EVEREST 290

PAE Kp

COMMERCIAL BROCHURE

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 ensur-ing hot water production up to 77°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.

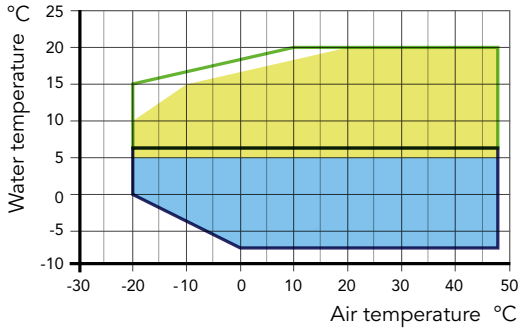
FANS
Axial fans, with external rotor directly coupled to a three-phase electronically commutated motor (EC) they have the possibility of a continuous regulation of the speed by means of a 0-10V signal completely managed by the microprocessor. Aluminum blades with wings profile are suitably designed to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

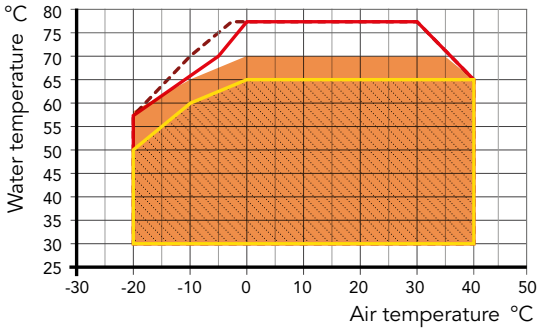


Cooling
PAE 881 Kp / PAE 1001 Kp / PAE 1001 Kp+LNF

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

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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.

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AN ENEX TECHNOLOGIES COMPANY

Publication: Commercial Brochure EVEREST^{290} Series | Version September 2025

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