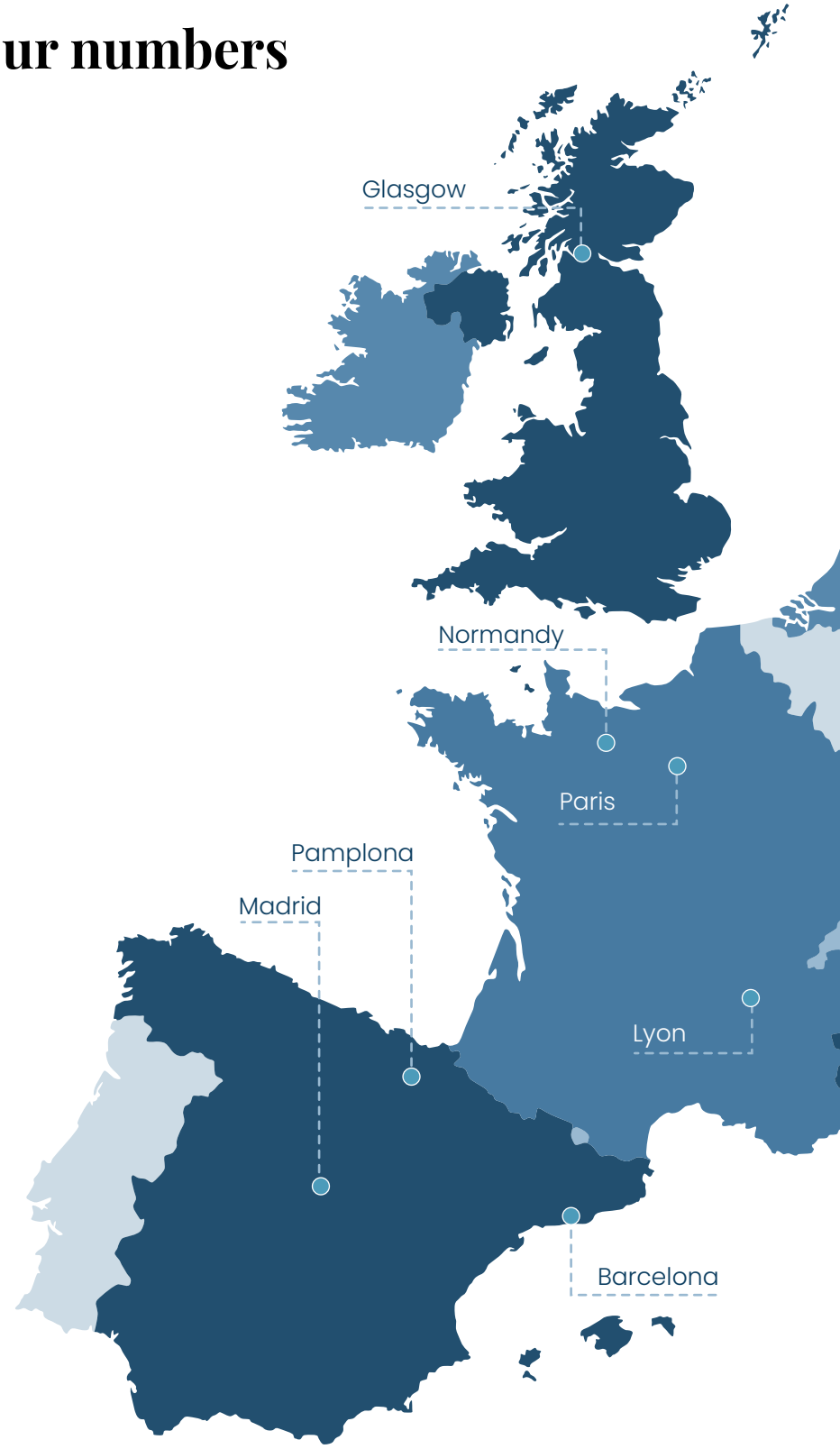
Our numbers

200M€
Revenues

1000+
Employees

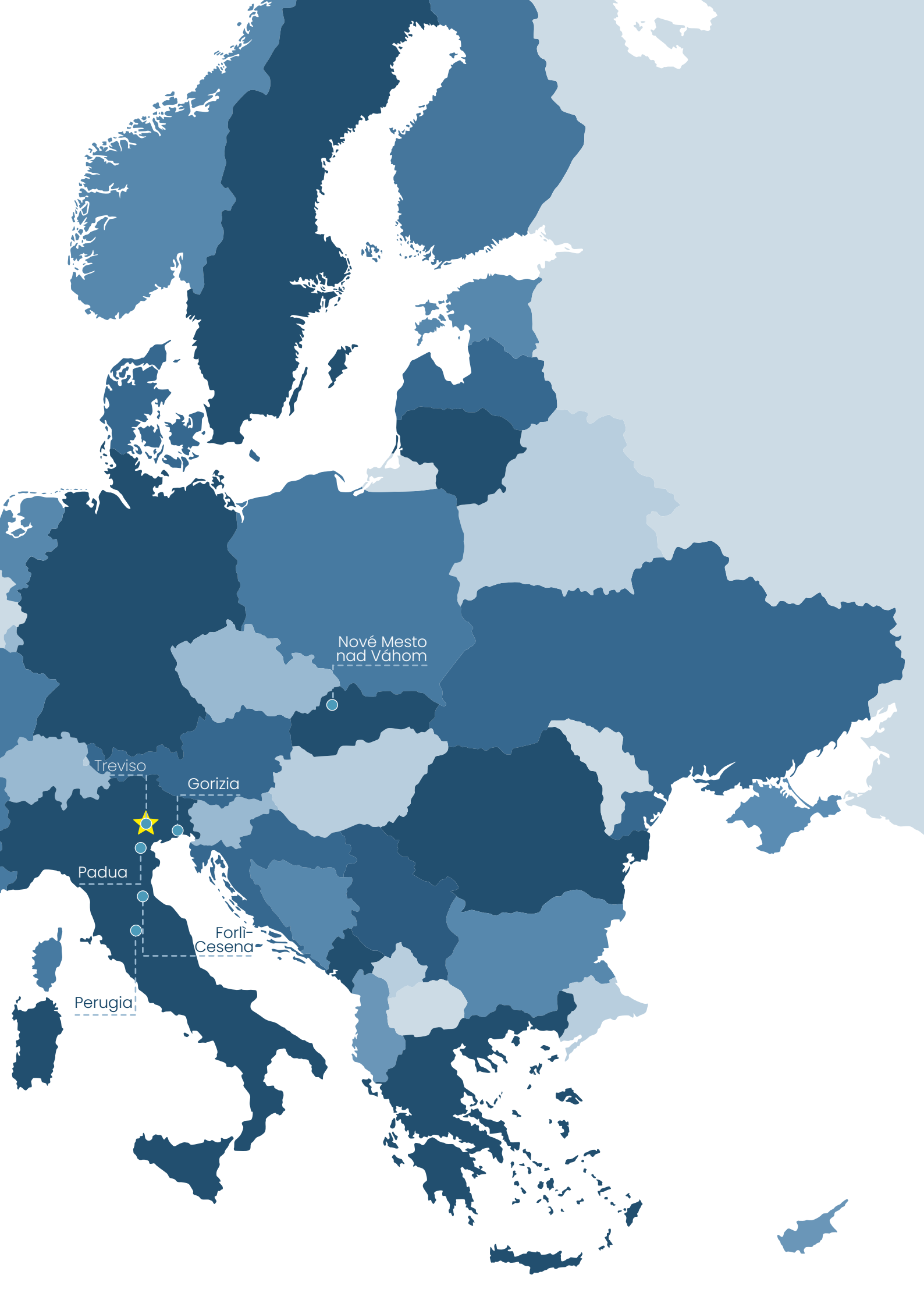
13
Locations

125
Countries



★ Headquarter

● Manufacturing, R&D site and commercial office


Nové Mesto
nad Váhom
Treviso
Gorizia
Padua
Forlì-
Cesena
Perugia

Our segments

Our leading natural refrigerant, energy efficiency and energy transition technologies transform the HVACR industry.

COOLING

Our chillers are designed to operate efficiently with all refrigerants, generating cold water for climatization or industrial processes.

REFRIGERATION

Our commercial and industrial refrigeration systems are designed for high performance, quality, reliability and carbon footprint reduction through the use of natural refrigerants Ammonia and CO_2.

HEATING

Our high efficiency heat pump range using natural refrigerant CO_2 is a simple-to use, elegant solution for applications requiring high quantities of sanitary hot water.

We are driven by strong values to create a better and more sustainable world

ENVIRONMENT

Buildings consume 40% of the energy used in the developed world. HVACR systems use 60% of the energy in buildings. Our high efficiency solutions are central to reducing global warming, and we strive every day to help our customers reduce their carbon footprint by using natural refrigerants.

INNOVATION

Always leading. From pioneering the efficient and safe use of natural refrigerants to helping the industry move away from gas heat towards systems that use electricity.

COMMUNITIES

We are a European industrial champion, building clean factories that support new jobs, growth and expansion to new markets.

DIVERSITY & INCLUSION

At Enex Technologies we ensure that every colleague feels respected, valued and motivated to support our customers, every day.

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

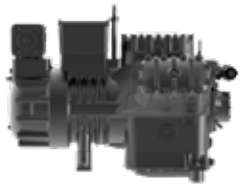
Electronic microprocessor regulation controls and manages the actuators (timing, rotation and safety). The electronic expansion valve regulates the overheating and **optimizes the unit's operations**, reducing the energy consumption. The microprocessor also monitors the water temperature, performing 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



Units equipped with semi hermetic alternative and screw compressors are 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 with alternative compressors 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 channelled into a safety area, by a pipe sized according to the current design requirements. The discharge line 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.

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**.

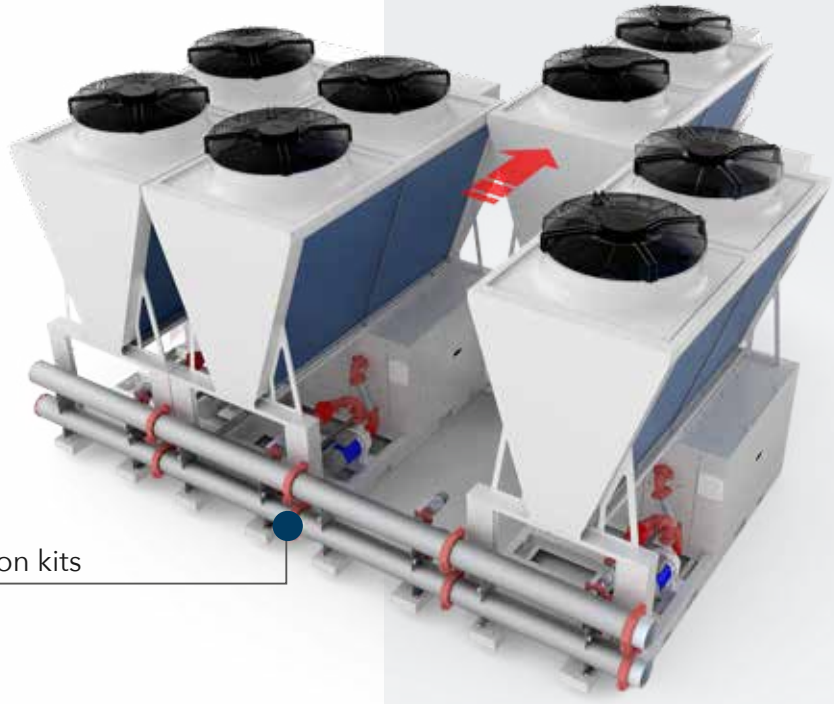
ACCESSIBILITY

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

LEGEND

- Air cooled
- Water cooled
- Units with a ground source
- Remote condensing
- Free cooling
- High efficiency
- Silenced version
- Ultra-silenced version
- ERP2021-compliant unit

- Cooling only
- Reversible unit
- Heating only
- Multipurpose Unit

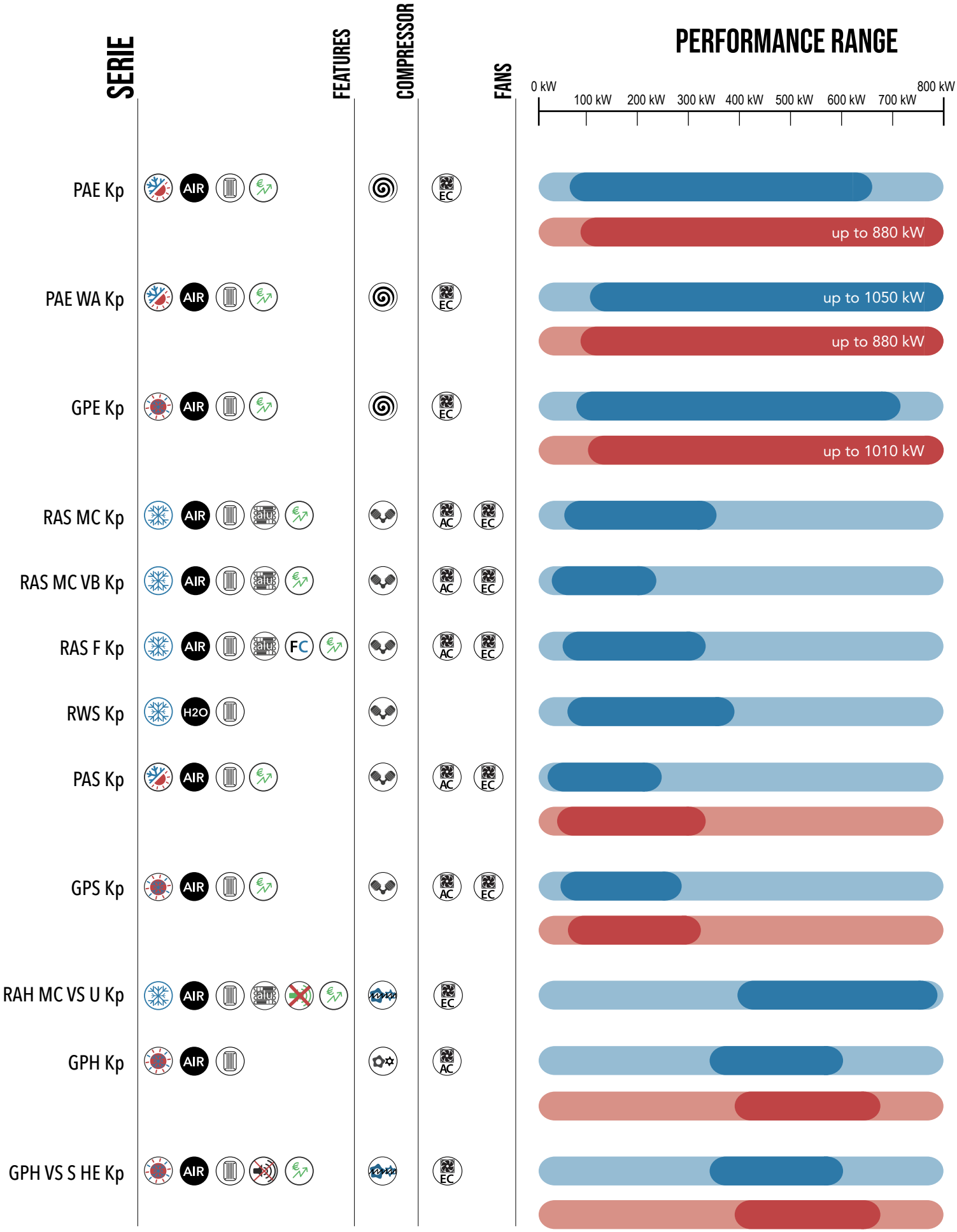
- R410a Refrigerant (Kc)
- R454B Eco-friendly refrigerant (Kr)
- R134a Refrigerant (Ka)
- R513A Eco-friendly refrigerant (Ke)
- R1234ze Eco-friendly refrigerant (Kh)
- Propane R290 Eco-friendly refrigerant (Kp)

- Plug-fan with AC motor
- Plug-fan with EC motor
- Axial fan with AC motor
- Axial fan with EC motor
- Centrifugal fan

- Scroll Compressors
- Compressori Scroll inverter
- Semi-hermetic reciprocating compressors
- Magnetic-levitation centrifugal compressors
- Semi-hermetic screw compressors
- Semi-hermetic screw inverter compressors

- Microchannel coils
- Thermodynamic recovery
- Active thermodynamic recovery

- Plate exchanger
- Shell and tube exchanger
- Shell & tube flooded exchanger


SERIE
FEATURES
COMPRESSOR
FANS
PERFORMANCE RANGE
0 kW
100 kW
200 kW
300 kW
400 kW
500 kW
600 kW
700 kW
800 kW
PAE Kp
AIR
EC
up to 880 kW
PAE WA Kp
AIR
EC
up to 1050 kW
up to 880 kW
GPE Kp
AIR
EC
up to 1010 kW
RAS MC Kp
AIR
alu
AC
EC
RAS MC VB Kp
AIR
alu
AC
EC
RAS F Kp
AIR
alu
FC
AC
EC
RWS Kp
H2O
PAS Kp
AIR
AC
EC
GPS Kp
AIR
AC
EC
RAH MC VS U Kp
AIR
alu
EC
GPH Kp
AIR
AC
GPH VS S HE Kp
AIR
EC

EVEREST 290 PAE Kp

AIR COOLED REVERSIBLE HEAT PUMPS FOR 2-PIPE SYSTEMS FOR OUTDOOR INSTALLATION

WITH SCROLL COMPRESSORS AND AXIAL FANS

Cooling capacity from 66 kW to 89 kW / Heating capacity from 89 kW to 112 kW

R290

AIR

EC

ERP 2021

HIGHLY SUSTAINABLE R290 NATURAL REFRIGERANT

VERSIONS

PAE Kp - standard version

CONTO TERMICO 2.0

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 or trio 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 813/2013, average conditions, low temperature, fixed

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 sealed from the rest of the unit. Internally, it also contains a refrigerant leakage sensor. If the sensor alarm occurs, the power supply to all equipment present is switched off with the exception of the emergency fans, which remain powered and continue to perform compartment washes instead.The units (except for the cooling only version) are equipped as standard with a condensate drip tray with a thermoregulated antifreeze heater with discharge at the base.

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. The EVEREST 881 model features compressors arranged in a tandem configuration, while the EVEREST 1101 model features compressors arranged in a trio 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 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. The microprocessor has inside the compressor starting counter function, which allows the reading of the total number of compressor starts.

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.

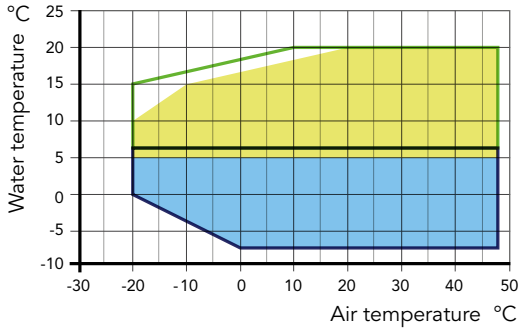
FANS
Axial fans, with external rotor directly coupled to a three-phase electronically commutated motor (EC) they have the possibility of a continuous regulation of the speed by means of a 0-10V signal completely managed by the microprocessor. Aluminum blades with wings profile are suitably designed to 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, electronic thermostatic valve (single for EVEREST 1101, double with synchronous operation for EVEREST 881). 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.

HYDRAULIC CIRCUIT
The hydraulic circuit consists of a 2-pole centrifugal electric pump that allows water to circulate inside the utility-side exchanger. A check valve that prevents the recirculation of the treated fluid in the case of a pump off and unit combined with others operating on the same water circuit. The water piping inside the unit including the Victaulic joints present are insulated in the factory with heat-insulating material of adequate 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

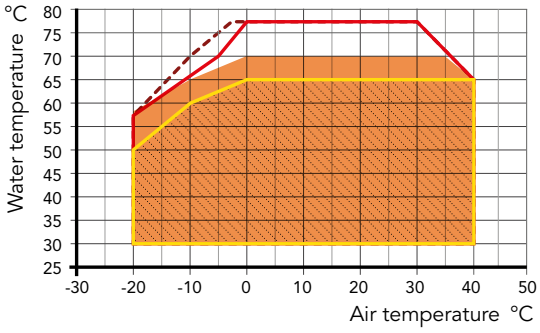


Cooling
PAE 881 Kp / PAE 1001 Kp / PAE 1001 Kp+LNF

Cooling with glycol
PAE 881 Kp / PAE 1001 Kp / PAE 1001 Kp+LNF

Cooling
PAE 881 WA Kp

Cooling with glycol
PAE 881 WA Kp



Heating mode
PAE 881 Kp

Heating mode
PAE 881 WA Kp

Heating mode
PAE 1001 Kp + LNF

Heating mode
PAE 1001 Kp

EMICON
INNOVATION AS ENERGY

ACCESSORIES

Everest 290 - PAE Kp		
Amperometer + Voltmeter	A+V	o
Pump protection crankcase	CFP	o
Refrigerant leak detector	DR	•
Axial fans with electronically commutated motor	EC	•
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 kit for single module complete with Hi-Web and Wi-Fi router	KGH1	◊
Gateway board kit up to 5 modules provided with hiweb	KGH5	◊
Gateway board kit from 6 to 10 modules provided with hiweb	KGH10	◊
Gateway kit for single module complete with Wi-Fi router	KGR1	◊
Gateway kit up to 5 units complete with Wi-Fi router	KGR5	◊
Gateway kit up to 5 units complete with Wi-Fi router	KGR10	◊
Display interface kit for refrigerant leak sensor - calibration free	KLD	◊
Power/junction board kit up to 5 modules	KP5	◊
Power/ junction board kit from 6 to 10 modules	KP10	◊
Kit tablet interface	KTA	◊
Victaulic cap + socket kit/weld	KTT	◊
Low-noise fan	LNF	o
Phase monitor	MF	•
Handling with lifting hooks	MG	o
Handling brackets for forklift	MM	•
Pressure gauges	MT	o
Single pump	P1	•
Single pump warm user side	P1C	--
Single pump cold user side	P1F	--
Rubber-type vibration dampers	PA	◊
Spring-type vibration dampers	PM	◊
Remote display	PQ	◊
Anti-freeze heater on evaporator	RA	o
Compressor overload relays	RL	•
Copper/Copper coil	RR	o
Soft-starter	SF	o
Electronic thermostatic valve	TE	•
Brine Version	VB	o
Heating cable on internal water pipes	VH	o

• Standard, o Optional (on-board), ◊ Optional (external kit), -- Not available

* Compulsory for modular system

TECHNICAL DATA

Everest PAE Kp		881	881 + LNF	1101	1101 + LNF
Cooling (1)					
Cooling capacity (EN14511)	kW	66,3	66,3	99,8	95,2
Total input power (EN14511)	kW	26,4	26,4	40,3	39,7
Total nominal current	A	50,8	50,8	73,4	72,1
EER (EN14511)	-	2,51 *	2,51 *	2,48*	2,4*
Circuit	n°	1	1	1	1
Compressors	n°	2	2	3	3
Heating (2)					
Heating capacity (EN14511)	kW	88,9	88,9	111,0	108,0
Total input power (EN14511)	kW	22,2	22,2	31,3	27,2
Total nominal current	A	45,9	45,9	65,0	60,0
SCOP (3)	-	3,87 *	3,87 *	3,55*	4,29*
COP (EN14511)	-	4,00 *	4,00 *	3,55*	3,97*
Axial fans (2)					
Number	n°	1	1	1	1
Total air flow	m^3/h	35390	35390	45710	29100
Total fan power input	kW	1,8	1,8	4,29	1,18
Total fan current	A	3,3	3,3	6,37	2,16
Refrigerant data R290					
Refrigerant charge	Kg	6,1	6,1	8,1	8,1
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	Kg	0,12	0,12	0,16	0,16
Weights					
Transport weight	Kg	835	835	1025	1025
Operating weight	Kg	840	840	1035	1035
Dimensions					
Length (excluding water manifolds)	mm	2560 *	2560 *	2560 *	2560 *
Depth	mm	1100	1100	1100	1100
Height	mm	2450 *	2450 *	2450 *	2450 *
Sound data					
Sound pressure level (4)	db(A)	86,5 **	81,5**	89,5**	82,3**
Sound power level (5)	db(A)	54,6 **	49,5**	58,0**	50,0**
Power supply					
Voltage/Phase/Frequency	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50

Performances are referred to the following conditions:
(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) Average conditions, low temperature, fixed - REG. EU 813/2013.
(4) Sound power level in accordance with ISO 3744 (In heating mode at conditions specified in point 2).

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

* In the case of a modular system with η units, multiply the data (except those marked with *) by η to obtain the total values.
** In case of modular system see paragraph "Sound data" of the technical manual.

EVEREST 290 PAE WA Kp

AIR COOLED REVERSIBLE HEAT PUMPS 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

HIGHLY SUSTAINABLE R290 NATURAL REFRIGERANT

CONTO TERMICO 2.0

ECOBONUS 65%

VERSIONS

PAE WA Kp - Warm Application 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 813/2013, average conditions, low temperature, fixed

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 sealed from the rest of the unit. Internally, it also contains a refrigerant leakage sensor. If the sensor alarm occurs, the power supply to all equipment present is switched off with the exception of the emergency fans, which remain powered and continue to perform compartment washes instead.The units (except for the cooling only version) are equipped as standard with a condensate drip tray with a thermoregulated antifreeze heater with discharge at the base.

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. The EVEREST 881 model features compressors arranged in a 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 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. The microprocessor has inside the compressor starting counter function, which allows the reading of the total number of compressor starts.

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.

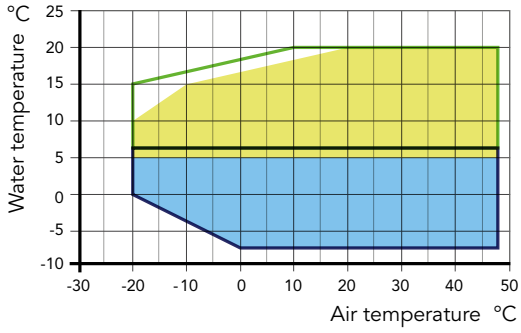
FANS
Axial fans, with external rotor directly coupled to a three-phase electronically commutated motor (EC) they have the possibility of a continuous regulation of the speed by means of a 0-10V signal completely managed by the microprocessor. Aluminum blades with wings profile are suitably designed to 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, electronic thermostatic valve (double with synchronous operation). 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.

HYDRAULIC CIRCUIT
The hydraulic circuit consists of a 2-pole centrifugal electric pump that allows water to circulate inside the utility-side exchanger. A check valve that prevents the recirculation of the treated fluid in the case of a pump off and unit combined with others operating on the same water circuit. The water piping inside the unit including the Victaulic joints present are insulated in the factory with heat-insulating material of adequate 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

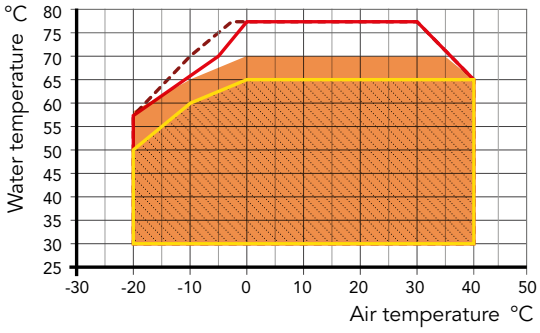


Cooling
PAE 881 Kp / PAE 1001 Kp / PAE 1001 Kp+LNF

Cooling with glycol
PAE 881 Kp / PAE 1001 Kp / PAE 1001 Kp+LNF

Cooling
PAE 881 WA Kp

Cooling with glycol
PAE 881 WA Kp



Heating mode
PAE 881 Kp

Heating mode
PAE 881 WA Kp

Heating mode
PAE 1001 Kp + LNF

Heating mode
PAE 1001 Kp

EMICON
INNOVATION AS ENERGY

ACCESSORIES

Everest 290 - PAE WA Kp		
Amperometer + Voltmeter	A+V	o
Pump protection crankcase	CFP	o
Refrigerant leak detector	DR	•
Axial fans with electronically commutated motor	EC	•
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 kit for single module complete with Hi-Web and Wi-Fi router	KGH1	◊
Gateway board kit up to 5 modules provided with hiweb	KGH5	◊
Gateway board kit from 6 to 10 modules provided with hiweb	KGH10	◊
Gateway kit for single module complete with Wi-Fi router	KGR1	◊
Gateway kit up to 5 units complete with Wi-Fi router	KGR5	◊
Gateway kit up to 5 units complete with Wi-Fi router	KGR10	◊
Display interface kit for refrigerant leak sensor - calibration free	KLD	◊
Power/junction board kit up to 5 modules	KP5	◊
Power/ junction board kit from 6 to 10 modules	KP10	◊
Kit tablet interface	KTA	◊
Victaulic cap + socket kit/weld	KTT	◊
Low-noise fan	LNF	o
Phase monitor	MF	•
Handling with lifting hooks	MG	o
Handling brackets for forklift	MM	•
Pressure gauges	MT	o
Single pump	P1	•
Single pump warm user side	P1C	--
Single pump cold user side	P1F	--
Rubber-type vibration dampers	PA	◊
Spring-type vibration dampers	PM	◊
Remote display	PQ	◊
Anti-freeze heater on evaporator	RA	o
Compressor overload relays	RL	•
Copper/Copper coil	RR	o
Soft-starter	SF	o
Electronic thermostatic valve	TE	•
Brine Version	VB	o
Heating cable on internal water pipes	VH	o

• Standard, o Optional (on-board), ◊ Optional (external kit), -- Not available

* Compulsory for modular system

TECHNICAL DATA

Everest PAE WA Kp		881	881 + LNF
Cooling [1]			
Cooling capacity (EN14511)	kW	105	105
Total input power (EN14511)	kW	29,6	29,6
Total nominal current	A	55,0	55,0
EER (EN14511)	-	3,55*	3,55*
SEER [2]	-	4,58*	4,58*
Circuit	n°	1	1
Compressors	n°	2	2
Heating [3]			
Heating capacity (EN14511)	kW	88,2	88,2
Total input power (EN14511)	kW	22,5	22,5
Total nominal current	A	46,3	46,3
SCOP [4]	-	3,77 *	3,77 *
COP (EN14511)	-	3,92 *	3,92 *
Axial fans [3]			
Number	n°	1	1
Total air flow	m^3/h	38770	38770
Total fan power input	kW	2,3	2,3
Total fan current	A	4,1	4,1
Refrigerant data R290			
Refrigerant charge	Kg	6,1	6,1
Global warming potential (GWP)	-	0,02	0,02
Equivalent CO_2 charge	Kg	0,12	0,12
Weights			
Transport weight	Kg	835	835
Operating weight	Kg	840	840
Dimensions			
Length (excluding water manifolds)	mm	2560 *	2560 *
Depth	mm	1100	1100
Height	mm	2450 *	2450 *
Sound data			
Sound pressure level [5]	db(A)	86,5 **	81,1 **
Sound power level [6]	db(A)	54,6 **	49,5 **
Power supply			
Voltage/Phase/Frequency	V/Ph/Hz	400/3/50	400/3/50

Performances are referred to the following conditions:
(1) Fluid: water - in/out temperature: 23/18°C - air 35°C.
(2) Calculated according to EU 2016/2281 - Cooling floor application (23/18°C)
(3) Fluid: water - in/out temperature: 30/35°C - air 7°C - UR.87%
(4) Average conditions, low temperature, fixed - REG. EU 813/2013
(5) Sound power level in accordance with ISO 3744 (In heating mode at conditions specified in point 3).
(6) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744

* In the case of a modular system with η units, multiply the data (except those marked with *) by η to obtain the total values.
** In case of modular system see paragraph "Sound data" of the technical manual.

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 to 101 kW / Heating capacity from 87 kW to 117 kW

R290

AIR

EC

ERP 2021

HIGHLY SUSTAINABLE R290 NATURAL REFRIGERANT

VERSIONS

GPE Kp - Multifunction unit

EVEREST 290 - GPE Kp series air/water polyvalent unit for modular installation. It is particularly suitable for residential, commercial, and industrial applications that require the simultaneous production of hot water at high temperatures and chilled water, 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 or trio 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 813/2013, average conditions, low temperature, fixed

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 sealed from the rest of the unit. Internally, it also contains a refrigerant leakage sensor. If the sensor alarm occurs, the power supply to all equipment present is switched off with the exception of the emergency fans, which remain powered and continue to perform compartment washes instead.The units (except for the cooling only version) are equipped as standard with a condensate drip tray with a thermoregulated antifreeze heater with discharge at the base.

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. The EVEREST 881 model features compressors arranged in a tandem configuration, while the EVEREST 1101 model features compressors arranged in a trio 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 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. The microprocessor has inside the compressor starting counter function, which allows the reading of the total number of compressor starts.

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.

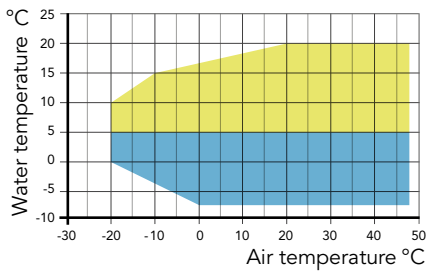
FANS
Axial fans, with external rotor directly coupled to a three-phase electronically commutated motor (EC) they have the possibility of a continuous regulation of the speed by means of a 0-10V signal completely managed by the microprocessor. Aluminum blades with wings profile are suitably designed to 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.

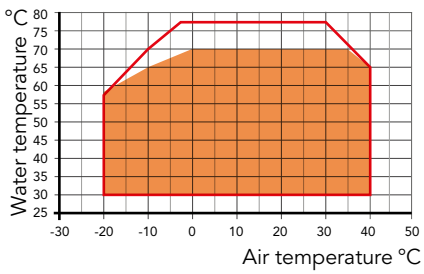
COOLING CIRCUIT
The cooling circuit includes a 4-way cycle reversing valve, liquid receiver, liquid/gas separator, electronic thermostatic valve (single for EVEREST 1101, double with synchronous operation for EVEREST 881). It also includes a liquid passage and humidity indicator, filter drier, safety valve, high-pressure switches with manual and automatic reset, service valve for the addition of the refrigerant and anti-freeze probe.

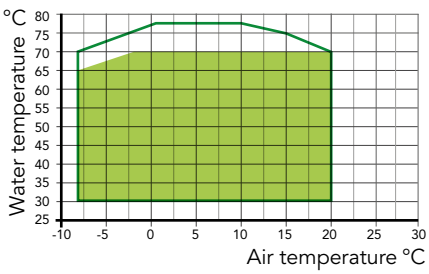
HYDRAULIC CIRCUIT
The hydraulic circuit consists of a 2-pole centrifugal electric pump that allows water to circulate inside the utility-side exchanger. A check valve that prevents the recirculation of the treated fluid in the case of a pump off and unit combined with others operating on the same water circuit. The water piping inside the unit including the Victaulic joints present are insulated in the factory with heat-insulating material of adequate 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
GPE 881 Kp / GPE 1101 Kp / GPE 1101 Kp + LNF

Cooling with glycol
GPE 881 Kp / GPE 1101 Kp / GPE 1101 Kp + LNF

Heating mode
GPE 881 Kp

Heating mode
GPE 1001 Kp / GPE 1001 Kp + LNF

Cooling while heating
GPE 881 Kp

Cooling while heating
GPE 1001 Kp / GPE 1001 Kp + LNF

EMICON
INNOVATION AS ENERGY

ACCESSORIES

Everest 290 - GPE Kp		
Amperometer + Voltmeter	A+V	o
Pump protection crankcase	CFP	o
Refrigerant leak detector	DR	•
Axial fans with electronically commutated motor	EC	•
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 kit for single module complete with Hi-Web and Wi-Fi router	KGH1	◊
Gateway board kit up to 5 modules provided with hiweb	KGH5	◊
Gateway board kit from 6 to 10 modules provided with hiweb	KGH10	◊
Gateway kit for single module complete with Wi-Fi router	KGR1	◊
Gateway kit up to 5 units complete with Wi-Fi router	KGR5	◊
Gateway kit up to 5 units complete with Wi-Fi router	KGR10	◊
Display interface kit for refrigerant leak sensor - calibration free	KLD	◊
Power/junction board kit up to 5 modules	KP5	◊
Power/ junction board kit from 6 to 10 modules	KP10	◊
Kit tablet interface	KTA	◊
Victaulic cap + socket kit/weld	KTT	◊
Low-noise fan	LNF	o
Phase monitor	MF	•
Handling with lifting hooks	MG	o
Handling brackets for forklift	MM	•
Pressure gauges	MT	o
Single pump	P1	•
Single pump warm user side	P1C	--
Single pump cold user side	P1F	--
Rubber-type vibration dampers	PA	◊
Spring-type vibration dampers	PM	◊
Remote display	PQ	◊
Anti-freeze heater on evaporator	RA	o
Compressor overload relays	RL	•
Copper/Copper coil	RR	o
Soft-starter	SF	o
Electronic thermostatic valve	TE	•
Brine Version	VB	o
Heating cable on internal water pipes	VH	o

• Standard, o Optional (on-board), ◊ Optional (external kit), -- Not available

* Compulsory for modular system

TECHNICAL DATA

Everest GPE Kp		881	881 + LNF	1101	1101 + LNF
Cooling (1)					
Cooling capacity (EN14511)	kW	72,1	72,1	99,1	93,1
Total input power (EN14511)	kW	26,6	26,6	43,1	43,3
Total nominal current	A	51,1	51,1	72,8	77,3
EER (EN14511)	-	2,71 *	2,71 *	2,3*	73,4*
Circuits	n°	1	1	1	1
Compressors	n°	2	2	3	3
Heating (2)					
Heating capacity (EN14511)	kW	86,7	86,7	116,0	111,0
Total input power (EN14511)	kW	22,2	22,2	32,8	29,0
Total nominal current	A	44,6	44,6	64,7	60,2
COP (EN14511)	-	3,91 *	3,91 *	3,54*	3,83*
Axial fans (2)					
Number	n°	1	1	1	1
Total air flow	m^3/h	35070	35070	45030	28500
Total fan power input	kW	1,70	1,70	4,69	1,28
Total fan current	A	3,20	3,20	6,45	2,19
Cooling while heating (3)					
Cooling capacity (EN14511)	kW	79,5	79,5	110,0	109,0
Heating capacity (EN14511)	kW	101	101	139	138
Total input power	kW	21,5	21,5	28,7	28,6
Current consumption	A	25,4	25,4	61,7	61,6
TER (EN14511)	-	8,40 *	8,40 *	8,68*	8,64*
Refrigerant data R290					
Refrigerant charge	Kg	6,1	6,1	8,1	8,1
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	Kg	0,12	0,12	0,16	0,16
Weights					
Transport weight	Kg	920	920	1075	1075
Operating weight	Kg	935	935	1095	1095
Dimensions					
Length (excluding water manifolds)	mm	2560 *	2560 *	2560 *	2560 *
Depth	mm	1100	1100	1100	1100
Height	mm	2450 *	2450 *	2450 *	2450 *
Sound data					
Sound pressure level (4)	db(A)	86,5 **	81,5**	89,5**	82,3**
Sound power level (5)	db(A)	54,6 **	49,5**	58,0**	50,0**
Power supply					
Voltage/Phase/Frequency	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50

Performances are referred to the following conditions:
(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 outlet user side: in temperature: 7°C - Nominal flow rate cooling-
Hot outlet user side: in temperature: 35°C - Nominal flow rate heating.
(4) Sound power level in accordance with ISO 3744 (In heating mode at conditions specified in point 2).

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

* In the case of a modular system with η units, multiply the data (except those marked with *) by η to obtain the total values.
** In case of modular system see paragraph "Sound data" of the technical manual.

EVEREST 290 RAE MC Kp

AIR-COOLED CHILLERS FOR OUTDOOR USE
WITH SCROLL COMPRESSORS AND AXIAL FANS

Cooling capacity from 80 kW

VERSIONS

RAE MC Kp - chiller version

The packaged air cooled chillers of RAE MC Kp series are suitable for outdoor installation and are particularly indicated for, commercial, and industrial applications. It is to be used where only chilled water is required. This unit is specifically designed to operate at outdoor air temperatures of up to 48°C and produce glycol solutions down to -7°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 813/2013, average conditions, low temperature, fixed

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 sealed from the rest of the unit. Internally, it also contains a refrigerant leakage sensor. If the sensor alarm occurs, the power supply to all equipment present is switched off with the exception of the emergency fans, which remain powered and continue to perform compartment washes instead.The units (except for the cooling only version) are equipped as standard with a condensate drip tray with a thermoregulated antifreeze heater with discharge at the base.

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. The EVEREST 881 model features compressors arranged in a tandem configuration, while the EVEREST 1101 model features compressors arranged in a trio 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 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. The microprocessor has inside the compressor starting counter function, which allows the reading of the total number of compressor starts.

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 air/coolant heat exchange coils are microchannel-type coils, manufactured entirely from a special aluminium alloy known as Long Life Alloy. This ensures excellent corrosion resistance (>1500h SWAAT test). The use of microchannel technology significantly reduces the weight and overall charge required for the unit to operate properly while maintaining high heat exchange performance.

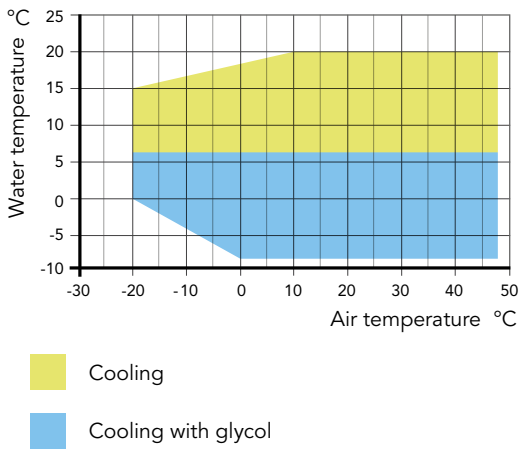
FANS
Axial fans, with external rotor directly coupled to a three-phase electronically commutated motor (EC) they have the possibility of a continuous regulation of the speed by means of a 0-10V signal completely managed by the microprocessor. Aluminum blades with wings profile are suitably designed to 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, electronic thermostatic valve (single for EVEREST 1101, double with synchronous operation for EVEREST 881). 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.

HYDRAULIC CIRCUIT
The hydraulic circuit consists of a 2-pole centrifugal electric pump that allows water to circulate inside the utility-side exchanger. A check valve that prevents the recirculation of the treated fluid in the case of a pump off and unit combined with others operating on the same water circuit. The water piping inside the unit including the Victaulic joints present are insulated in the factory with heat-insulating material of adequate 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



ACCESSORIES

Everest 290 - RAE MC Kp		
Amperometer + Voltmeter	A+V	o
Pump protection crankcase	CFP	o
Refrigerant leak detector	DR	●
Axial fans with electronically commutated motor	EC	●
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 kit for single module complete with Hi-Web and Wi-Fi router	KGH1	◊
Gateway board kit up to 5 modules provided with hiweb	KGH5	◊
Gateway board kit from 6 to 10 modules provided with hiweb	KGH10	◊
Gateway kit for single module complete with Wi-Fi router	KGR1	◊
Gateway kit up to 5 units complete with Wi-Fi router	KGR5	◊
Gateway kit up to 5 units complete with Wi-Fi router	KGR10	◊
Display interface kit for refrigerant leak sensor - calibration free	KLD	◊
Power/junction board kit up to 5 modules	KP5	◊
Power/ junction board kit from 6 to 10 modules	KP10	◊
Kit tablet interface	KTA	◊
Victaulic cap + socket kit/weld	KTT	◊
Low-noise fan	LNF	o
Phase monitor	MF	●
Handling with lifting hooks	MG	o
Handling brackets for forklift	MM	●
Pressure gauges	MT	o
Single pump	P1	●
Single pump warm user side	P1C	--
Single pump cold user side	P1F	--
Rubber-type vibration dampers	PA	◊
Spring-type vibration dampers	PM	◊
Remote display	PQ	◊
Anti-freeze heater on evaporator	RA	o
Compressor overload relays	RL	●
Copper/Copper coil	RR	o
Soft-starter	SF	o
Electronic thermostatic valve	TE	●
Brine Version	VB	o
Heating cable on internal water pipes	VH	o

• Standard, o Optional (on-board), ◊ Optional (external kit), -- Not available

* Compulsory for modular system

TECHNICAL DATA

Everest RAE Kp		881	881 + LNF	1101	1101 + LNF
Cooling (1)					
Cooling capacity (EN14511)	kW	80,0	80,0	112	110
Total input power (EN14511)	kW	26,6	26,6	36,9	37,8
Total nominal current	A	49,8	49,8	70,3	70,69
EER (EN14511)	-	3,01 *	3,01 *	3,04 *	2,91 *
SEER (2)	-	4,15 *	4,15 *	4,20 *	4,11 *
Circuits	n°	1	1	1	1
Compressors	n°	2	2	3	3
Axial fans (2)					
Number	n°	2	2	2	2
Total air flow	m^3/h	29650	29650	35422	27829
Total fan power input	kW	2,6	2,6	2,42	1,18
Total fan current	A	1,36	1,36	4,08	2,21
Refrigerant data R290					
Refrigerant charge	kg	4,9	4,9	6,1	6,1
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,098	0,098	0,12	0,12
Weights					
Transport weight	kg	750	750	948	948
Operating weight	kg	755	755	960	960
Dimensions					
Length (excluding water manifolds)	mm	2560 *	2560 *	2560 *	2560 *
Depth	mm	1100	1100	1100	1100
Height	mm	2450 *	2450 *	2450 *	2450 *
Sound data					
Sound pressure level (3)	dB(A)	86,5 **	81,1 **	89,5 **	82,3 **
Sound power level (4)	dB(A)	54,6 **	49,5 **	58 **	50 **
Power supply					
Voltage/Phase/Frequency	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50

Performances are referred to the following conditions:
(1) Fluid: water - in/out temperature: 12/7°C - air 35°C.
(2) Calcolato secondo EU.2016/2281 - Ventilconvettore
(3) Sound power level in accordance with ISO 3744 (Conditions specified in point 1).
(4) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

* In the case of a modular system with η units, multiply the data (except those marked with *) by η to obtain the total values.
** In case of modular system see paragraph "Sound data" of the technical manual.

RAS MC Kp

AIR COOLED CHILLERS FOR OUTDOOR INSTALLATION
WITH SEMIHERMETIC RECIPROCATED COMPRESSORS AND AXIAL FANS

Cooling capacity from 54 kW to 350 kW

VERSIONS

RAS MC Kp - standard version
RAS MC VB Kp - low temperature version

The packaged air cooled chillers of RAS Kp series are suitable for outdoor installation and are particularly indicated to cool pure fluid solutions for industrial applications or in air conditioning systems of the service industry where it is necessary to grant excellent performances and a very low environmental impact.

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.

For this reason the units are designed for external installation, in compliance with the European standard EN 378 and his updates.

Depending on the capacity required the units are available with 1 or 2 independents cooling circuits equipped with 1 or 2 compressors for each circuit.
Thanks to the many available options, these chillers are particularly versatile and are easily adaptable to the different types of plants, where production of chilled water is required.

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
Strong and compact structure, made of base and frame with high-thickness galvanized steel elements assembled with stainless steel rivets. All galvanized steel surfaces externally positioned are superficially coated by an oven powder-painting with colour RAL7035. The technical section which contains compressors and the other cooling circuit elements, exept the condensing part, is closed in a cabinet; if a refrigerant leak occurs the technical vane is automatically airy using an external axial fan which is able to clean all the air inside the cabinet 4 time/minute.
To reduce the sound level it is possible to insulate the technical section with a sound and fire proof standard thickness material or higher thickness material (CFU option).

COMPRESSORS
Semi hermetic alternative type optimized to operate with the hydrocarbons and realized in compliance with the safety regulation in force. The electrical motor, arranged for starts with low inrush current (PW option), is equipped with thermal protection module (installed in the electrical cabinet); the lubricating system, of forced type, is equipped with oil filters and check valves to survey the lubricating pressure and is made through a high pressure pump. Each compressor is installed on rubber type vibration dampers and is provided with switch-off valve on suction and discharge side, electronic differential pressure switch for the oil level control, crankcase heater and temperature probe on discharge side to control the compressor's discharge temperature. If the compressors are installed in "tandem" version each one is equipped with oil level sensor and oil recuperator; this device activates automatically when in one compressor the lubricant level goes down then minimum value.

USER SIDE EXCHANGER
Stainless steel plates type mono or bi circuits, thermally insulated using a flexible closed cells mattress of high thickness. Is also provided with a safety differential pressure switch which does not allows the unit operation in case of water flow lack or reduction.

COILS
The external exchanger coils are made of microchannel aluminium extruded pipes and brazed aluminium fins.
Thanks to the reduced whole volume and the high external surfaces, the microchannel coils allow a great reduction of refrigerant charge and an high heat exchange capacity.

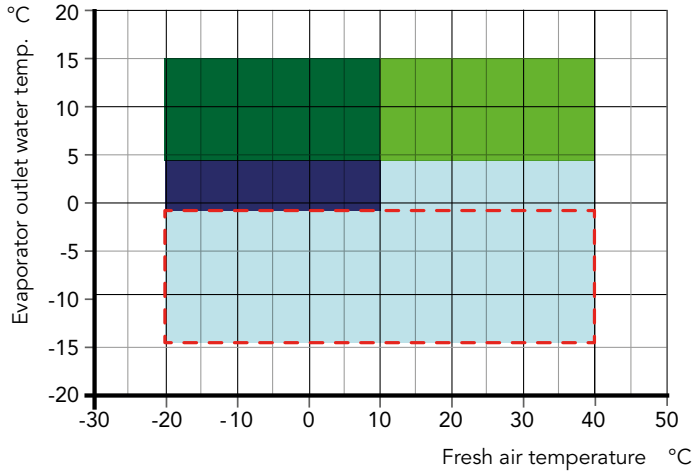
FANS
6 poles axial fans with electrical motor and external rotor directly coupled to the impeller; aluminium blades with wings profile are suitably designed to avoid any turbulence in the iar detachment zone, granting in this way the maximum efficiency with the minimum noise level. The fan is equipped with a galvanized steel protection grid painted after the construction; the fan motors are of totally closed type and have got a protection factor IP54 and winding-flooded protection thermostat.

REGENERATIVE EXCHANGER
Heat regenerative exchanger gas/fluid of plates type, installed on each circuit to grant a suitable overheating value to the compressor sucked gas and at the same time to increase the cooling circuit efficiency thanks to higher sub-cooling of condensing coil leaving fluid.
Insulated thermally using a close cells mattress of great thickness.

COOLING CIRCUIT
Indipendent cooling circuits, each provided with a shut-off valve for refrigerant charge, antifreeze probe, sight glass, dehydrating filter for R290 with wide filtering surface, high pressure side safety valve equipped with connector to the discharge refrigerant conveying piping, electronic thermostatic valve (for 1001,2402 and folowing bigger frames), pressure switches and high/low pressure gauges for R290 specifically.
All the units are equipped with a leak sensor which is able to turn off the compressors and turn on the extraction fan in case of a refrigerant leak occurs.

ELECTRICAL BOARD
Built in compliance with 61439-1 standards, inside of which all the control system elements and the ones required for electrical motors starting and protection are located, all the components are factory connected and testes.
The electrical cabinet has got a watertight structure, equipped with cable glands with protection factor of IP54.
Besides the electrical cabinet contains all the power and control devices, microprocessor electronic board complete with keyboard and display for visualizing several function available, main switch of lock-door type, isolation transformer for auxiliary circuits, automatic switches, fuses and protection switches for compressors and fans motors, terminals for general alarm and unit remote ON/OFF, spring type terminal board and the possibility to interface to BMS system.

OPERATING RANGE



Cooling mode with cond. press. contr.

Cooling mode

Cooling mode with cond. press. contr. and glycol (Only VB versions)

Cooling mode without cond. press. contr. and glycol (Only VB versions)

Brine version, cooling mode

EMICON
INNOVATION AS ENERGY

ACCESSORIES

RAS MC Kp		521	591	721	871	1001	1402
Amperometer + Voltmeter	A+V	o	o	o	o	o	o
Electrical power supply different than standard	AE	□	□	□	□	□	□
Operation in cooling mode down to -20°C	BF	o	o	o	o	o	o
Operation in cooling mode down to -10°C	BT	o	o	o	o	o	o
Soundproofed compressors cabinet with higher thickness material	CFU	o	o	o	o	o	o
Compressors inrush counter	CS	o	o	o	o	o	o
Refrigerant leakage detector	DR	•	•	•	•	•	•
Axial fans with electronic commutated motor	EC	o	o	o	o	o	o
Anticorrosive electro coating protection of condensing coils	ECP	o	o	o	o	o	o
Condensing coil protection grid	GP	o	o	o	o	o	o
High pressure double safety valve	HRV2	o	o	o	o	o	o
Victaulic insulation on pump side	I1	o	o	o	o	o	o
Victaulic insulation buffer tank side	I2	o	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o	o
MP advanced control for MSC - up to n.2 units	MP ADV	o	o	o	o	o	o
Up to two units	MS	o	o	o	o	o	o
Advanced Cascade system - up to n.6 units	MSC	o	o	o	o	o	o
Remote monitoring for units in cascade	MSHWEV	o	o	o	o	o	o
Pressure gauges	MT	•	•	•	•	•	•
Buffer tank module	MV	o	o	o	o	o	o
Pump group	P1	o	o	o	o	o	o
Higher available pressure pump group	P1H	o	o	o	o	o	o
Double pump group	P2	o	o	o	o	o	o
Higher available pressure double pump group	P2H	o	o	o	o	o	o
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊	◊
Anti-corrosive protection of the condensing coils	PCP	o	o	o	o	o	o
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o	o
Nordic option for electric panel (in/out covers for grilles + 15W/m electrc heater)	QN	o	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	•	•	•	•	•	•
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o	o
Shut-off valve on compressors suction side	RH	•	•	•	•	•	•
Compressor overload relays	RL	o	o	o	o	o	o
Condensing coil with pre-painted fins	RM	--	--	--	--	--	--
Partial heat recovery	RP	o	o	o	o	o	o
Copper/Copper coil	RR	--	--	--	--	--	--
Metal door for display	SPX	o	o	o	o	o	o
Personalized frame painting	RV	□	□	□	□	□	□
Double layer treatment of the coil	TDS	--	--	--	--	--	--
Electronic thermostatic valve	TE	o	o	o	o	•	o
Brine Version	VB	o	o	o	o	o	o
Periodic fans running during stand-by (1min/h)	VMA	o	o	o	o	o	o
Inverter on compressor	VSC	•	•	•	•	•	o
Inverter for pump	VSP1	o	o	o	o	o	o
High pressure inverter for pump	VSP1H	o	o	o	o	o	o
Inverter for parallel pumps (only one running)	VSP2	o	o	o	o	o	o
High pressure inverter for parallel pumps (only one running)	VSP2H	o	o	o	o	o	o
Hiweb	XW	o	o	o	o	o	o

• Standard, o Optional, ◊ Optional (external kit)-- Not available, □ Contact sales department

RAS MC Kp		1702	2102	2402	2902	3402
Amperometer + Voltmeter	A+V	o	o	o	o	o
Electrical power supply different than standard	AE	□	□	□	□	□
Operation in cooling mode down to -20°C	BF	o	o	o	o	o
Operation in cooling mode down to -10°C	BT	o	o	o	o	o
Soundproofed compressors cabinet with higher thickness material	CFU	o	o	o	o	o
Compressors inrush counter	CS	o	o	o	o	o
Refrigerant leakage detector	DR	•	•	•	•	•
Axial fans with electronic commutated motor	EC	o	o	o	o	o
Anticorrosive electro coating protection of condensing coils	ECP	o	o	o	o	o
Condensing coil protection grid	GP	o	o	o	o	o
High pressure double safety valve	HRV2	o	o	o	o	o
Victaulic insulation on pump side	I1	o	o	o	o	o
Victaulic insulation buffer tank side	I2	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o
MP advanced control for MSC - up to n.2 units	MP ADV	o	o	o	o	o
Up to two units	MS	o	o	o	o	o
Advanced Cascade system - up to n.6 units	MSC	o	o	o	o	o
Remote monitoring for units in cascade	MSHWEV	o	o	o	o	o
Pressure gauges	MT	•	•	•	•	•
Buffer tank module	MV	o	o	o	o	o
Pump group	P1	o	o	o	o	o
Higher available pressure pump group	P1H	o	o	o	o	o
Double pump group	P2	o	o	o	o	o
Higher available pressure double pump group	P2H	o	o	o	o	o
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊
Anti-corrosive protection of the condensing coils	PCP	o	o	o	o	o
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o
Nordic option for electric panel (in/out covers for grilles + 15W/m electrc heater)	QN	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	•	•	•	•	•
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o
Shut-off valve on compressors suction side	RH	•	•	•	•	•
Compressor overload relays	RL	o	o	o	o	o
Condensing coil with pre-painted fins	RM	--	--	--	--	--
Partial heat recovery	RP	o	o	o	o	o
Copper/Copper coil	RR	--	--	--	--	--
Metal door for display	SPX	o	o	o	o	o
Personalized frame painting	RV	□	□	□	□	□
Double layer treatment of the coil	TDS	--	--	--	--	--
Electronic thermostatic valve	TE	o	o	•	•	•
Brine Version	VB	o	o	o	o	o
Periodic fans running during stand-by (1min/h)	VMA	o	o	o	o	o
Inverter on compressor	VSC	o	o	o	o	o
Inverter for pump	VSP1	o	o	o	o	o
High pressure inverter for pump	VSP1H	o	o	o	o	o
Inverter for parallel pumps (only one running)	VSP2	o	o	o	o	o
High pressure inverter for parallel pumps (only one running)	VSP2H	o	o	o	o	o
Hiweb	XW	o	o	o	o	o

• Standard, o Optional, ◊ Optional (external kit)-- Not available, □ Contact sales department

RAS MC VB Kp		521	591	721	871	1001	1402
Amperometer + Voltmeter	A+V	o	o	o	o	o	o
Electrical power supply different than standard	AE	□	□	□	□	□	□
Operation in cooling mode down to -20°C	BF	●	●	●	●	●	●
Operation in cooling mode down to -10°C	BT	--	--	--	--	--	--
Soundproofed compressors cabinet with higher thickness material	CFU	o	o	o	o	o	o
Compressors inrush counter	CS	o	o	o	o	o	o
Refrigerant leakage detector	DR	●	●	●	●	●	●
Axial fans with electronic commutated motor	EC	o	o	o	o	o	o
Anticorrosive electro coating protection of condensing coils	ECP	o	o	o	o	o	o
Condensing coil protection grid	GP	o	o	o	o	o	o
High pressure double safety valve	HRV2	o	o	o	o	o	o
Victaulic insulation on pump side	I1	o	o	o	o	o	o
Victaulic insulation buffer tank side	I2	o	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o	o
MP advanced control for MSC - up to n.2 units	MP ADV	o	o	o	o	o	o
Up to two units	MS	o	o	o	o	o	o
Advanced Cascade system - up to n.6 units	MSC	o	o	o	o	o	o
Remote monitoring for units in cascade	MSHWEV	o	o	o	o	o	o
Pressure gauges	MT	●	●	●	●	●	●
Buffer tank module	MV	o	o	o	o	o	o
Pump group	P1	o	o	o	o	o	o
Higher available pressure pump group	P1H	o	o	o	o	o	o
Double pump group	P2	o	o	o	o	o	o
Higher available pressure double pump group	P2H	o	o	o	o	o	o
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊	◊
Anti-corrosive protection of the condensing coils	PCP	o	o	o	o	o	o
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o	o
Nordic option for electric panel (in/out covers for grilles + 15W/m electrc heater)	QN	o	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	●	●	●	●	●	●
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o	o
Shut-off valve on compressors suction side	RH	●	●	●	●	●	●
Compressor overload relays	RL	o	o	o	o	o	o
Condensing coil with pre-painted fins	RM	--	--	--	--	--	--
Partial heat recovery	RP	o	o	o	o	o	o
Copper/Copper coil	RR	--	--	--	--	--	--
Metal door for display	SPX	o	o	o	o	o	o
Personalized frame painting	RV	□	□	□	□	□	□
Double layer treatment of the coil	TDS	--	--	--	--	--	--
Electronic thermostatic valve	TE	●	●	●	●	●	●
Brine Version	VB	●	●	●	●	●	●
Periodic fans running during stand-by (1min/h)	VMA	o	o	o	o	o	o
Inverter on compressor	VSC	o	o	o	o	o	o
Inverter for pump	VSP1	o	o	o	o	o	o
High pressure inverter for pump	VSP1H	o	o	o	o	o	o
Inverter for parallel pumps (only one running)	VSP2	o	o	o	o	o	o
High pressure inverter for parallel pumps (only one running)	VSP2H	o	o	o	o	o	o
Hiweb	XW	o	o	o	o	o	o

• Standard, o Optional, ◊ Optional (external kit)-- Not available, □ Contact sales department

RAS MC VB Kp		1702	2102	2402	2902	3402	3702
Amperometer + Voltmeter	A+V	o	o	o	o	o	o
Electrical power supply different than standard	AE	□	□	□	□	□	□
Operation in cooling mode down to -20°C	BF	●	●	●	●	●	●
Operation in cooling mode down to -10°C	BT	--	--	--	--	--	--
Soundproofed compressors cabinet with higher thickness material	CFU	o	o	o	o	o	o
Compressors inrush counter	CS	o	o	o	o	o	o
Refrigerant leakage detector	DR	●	●	●	●	●	●
Axial fans with electronic commutated motor	EC	o	o	o	o	o	o
Anticorrosive electro coating protection of condensing coils	ECP	o	o	o	o	o	o
Condensing coil protection grid	GP	o	o	o	o	o	o
High pressure double safety valve	HRV2	o	o	o	o	o	o
Victaulic insulation on pump side	I1	o	o	o	o	o	o
Victaulic insulation buffer tank side	I2	o	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o	o
MP advanced control for MSC - up to n.2 units	MP ADV	o	o	o	o	o	o
Up to two units	MS	o	o	o	o	o	o
Advanced Cascade system - up to n.6 units	MSC	o	o	o	o	o	o
Remote monitoring for units in cascade	MSHWEV	o	o	o	o	o	o
Pressure gauges	MT	●	●	●	●	●	●
Buffer tank module	MV	o	o	o	o	o	o
Pump group	P1	o	o	o	o	o	o
Higher available pressure pump group	P1H	o	o	o	o	o	o
Double pump group	P2	o	o	o	o	o	o
Higher available pressure double pump group	P2H	o	o	o	o	o	o
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊	◊
Anti-corrosive protection of the condensing coils	PCP	o	o	o	o	o	o
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o	o
Nordic option for electric panel (in/out covers for grilles + 15W/m electrc heater)	QN	o	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	●	●	●	●	●	●
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o	o
Shut-off valve on compressors suction side	RH	●	●	●	●	●	●
Compressor overload relays	RL	o	o	o	o	o	o
Condensing coil with pre-painted fins	RM	--	--	--	--	--	--
Partial heat recovery	RP	o	o	o	o	o	o
Copper/Copper coil	RR	--	--	--	--	--	--
Metal door for display	SPX	o	o	o	o	o	o
Personalized frame painting	RV	□	□	□	□	□	□
Double layer treatment of the coil	TDS	--	--	--	--	--	--
Electronic thermostatic valve	TE	●	●	●	●	●	●
Brine Version	VB	●	●	●	●	●	●
Periodic fans running during stand-by (1min/h)	VMA	o	o	o	o	o	o
Inverter on compressor	VSC	o	o	o	o	o	o
Inverter for pump	VSP1	o	o	o	o	o	o
High pressure inverter for pump	VSP1H	o	o	o	o	o	o
Inverter for parallel pumps (only one running)	VSP2	o	o	o	o	o	o
High pressure inverter for parallel pumps (only one running)	VSP2H	o	o	o	o	o	o
Hiweb	XW	o	o	o	o	o	o

• Standard, o Optional, ◊ Optional (external kit)-- Not available, □ Contact sales department

TECHNICAL DATA

RAS MC Kp		521	591	721	871	1001	1402
Cooling capacity	kW	54,2	61,0	74,8	92,9	107,1	155,5
Total input power	kW	16,4	19,2	23,3	29,2	34,1	47,5
Nominal input current	A	35,1	38,2	42,5	52,1	63,2	85,5
EER	W/W	3,30	3,19	3,21	3,18	3,15	3,27
SEER (EN14825)	W/W	4,17	4,12	4,24	4,17	4,14	4,15
Circuits	n°	1	1	1	1	1	2
Compressors	n°	1	1	1	1	1	2
Refrigerant R290							
Refrigerant charge	kg	4	4	8	8	8	15
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,08	0,08	0,16	0,16	0,16	0,3
Axial fans (1)							
Quantity	n°	2	2	2	2	2	4
Total air flow	m^3/h	17760	17690	20020	40220	40070	80770
Total power input	kW	1,2	1,2	1,2	3,9	3,9	7,8
Total input current	A	5,2	5,2	5,2	7,8	7,8	15,6
Evaporator (2)							
Quantity	n°	1	1	1	1	1	1
Water flow	m^3/h	9,3	10,5	12,9	16,0	18,4	26,7
Pressure drop	kPa	29	35	17	24	31	21
Weight							
Transport weight	kg	1094	1096	1206	1304	1310	2002
Operating weight	kg	1098	1100	1212	1310	1316	2016
Dimensions							
Length	mm	2590	2590	2590	2590	2590	4840
Width	mm	1370	1370	1370	1370	1370	1370
Height	mm	2570	2570	2570	2570	2570	2570
Sound data							
Total LWA (3)	dB(A)	86,3	88,1	88,1	92,2	92,2	92,6
Total SPL 10m (4)	dB(A)	54,3	56,1	56,1	60,2	60,2	60,4
Power supply							
Voltage/phase/frequency	V/ph/Hz	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE
General electrical data							
Maximum input power	[kW]	21,2	25,2	28,2	37,9	45,9	59,8
Maximum input current	[A]	42,3	49,4	52,4	68,8	82,4	110
Inrush current	[A]	42,3	49,4	52,4	68,8	82,4	302

RAS MC Kp		1702	2102	2402	2902	3402
Cooling capacity	kW	182,8	215,7	252,1	289,7	352,9
Total input power	kW	56,4	68,2	77,0	96,5	114,1
Nominal input current	A	103,7	126,6	145,5	166,3	205,7
EER	W/W	3,24	3,16	3,28	3,00	3,09
SEER (EN14825)	W/W	4,14	4,12	4,26	4,13	4,24
Circuits	n°	2	2	2	2	2
Compressors	n°	2	2	4	4	4
Refrigerant R290						
Refrigerant charge	kg	15	17	17	16	21
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,3	0,34	0,34	0,32	0,42
Axial fans (1)						
Quantity	n°	4	4	4	4	6
Total air flow	m^3/h	80470	80110	79850	79400	119920
Total power input	kW	7,8	7,8	7,8	7,8	11,6
Total input current	A	15,6	15,6	15,6	15,6	23,4
Evaporator (2)						
Quantity	n°	1	1	1	1	1
Water flow	m^3/h	31,4	37,1	43,4	49,8	60,7
Pressure drop	kPa	28	26	33	26	36
Weight						
Transport weight	kg	2098	2156	2522	2598	3100
Operating weight	kg	2112	2178	2544	2630	3132
Dimensions						
Length	mm	4840	4840	4840	4840	4430
Width	mm	1370	1370	1370	1370	2260
Height	mm	2570	2570	2570	2570	2480
Sound data						
Total LWA (3)	dB(A)	95,7	95,7	96,0	96,0	99,2
Total SPL 10m (4)	dB(A)	63,4	63,4	63,7	63,7	66,9
Power supply						
Voltage/phase/frequency	V/ph/Hz	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE
General electrical data						
Maximum input power	[kW]	75,8	91,8	104	112	148
Maximum input current	[A]	138	165	192	204	267
Inrush current	[A]	350	412	372	396	479

(1) Ambient air temperature 35°C
(2) Fluid: Water - In/out Temperature: 12/7°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744

RAS MC VB Kp		521	591	721	871	1001	1402
Cooling capacity	kW	31,8	35,6	43,8	53,5	60,7	87,1
Total input power	kW	12,4	14,2	17,4	21,1	25,4	34,6
Nominal input current	A	31,0	32,4	35,5	44,6	53,7	71,0
EER	W/W	2,56	2,51	2,52	2,54	2,39	2,52
SEPR (5)	W/W	3,58	3,51	3,38	3,70	3,42	3,35
Circuits	n°	1	1	1	1	1	2
Compressors	n°	1	1	1	1	1	2
Refrigerant R290							
Refrigerant charge	kg	4	4	8	8	8	15
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,08	0,08	0,16	0,16	0,16	0,3
Axial fans (1)							
Quantity	n°	2	2	2	2	2	4
Total air flow	m^3/h	16250	16650	18700	31200	32600	37400
Total power input	kW	1,2	1,2	1,2	3,9	3,9	2,4
Total input current	A	5,2	5,2	5,2	7,8	7,8	10,5
Evaporator (2)							
Quantity	n°	1	1	1	1	1	1
Water flow	m^3/h	6,2	6,9	8,5	10,4	11,8	17,0
Pressure drop	kPa	27	34	16	23	29	18
Weight							
Transport weight	kg	1052	1056	1164	1242	1252	1942
Operating weight	kg	1056	1060	1170	1248	1258	1956
Dimensions							
Length	mm	2590	2590	2590	2590	2590	4840
Width	mm	1370	1370	1370	1370	1370	1370
Height	mm	2570	2570	2570	2570	2570	2570
Sound data							
Total LWA (3)	dB(A)	86,3	88,1	88,1	92,2	92,2	92,6
Total SPL 10m (4)	dB(A)	54,3	56,1	56,1	60,2	60,2	60,4
Power supply							
Voltage/phase/frequency	V/ph/Hz	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE
General electrical data							
Maximum input power	[kW]	21,2	25	27,1	37,9	45,9	54,3
Maximum input current	[A]	42,3	49,4	52,4	68,8	82,4	105
Inrush current	[A]	208	230	245	281	329	297

RAS MC VB Kp		1702	2102	2402	2902	3402	3702
Cooling capacity	kW	106,1	124,1	149,2	172,0	207,6	235,3
Total input power	kW	41,9	51,3	57,4	71,7	85,5	103,2
Nominal input current	A	88,9	107,7	124,6	138,4	172,6	208,9
EER	W/W	2,53	2,42	2,60	2,40	2,43	2,28
SEPR (5)	W/W	3,75	3,49	3,75	3,38	3,68	3,47
Circuits	n°	2	2	2	2	2	2
Compressors	n°	2	2	4	4	4	4
Refrigerant R290							
Refrigerant charge	kg	15	17	17	16	21	24
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,3	0,34	0,34	0,32	0,42	0,48
Axial fans (1)							
Quantity	n°	4	4	4	4	6	6
Total air flow	m^3/h	62000	63600	68200	73000	101400	101400
Total power input	kW	7,8	7,8	7,8	7,8	11,6	11,6
Total input current	A	15,6	15,6	15,6	15,6	23,4	23,4
Evaporator (2)							
Quantity	n°	1	1	1	1	1	1
Water flow	m^3/h	20,7	24,2	29,1	33,5	40,4	45,8
Pressure drop	kPa	26	24	31	24	35	35
Weight							
Transport weight	kg	2096	2162	2518	2600	3102	3120
Operating weight	kg	2110	2188	2540	2632	3134	3152
Dimensions							
Length	mm	4840	4840	4840	4840	4430	4430
Width	mm	1370	1370	1370	1370	2260	2260
Height	mm	2570	2570	2570	2570	2480	2480
Sound data							
Total LWA (3)	dB(A)	95,7	95,7	96,0	96,0	99,2	99,7
Total SPL 10m (4)	dB(A)	63,4	63,4	63,7	63,7	66,9	67,4
Power supply							
Voltage/phase/frequency	V/ph/Hz	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE
General electrical data							
Maximum input power	[kW]	75,8	91,8	104	112	148	180
Maximum input current	[A]	138	165	192	204	267	322
Inrush current	[A]	350	412	372	396	479	569

(1) Ambient air temperature 35°C
(2) Fluid: Water + Ethylene glycol 35% - in/out: Temperature -3/-8°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744
(5) SEPR: Medium temperature process chiller.

RAS F Kp

AIR COOLED CHILLERS FOR OUTDOOR INSTALLATION
WITH INTEGRATED FREE COOLING SYSTEM,
SEMIHERMETIC RECIPROCATED COMPRESSORS AND AXIAL FANS

Cooling capacity from 54 kW to 350 kW

VERSIONS

RAS F Kp - Free-cooling version

The packaged air cooled chillers of RAS F Kp series are suitable for outdoor installation and are particularly indicated to cool fluid solutions for industrial applications or air conditioning systems of the service industry, where it is necessary to grant excellent performances at very low environmental impact.
The refrigerant used is propane, a non-toxic hydrocarbon, even at high concentrations, with an almost null ozone depletion potential, negligible global warming potential and thermodynamic properties which allow to reach high efficiency values.
For this reason the units are designed as group for external installation, in compliance with the European standard EN378 and updates.

The **integrated Free-cooling section** allows to partially or totally recovering of cooling capacity from external air without big consumption of energy. Units are equipped with an additional coil crossed by the liquid to be chilled and invested by the complete air flow generated by the condenser fans.
As soon as the inlet Free-cooling air temperature is lower than inlet water returning from the plant, Free-cooling operation starts .

The benefit obtained by the Free-cooling system is much bigger as much lower is the external air temperature than the temperature value of fluid to be chilled. That's why such kind of units are suitable to be installed on air conditioning and refrigeration plants located where the weather annual profile is characterized by medium-low external temperatures and where the cooling demand is significant and for long periods of time.

Depending on the capacity required the units are available with 1 or 2 independents cooling circuits equipped with 1 or 2 compressors for every circuit ("tandem" configuration).
Thanks to the many available options, these chillers are particularly versatile and are easily adaptable to the different types of plants, where production of chilled water is required.

All the units are completely factory assembled, tested and supplied with refrigerant and 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

Strong and compact structure, made of base and frame with high-thickness galvanized steel elements assembled with stainless steel rivets. All galvanized steel surfaces externally positioned are superficially coated by an oven powder-painting with colour RAL7035. The technical section which contains compressors and the other cooling circuit elements, exept the condensing part, is closed in a cabinet; if a refrigerant leak occurs the technical vane is automatically airy using an external axial fan which is able to clean all the air inside the cabinet 4 time/minute.
To reduce the sound level it is possible to insulate the technical section with a sound and fire proof standard thickness material or higher thickness material (CFU option).

COMPRESSORS

Semi hermetic alternative type optimized to operate with the hydrocarbons and realized in compliance with the safety regulation in force. The electrical motor, arranged for starts with low inrush current (PW option), is equipped with thermal protection module (installed in the electrical cabinet); the lubricating system, of forced type, is equipped with oil filters and check valves to survey the lubricating pressure and is made through a high pressure pump. Each compressor is installed on rubber type vibration dampers and is provided with switch-off valve on suction and discharge side, electronic differential pressure switch for the oil level control, crankcase heater and temperature probe on discharge side to control the compressor's discharge temperature. If the compressors are installed in "tandem" version each one is equipped with oil level sensor and oil recuperator; this device activates automatically when in one compressor the lubricant level goes down then minimum value.

USER SIDE EXCHANGER

Stainless steel plates type mono or bi circuits, thermally insulated using a flexible closed cells mattress of high thickness. Is also provided with a safety differential pressure switch which does not allows the unit operation in case of water flow lack or reduction.

COILS

The external exchanger coils are made of micro-finned copper pipes arranged in staggered ranks mechanically expanded inside of an aluminium finned pack. The fin is designed to maximize the thermal exchange efficiency.
Free-cooling external coil made of optimized section copper pipes able to reduce the glycol side pressure drops with aluminium finned pack. The fluid side Free-cooling coils maximum pressure corresponds to 10 relative bar. The coil frontal section can be provide with a protection grid (GP option).

FANS

6 poles axial fans with electrical motor and external rotor directly coupled to the impeller; aluminium blades with wings profile are suitably designed to avoid any turbulence in the iar detachment zone, granting in this way the maximum efficiency with the minimum noise level. The fan is equipped with a galvanized steel protection grid painted after the construction; the fan motors are of totally closed type and have got a protection factor IP54 and winding-flooded protection thermostat.

REGENERATIVE EXCHANGER

Heat regenerative exchanger gas/fluid of plates type, installed on each circuit to grant a suitable overheating value to the compressor sucked gas and at the same time to increase the cooling circuit efficiency thanks to higher sub-cooling of condensing coil leaving fluid.
Insulated thermally using a close cells mattress of great thickness.

COOLING CIRCUIT

Indipendent cooling circuits, each provided with a shut-off valve for refrigerant charge, antifreeze probe, sight glass, dehydrating filter for R290 with wide filtering surface, high pressure side safety valve equipped with connector to the discharge refrigerant conveying piping, electronic thermostatic valve (for 1001,2402 and folowing bigger frames), pressure switches and high/low pressure gauges for R290 specifically. All the units are equipped with a leak sensor which is able to turn off the compressors and turn on the extraction fan in case of a refrigerant leak occurs.

ELECTRICAL BOARD

Built in compliance with 61439-1 standards, inside of which all the control system elements and the ones required for electrical motors starting and protection are located, all the components are factory connected and testes.
The electrical cabinet has got a watertight structure, equipped with cable glands with protection factor of IP54.
Besides the electrical cabinet contains all the power and control devices, microprocessor electronic board complete with keyboard and display for visualizing several function available, main switch of lock-door type, isolation transformer for auxiliary circuits, automatic switches, fuses and protection switches for compressors and fans motors, terminals for general alarm and unit remote ON/OFF, spring type terminal board and the possibility to interface to BMS system.

ACCESSORIES

RAS F Kp		521	591	721	871	1001	1402
Amperometer + Voltmeter	A+V	o	o	o	o	o	o
Electrical power supply different than standard	AE	□	□	□	□	□	□
Operation in cooling mode down to -20°C	BF	●	●	●	●	●	●
Soundproofed compressors cabinet with higher thickness material	CFU	o	o	o	o	o	o
Compressors inrush counter	CS	o	o	o	o	o	o
Refrigerant leakage detector	DR	●	●	●	●	●	●
Axial fans with electronic commutated motor	EC	o	o	o	o	o	o
Compressor disabled below established OAT for Free-cooling units	FCN	o	o	o	o	o	o
Condensing coil protection grid	GP	o	o	o	o	o	o
High pressure double safety valve	HRV2	o	o	o	o	o	o
Victaulic insulation on pump side	I1	o	o	o	o	o	o
Victaulic insulation buffer tank side	I2	o	o	o	o	o	o
Victaulic insulation free-cooling side	I3	o	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o	o
MP advanced control for MSC - up to n.2 units	MP ADV	o	o	o	o	o	o
Up to two units	MS	o	o	o	o	o	o
Advanced Cascade system - up to n.6 units	MSC	o	o	o	o	o	o
Remote monitoring for units in cascade	MSHWEV	o	o	o	o	o	o
Pressure gauges	MT	●	●	●	●	●	●
Buffer tank module	MV	o	o	o	o	o	o
Pump group	P1	o	o	o	o	o	o
Higher available pressure pump group	P1H	o	o	o	o	o	o
Double pump group	P2	o	o	o	o	o	o
Higher available pressure double pump group	P2H	o	o	o	o	o	o
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊	◊
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	●	●	●	●	●	●
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o	o
Shut-off valve on compressors suction side	RH	●	●	●	●	●	●
Compressor overload relays	RL	o	o	o	o	o	o
Partial heat recovery	RP	o	o	o	o	o	o
Copper/Copper coil	RR	o	o	o	o	o	o
Personalized frame painting	RV	□	□	□	□	□	□
Double layer treatment of the coil	TDS	o	o	o	o	o	o
Electronic thermostatic valve	TE	o	o	o	o	●	o
Brine Version	VB	o	o	o	o	o	o
Inverter on compressor	VSC	o	o	o	o	o	o
Inverter for pump	VSP1	o	o	o	o	o	o
High pressure inverter for pump	VSP1H	o	o	o	o	o	o
Inverter for parallel pumps (only one running)	VSP2	o	o	o	o	o	o
High pressure inverter for parallel pumps (only one running)	VSP2H	o	o	o	o	o	o

• Standard, o Optional, ◊ Optional (external kit)-- Not available, □ Contact sales department

RAS F Kp		1702	2102	2402	2902	3402
Amperometer + Voltmeter	A+V	o	o	o	o	o
Electrical power supply different than standard	AE	□	□	□	□	□
Operation in cooling mode down to -20°C	BF	●	●	●	●	●
Soundproofed compressors cabinet with higher thickness material	CFU	o	o	o	o	o
Compressors inrush counter	CS	o	o	o	o	o
Refrigerant leakage detector	DR	●	●	●	●	●
Axial fans with electronic commutated motor	EC	o	o	o	o	o
Compressor disabled below established OAT for Free-cooling units	FCN	o	o	o	o	o
Condensing coil protection grid	GP	o	o	o	o	o
High pressure double safety valve	HRV2	o	o	o	o	o
Victaulic insulation on pump side	I1	o	o	o	o	o
Victaulic insulation buffer tank side	I2	o	o	o	o	o
Victaulic insulation free-cooling side	I3	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o
MP advanced control for MSC - up to n.2 units	MP ADV	o	o	o	o	o
Up to two units	MS	o	o	o	o	o
Advanced Cascade system - up to n.6 units	MSC	o	o	o	o	o
Remote monitoring for units in cascade	MSHWEV	o	o	o	o	o
Pressure gauges	MT	●	●	●	●	●
Buffer tank module	MV	o	o	o	o	o
Pump group	P1	o	o	o	o	o
Higher available pressure pump group	P1H	o	o	o	o	o
Double pump group	P2	o	o	o	o	o
Higher available pressure double pump group	P2H	o	o	o	o	o
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	●	●	●	●	●
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o
Shut-off valve on compressors suction side	RH	●	●	●	●	●
Compressor overload relays	RL	o	o	o	o	o
Partial heat recovery	RP	o	o	o	o	o
Copper/Copper coil	RR	o	o	o	o	o
Personalized frame painting	RV	□	□	□	□	□
Double layer treatment of the coil	TDS	o	o	o	o	o
Electronic thermostatic valve	TE	o	o	●	●	●
Brine Version	VB	o	o	o	o	o
Inverter on compressor	VSC	o	o	o	o	o
Inverter for pump	VSP1	o	o	o	o	o
High pressure inverter for pump	VSP1H	o	o	o	o	o
Inverter for parallel pumps (only one running)	VSP2	o	o	o	o	o
High pressure inverter for parallel pumps (only one running)	VSP2H	o	o	o	o	o

• Standard, o Optional, ◊ Optional (external kit)-- Not available, □ Contact sales department

TECHNICAL DATA

RAS F Kp		521	591	721	871	1001	1402
Cooling capacity	kW	50,9	60,1	73,8	89,1	103,8	146,6
Total input power	kW	18,2	20,2	23,9	30,8	35,3	47,5
Nominal input current	A	35,1	37,2	41,8	55,2	65,0	83,4
EER	W/W	2,80	2,98	3,08	2,89	2,94	3,08
SEPR (6)	W/W	5,32	5,33	5,34	5,49	5,47	5,41
Circuits	n°	1	1	1	1	1	2
Compressors	n°	1	1	1	1	1	2
Refrigerant R290							
Refrigerant charge	kg	4	6	7	7	11	13
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,08	0,12	0,14	0,14	0,22	0,26
Axial fans (1)							
Quantity	n°	1	1	1	2	2	2
Total air flow	m^3/h	24120	22870	22910	46960	43780	45350
Total power input	kW	2,5	2,5	2,5	5,0	5,0	5,0
Total input current	A	5,2	5,2	5,2	10,3	10,3	10,3
Evaporator (2)							
Quantity	n°	1	1	1	1	1	1
Water flow	m^3/h	9,7	11,4	14,0	16,9	19,7	27,8
Pressure drop	kPa	35	47	22	31	41	26
Free cooling (5)							
Free Cooling capacity	kW	31,5	32,8	26,3	63,6	66,2	52,1
Water flow	m^3/h	9,7	11,4	14,0	16,9	19,7	27,8
Pressure drop	kPa	20	27	25	42	54	23
Weight							
Transport weight	kg	1066	1102	1131	1451	1517	1739
Operating weight	kg	1088	1124	1150	1492	1558	1776
Dimensions							
Length	mm	1830	1830	1830	2770	2770	2770
Width	mm	1370	1370	1370	1370	1370	1370
Height	mm	2420	2420	2420	2420	2420	2420
Sound data							
Total LWA (3)	dB(A)	88,9	90,1	91,8	94,5	94,5	94,7
Total SPL 10m (4)	dB(A)	57,0	58,2	60,0	62,5	62,5	62,7
Power supply							
Voltage/phase/frequency	V/ph/Hz	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE
General electrical data							
Maximum input power	[kW]	22,5	26,3	28,4	39,0	47,0	56,8
Maximum input current	[A]	42,0	49,2	52,2	71,3	84,9	104
Inrush current	[A]	208	230	244	283	332	296

(1) Air temperature 35°C
(2) Fluid: Water + 30% Ethylene Glycol - in/out Temperature: 12/7°C
(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.
(5) Free-Cooling: Air 3°C - Liquid 12°C (Water +30% Ethylene Glycol) at nominal flow rate
(6) SEPR: High temperature process chiller

RAS F Kp		1702	2102	2402	2902	3402
Cooling capacity	kW	174,9	208,5	222,0	283,3	332,6
Total input power	kW	59,5	70,2	83,6	96,5	118,5
Nominal input current	A	105,7	127,1	153,5	168,6	206,5
EER	W/W	2,94	2,97	2,65	2,94	2,81
SEPR (6)	W/W	5,41	5,34	5,23	5,28	5,24
Circuits	n°	2	2	2	2	2
Compressors	n°	2	2	4	4	4
Refrigerant R290						
Refrigerant charge	kg	15	19	14	19	24
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,3	0,38	0,28	0,38	0,48
Axial fans (1)						
Quantity	n°	3	3	4	4	4
Total air flow	m^3/h	67380	67670	100610	95900	89990
Total power input	kW	7,4	7,4	9,9	9,9	9,9
Total input current	A	15,5	15,5	20,6	20,6	20,6
Evaporator (2)						
Quantity	n°	1	1	1	1	1
Water flow	m^3/h	33,2	39,5	42,1	53,7	63,1
Pressure drop	kPa	35	33	41	34	45
Free cooling (5)						
Free Cooling capacity	kW	103,2	82,6	103,1	112,4	119,2
Water flow	m^3/h	33,2	39,5	42,1	53,7	63,1
Pressure drop	kPa	69	61	46	64	58
Weight						
Transport weight	kg	2180	2220	2703	2874	3100
Operating weight	kg	2246	2280	2794	2974	3178
Dimensions						
Length	mm	3790	3790	4990	4990	4990
Width	mm	1370	1370	1370	1370	1370
Height	mm	2420	2420	2420	2420	2420
Sound data						
Total LWA (3)	dB(A)	94,7	96,7	96,5	97,1	99,2
Total SPL 10m (4)	dB(A)	62,6	64,6	64,3	64,8	66,9
Power supply						
Voltage/phase/frequency	V/ph/Hz	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE
General electrical data						
Maximum input power	[kW]	75,4	91,4	106	114	146
Maximum input current	[A]	137	165	197	209	265
Inrush current	[A]	349	411	377	401	477

(1) Air temperature 35°C
(2) Fluid: Water + 30% Ethylene Glycol - in/out Temperature: 12/7°C
(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.
(5) Free-Cooling: Air 3°C - Liquid 12°C (Water +30% Ethylene Glycol) at nominal flow rate
(6) SEPR: High temperature process chiller

RWS Kp

WATER COOLED CHILLERS FOR INDOOR INSTALLATION
WITH SEMIHERMETIC RECIPROCATED COMPRESSORS

Cooling capacity from 60 kW to 390 kW

VERSIONS

RWS Kp - standard version

The packaged water cooled chillers of RWS Kp series are suitable for internal or external installation and are particularly indicated to cool fluid solutions for industrial applications or air conditioning systems of the service industry, where it is necessary to grant excellent performances at very low environmental impact.
The refrigerant used is propane, a non-toxic hydrocarbon, even at high concentrations, with an almost null ozone depletion potential, negligible global warming potential and thermodynamic properties which allow to reach high efficiency values.
For this reason the units are designed as group for internal installation, in compliance with the European standard EN378 and updates; Unit to install inside of engine rooms responding to safety regulations.

Depending on the capacity required the units are available with 1, 2 or 4 independents cooling circuits equipped with 1 compressor for every circuit.

Thanks to the many available options, these chillers are particularly versatile and are easily adaptable to the different types of plants, where production of chilled water is required.
All the units are completely factory assembled, tested and supplied with refrigerant and 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
Strong and compact structure, made of base and frame with high-thickness galvanized and painted steel elements, aluminium tubular elements and galvanized steel panels.
All galvanized steel surfaces externally positioned are superficially coated by an oven powder-painting with color RAL7035. The technical section which contains compressors and all the cooling circuit elements is closed in a cabinet; if a refrigerant leak occurs the technician vane is automatically airy using an external axial fan which is able to clean all the air inside the cabinet 4 time/minute.
To reduce the sound level the compressors cabinet is insulated with a sound and fire proof mattress.

COMPRESSORS
Semi hermetic alternative type optimized to operate with the hydrocarbons and realized in compliance with the regulation on safety in force. The electrical motor, arranged for starts with low inrush current (PW option), is equipped with thermal protection module (installed in the electrical cabinet); the lubricating system, of forced type, is equipped with oil filters and check valves to survey the lubricating pressure and is made through a high pressure pump.
Each compressor is installed on rubber type vibration dampers and is provided with switch-off valve on suction and discharge side, electronic differential pressure switch for the oil level control, crankcase heater and temperature probe on discharge side to control the compressor's discharge temperature.

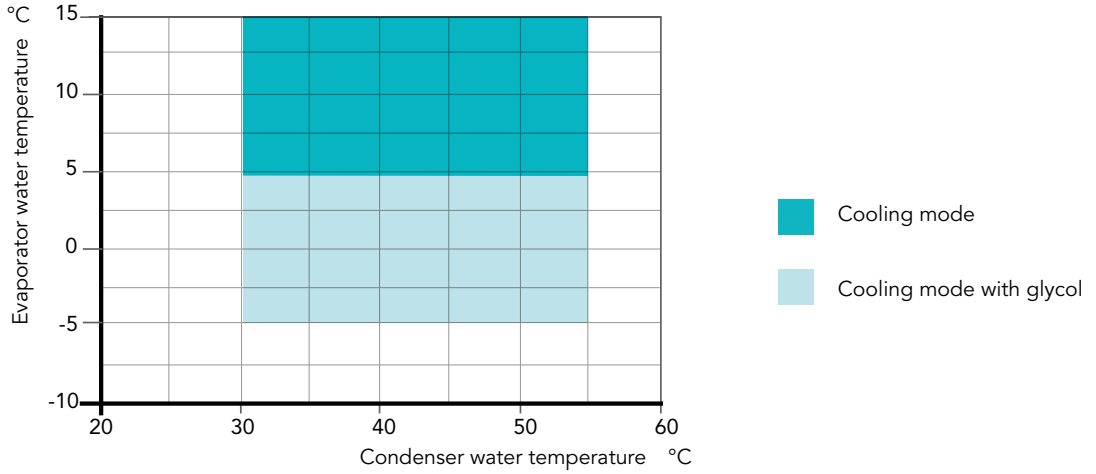
EVAPORATOR/CONDENSER
Plates AISI 316 stainless steel type evaporator and condenser mono or bi-circuit.
The evaporator is thermally insulated using a closed cells flexible mattress of a great thickness and is provided a safety differential pressure switch on the water side which does not allows the unit operation in case of water flow lack or reduction.

REGENERATIVE EXCHANGER
Heat regenerative exchanger gas/fluid of plates type, installed on each circuit to grant a suitable overheating value to the compressor sucked gas and at the same time to increase the cooling circuit efficiency thanks to higher sub-cooling of condensing coil leaving fluid.
Insulated thermally using a close cells mattress of great thickness.

COOLING CIRCUIT
Indipendent cooling circuits, each provided with a shut-off valve for refrigerant charge, antifreeze probe, sight glass, dehydrating filter for R290 with wide filtering surface, high pressure side safety valve equipped with connector to the discharge refrigerant conveying piping, electronic thermostatic valve (size 871, 1001 and 2102), pressure switches and high/low pressure gauges for R290 specifically. All the units are equipped with a leak sensor which is able to turn off the compressors and turn on the extraction fan in case of a refrigerant leak occurs.

ELECTRICAL BOARD
Built in compliance with 61439-1 standards, inside of which all the control system elements and the ones required for electrical motors starting and protection are located, all the components are factory connected and testes.
The electrical cabinet has got a watertight structure, equipped with cable glands with protection factor of IP65/66.
Besides the electrical cabinet contains all the power and control devices, microprocessor electronic board complete with keyboard and display for visualizing several function available, main switch of lock-door type, isolation transformer for auxiliary circuits, automatic switches, fuses and protection switches for compressors and fans motors, terminals for general alarm and unit remote ON/OFF, spring type terminal board and the possibility to interface to BMS system.

OPERATING RANGE



ACCESSORIES

RWS Kp		521	591	721	871	1001	1402
0-10 V for condensation control	0-10 V	o	o	o	o	o	o
Amperometer + Voltmeter	A+V	o	o	o	o	o	o
Electrical power supply different than standard	AE	□	□	□	□	□	□
Atex fan deduction with declaration	ATEX F.D.	o	o	o	o	o	o
Atex fan on the top	ATOP	o	o	o	o	o	o
Soundproofed compressors cabinet with higher thickness material	CFU	•	•	•	•	•	•
Compressors inrush counter	CS	o	o	o	o	o	o
User connections on top	CTOP	o	o	o	o	o	o
Refrigerant leakage detector	DR	•	•	•	•	•	•
High pressure double safety valve	HRV2	o	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o	o
MP advanced control for MSC - up to n.2 units	MP ADV	o	o	o	o	o	o
Up to two units	MS	o	o	o	o	o	o
Advanced Cascade system - up to n.6 units	MSC	o	o	o	o	o	o
Remote monitoring for units in cascade	MSHWEV	o	o	o	o	o	o
Pressure gauges	MT	•	•	•	•	•	•
Panel porthole for display	OPX	o	o	o	o	o	o
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊	◊
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o	o
Heating control and condenser insulation	PWS	o	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	•	•	•	•	•	•
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o	o
Shut-off valve on compressors suction side	RH	•	•	•	•	•	•
Compressor overload relays	RL	o	o	o	o	o	o
Partial heat recovery	RP	o	o	o	o	o	o
Personalized frame painting	RV	□	□	□	□	□	□
Electronic thermostatic valve	TE	o	o	o	•	•	o
Inverter on compressor	VSC	•	•	•	•	•	o
HiWeb	XW	o	o	o	o	o	o

• Standard, o Optional, ◊ Optional (external kit)-- Not available, □ Contact sales department

RWS Kp		1702	2102	2404	2904	3404
0-10 V for condensation control	0-10 V	o	o	o	o	o
Amperometer + Voltmeter	A+V	o	o	o	o	o
Electrical power supply different than standard	AE	□	□	□	□	□
Atex fan deduction with declaration	ATEX F.D.	o	o	o	o	o
Atex fan on the top	ATOP	o	o	o	o	o
Soundproofed compressors cabinet with higher thickness material	CFU	●	●	●	●	●
Compressors inrush counter	CS	o	o	o	o	o
User connections on top	CTOP	o	o	--	--	--
Refrigerant leakage detector	DR	●	●	●	●	●
High pressure double safety valve	HRV2	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o
MP advanced control for MSC - up to n.2 units	MP ADV	o	o	o	o	o
Up to two units	MS	o	o	o	o	o
Advanced Cascade system - up to n.6 units	MSC	o	o	o	o	o
Remote monitoring for units in cascade	MSHWEV	o	o	o	o	o
Pressure gauges	MT	●	●	●	●	●
Panel porthole for display	OPX	o	o	o	o	o
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o
Heating control and condenser insulation	PWS	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	●	●	●	●	●
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o
Shut-off valve on compressors suction side	RH	●	●	●	●	●
Compressor overload relays	RL	o	o	o	o	o
Partial heat recovery	RP	o	o	o	o	o
Personalized frame painting	RV	□	□	□	□	□
Electronic thermostatic valve	TE	o	●	o	o	o
Inverter on compressor	VSC	●	●	●	●	●
HiWeb	XW	o	o	o	o	o

• Standard, o Optional, ◊ Optional (external kit)-- Not available, □ Contact sales department

TECHNICAL DATA

RWS Kp		521	591	721	871	1001
Cooling capacity	kW	60,3	67,8	81,6	97,5	114,0
Total input power	kW	13,3	15,3	18,4	22,3	27,0
Nominal input current	A	27,0	28,7	32,2	39,5	48,9
EER	W/W	4,54	4,45	4,43	4,37	4,22
SEER (EN14825)	W/W	5,38	5,25	5,48	5,35	5,25
Circuits	n°	1	1	1	1	1
Compressors	n°	1	1	1	1	1
Refrigerant R290						
Refrigerant charge	kg	3	3	4,5	4,5	5
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,06	0,06	0,09	0,09	0,1
Condenser (1)						
Quantity	n°	1	1	1	1	1
Water flow	m^3/h	12,7	14,3	17,2	20,6	24,3
Pressure drop	kW	25,2	31,3	16,1	22,2	29,9
Evaporator (2)						
Quantity	n°	1	1	1	1	1
Water flow	m^3/h	10,4	11,7	14,0	16,8	19,7
Pressure drop	kPa	31,9	39,5	17,5	24,1	32,2
Weight						
Transport weight	kg	716	718	798	876	882
Operating weight	kg	720	722	804	882	888
Dimensions						
Length	mm	1930	1930	1930	1930	1930
Width	mm	1050	1050	1050	1050	1050
Height	mm	1650	1650	1650	1650	1650
Sound data						
Total LWA (3)	dB(A)	78	81	81	85	85
Total SPL 10m (4)	dB(A)	47	49	49	54	54
Power supply						
Voltage/phase/frequency	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
General electrical data						
Maximum input power	[kW]	20	24	27	35	42
Maximum input current	[A]	36,9	44	47	61	74,6
Inrush current	[A]	36,9	44	47	61	74,6

(1) Fluid: water- in/out temperature: 30/35°C.
(2) Fluid: water - in/out temperature: 12/7°C.
(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.

RWS Kp		1402	1702	2102	2404	2904	3404
Cooling capacity	kW	162,0	184,0	234,0	286,0	326,0	389,0
Total input power	kW	36,7	43,6	52,8	58,5	71,9	86,7
Nominal input current	A	63,6	77,1	95,7	113,0	126,0	154,0
EER	W/W	4,41	4,45	4,43	4,89	4,53	4,49
SEER (EN14825)	W/W	5,23	5,26	5,12	5,45	5,30	5,25
Circuits	n°	2	2	2	4	4	4
Compressors	n°	2	2	2	4	4	4
Refrigerant R290							
Refrigerant charge	kg	8	8,5	11	13	17	17
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,16	0,17	0,22	0,26	0,34	0,34
Condenser (1)							
Quantity	n°	1	1	1	2	2	2
Water flow	m^3/h	34,2	40,8	49,3	59,2	68,5	81,8
Pressure drop	kW	44,3	39,6	55,5	34,2	28,9	39,6
Evaporator (2)							
Quantity	n°	1	1	1	2	2	2
Water flow	m^3/h	28,0	33,4	40,3	49,2	56,1	66,9
Pressure drop	kPa	20,9	28,8	27,5	16,6	21,1	28,8
Weight							
Transport weight	kg	1262	1390	1490	2504	2596	2788
Operating weight	kg	1276	1404	1516	2534	2626	2818
Dimensions							
Length	mm	3420	3420	3420	5650	5650	5650
Width	mm	1050	1050	1050	1200	1200	1200
Height	mm	1650	1650	1650	1650	1650	1650
Sound data							
Total LWA (3)	dB(A)	86	88	88	90	90	91
Total SPL 10m (4)	dB(A)	55	57	57	58	58	59
Power supply							
Voltage/phase/frequency	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
General electrical data							
Maximum input power	[kW]	52	68	84	96	104	136
Maximum input current	[A]	94	122	149	176	188	244
Inrush current	[A]	286	334	396	356	380	456

(1) Fluid: water- in/out temperature: 30/35°C.
(2) Fluid: water - in/out temperature: 12/7°C.
(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.

PAS Kp

AIR COOLED HEAT PUMPS FOR OUTDOOR INSTALLATION
WITH SEMIHERMETIC RECIPROCATED COMPRESSORS AND AXIAL FANS

Cooling capacity from 36 kW to 290 kW

VERSIONS

PAS Kp - standard version

The packaged air cooled heatpumps of PAS Kp series are suitable for outdoor installation and can be used to cool pure fluid solutions for industrial applications or in air conditioning systems of the service industry, where it is necessary to grant excellent performances and a very low environmental impact.

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.

For this reason the units are designed for external installation, in compliance with the European standard EN 378 and his updates.

Depending on the required heating capacity, the units are available in mono or multi compressor with 1 or 2 independent cooling circuits.
Thanks to the many available options, these units are particularly versatile and are easily adaptable to the different types of plant, where production of chilled water is required.

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 813/2013, to working conditions 30/35°C on the user side.

MAIN COMPONENTS

FRAME
Strong and compact structure, made of base and frame with high-thickness galvanized steel elements assembled with stainless steel rivets. All galvanized steel surfaces externally positioned are superficially coated by an oven powder-painting with colour RAL7035. The technical section which contains compressors and the other cooling circuit elements, exept the condensing part, is closed in a cabinet; if a refrigerant leak occurs the technical vane is automatically airy using an external axial fan which is able to clean all the air inside the cabinet 4 time/minute.
To reduce the sound level it is possible to insulate the technical section with a sound and fire proof standard thickness material or higher thickness material (CFU option).

COMPRESSORS
Semi hermetic alternative type optimized to operate with the hydrocarbons and realized in compliance with the safety regulation in force. The electrical motor, arranged for starts with low inrush current (PW option), is equipped with thermal protection module (installed in the electrical cabinet); the lubricating system, of forced type, is equipped with oil filters and check valves to survey the lubricating pressure and is made through a high pressure pump. Each compressor is installed on rubber type vibration dampers and is provided with switch-off valve on suction and discharge side, electronic differential pressure switch for the oil level control, crankcase heater and temperature probe on discharge side to control the compressor's discharge temperature. If the compressors are installed in "tandem" version each one is equipped with oil level sensor and oil recuperator; this device activates automatically when in one compressor the lubricant level goes down then minimum value.

USER SIDE EXCHANGER
Stainless steel plates type mono or bi circuits, thermally insulated using a flexible closed cells mattress of high thickness. Is also provided with a safety differential pressure switch which does not allows the unit operation in case of water flow lack or reduction.

COILS
The external heat exchanger coils are made of micro-finned copper pipes placed in asymmetrical rows and mechanically expanded in an aluminium frame. The aluminium fin is supplied with standard hydrophilic treatment and is designed in order to ensure maximum heat exchange efficiency. The defrosting of the hot-gas finned exchangers is pressure-controlled.

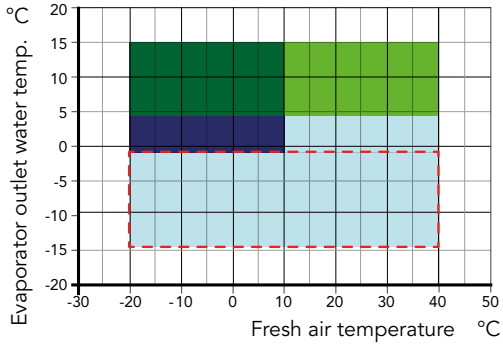
FANS
6 poles axial fans with electrical motor and external rotor directly coupled to the impeller; aluminium blades with wings profile are suitably designed to avoid any turbulence in the iar detachment zone, granting in this way the maximum efficiency with the minimum noise level. The fan is equipped with a galvanized steel protection grid painted after the construction; the fan motors are of totally closed type and have got a protection factor IP54 and winding-flooded protection thermostat.

REGENERATIVE EXCHANGER
Heat regenerative exchanger gas/fluid of plates type, installed on each circuit to grant a suitable overheating value to the compressor sucked gas and at the same time to increase the cooling circuit efficiency thanks to higher sub-cooling of condensing coil leaving fluid.
Insulated thermally using a close cells mattress of great thickness.

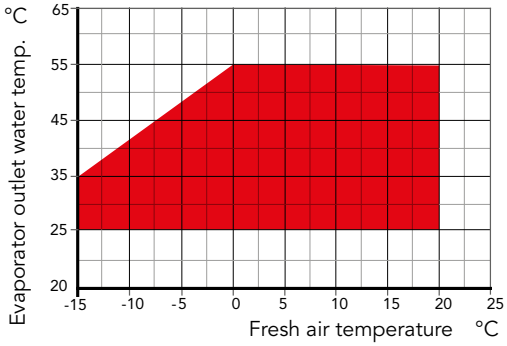
COOLING CIRCUIT
Indipendent cooling circuits, each provided with a shut-off valve for refrigerant charge, antifreeze probe, sight glass, dehydrating filter for R290 with wide filtering surface, high pressure side safety valve equipped with connector to the discharge refrigerant conveying piping, electronic thermostatic valve (for 1001, 2402 and bigger frames), pressure switches and high/low pressure gauges for R290 specifically.
All the units are equipped with a leak sensor which is able to turn off the compressors and turn on the extraction fan in case of a refrigerant leak occurs.

ELECTRICAL BOARD
Built in compliance with 61439-1 standards, inside of which all the control system elements and the ones required for electrical motors starting and protection are located, all the components are factory connected and testes.
The electrical cabinet has got a watertight structure, equipped with cable glands with protection factor of IP54.
Besides the electrical cabinet contains all the power and control devices, microprocessor electronic board complete with keyboard and display for visualizing several function available, main switch of lock-door type, isolation transformer for auxiliary circuits, automatic switches, fuses and protection switches for compressors and fans motors, terminals for general alarm and unit remote ON/OFF, spring type terminal board and the possibility to interface to BMS system.

OPERATING RANGE



Cooling mode with cond. press. contr.
Cooling mode
Cooling mode with cond. press. contr. and glycol (Only VB versions)



Cooling mode withglycol (Only VB versions)
Brine version, cooling mode
Heating mode

ACCESSORIES

PAS Kp		451	521	651	731	881	1001	1201
Amperometer + Voltmeter	A+V	o	o	o	o	o	o	o
Electrical power supply different than standard	AE	□	□	□	□	□	□	□
Operation in cooling mode down to -20°C	BF	o	o	o	o	o	o	o
Operation in cooling mode down to -10°C	BT	•	•	•	•	•	•	•
Soundproofed compressors cabinet with higher thickness material	CFU	o	o	o	o	o	o	o
Compressors inrush counter	CS	o	o	o	o	o	o	o
Refrigerant leakage detector	DR	•	•	•	•	•	•	•
Axial fans with electronic commutated motor	EC	o	o	o	o	o	o	o
Anticorrosive electro coating protection of condensing coils	ECP	--	--	--	--	--	--	--
Condensing coil protection grid	GP	o	o	o	o	o	o	o
High pressure double safety valve	HRV2	o	o	o	o	o	o	o
Victaulic insulation on pump side	I1	o	o	o	o	o	o	o
Victaulic insulation buffer tank side	I2	--	--	--	--	--	--	--
RS 485 Serial interface	IH	o	o	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o	o	o
MP advanced control for MSC - up to n.2 units	MP ADV	o	o	o	o	o	o	o
Up to two units	MS	o	o	o	o	o	o	o
Advanced Cascade system - up to n.6 units	MSC	o	o	o	o	o	o	o
Remote monitoring for units in cascade	MSHWEV	o	o	o	o	o	o	o
Pressure gauges	MT	•	•	•	•	•	•	•
Buffer tank module	MV	--	--	--	--	--	--	--
Pump group	P1	o	o	o	o	o	o	o
Higher available pressure pump group	P1H	o	o	o	o	o	o	o
Double pump group	P2	o	o	o	o	o	o	o
Higher available pressure double pump group	P2H	o	o	o	o	o	o	o
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊	◊	◊
Anti-corrosive protection of the condensing coils	PCP	--	--	--	--	--	--	--
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o	o	o
Nordic option for electric panel (in/out covers for grilles + 15W/m electrc heater)	QN	o	o	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	•	•	•	•	•	•	•
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o	o	o
Shut-off valve on compressors suction side	RH	•	•	•	•	•	•	•
Compressor overload relays	RL	o	o	o	o	o	o	o
Condensing coil with pre-painted fins	RM	o	o	o	o	o	o	o
Partial heat recovery	RP	o	o	o	o	o	o	o
Copper/Copper coil	RR	o	o	o	o	o	o	o
Metal door for display	SPX	o	o	o	o	o	o	o
Personalized frame painting	RV	□	□	□	□	□	□	□
Double layer treatment of the coil	TDS	o	o	o	o	o	o	o
Electronic thermostatic valve	TE	o	o	o	o	o	o	•
Brine Version	VB	o	o	o	o	o	o	o
Periodic fans running during stand-by (1min/h)	VMA	--	--	--	--	--	--	--
Inverter on compressor	VSC	o	o	o	o	o	o	o
Inverter for pump	VSP1	o	o	o	o	o	o	o
High pressure inverter for pump	VSP1H	o	o	o	o	o	o	o
Inverter for parallel pumps (only one running)	VSP2	o	o	o	o	o	o	o
High pressure inverter for parallel pumps (only one running)	VSP2H	o	o	o	o	o	o	o
Hiweb	XW	o	o	o	o	o	o	o

• Standard, o Optional, ◊ Optional (external kit)-- Not available, □ Contact sales department

PAS Kp		1502	1702	2102	2502	2902	3402
Amperometer + Voltmeter	A+V	o	o	o	o	o	o
Electrical power supply different than standard	AE	□	□	□	□	□	□
Operation in cooling mode down to -20°C	BF	o	o	o	o	o	o
Operation in cooling mode down to -10°C	BT	●	●	●	●	●	●
Soundproofed compressors cabinet with higher thickness material	CFU	o	o	o	o	o	o
Compressors inrush counter	CS	o	o	o	o	o	o
Refrigerant leakage detector	DR	●	●	●	●	●	●
Axial fans with electronic commutated motor	EC	o	o	o	o	o	o
Anticorrosive electro coating protection of condensing coils	ECP	--	--	--	--	--	--
Condensing coil protection grid	GP	o	o	o	o	o	o
High pressure double safety valve	HRV2	o	o	o	o	o	o
Victaulic insulation on pump side	I1	o	o	o	o	o	o
Victaulic insulation buffer tank side	I2	--	--	--	--	--	--
RS 485 Serial interface	IH	o	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o	o
MP advanced control for MSC - up to n.2 units	MP ADV	o	o	o	o	o	o
Up to two units	MS	o	o	o	o	o	o
Advanced Cascade system - up to n.6 units	MSC	o	o	o	o	o	o
Remote monitoring for units in cascade	MSHWEV	o	o	o	o	o	o
Pressure gauges	MT	●	●	●	●	●	●
Buffer tank module	MV	--	--	--	--	--	--
Pump group	P1	o	o	o	o	o	o
Higher available pressure pump group	P1H	o	o	o	o	o	o
Double pump group	P2	o	o	o	o	o	o
Higher available pressure double pump group	P2H	o	o	o	o	o	o
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊	◊
Anti-corrosive protection of the condensing coils	PCP	--	--	--	--	--	--
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o	o
Nordic option for electric panel (in/out covers for grilles + 15W/m electrc heater)	QN	o	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	●	●	●	●	●	●
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o	o
Shut-off valve on compressors suction side	RH	●	●	●	●	●	●
Compressor overload relays	RL	o	o	o	o	o	o
Condensing coil with pre-painted fins	RM	o	o	o	o	o	o
Partial heat recovery	RP	o	o	o	o	o	o
Copper/Copper coil	RR	o	o	o	o	o	o
Metal door for display	SPX	o	o	o	o	o	o
Personalized frame painting	RV	□	□	□	□	□	□
Double layer treatment of the coil	TDS	o	o	o	o	o	o
Electronic thermostatic valve	TE	o	o	o	●	●	●
Brine Version	VB	o	o	o	o	o	o
Periodic fans running during stand-by (1min/h)	VMA	--	--	--	--	--	--
Inverter on compressor	VSC	o	o	o	o	o	o
Inverter for pump	VSP1	o	o	o	o	o	o
High pressure inverter for pump	VSP1H	o	o	o	o	o	o
Inverter for parallel pumps (only one running)	VSP2	o	o	o	o	o	o
High pressure inverter for parallel pumps (only one running)	VSP2H	o	o	o	o	o	o
Hiweb	XW	o	o	o	o	o	o

• Standard, o Optional, ◊ Optional (external kit)-- Not available, □ Contact sales department

TECHNICAL DATA

PAS Kp		451	521	651	731	881	1001	1201
Cooling capacity	kW	36,6	44,9	53,9	61,0	76,4	90,9	104,3
Total input power	kW	12,5	14,4	16,4	19,1	24,0	29,3	35,4
Nominal input current	A	25,9	27,8	34,0	37,0	42,8	52,0	63,8
EER		2,94	3,12	3,28	3,19	3,18	3,10	2,94
Circuits	n°	1	1	1	1	1	1	1
Compressors	n°	1	1	1	1	1	1	1
Refrigerant R290								
Refrigerant charge	kg	5,5	6,5	9,5	9,5	10	13	13
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,11	0,13	0,19	0,19	0,2	0,26	0,26
Axial fans (1)								
Quantity	n°	1	1	2	2	2	2	2
Total air flow	m^3/h	21620	20920	10460	10460	21560	20850	20850
Total power input	kW	1,9	1,9	3,8	3,8	3,8	3,8	3,8
Total input current	A	3,9	3,9	7,8	7,8	7,8	7,8	7,8
Evaporator (2)								
Quantity	n°	1	1	1	1	1	1	1
Water flow	m^3/h	6,3	7,7	9,3	10,5	13,1	15,6	17,9
Pressure drop	kPa	35	47	28	35	17	23	29
Heat pump mode (3)								
Nominal heating capacity	kW	43,0	50,7	61,1	69,4	84,8	103,3	119,5
Total input power	kW	13,1	15,0	16,6	19,1	24,0	29,3	34,4
Total nominal current	A	26,9	28,9	34,7	37,5	43,0	52,3	62,5
SCOP	-	3,28	3,27	3,56	3,47	3,37	3,45	3,35
COP	-	3,28	3,38	3,69	3,63	3,54	3,53	3,48
Weight								
Transport weight	kg	882	946	1258	1280	1350	1416	1466
Operating weight	kg	884	948	1262	1284	1356	1422	1472
Dimensions								
Length	mm	1660	1660	2590	2590	2590	2590	2590
Width	mm	1370	1370	1370	1370	1370	1370	1370
Height	mm	2420	2420	2420	2420	2420	2420	2420
Sound data								
Total LWA (4)	dB(A)	84,3	84,6	84,8	88,6	91,0	93,2	93,2
Total SPL 10m (5)	dB(A)	52,4	52,7	52,9	56,6	59,0	61,2	61,2
Power supply								
Voltage/phase/frequency	V/ph/Hz	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE
General electrical data								
Maximum input power	[kW]	16,9	17,8	21,2	25,2	29,9	37,9	45,9
Maximum input current	[A]	32,6	34,1	42,3	49,4	54,8	68,8	82,4
Inrush current	[A]	121	150	208	230	247	281	329

(1) Air temperature 35°C
(2) Fluid: water - in/out temperature: 12/7°C
(3) Air temperature 7°C, RH 87%, water 40/45°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.

PAS Kp		1502	1702	2102	2502	2902	3402
Cooling capacity	kW	129,7	148,4	180,6	209,5	248,2	296,8
Total input power	kW	40,0	47,5	58,7	70,9	78,4	96,0
Nominal input current	A	74,8	83,6	104,0	128,2	145,5	169,8
EER		3,24	3,13	3,08	2,96	3,17	3,09
Circuits	n°	2	2	2	2	2	2
Compressors	n°	2	2	2	2	4	4
Refrigerant R290							
Refrigerant charge	kg	14,5	19,5	37,5	38	45	57
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,29	0,39	0,75	0,76	0,9	1,14
Axial fans (1)							
Quantity	n°	3	3	4	4	5	5
Total air flow	m^3/h	21570	20860	20850	20850	20850	25050
Total power input	kW	5,7	5,7	7,6	7,6	9,5	12,4
Total input current	A	11,7	11,7	15,6	15,6	19,5	25,8
Evaporator (2)							
Quantity	n°	1	1	1	1	1	1
Water flow	m^3/h	22,3	25,5	31,1	36,0	42,7	51,1
Pressure drop	kPa	15	19	27	24	32	26
Heat pump mode (3)							
Nominal heating capacity	kW	142,2	168,0	209,3	239,8	280,1	333,8
Total input power	kW	38,7	46,2	58,8	68,0	76,7	94,2
Total nominal current	A	73,6	82,2	104,5	123,9	144,1	168,4
SCOP	-	3,30	3,25	3,29	3,29	3,38	3,27
COP	-	3,68	3,63	3,56	3,53	3,65	3,54
Weight							
Transport weight	kg	1798	1876	2246	2366	2918	3106
Operating weight	kg	1812	1890	2260	2388	2940	3138
Dimensions							
Length	mm	3630	3630	4990	4990	6030	6030
Width	mm	1370	1370	1370	1370	1370	1370
Height	mm	2420	2420	2420	2420	2420	2420
Sound data							
Total LWA (4)	dB(A)	93,7	93,7	95,2	95,2	95,2	95,5
Total SPL 10m (5)	dB(A)	61,6	61,6	63,0	63,0	62,9	63,1
Power supply							
Voltage/phase/frequency	V/ph/Hz	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE	400/3/50+N+PE
General electrical data							
Maximum input power	[kW]	53,8	57,8	75,8	91,8	106	116
Maximum input current	[A]	99,7	106	138	165	196	214
Inrush current	[A]	280	298	350	412	376	406

(1) Air temperature 35°C
(2) Fluid: water - in/out temperature: 12/7°C
(3) Air temperature 7°C, RH 87%, water 40/45°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.

GPS Kp

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

WITH SEMIHERMETIC RECIPROCATED COMPRESSORS AND AXIAL FANS

Cooling capacity from 49 kW to 285 kW

VERSIONS

GPS Kp - standard version
GPS VS HE Kp - high efficiency version

Multipurpose units, ideal for all installed applications where simultaneous production of hot and cold water is required, through the use of dedicated, independent circuits in 2- or 4-pipe hydronic systems. The polyvalent represents an effective and convenient alternative to traditional solutions (Boiler + Chiller) with a particular energy benefit in the conditions of demand for both fluids, hot and cold, concurrently.

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.

For this reason the units are designed for external installation, in compliance with the European standard EN 378 and his updates.

Depending on the required heating capacity, the units are available in mono or multi compressor with 1 or 2 independent cooling circuits.
Thanks to the many available options, these heat pumps are particularly versatile and are easily adaptable to the different types of plant, where production of chilled water is required.

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 813/2013, average conditions, low temperature, fixed

MAIN COMPONENTS

FRAME
Strong and compact structure, made of base and frame with high-thickness galvanized steel elements assembled with stainless steel rivets. All galvanized steel surfaces externally positioned are superficially coated by an oven powder-painting with colour RAL7035. The technical section which contains compressors and the other cooling circuit elements, exept the condensing part, is closed in a cabinet; if a refrigerant leak occurs the technical vane is automatically airy using an external axial fan which is able to clean all the air inside the cabinet 4 time/minute.To reduce the sound level it is possible to insulate the technical section with a sound and fire proof standard thickness material or higher thickness material (CFU option).

COMPRESSORS
Semi hermetic alternative type optimized to operate with the hydrocarbons and realized in compliance with the safety regulation in force. The electrical motor, arranged for starts with low inrush current, is equipped with thermal protection module (installed in the electrical cabinet); the lubricating system, of forced type, is equipped with oil filters and check valves to survey the lubricating pressure and is made through a high pressure pump. Each compressor operating on a single independent circuit is installed on rubber type vibration dampers and is provided with switch-off valve on suction and discharge side, electronic differential pressure switch for the oil level control, crankcase heater and temperature probe on discharge side to control the compressor's discharge temperature. For the high-efficiency (HE) version, a compressor is controlled by external variable frequency drive to achieve higher efficiency performance during operation at reduced load.

USER SIDE EXCHANGER
Stainless steel plates type mono or bi circuits, thermally insulated using a flexible closed cells mattress of high thickness. Is also provided with a safety differential pressure switch which does not allows the unit operation in case of water flow lack or reduction.

COILS
The external heat exchanger coils are made of micro-finned copper pipes placed in asymmetrical rows and mechanically expanded in an aluminium frame. The aluminium fin is supplied with standard hydrophilic treatment and is designed in order to ensure maximum heat exchange efficiency. The defrosting of the hot-gas finned exchangers is pressure-controlled.

FANS
Six-pole axial fans with an external-rotor electric motor directly coupled to the impeller and equipped with an electronic device of the phase-cut type (standard version) for modulating control of the condensing pressure by varying the rotation speed of the fans. For the high-efficiency (HE) version, the fans are of the EC type, which, in addition to more precise control of air flow, allow the unit to operate in chiller mode down to -20°C outdoor temperature. The blades are made of aluminum, with an airfoil specifically designed not to create turbulence in the air detachment area, thus ensuring maximum efficiency with the lowest noise emission. The fan is complete with galvanized steel accident protection painted after construction. The fan motors are totally enclosed type and have IP54 rating and protection thermostat built into the windings.

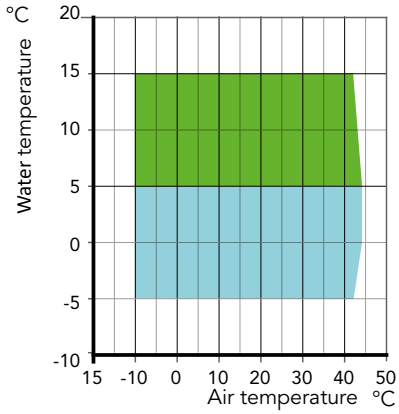
REGENERATIVE EXCHANGER
Heat regenerative exchanger gas/fluid of plates type, installed on each circuit to grant a suitable overheating value to the compressor sucked gas and at the same time to increase the cooling circuit efficiency thanks to higher sub-cooling of condensing coil leaving fluid.Insulated thermally using a close cells mattress of great thickness.

COOLING CIRCUIT
Indipendent cooling circuits, each provided with a shut-off valve for refrigerant charge, antifreeze probe, sight glass, dehydrating filter for R290 with wide filtering surface, high pressure side safety valve equipped with connector to the discharge refrigerant conveying piping, electronic thermostatic valve, pressure switches and high/low pressure gauges for R290 specifically. All the units are equipped with a leak sensor which is able to turn off the compressors and turn on the extraction fan in case of a refrigerant leak and activating forced ventilation of the technical compartment.

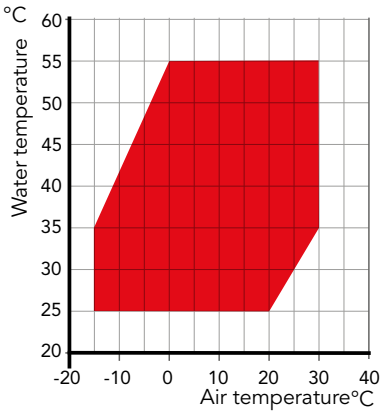
ELECTRICAL BOARD
Built in compliance with 61439-1 standards, inside of which all the control system elements and the ones required for electrical motors starting and protection are located, all the components are factory connected and testes. The electrical cabinet has got a watertight structure, equipped with cable glands with protection factor of IP54. Besides the electrical cabinet contains all the power and control devices, microprocessor electronic board complete with keyboard and display for visualizing several function available, main switch of lock-door type, isolation transformer for auxiliary circuits, automatic switches, fuses and protection switches for compressors and fans motors, terminals for general alarm and unit remote ON/OFF, spring type terminal board and the possibility to interface to BMS system.

OPERATING RANGE

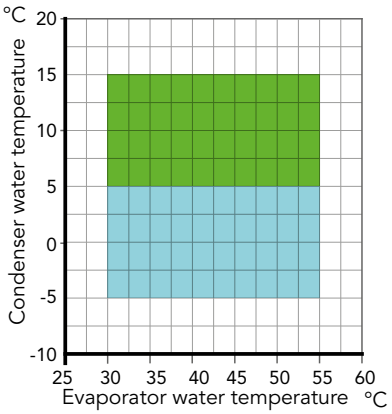
Cooling mode



Heating mode



Cooling during heating



Cooling mode

Cooling with glycol

Heating mode

EMICON
INNOVATION AS ENERGY

ACCESSORIES

GPS Kp		491	581	751	891	1051	1252
Amperometer + Voltmeter	A+V	o	o	o	o	o	o
Operation in cooling mode down to -20°C	BF	o	o	o	o	o	o
Operation in cooling mode down to -10°C	BT	•	•	•	•	•	•
Soundproofed compressors cabinet with higher thickness material	CFU	o	o	o	o	o	o
Compressors inrush counter	CS	o	o	o	o	o	o
Refrigerant leakage detector	DR	•	•	•	•	•	•
Axial fans with electronic commutated motor	EC	o	o	o	o	o	o
Condensing coil protection grid	GP	o	o	o	o	o	o
Web application	HiPro.web	o	o	o	o	o	o
Visograph interface accessory	HMI.Pro	o	o	o	o	o	o
High pressure double safety valve	HRV2	o	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o	o
Pressure gauges	MT	•	•	•	•	•	•
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊	◊
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o	o
Nordic option for electric panel (in/out covers for grilles + 15W/m electric heater)	QN	o	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	•	•	•	•	•	•
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o	o
Shut-off valve on compressors suction side	RH	•	•	•	•	•	•
Compressor overload relays	RL	o	o	o	o	o	o
Condensing coil with pre-painted fins	RM	o	o	o	o	o	o
Copper/Copper coil	RR	o	o	o	o	o	o
Double layer treatment of the coil	TDS	o	o	o	o	o	o
Electronic thermostatic valve	TE	•	•	•	•	•	•
Brine Version	VB	o	o	o	o	o	o
Inverter on compressor	VSC	--	--	--	--	--	--

• Standard, o Optional, ◊ Optional (external kit), -- Not available

GPS Kp		1452	1752	2052	2552	2852
Amperometer + Voltmeter	**A+V**	o	o	o	o	o
Operation in cooling mode down to -20°C	**BF**	o	o	o	o	o
Operation in cooling mode down to -10°C	**BT**	•	•	•	•	•
Soundproofed compressors cabinet with higher thickness material	**CFU**	o	o	o	o	o
Compressors inrush counter	**CS**	o	o	o	o	o
Refrigerant leakage detector	**DR**	•	•	•	•	•
Axial fans with electronic commutated motor	**EC**	o	o	o	o	o
Condensing coil protection grid	**GP**	o	o	o	o	o
Web application	**HiPro.web**	o	o	o	o	o
Visograph interface accessory	**HMI.Pro**	o	o	o	o	o
High pressure double safety valve	**HRV2**	o	o	o	o	o
RS 485 Serial interface	**IH**	o	o	o	o	o
BACNET Protocol serial interface	**IH-BAC**	o	o	o	o	o
TCP/IP Protocol serial interface	**IWG**	o	o	o	o	o
Phase monitor	**MF**	o	o	o	o	o
Pressure gauges	**MT**	•	•	•	•	•
Rubber-type vibration dampers	**PA**	◊	◊	◊	◊	◊
Spring-type vibration dampers	**PM**	◊	◊	◊	◊	◊
Remote display	**PQ**	◊	◊	◊	◊	◊
Part-Winding	**PW**	o	o	o	o	o
Nordic option for electric panel (in/out covers for grilles + 15W/m electric heater)	**QN**	o	o	o	o	o
Anti-freeze heater on evaporator	**RA**	o	o	o	o	o
Shut-off valve on compressors discharge side	**RD**	•	•	•	•	•
Power factor correction system cosfi ≥0,9	**RF**	o	o	o	o	o
Shut-off valve on compressors suction side	**RH**	•	•	•	•	•
Compressor overload relays	**RL**	o	o	o	o	o
Condensing coil with pre-painted fins	**RM**	o	o	o	o	o
Copper/Copper coil	**RR**	o	o	o	o	o
Double layer treatment of the coil	**TDS**	o	o	o	o	o
Electronic thermostatic valve	**TE**	•	•	•	•	•
Brine Version	**VB**	o	o	o	o	o
Inverter on compressor	**VSC**	--	--	--	--	--

• Standard, o Optional, ◊ Optional (external kit), -- Not available

GPS VS HE Kp		491	581	751	891	1051	1252
Amperometer + Voltmeter	A+V	o	o	o	o	o	o
Operation in cooling mode down to -20°C	BF	o	o	o	o	o	o
Operation in cooling mode down to -10°C	BT	•	•	•	•	•	•
Soundproofed compressors cabinet with higher thickness material	CFU	o	o	o	o	o	o
Compressors inrush counter	CS	o	o	o	o	o	o
Refrigerant leakage detector	DR	•	•	•	•	•	•
Axial fans with electronic commutated motor	EC	•	•	•	•	•	•
Condensing coil protection grid	GP	o	o	o	o	o	o
Web application	HiPro.web	o	o	o	o	o	o
Visograph interface accessory	HMI.Pro	o	o	o	o	o	o
High pressure double safety valve	HRV2	o	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o	o
Pressure gauges	MT	•	•	•	•	•	•
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊	◊
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o	o
Nordic option for electric panel (in/out covers for grilles + 15W/m electric heater)	QN	o	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	•	•	•	•	•	•
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o	o
Shut-off valve on compressors suction side	RH	•	•	•	•	•	•
Compressor overload relays	RL	o	o	o	o	o	o
Condensing coil with pre-painted fins	RM	o	o	o	o	o	o
Copper/Copper coil	RR	o	o	o	o	o	o
Double layer treatment of the coil	TDS	o	o	o	o	o	o
Electronic thermostatic valve	TE	•	•	•	•	•	•
Brine Version	VB	o	o	o	o	o	o
Inverter on compressor	VSC	•	•	•	•	•	•

• Standard, o Optional, ◊ Optional (external kit), -- Not available

GPS VS HE Kp		1452	1752	2052	2552	2852
Amperometer + Voltmeter	A+V	o	o	o	o	o
Operation in cooling mode down to -20°C	BF	o	o	o	o	o
Operation in cooling mode down to -10°C	BT	•	•	•	•	•
Soundproofed compressors cabinet with higher thickness material	CFU	o	o	o	o	o
Compressors inrush counter	CS	o	o	o	o	o
Refrigerant leakage detector	DR	•	•	•	•	•
Axial fans with electronic commutated motor	EC	•	•	•	•	•
Condensing coil protection grid	GP	o	o	o	o	o
Web application	HiPro.web	o	o	o	o	o
Visograph interface accessory	HMI.Pro	o	o	o	o	o
High pressure double safety valve	HRV2	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o
TCP/IP Protocol serial interface	IWG	o	o	o	o	o
Phase monitor	MF	o	o	o	o	o
Pressure gauges	MT	•	•	•	•	•
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊
Part-Winding	PW	o	o	o	o	o
Nordic option for electric panel (in/out covers for grilles + 15W/m electric heater)	QN	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	•	•	•	•	•
Power factor correction system cosfi ≥0,9	RF	o	o	o	o	o
Shut-off valve on compressors suction side	RH	•	•	•	•	•
Compressor overload relays	RL	o	o	o	o	o
Condensing coil with pre-painted fins	RM	o	o	o	o	o
Copper/Copper coil	RR	o	o	o	o	o
Double layer treatment of the coil	TDS	o	o	o	o	o
Electronic thermostatic valve	TE	•	•	•	•	•
Brine Version	VB	o	o	o	o	o
Inverter on compressor	VSC	•	•	•	•	•

• Standard, o Optional, ◊ Optional (external kit), -- Not available

TECHNICAL DATA

GPS Kp		491	581	751	891	1051	1252
Cooling [1]							
Cooling capacity	kW	48,7	57,3	74,1	88,3	102,0	121,8
Total input power	kW	16,5	19,7	23,7	28,9	34,7	41,1
Total nominal current	A	34,4	38,3	42,7	51,8	62,9	76,7
EER	-	3,0	2,9	3,1	3,1	2,9	3,0
Water flow	m^3/h	8,4	9,9	12,8	15,2	17,5	20,9
Pressure drop	kPa	36,6	28,1	14,3	19,5	26,5	12,1
Heating [2]							
Heating capacity	kW	58,2	67,2	81,4	100,7	116,1	140,0
Total input power	kW	15,8	18,5	22,8	27,9	32,8	39,0
Total nominal current	A	34,2	37,1	41,6	50,6	60,5	74,2
COP	-	3,7	3,6	3,6	3,6	3,5	3,6
Water flow	m^3/h	10,0	11,6	14,0	17,3	20,0	24,1
Pressure drop	kPa	15,5	20,0	10,5	15,3	19,8	22,4
Cooling during heating [3]							
Cooling capacity	kW	49,0	58,4	73,8	88,2	102,5	126,0
Heating capacity	kW	64,5	76,8	94,7	114,1	133,8	161,8
Total input power	kW	15,5	18,4	20,9	25,9	31,3	35,8
TER	-	7,3	7,2	7,9	7,7	7,4	7,9
Water flow	m^3/h	11,1	13,2	16,3	19,6	23,0	27,8
Pressure drop	kPa	19,2	25,5	13,7	19,2	25,6	29,1
Water flow	mc/h	8,4	10,0	12,7	15,2	17,6	21,7
Pressure drop	kPa	29,4	29,1	14,1	19,5	25,5	12,8
Refrigerant circuits	n°	1	1	1	1	1	2
Compressors	n°	1	1	1	1	1	2
Refrigerant data R290							
Refrigerant charge	kg	9,5	9,5	9,5	12,5	12,5	14,5
Global warming potential (GWP)		0,02	0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,19	0,19	0,19	0,25	0,25	0,29
Axial fans [4]							
Number	n°	2	2	2	2	2	3
Total air flow	m^3/h	18960	19660	38800	38220	40440	60450
Total fan power input	kW	0,9	1,0	2,6	2,8	2,9	4,1
Total fan current	A	4,4	4,4	6,3	6,3	6,3	9,4
Weights							
Transport weight	kg	1420	1426	1522	1608	1614	2026
Operating weight	kg	1423	1429	1529	1614	1620	2040
Dimensions							
Length	mm	2590	2590	2590	2590	2590	3630
Depth	mm	1370	1370	1370	1370	1370	1370
Height	mm	2420	2420	2420	2420	2420	2420
Sound data							
Sound pressure level [5]	dB(A)	85	89	91	93	93	94
Sound power level [6]	dB(A)	53	57	59	61	61	62
Power supply							
Voltage/Phase/Frequency	V/ph/Hz	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50
General electrical data							
Maximum input power	kW	21,3	25,3	29,9	37,9	45,9	53,8
Maximum input current	A	43	50	55	69	82	100
Inrush current	A	209	230	247	281	329	280

(1) Fluid: water - in/out temperature: 12/7°C - air 35°C.
(2) Fluid: water - in/out temperature: 40/45°C - air 7°C - UR.87%
(3) Cold in/out temperature: 12/7°C – Hot in/out temperature: 40/45°C.
(4) Air temperature 35°C.
(5) Sound power level in accordance with ISO 3744.
(6) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

GPS Kp		1452	1752	2052	2552	2852
Cooling [1]						
Cooling capacity	kW	143,9	173,3	202,7	253,1	284,6
Total input power	kW	46,7	57,3	69,1	87,5	99,0
Total nominal current	A	83,0	102,9	125,5	163,4	189,0
EER	-	3,1	3,0	2,9	2,9	2,9
Water flow	m^3/h	24,7	29,8	34,9	43,5	48,9
Pressure drop	kPa	16,3	22,8	20,5	17,8	22,0
Heating [2]						
Heating capacity	kW	165,0	202,3	230,2	283,0	325,5
Total input power	kW	44,4	55,1	64,5	78,0	91,2
Total nominal current	A	79,7	99,9	118,8	154,3	183,9
COP	-	3,7	3,7	3,6	3,6	3,6
Water flow	m^3/h	28,4	34,8	39,6	48,7	56,0
Pressure drop	kPa	30,2	28,2	35,8	20,8	27,8
Cooling during heating [3]						
Cooling capacity	kW	147,0	175,4	207,9	262,5	290,9
Heating capacity	kW	188,8	226,2	268,6	340,2	377,5
Total input power	kW	41,8	50,8	60,7	77,7	86,7
TER	-	8,0	7,8	7,7	7,7	7,6
Water flow	m^3/h	32,5	38,9	46,2	58,5	64,9
Pressure drop	kPa	38,3	34,5	47,0	29,7	35,9
Water flow	mc/h	25,3	30,2	35,8	45,2	50,0
Pressure drop	kPa	17,0	23,3	21,4	18,9	22,7
Refrigerant circuits	n°	2	2	2	2	2
Compressors	n°	2	2	2	2	2
Refrigerant data R290						
Refrigerant charge	kg	18	24	24,5	30,5	36,5
Global warming potential (GWP)		0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,36	0,48	0,49	0,61	0,73
Axial fans [4]						
Number	n°	3	4	4	5	5
Total air flow	m^3/h	58860	75720	80040	100900	117800
Total fan power input	kW	4,2	5,5	5,7	7,3	9,6
Total fan current	A	9,5	12,7	12,6	15,8	22,6
Weights						
Transport weight	kg	2086	2480	2512	3090	3228
Operating weight	kg	2101	2494	2536	3122	3259
Dimensions						
Length	mm	3630	4990	4990	6030	6030
Depth	mm	1370	1370	1370	1370	1370
Height	mm	2420	2420	2420	2420	2420
Sound data						
Sound pressure level [5]	dB(A)	94	95	95	98	98
Sound power level [6]	dB(A)	62	63	63	66	65
Power supply						
Voltage/Phase/Frequency	V/ph/Hz	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50	400/3+N/50
General electrical data						
Maximum input power	kW	57,8	75,8	91,8	122	132
Maximum input current	A	106	138	165	219	232
Inrush current	A	298	350	412	574	677

(1) Fluid: water - in/out temperature: 12/7°C - air 35°C.
(2) Fluid: water - in/out temperature: 40/45°C - air 7°C - UR.87%
(3) Cold in/out temperature: 12/7°C – Hot in/out temperature: 40/45°C.
(4) Air temperature 35°C.
(5) Sound power level in accordance with ISO 3744.
(6) Sound pressure level at 10 mt from the unit in free field conditions in accordance with ISO 3744.

RAH MC Kp

AIR COOLED CHILLERS FOR OUTDOOR INSTALLATION
WITH SCREW COMPRESSORS AND AXIAL FANS

Cooling capacity from 390 kW to 790 kW

VERSIONS

RAH MC VS U Kp - standard version

The modular air cooled chillers of RAH VS MC U Kp are designed for external installation and are particularly suitable for cooling liquid solutions in industrial applications or for air conditioning in commercial field, where excellent seasonal performances must be granted keeping at the same time a low environmental impact, class A efficiency and meeting the seasonal efficiency requirements established by (EU) 2016/2281 Regulation.

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.

The units are designed for external installation, in compliance with the European standard EN 378 and his updates.

All the units are totally factory assembled and tested, following specific quality procedures. Besides they are totally hydraulic, cooling and electrical connected permitting a quick installation once on site. Before the test the cooling circuits of each unit are subjected to a pressure test and then charged with Refrigerant R290 and non-freezing oil. So, once on site, the units must be only positioned and electrically and hydraulically connected.

Reduced sound level in version U is realised by using condensers with larger surface areas as well as soundproofed compressor cabinets.

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

MAIN COMPONENTS

FRAME
Structure realized with frame made up of hot galvanized steel sheet and RAL 7035 painted, suitable to resist to atmospheric agents. Compressors and main components are easily accessible and suitably placed in the technical room.

COMPRESSORS
Semi-hermetic screw compressors, optimized for operation with hydrocarbons and manufactured in accordance with current safety regulations. The compressors, one for each circuit, are with motor thermal protection, rotation direction control, crankcase heater, liquid injection, suction and discharge shut-off valves, compressor overload relays and vibration kit. Lubrication is of the forced type without a pump and to avoid excessive oil migration to the cooling circuit, there is an oil separator incorporated in the delivery. The electric motor is equipped with an automatic partial load starting system and mechanical interlock of the starting contactors, to avoid accidental short circuits.

EVAPORATOR
Stainless steel plates type mono or bi circuits, thermally insulated using a flexible closed cells mattress of high thickness. Is also provided with a safety differential pressure switch which does not allows the unit operation in case of water flow lack or reduction.

COILS
Micro channel condensing Coils totally made up of aluminum alloy to grant a perfect and continuous contact among tubes and fins optimizing the thermal exchange and reducing dimensions.
The high passivation degree of the used alloy, besides the peculiar assembling way, avoids the possibility to have galvanic corrosion phenomena. On demand it is also possible to provide the units installed in particularly aggressive environments with surface treatments against exchangers environmental corrosion. The cross "V" arrangement of the condensing coils makes the units of this series perfectly each other modular, granting at the same time the easiest access to the technical room both for checking operations required during the normal unit functioning and for maintenance.

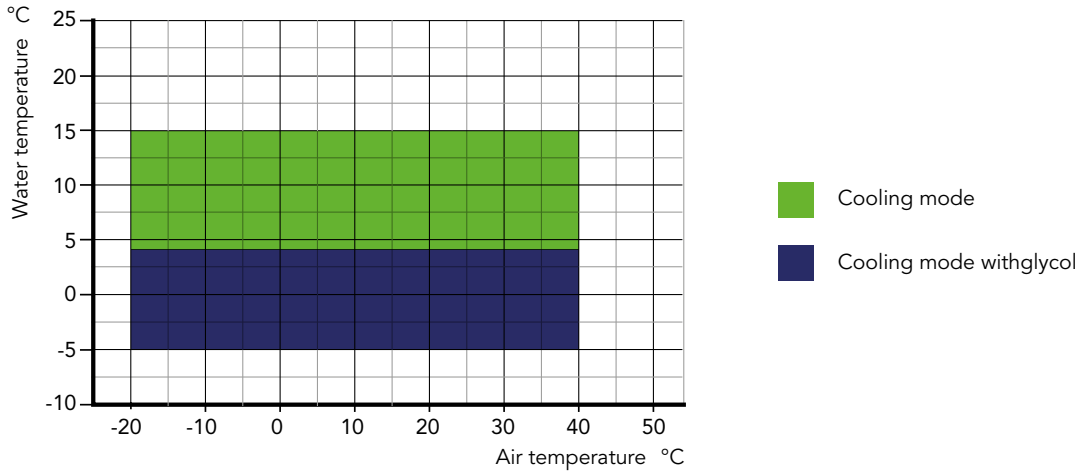
FANS
With 6-poles electrical motor with external rotor directly coupled to the impeller and driven by a V/F inverter system which controls the condensation temperature. Aluminum blades with wings profile are suitably designed to avoid any turbulence in the air detachment zone, granting in this way the max efficiency with the minimum noise level. The fan is equipped with galvanized steel protection grid painted after the construction. The fan motors are of totally closed type and have got a protection factor IP54 and protection winding-flooded thermostat.

COOLING CIRCUIT
Cooling circuit made up of electronic thermostatic expansion valve, sight glass, high pressure safety device, anti-freeze protection on evaporator, high and low pressure switches, non return valve in-built on compressors discharge side, dehydrating filter with replaceable cartridges, shut-off valve on liquid line. Each compressor operates on an independent circuit granting in this way, a considerable reliability.

ELECTRICAL BOARD
Electrical board in compliance with CE Norms, contained in a suitable section protected by internal safety panel, provided with a lock-door main switch. Inside all the control and protection components are suitably placed, together with terminal board and auxiliaries. The electrical board also includes the control device for power supply phases to prevent the compressor wrong side rotation. Microprocessor and relevant display are also placed inside the electrical cabinet.

MICROPROCESSOR
Electronic microprocessor for unit management installed inside the electrical cabinet, with double evaporator in/out control of the chilled water temperature, as well as control of working parameters and equalization of compressors working hours, failures auto-detection system, alarm log, start and set point timeslot programming, possibility of remote management and supervision by enabling standard communication protocols management, complete with compressors hour counter.

OPERATING RANGE



ACCESSORIES

RAH MC Kp		402	502	602	652	752
Amperometer + Voltmeter	A+V	o	o	o	o	o
Low ambient temperature operation (down to -20°C)	BF	•	•	•	•	•
Soundproofed compressors cabinet	CFU	•	•	•	•	•
Compressors inrush counter	CS	o	o	o	o	o
Refrigerant leakage detector	DR	•	•	•	•	•
Axial fans with electronic commutated motor	EC	o	o	o	o	o
Anticorrosive electro coating protection of condensing coils	ECP	o	o	o	o	o
Condensing coil protection grid	GP	o	o	o	o	o
Anti-intrusion grid	GP1	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o
Phase monitor	MF	•	•	•	•	•
Enhanced microprocessor board	MP ADV	o	o	o	o	o
Advanced Cascade system	MSC	o	o	o	o	o
Pressure gauges	MT	•	•	•	•	•
Buffer tank module	MV	o	o	o	o	o
Pump group	P1	o	o	o	o	o
Higher available pressure pump group	P1H	o	o	o	o	o
Double pump group	P2	o	o	o	o	o
Higher available pressure double pump group	P2H	o	o	o	o	o
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊
Anti-freeze heater on evaporator	RA	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	•	•	•	•	•
Shut-off valve on compressors suction side	RH	•	•	•	•	•
Compressor overload relays	RL	o	o	o	o	o
Electronic thermostatic valve	TE	•	•	•	•	•
Inverter for pump	VSP1	o	o	o	o	o
High pressure inverter for pump	VSP1H	o	o	o	o	o
Inverter for parallel pumps (only one running)	VSP2	o	o	o	o	o
High pressure inverter for parallel pumps (only one running)	VSP2H	o	o	o	o	o

• Standard, o Optional, ◊ Optional (external kit), -- Not available

TECHNICAL DATA

RAH MC Kp		402	502	602	652	752
Cooling capacity	kW	397,2	524,8	631,3	693,2	788,7
Total input power	kW	137,9	182,0	216,4	231,3	263,2
Nominal input current	A	239,0	308,7	369,0	395,5	453,2
EER	W/W	2,88	2,88	2,92	3,00	3,00
SEPR (5)	W/W	5,10	5,53	5,55	5,52	5,55
Circuits	n°	2	2	2	2	2
Compressors	n°	2	2	2	2	2
Refrigerant R290						
Refrigerant charge	kg	27	30	36	42	44
Global warming potential (GWP)	-	0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	0,54	0,60	0,72	0,84	0,88
Axial fans (1)						
Quantity	n°	8	8	10	12	12
Total air flow	m^3/h	165600	165600	207000	248400	248400
Total power input	kW	15,5	15,5	19,4	23,3	23,3
Evaporator (2)						
Quantity	n°	1	2	2	2	2
Water flow	m^3/h	68,3	90,3	108,6	119,2	135,6
Pressure drop	kPa	32	32	30	35	37
Weight						
Transport weight	kg	3602	3832	5002	5380	5532
Operating weight	kg	3648	3898	5078	5456	5626
Dimensions						
Length	mm	5860	5860	7200	8540	8540
Width	mm	2260	2260	2260	2260	2260
Height	mm	2470	2470	2470	2470	2470
Sound data						
Total LWA (3)	dB(A)	92,4	92,8	94,2	95,5	96,0
Total SPL 10m (4)	dB(A)	60,0	60,4	61,5	62,7	63,2
Power supply						
Voltage/phase/frequency	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
General electrical data						
Maximum input power	[kW]	176	216	254	273	283
Maximum input current	[A]	351	421	502	537	611
Inrush current	[A]	596	731	814	879	1060

(1) Ambient air temperature 35°C
(2) Fluid: Water - In/out Temperature: 12/7°C
(3) Sound power level in accordance with ISO 3744.
(4) Sound pressure level at 10m from the unit in free field conditions, in accordance with ISO 3744
(5) SEPR: High temperature process chillers.

GPH S Kp

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

WITH SCREW COMPRESSORS AND AXIAL FANS

Cooling capacity from 340 kW to 600 kW

VERSIONS

GPH S Kp - standard version
GPH VS HE S Kp - High efficiency version (Full inverter)

Multipurpose units, ideal for all installed applications where simultaneous production of hot and cold water is required, through the use of dedicated, independent circuits in 2- or 4-pipe hydronic systems. The polyvalent represents an effective and convenient alternative to traditional solutions (Boiler + Chiller) with a particular energy benefit in the conditions of demand for both fluids, hot and cold, concurrently.

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.

For this reason the units are designed for external installation, in compliance with the European standard EN 378 and his updates.

Thanks to the many available options, these heat pumps are particularly versatile and are easily adaptable to the different types of plant, where production of chilled water is required.

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 813/2013, average conditions, low temperature, fixed

MAIN COMPONENTS

FRAME
Strong and compact structure, made of base and frame with high-thickness galvanized steel elements assembled with stainless steel rivets. All galvanized steel surfaces externally positioned are superficially coated by an oven powder-painting with color RAL7035. The technical section which contains compressors and the other cooling circuit elements is closed in a sound-proofed and insulated cabinet. The technical section which contains compressors and the other cooling circuit elements is closed in a sound-proofed and insulated cabinet. Both compressors are equipped with an oil level safety switch, an opto-electronic device that operates if the oil level inside the compressor falls below the minimum level.

COMPRESSOR
Semi-hermetic screw compressors, optimized for operation with hydrocarbons and manufactured in accordance with current safety regulations. The compressors, one for each circuit, are with motor thermal protection, rotation direction control, crankcase heater, liquid injection, suction and discharge shut-off valves, compressor overload relays and vibration kit. Lubrication is of the forced type without a pump and to avoid excessive oil migration to the cooling circuit, there is an oil separator incorporated in the delivery. The electric motor is equipped with an automatic partial load starting system and mechanical interlock of the starting contactors, to avoid accidental short circuits.

HEAT EXCHANGER
The user-side heat exchangers are stainless steel plate type with a double circuit on the refrigerant side. They are factory-insulated using closed-cell material and can be equipped with an electric antifreeze resistor (optional). A temperature sensor used as anti-freeze protection preserves each exchanger. The exchangers are also equipped with a paddle flow switch that does not allow the unit to operate in case of lack or excessive reduction of the water flow rate.

COILS
The external heat exchanger coils are made of micro-finned copper pipes placed in asymmetrical rows and mechanically expanded in an aluminium frame. The aluminium fin is supplied with standard hydrophilic treatment and is designed in order to ensure maximum heat exchange efficiency. The defrosting of the hot-gas finned exchangers is pressure-controlled.

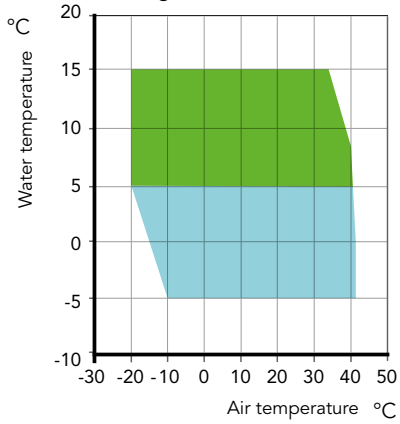
FANS
With external rotor directly coupled to a three-phase electronically commutated motor (EC) they have the possibility of a continuous regulation of the speed by means of a 0-10V signal completely managed by the microprocessor. Aluminum blades with wings profile are suitably designed to avoid any 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. the fan motors are of totally closed type and have a protection factor IP54 and winding-flooded protection thermostat.

COOLING CIRCUIT
Indipendent cooling circuits each provided with a shut-off valve for refrigerant charge, 4-way cycle inversion valve, antifreeze probe, sight glass,dehydrting filter for R290 with wide filtering surface, high pressure sude safety valve equipped with connector to the discharhe refrigerant conveying piping, liquid receiver, liquid separator on suction, electronic thermostatic valve, pressure switches and high/low pressure gauges for R290 specifically.

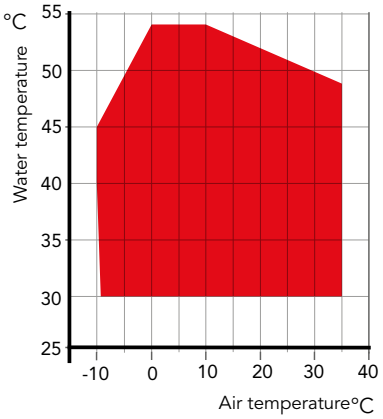
ELECTRICAL BOARD
The electrical board is designed in accordance with the European standards 61439-1 EN 60204. Its structure is watertight and it contains all the components of the control system, those required for starting the unit, and the thermal protection of the electric motors, connected and factory-tested.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

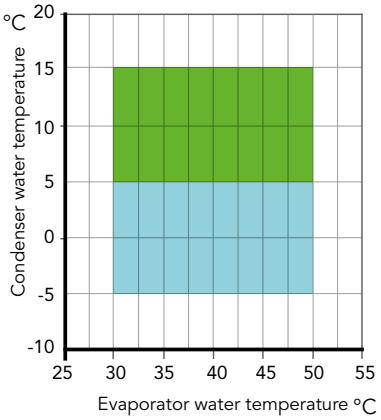
Cooling mode



Heating mode



Cooling during heating



Cooling mode

Cooling with glycol

Heating mode

EMICON
INNOVATION AS ENERGY

ACCESSORIES

GPH S Kp		352	402	452	552	602
Amperometer + Voltmeter	A+V	o	o	o	o	o
Soundproofed compressors cabinet with higher thickness material	CFU	●	●	●	●	●
Compressors hour counter	CO	●	●	●	●	●
Compressors inrush counter	CS	o	o	o	o	o
Refrigerant leakage detector	DR	●	●	●	●	●
Axial fans with electronic commutated motor	EC	●	●	●	●	●
Condensing coil protection grid	GP	o	o	o	o	o
Anti-intrusion grid	GP1	o	o	o	o	o
Web application	HiPro.web	o	o	o	o	o
Visograph interface accessory	HMI.Pro	o	o	o	o	o
RS 485 Serial interface	IH	o	o	o	o	o
BACNET Protocol serial interface	IH-BAC	o	o	o	o	o
Phase monitor	MF	●	●	●	●	●
Pressure gauges	MT	●	●	●	●	●
Oil flow safety switch	OS	●	●	●	●	●
Single pump warm user side	P1C	o	o	o	o	o
Single pump cold user side	P1F	o	o	o	o	o
Two pumps warm user side	P2C	o	o	o	o	o
Two pumps cold user side	P2F	o	o	o	o	o
Two high-pressure pumps warm user	P2HC	o	o	o	o	o
Two high-pressure pumps cold user side	P2HF	o	o	o	o	o
Rubber-type vibration dampers	PA	◊	◊	◊	◊	◊
Spring-type vibration dampers	PM	◊	◊	◊	◊	◊
Remote display	PQ	◊	◊	◊	◊	◊
Twin pump for warm user side	PTC	o	o	o	o	o
Twin pump for cold user side	PTF	o	o	o	o	o
Anti-freeze heater on evaporator	RA	o	o	o	o	o
Shut-off valve on compressors discharge side	RD	●	●	●	●	●
Shut-off valve on compressors suction side	RH	●	●	●	●	●
Compressor overload relays	RL	o	o	o	o	o
Condensing coil with pre-painted fins	RM	o	o	o	o	o
Copper/Copper coil	RR	o	o	o	o	o
Electronic thermostatic valve	TE	●	●	●	●	●

• Standard, o Optional, ◊ Optional (external kit),-- Not available

TECHNICAL DATA

GPH S Kp		352	402	452	552	602
Cooling [1]						
Cooling capacity	kW	341	400	448	509	602
Total input power	kW	145	162	189	205	239
Total nominal current	A	236	260	306	335	387
EER	-	2,35	2,47	2,37	2,48	2,52
Water flow	m^3/h	58,7	68,8	77,1	87,5	103,0
Pressure drop	kPa	26,0	21,8	22,9	21,9	26,4
Heating [2]						
Heating capacity	kW	390	451	497	567	676
Total input power	kW	135	150	172	190	223
Total nominal current	A	222	243	281	313	364
COP	-	2,89	3,01	2,89	2,98	3,03
Water flow	m^3/h	67,7	80,0	86,3	98,5	117,0
Pressure drop	kPa	32,1	27,0	26,6	25,4	32,0
Cooling while heating [3]						
Cooling capacity	kW	351	410	474	524	617
Heating capacity	kW	476	552	635	699	825
Total input power	kW	127	143	163	177	211
Current consumption	A	204	227	261	286	336
TER	-	6,51	6,73	6,80	6,91	6,83
Water flow	m^3/h	60,4	70,6	81,5	90,1	106,0
Pressure drop	kPa	27,4	22,8	25,3	23,1	27,7
Water flow	m^3/h	82,5	95,6	110,0	121,0	143,0
Pressure drop	kPa	45,9	37,2	41,1	36,9	45,5
Refrigerant circuits	n°	2	2	2	2	2
Compressors	n°	2	2	2	2	2
Refrigerant data R290						
Refrigerant charge	kg	60	78	78	88	114
Global warming potential (GWP)		0,02	0,02	0,02	0,02	0,02
Equivalent CO_2 charge	kg	1,20	1,56	1,56	1,76	2,28
Axial fans						
Number	n°	8	8	8	12	12
Total air flow	m^3/h	178100	172500	171900	267300	258800
Total fan power input	kW	15,6	16,0	15,9	23,4	24,0
Total fan current	A	26,2	26,9	26,7	39,3	40,3
Weights						
Transport weight	kg	4726	4962	5000	6904	7123
Operating weight	kg	4804	5058	5105	7028	7259
Dimensions						
Length	mm	5940	5940	5940	8660	8660
Depth	mm	2240	2240	2240	2240	2240
Height	mm	2650	2650	2650	2650	2650
Sound data						
Sound pressure level [4]	dB(A)	99	99	99	101	101
Sound power level [5]	dB(A)	66,5	66,5	66,5	67,9	67,9
Power supply						
Voltage/Phase/Frequency	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
General electrical data						
Maximum input power	kW	182	192	222	252	282
Maximum input current	A	357	387	427	491	545
Inrush current	A	602	700	737	803	887

(1) Fluid: water - in/out temperature: 12/7°C - air 35°C.
(2) Fluid: water - in/out temperature: 40/45°C - air 7°C - UR.87%
(3) Cold in/out temperature: 12/7°C – Hot in/out temperature: 40/45°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

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.

CFP - Pump protection crankcase: Crankcase made of galvanized and painted sheet metal. The crankcase is mounted in correspondence of the present pumps fixing it firmly to the base of the unit.

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

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.

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 9 mm thermal insulating material of proper for the water collector insulation (KCA) (Supplied in kit).

KG10 - Gateway framework kit up to 10 units: Frameworks for communication data with each module of a modular system (up to 10 units). 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. Mandatory kit for systems with two or more modules. The supply does not include cables (power or data transmission) for the connection of the kit to the unit (Supplied in kit).

KG5 - Gateway framework kit up to 5 units: Frameworks for communication data with each module of a modular system (up to 5 units). 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. Mandatory kit for systems with two or more modules.The supply does not include cables (power or data transmission) for the connection of the kit to the unit (Supplied in kit).

KGH1 - Gateway kit for single module complete with Hi-Web and Wi-Fi router: Framework that allows the monitoring and supervision of the main operating parameters by accessing the Hi-Web platform from the local Wi-Fi network The interface that can be used can be a customer device (smartphone or tablet). The arrangement for mounting the panels is on the back of the front cover of each unit. The supply does not include cables (power or data transmission) for the connection of the kit to the unit (Supplied in kit).

KGH10 - Gateway framework kit up to 10 units provided with Hi-Web and router Wi-Fi: Frameworks for communication and interfacing data with each module of a modular system (up to 10 units). It allows the monitoring and supervision of the main operating parameters of the single modulesand the whole system, by accessing the Hi-Web platform from the local Wi-Fi network. (or from the WEB network by activating the RMS service). The interface that can be used can be a customer device (smartphone or tablet) or the tablet interface integrated in the unit (optional KTA). The arrangement for mounting the panels is on the back of the front cover of each unit. The supply does not include cables (power or data transmission) for the connection of the kit to the unit (Supplied in kit).

KGH5 - Gateway framework kit up to 5 units provided with Hi-Web and router Wi-Fi: Frameworks for communication and interfacing data with each module of a modular system (up to 5 units). It allows the monitoring and supervision of the main operating parameters of the single modulesand the whole system, by accessing the Hi-Web platform from the local Wi-Fi network. (or from the WEB network by activating the RMS service). The interface that can be used can be a customer device (smartphone or tablet) or the tablet interface integrated in the unit (optional KTA). The arrangement for mounting the panels is on the back of the front cover of each unit. The supply does not include cables (power or data transmission) for the connection of the kit to the unit (Supplied in kit).

KGR1 - Gateway kit for single module complete with Wi-Fi router: Framework that allows the monitoring and supervision of the main operating parameters by accessing the local Wi-Fi network. The interface that can be used can be a customer device (smartphone or tablet). The arrangement for mounting the panels is on the back of the front cover of each unit. The supply does not include cables (power or data transmission) for the connection of the kit to the unit (Supplied in kit).

KGR5 - Gateway board kit up to 5 units complete with Wi-Fi router: Frameworks for communication and interfacing data with each module of a modular system (up to 5 units). It allows the monitoring and supervision of the main operating parameters of the single modules, via local Wi-Fi network (or from WEB network by activating the RMS service). The interface that can be used can be a customer device (smartphone or tablet) or the tablet interface integrated in the unit (kit KTA). The arrangement for mounting the panels is on the back of the front cover of each unit. The supply does not include cables (power or data transmission) for the connection of the kit to the unit (Supplied in kit).

KGR10 - Gateway board kit up to 10 units complete with Wi-Fi router: Frameworks for communication and interfacing data with each module of a modular system (up to 10 units). It allows the monitoring and supervision of the main operating parameters of the single modules, via local Wi-Fi network (or from WEB network by activating the RMS service). The interface
that can be used can be a customer device (smartphone or tablet) or the tablet interface integrated in the unit (kit KTA).The arrangement for mounting the panels is on the back of the front cover of each unit. The supply does not include cables (power or data transmission) for the connection of the kit to the unit (Supplied in kit).

KLD - Display interface kit for refrigerant leak sensor - calibration free: Portable interface kit with graphic display that can be connected to the refrigerant leak sensor control board via a 4-pole cable (supplied in the kit). It allows you to carry out the operations of checking and setting the operating parameters of the sensor during periodic inspection and service.

KP10 - Power / executor framework kit up to 10 modules: Electrical panel with IP54 protection rating consisting of 10 circuit breakers and a main disconnecting switch for switching the main power supply to the individual units of the modular system (up to 10). The supply does not include the cables (power supply or data transmission) for connecting the kit to the unit. (Supplied as a kit).

KP5 - Power / executor framework kit up to 5 modules: Electrical panel with IP54 protection rating consisting of 5 circuit breakers and a main disconnecting switch for switching the main power supply to the individual units of the modular system (up to 5). The supply does not include the cables (power supply or data transmission) for connecting the kit to the unit. (Supplied as a kit).

KTA - Kit tablet interface: Integrated inside the front cover of the unit and protected by a sheet metal door with key, it allows access to the Hi-Web and then visualization and complete control of the main operating parameters of the modular system (Supplied in kit).

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 (Supplied in kit).

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 en-bloc 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: 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: Electrical 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.

The technical data and information expressed in this publication are owned by Enex Technologies and have general information. With a view to continuous improvement, Enex Technologies has the right to make at any time, without any obligation or commitment, all the modifications deemed necessary for the improvement of the product, for this reason even substantial changes can be made to the documentation without notice. The example images of the products and components inside the units are illustrative and therefore any brands of the components functional to the construction of the units may differ from any brands represented in this document. This catalog has been prepared with the utmost care and attention to the contents displayed, nevertheless Enex Technologies cannot assume any responsibility deriving from the use, direct or indirect, of the information contained therein.

Pdf

enex technologies
cooling and heating naturally

www.enextechnologies.com • info@enextechnologies.com

160100038EN.25-01