

Catalogue

# HPN-W



High temperature water to water R290 heat pumps

Complete solution for hot water production with reciprocating compressors  
High temperature series (up to 63°C): 44,5 ÷ 233,6 kW  
R290 = Full Natural refrigerant with G.W.P. = 3



**EUROKLIMAT®**  
Cooling System Solutions

## High efficiency and sustainable heating equipment.

Given the constant rise in energy prices and the negative consequences the large-scale exploitation of traditional energy sources (fossil fuels, coal) inflicts on the environment, the 'business as usual' approach we adopted as to the way we power our homes for the past 50-60 years, has to be reconsidered.

**Heat pumps should be your first choice if your priorities are both to save on heating costs and to generate heat in an environmentally responsible way.**

This makes you independent of fossil fuels, and in addition, actively contributes towards reducing CO<sub>2</sub> emissions and protecting the climate. With a heat pump, up to 75% of the total energy demand is taken from nature, in a highly effective and environmentally responsible manner. Only 20 to 30 % electrical energy needs to be invested. The principle is as simple as it is ingenious: The solar energy stored in the ambient air, in the ground or in groundwater is used to efficiently heat domestic hot water and heating water.

### EFFICIENCY IN HOT WATER PRODUCTION



Euroklimat has been working for over 50 years with success supplying heat pump systems for commercial applications. These commercial & industrial customers identified the heat pump technology in an efficient system able to deliver consistent savings in energy consumption and that offers a payback of 2-3 years versus traditional systems that uses fossil fuels.

### GAS NETWORK INDEPENDENCE



HPN-W heat pumps only requires the use of electricity and is highly efficient and therefore low consumption. The energy freely derivable from the atmosphere supplies about 75% of the energy required by a heat pump. With the integration of only 25% of electric energy, 100% of the heating system demand is reached.

### INDOOR INSTALLATION



Plant rooms are usually located within the buildings and for this reason the HPN-W water to water heat pumps is designed to have a reduced footprint, easy installation and quiet operation. Furthermore, low noise levels and less-vibrations are crucial features for these units.



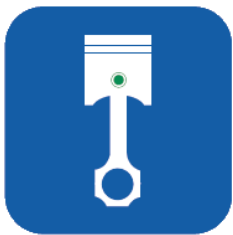
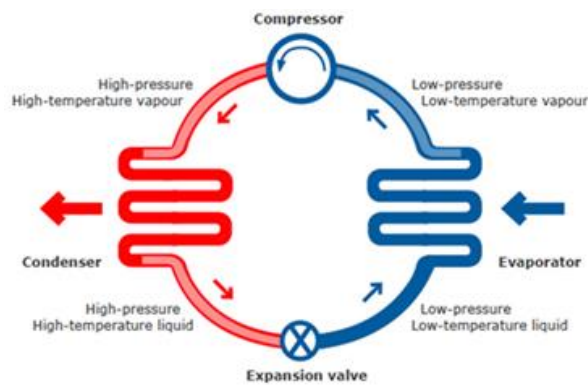
# HPN-W

High temperature water to water  
R290 heat pumps



## BENEFITS

- Full Natural refrigerant R290 (Propane) with G.W.P. = 3
- Compact and reliable water/water heat pumps
- Optimized for HIGH temperature (up to 60°C) application
- Extremely high efficiency COP
- Low pressure drops for maximized energy savings
- Low noise and vibration emissions through sound-optimised appliance design
- Optimized design with BPHE
- Advanced software with extended connectivity for BMS systems & remote control



For all applications using hot water up to 63°C, HPN-W is the ideal solutions. A very high COP (Coefficient of Performance) is obtain by using the last technology available.



Thanks to a Multitasking Operating System and to the adoption of standard protocols, local and remote connectivity, the controller used in HPV-W is the most advanced technology available.



The heat pump is designed to fit the requirement of indoor installation. Optional compressor sound-proofing boxes are available to achieve the lowest emissions in the market.





# Technology without compromise

## ATEX CERTIFIED RECIPROCATING COMPRESSORS

**Reciprocating semi-hermetic type compressor** designed and manufactured in compliance with the safety requirements of directive 2014/34 / EC (ATEX), suitable for installation in Zone 2 and Group IIB gas.

The compressor is complete with:

- Ptc-probes connected to the protection system, electronic control module and protection of the electric motor (installed inside the electrical panel);
- PAG68 oil charge;
- Oil level sight glass and oil crankcase heater;
- Anti-vibration rubber supports;
- Anti-vibration pipes (suction and discharge);
- Suction and discharge valves.
- The compressor is supplied with one or more RSH capacity control heads to guarantee an adaptation of the cooling capacity in case of thermal load's reduction. The number of capacity control heads supplied as standard and/or available as accessories varies according to the selected chiller model: please see the list of accessories for further information.



## EXTREMELY HIGH EFFICIENCY WATER HEAT EXCHANGERS

According to machine capacity, brazed plate heat exchangers (BPHE) or shell & tubes (S&T) heat exchangers are selected to obtain the best design in terms of efficiency, quality/price ratio and compactness. Very low approaches between water temperature and saturated temperature of refrigerant allows the obtainment of the highest efficiency in the market.

Brazed plate-type heat exchangers are made of stainless steel AISI 316, thermally insulated by polyurethane foam with standard thickness of 9 mm.

S&T evaporators are of DX type, designed to combine very high evaporating temperatures with low water pressure drops.

Over the entire range of machines, S&T condensers have a different number of passes, in order to obtain the best solution in terms of compactness and performance.



## ELECTRONIC EXPANSION VALVE

Electronic expansion valves are standard for all size.

The fast processing of the acquired data allows a quick, fluctuating-free regulation, and therefore a highly accurate adjustment to the load swings.

This is possible thanks to the fully integration between the compressor management and the valve driver, for a full exploitation of heat exchanger surface in all operating conditions (at full and partial loads).



# HPN-W



Refrigerant  
R290 | GWP = 3



Semi-hermetic piston  
compressor



BPHE  
heat exchangers

High temperature water to water  
R290 heat pumps



## Applications

HT – high temperature (up to 63°C)

## Versions

P – with brazed plate heat exchangers (BPHE)

## Number of circuits

Single or double, according to number of compressors

Heating capacity 44,5 ÷ 233,6 kW

<b>Housing</b>	Base and panels made of painted galvanised steel; panels mounted on aluminium profiles to ensure total weathering resistance. Panels are internally lined to reduce the noise level. Inlet grid for air intake and outlet grid for air extraction on the bottom (fan is not included). Gaskets on the panels always provided to ensure air tightness.
<b>Compressor(s)</b>	Reciprocating SEMI-HERMETIC type, fixed on anti-vibration system and complete with pressure lubrication system; oil crankcase heater, integral electronic protection and inlet plus outlet valves; flexible joints on suction and discharge. The compressor is mechanically optimized for use with Hydrocarbons and built in according to Directive ATEX 94/9/EC for the safety requirements: Zone 2, Gas group IIB. Some components are ATEX certified.
<b>Water heat exchangers</b>	Plate-type made of AISI 316 steel complete with water differential pressure switch. Shell covered with closed-cell neoprene anti-condensate material.
<b>Refrigerant circuit</b>	Sub-cooler heat exchangers (brazed plate). Filter drier, sight glass and liquid moisture, solenoid valve, electronic expansion valve, safety high pressure switch. High & low pressure manometers. High & low pressure transducers. Threaded connection for safety valve (near water connections). Some components are ATEX certified.
<b>Control</b>	The microprocessor controls the unit capacity by timing the compressors and checks the operating alarms with the possibility to connect to BMS supervisor.
<b>Electrical board</b>	Switchboard to standards IEC 204-1/EN60204-1, complete with contactor and protection for compressor and fans. Main isolator and door interlock safety device. The cabinet is externally hung on one side of the unit.
<b>Additional safety device</b>	All Propane units are equipped with an explosion-proof gas detector and a centrifugal extraction fan, both ATEX certified. The sensor, equipped with a separate power supply and with a remotable Modbus signal, has an alarm threshold set at 10% of the lower flammable limit (LFL). The safety devices are managed by the microprocessor: when a leak is detected, this is signalled on the panel by means of the red LED status indicator and the sensor activates a series of emergency provisions which ensure the highest possible safety level. The Propane alarm causes the immediate shutdown of the machine and the centrifugal extraction fan is switched on, which allows the ventilation of the compressor compartment and the dilution of the R290 concentration to values below the lower flammability limit.
<b>Water circuit</b>	Flow switch on the evaporator side.
<b>ACCESSORIES</b>	<ul style="list-style-type: none"> <li>- Anti-vibration spring mounts</li> <li>- Additional capacity steps</li> <li>- Inverter on compressor</li> <li>- Desuperheater</li> <li>- Special insulation (19 mm)</li> <li>- Energy meter for power input measuring</li> </ul>

# Technical data

		45 IS	65 IS	80 IS	95 IS	115 IS	140 IS	180 IS
<b>HEATING</b>								
Heating capacity <sup>(1)</sup>	[kW]	44,5	62,9	76,5	92,9	116,8	141,4	171,3
Total compressors power input (1)	[kW]	13,2	19,2	21,1	26,8	34,2	42,9	52,4
COP - Coefficient Of Performance	-	3,38	3,28	3,63	3,47	3,42	3,30	3,27
<b>REFRIGERANT CIRCUIT</b>								
Refrigerant	-	R290						
Charge of refrigerant	[g]							
Independent gas circuits	[n°]	1	1	1	1	1	1	1
Compressors type	-	Semihhermetic reciprocating						
Compressors quantity	[n°]	1	1	1	1	1	1	1
Steps of capacity	-	2	2	2	3	3	3	3
Heat exchangers type	-	Brazeed plate						
Condenser water flow <sup>(1)</sup>	[m <sup>3</sup> /h]	7,7	10,8	13,2	16,0	20,1	24,3	29,5
Condenser pressure drop <sup>(1)</sup>	[kPa]	41	46	48	22	23	25	21
Evaporator flow <sup>(1)</sup>	[Kg/h]	5,8	7,8	9,9	11,7	14,7	17,5	22,8
Evaporator pressure drop <sup>(1)</sup>	[kPa]	14	19	16	17	17	17	22
<b>Electrical data</b>								
Power supply	-	400V/3ph/50Hz + 230V/1ph/50Hz (for gas detector)						
Compressor(s) maximum power input	[kW]	16,0	23,8	25,8	34,2	41,7	56,7	61,9
Compressor(s) maximum absorbed current	[A]	30,2	44,0	47,0	61,0	74,6	99,8	111,2
Locked rotor current – LRA (P.W.S.)	[A]	107	133	145	159	189	326	417
<b>Noise levels <sup>(3)</sup></b>								
Total sound power - ST version	[dB(A)]	74	78	78	80	80	85	87
Total sound pressure - ST version	[dB(A)]	66	70	70	72	72	77	79
<b>DIMENSIONS AND WEIGHT - Preliminary data</b>								
Lenght	[mm]	1.350	1.350	1.350	1.650	1.650	1.650	1.650
Width	[mm]	680	680	680	880	880	880	880
Height (ST - LN)	[mm]	1.450	1.450	1.450	1.650	1.650	1.650	1.650
Shipping weight	[kg]	t.b.c.	t.b.c.	t.b.c.	t.b.c.	t.b.c.	t.b.c.	t.b.c.

The technical data reported in the following page are referred to these operating conditions:

#### Evaporator (source side)

- Ethanol / water (35%)
- Inlet temperature: +4°C
- Outlet temperature: -1°C

#### Condenser (user side)

- Water
- Inlet temperature: +55°C
- Outlet temperature: +60°C

For operating conditions different from the above ones, please contact EK to receive the datasheet in accordance to them.

# Technical data

		130 2S	160 2S	190 2S	230 2S
<b>HEATING</b>					
Heating capacity <sup>(1)</sup>	[kW]	125,8	153,0	185,9	233,6
Total compressors power input (1)	[kW]	38,4	42,2	53,6	68,4
COP - Coefficient Of Performance	-	3,28	3,63	3,47	3,42
<b>REFRIGERANT CIRCUIT</b>					
Refrigerant	-	R290			
Charge of refrigerant	[g]				
Independent gas circuits	[n°]	2	2	2	2
Compressors type	-	Semihhermetic reciprocating			
Compressors quantity	[n°]	2	2	2	2
Steps of capacity	-	4	4	4	4
Heat exchangers type	-	True-dual brazed plate			
Condenser water flow <sup>(1)</sup>	[m <sup>3</sup> /h]	21,6	26,3	32,0	40,2
Condenser pressure drop <sup>(1)</sup>	[kPa]	57	60	62	62
Evaporator flow <sup>(1)</sup>	[Kg/h]	15,5	19,7	23,5	29,4
Evaporator pressure drop <sup>(1)</sup>	[kPa]	12	12	13	14
<b>Electrical data</b>					
Power supply	-	400V/3ph/50Hz + 230V/1ph/50Hz (for gas detector)			
Compressor(s) maximum power input	[kW]	47,6	51,6	68,4	83,4
Compressor(s) maximum absorbed current	[A]	88,0	94,0	122,0	149,2
Locked rotor current – LRA (P.W.S.)	[A]	221	239	281	338
<b>Noise levels <sup>(3)</sup></b>					
Total sound power - ST version	[dB(A)]	81	81	83	83
Total sound pressure - ST version	[dB(A)]	73	73	75	75
<b>DIMENSIONS AND WEIGHT - Preliminary data</b>					
Lenght	[mm]	1.850	1.850	1.850	1.850
Width	[mm]	880	880	880	880
Height (ST - LN)	[mm]	1.800	1.800	1.800	1.800
Shipping weight	[kg]	t.b.c.	t.b.c.	t.b.c.	t.b.c.

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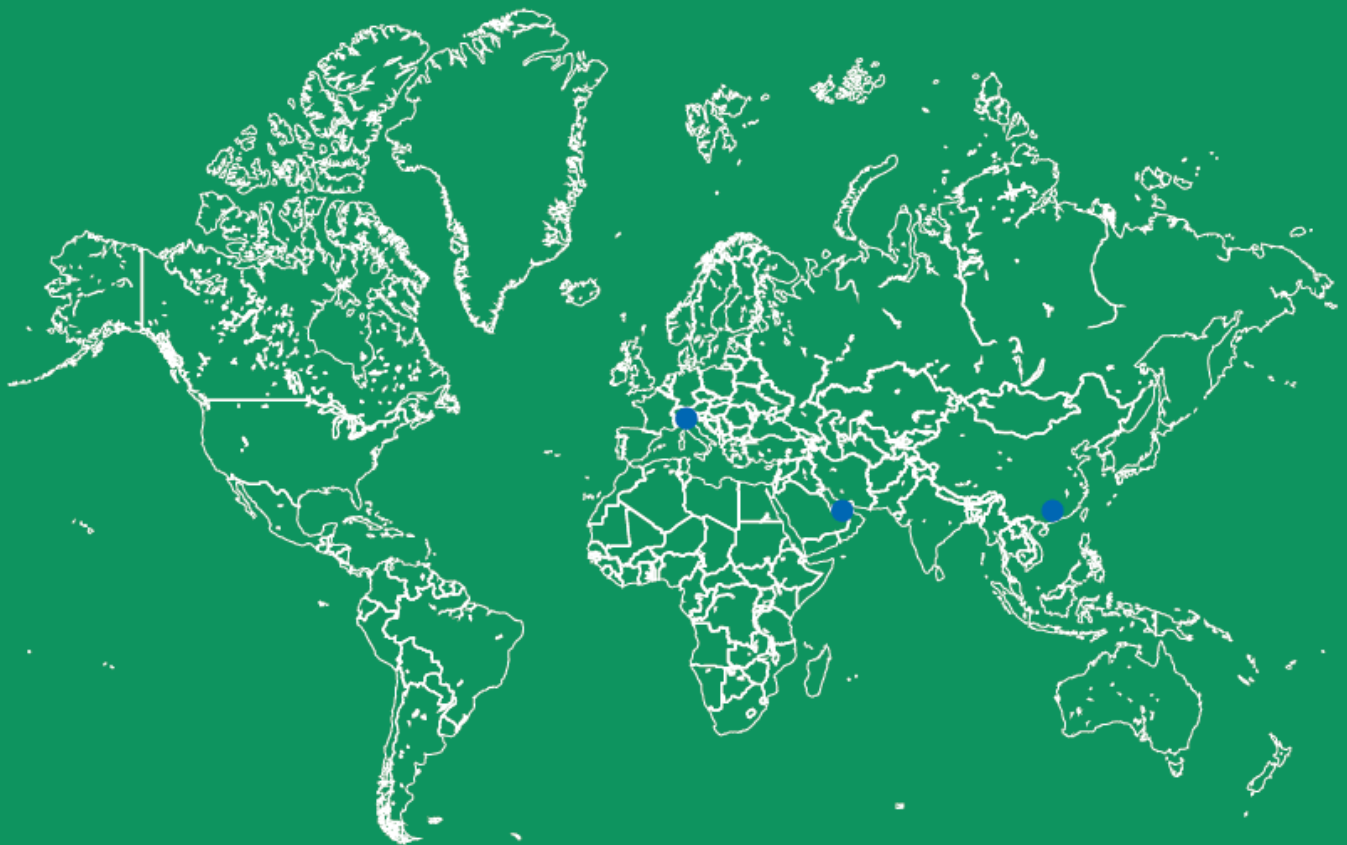
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The data are indicative and not binding. Euroklimat reserves the right to make changes at any time without notice.



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