PALLADIUM 4P

Heat Beyond Silence

Ultra low noise air-to-water heat pumps with scroll compressors
and R290 natural refrigerant (GWP = 3)
4P versions for a more flexible installation.

R290

TECHNICAL BROCHURE / **EN**

enerblue
INSPIRED BY NATURE

PALLADIUM 4P

70°
Max water temperature

-20°
Min. ext. air temperature

R290

GWP=3

APPLICATION
COMMERCIAL / INDUSTRIAL

* This picture represents the PALLADIUM unit complete with the optional "Aesthetic kit"

The PALLADIUM range is optimized for heating working mode, able to reach 70°C leaving water temperature always with the best energy efficiency. Flexible and reliable, this range can provide heating and cooling for new buildings as well as renovations projects, even when domestic hot water production is required.

As a result of many years of experience on propane heat pumps, Enerblue PALLADIUM units are equipped with an improved design of the refrigerant circuit that guarantees the lowest refrigerant charge.

Safety is always a priority on Enerblue units, for this reason a specific research and development effort, with an extensive testing activity, was made to provide an extremely effective safety configuration.

RANGE

Heating	(A7; W35) 50 ÷ 164 kW
Cooling	(A35; W7) 40 ÷ 135 kW

REVERSIBLE · EC AXIAL FANS · SCROLL COMPRESSORS · ULTRA LOW NOISE

Quality is in the details

* This picture represents the PALLADIUM unit complete with the optional “Aesthetic kit”

1. Fan with larger diameter and lower RPM.

2. Microtube coils with large exchange surface to minimise the refrigerant charge and noise levels. Hydrophilic treatment always included.

3. Aesthetic kit or metallic protection mesh for coils.

4. Scroll compressors optimised for operation with R290 refrigerant.

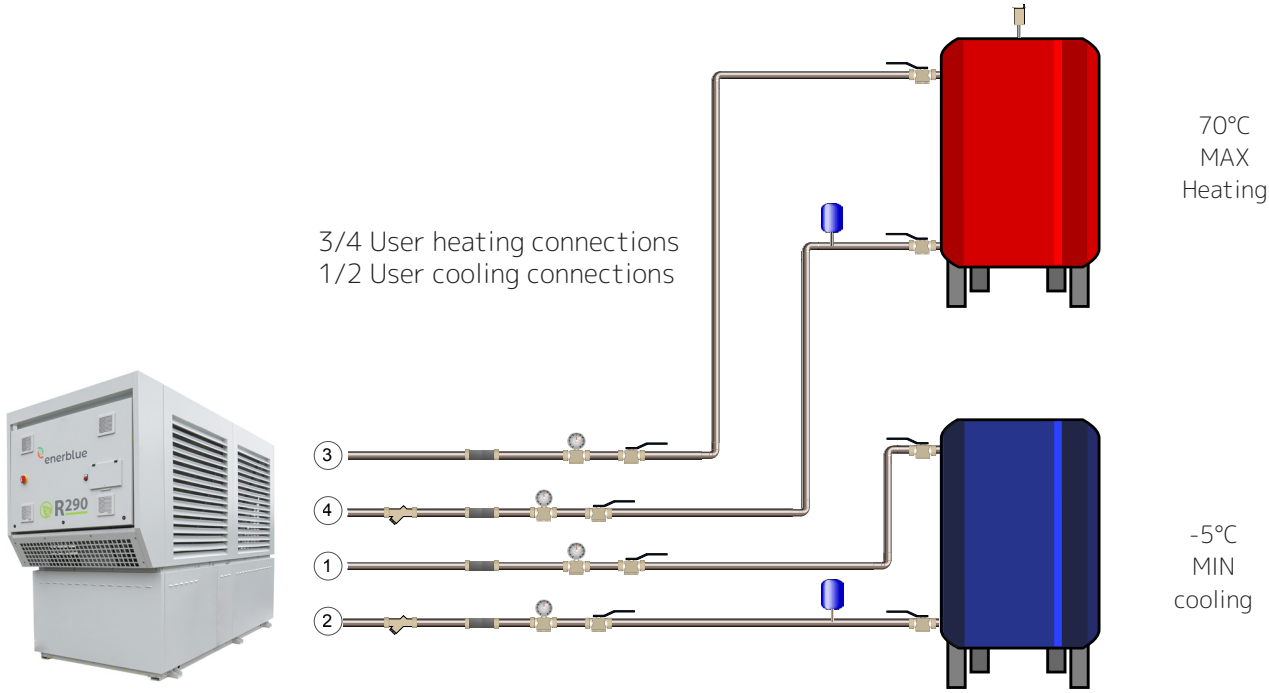
5. Acoustically insulated compressor compartment to reduce noise emissions.

6. Built-in ventilation system . Leak detection devices installed inside the unit available on request.

7. Hydraulic connections flush with the metalwork.

Available versions

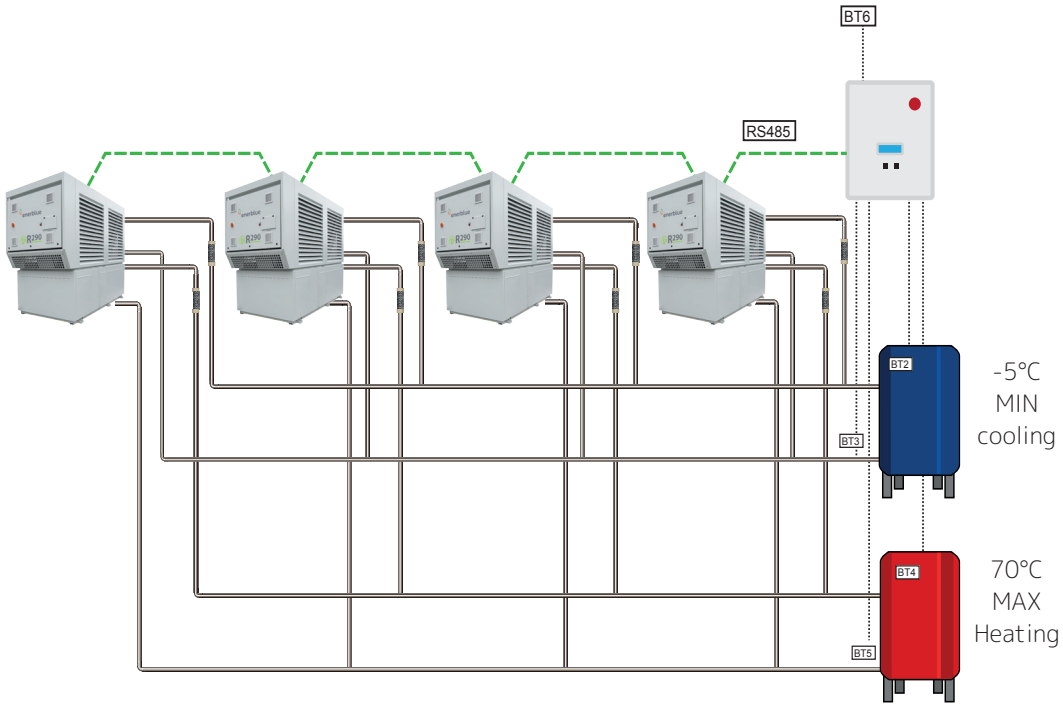
For dedicated 4-pipe systems for heating and cooling designed to manage the two water production circuits according to the building needs.
Maximum water outlet temperature 70°C.



* This picture represents the PALLADIUM 4P unit complete with the optional "Aesthetic kit"

CASCADE INSTALLATION WITH MANAGER PRO

For all the projects where a cascade installation is required, the MANAGER Pro cascade controller is able to manage up to 6 units for space heating or cooling. Equipped with Electrical panel IP 55 + RS485 serial connection card - Modbus RTU+ Router UMTS configured with SIM card allows the access via private VPN.



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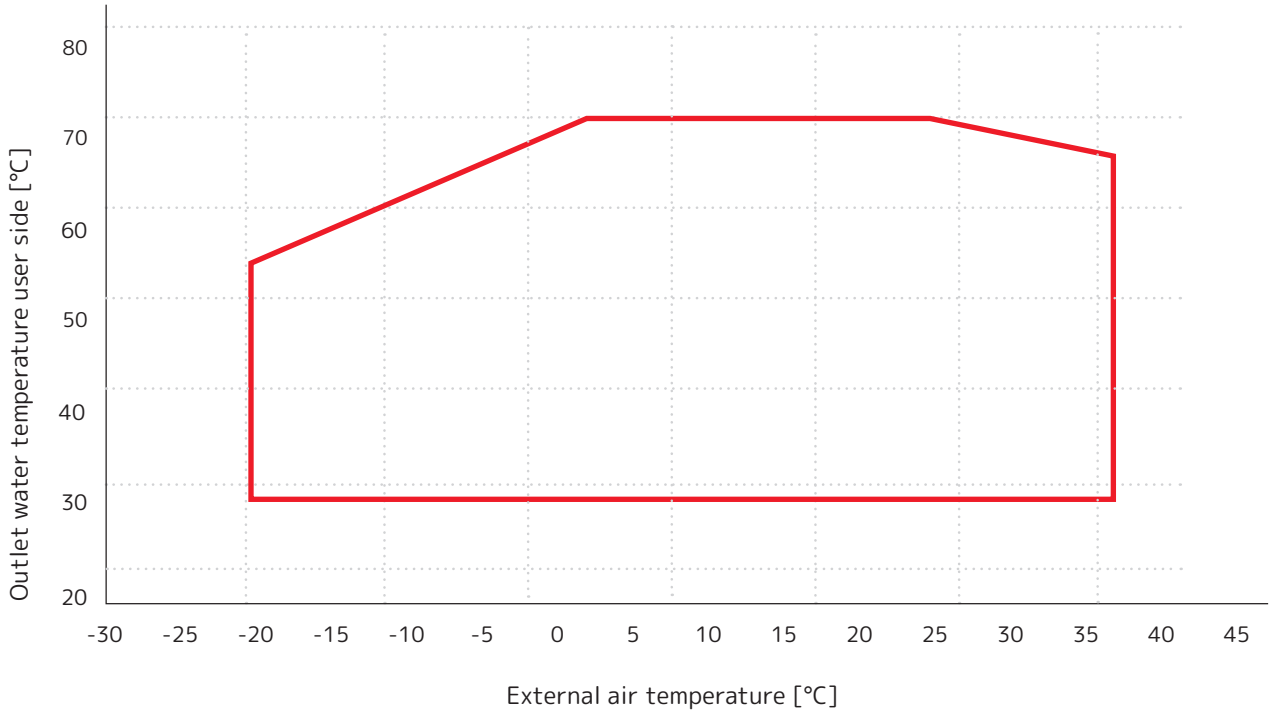
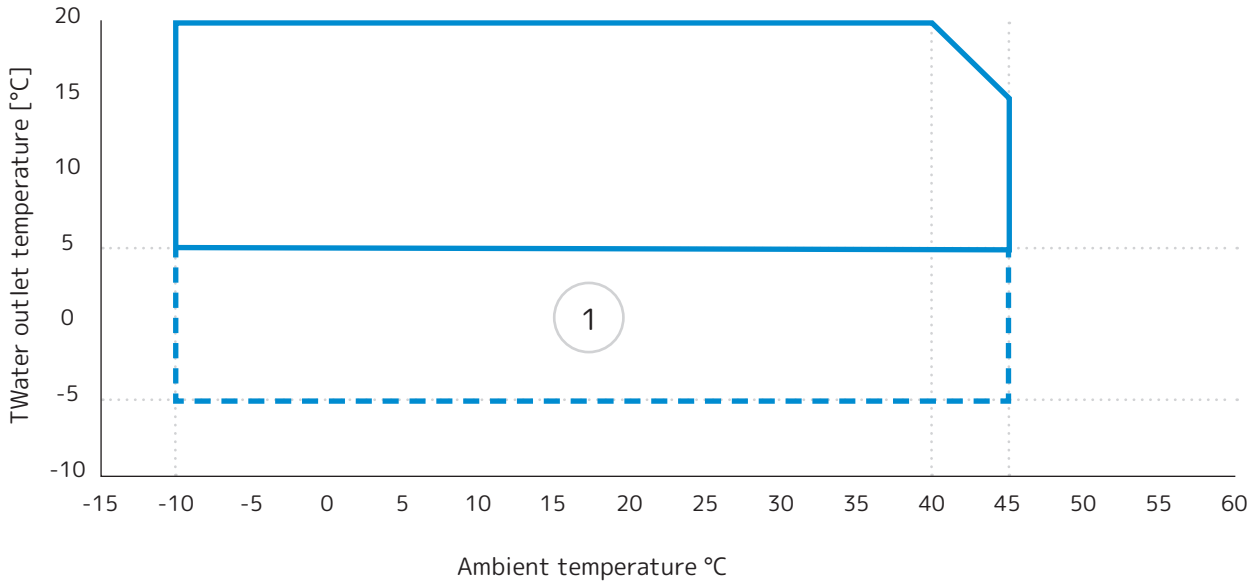
Operation limits

HEATING



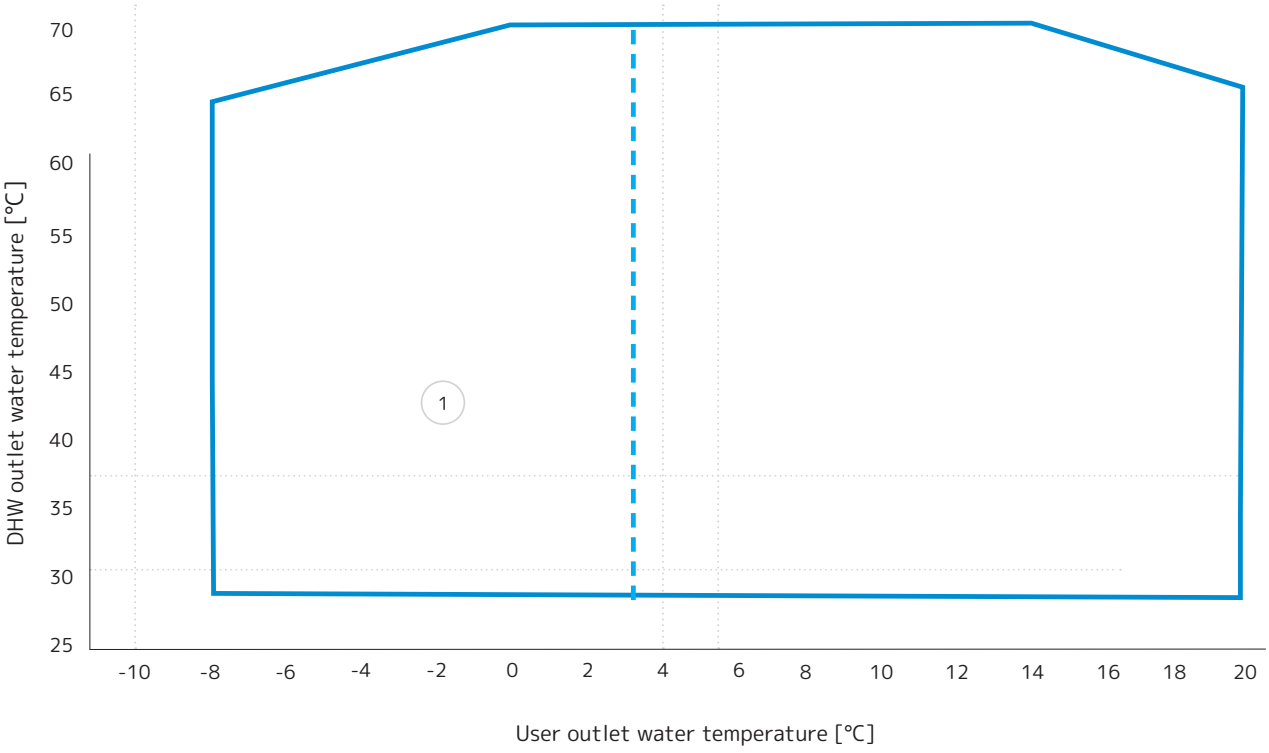
Notes
- The temperature difference at the exchanger on user side must be between 3°C and 8°C
- The water inlet temperature at the exchanger on user side cannot be lower than 25°C
- Within the operating limits, the fan section can be subject to modulation

COOLING



Notes
- The temperature difference at the exchanger on user side must be between 3°C and 8°C
- (1) The unit can only operate in this area with evaporator side glycol water
- Within the operating limits, the fan section can be subject to modulation

COOLING + HEATING



Note

- The temperature difference at the exchanger on user side must be between 3°C and 8°C
- (1) The unit can only operate in this area with evaporator side glycol water

Technical specifications

MODEL			50.2	60.2	75.2	85.2	100.4	120.4	150.4	170.4
HEATING (EN14511 VALUES) (A7;W35)										
Heating capacity	(1), (7)	kW	50,2	61,4	75,0	81,9	101,0	123,0	151,0	164,0
Total absorbed capacity during heating	(1), (7)	kW	12,4	14,4	17,6	19,8	24,5	28,8	34,6	39,7
COP	(1), (7)		4,05	4,26	4,26	4,14	4,12	4,27	4,36	4,1
HEATING (EN14511 VALUES) (A7;W55)										
Heating capacity	(2), (7)	kW	47,2	57,3	69,4	76,4	94,5	114,0	139,0	153,0
Total absorbed capacity during heating	(2), (7)	kW	16,5	19,0	23,1	25,6	32,7	38,0	45,5	51,2
COP	(2), (7)		2,86	3,02	3,00	2,98	2,89	3,00	3,05	3,0
ENERGY SEASONAL INDEX										
SCOP	(8)		3,13	3,41	3,13	3,24	3,31	3,58	3,31	3,39
Seasonal energy efficiency η_s	(8)	%	122	134	122	127	129	140	130	133
Seasonal Efficiency class	(8)		A+	A++	A+	A++	A++ (9)	A++ (9)	A++ (9)	A++ (9)
COOLING (EN14511 VALUES) (A35;W7)										
Cooling capacity	(3), (7)	kW	42,4	50,9	65,8	72,9	85,4	101,0	126,0	143,0
Total absorbed capacity during cooling	(3), (7)	kW	15,9	19,4	21,3	25,5	31,6	38,6	42,4	50,6
EER	(3), (7)		2,67	2,62	3,09	2,86	2,70	2,62	2,97	2,83
HEATING+ COOLING (EN14511 VALUES) (W55;W7)										
Nominal heating capacity	(10)	kW	56,5	69,3	81,8	94,7	114,0	138,0	159,0	186,0
Nominal cooling capacity	(10)	kW	39,7	49,8	58,0	67,9	80,6	98,9	113,0	133,0
Total Power input	(10)	kW	16,90	19,60	23,90	26,90	33,30	39,20	46,50	53,50
TER	(10)		5,69	6,08	5,85	6,04	5,84	6,04	5,85	5,96
COMPRESSOR										
Type						Scroll				
Quantity/Refrigeration circuits		no./no.	2/1	2/1	2/1	2/1	4/2	4/2	4/2	4/2
Partial load steps		no.	2	2	2	2	4	4	4	4
Oil charge per circuit			6,5	6,5	6,5	6,5	6,5	6,5	6,5	6,5
Refrigerant charge per circuit		kg	4,0	5,0	6,1	7,7	3,8	4,8	5,9	7,5
AXIAL FANS										
Quantity		no.	1	1	2	2	2	2	4	4
Air flow		m3/h	13.825	13.488	27.602	26.642	27.644	26.985	55.215	53.292
HEAT EXCHANGER AT USER END										
Type						Braze welded plates				
Water flow rate (A7/W35)	(1)	m3/h	9	11	13	14	17	21	26	28
Pressure drop (A7/W35)	(1)	kPa	29	21	25	14	20	18	23	23

(1) Outdoor air temperature 7°C DB, 6°C WB; condenser inlet-outlet water temperature 30-35°C
(2) Outdoor air temperature 7°C DB, 6°C WB; condenser inlet-outlet water temperature 47-55 °C
(3) Outdoor air temperature 35°C; evaporator inlet-outlet water temperature 12-7°C
(4) Sound power levels calculated according to ISO 3744
(5) Sound pressure levels referred to a 1 m distance from the unit in free field
(6) Sound levels referred to chiller operation conditions, water 12°/7°C, outdoor air 35°C.
(7) Values in compliance with standard EN 14511-3:2018
(8) In accordance with European directive no.813/2013 and EN14511 - EN14825 For Temperate Climate (Strasbourg) User Application Average temperature (55°C) Variable outlet temperature
(9) Not subject to EU Regulation No. 811/2013, rated heating capacity > 70 kW
(10) IN/OUT evaporator water temperature 12-7°C, IN/OUT condenser water temperature 47-55 °C
This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation

MODEL			50.2	60.2	75.2	85.2	100.4	120.4	150.4	170.4
HYDRAULIC MODULE										
Pump Rated Power		kW	1,3	1,3	1,3	1,3	2,4	2,4	2,5	3
Pump working head (A7/W35)	(1)	kPa	159	187	181	183	217	214	206	206
HYDRAULIC CONNECTIONS										
Connections			1"1/2	1"1/2	2"	2"	2"1/2	2"1/2	2"1/2	2"1/2
BASE UNIT NOISE										
Sound power level	(4), (6)	dB(A)	70	70	73	73	73	73	76	76
Sound pressure level	(5), (6)	dB(A)	52	52	55	55	54	54	56	56
BASE UNIT DIMENSIONS AND WEIGHTS										
Length		mm	2.002	2.002	2.982	2.982	3.641	3.641	5.601	5.601
Depth		mm	1.384	1.384	1.384	1.384	1.384	1.384	1.384	1.384
Height		mm	2.446	2.446	2.446	2.446	2.446	2.446	2.446	2.446
Delivery weight		kg	860	876	1142	1173	1482	1520	2107	2119

(1) Outdoor air temperature 7°C DB, 6°C WB; condenser inlet-outlet water temperature 30-35°C
(4) Sound power levels calculated according to ISO 3744
(5) Sound pressure levels referred to a 1 m distance from the unit in free field
(6) Sound levels referred to chiller operation conditions, water 12°/7°C, outdoor air 35°C.

Electrical data

MODEL			50.2	60.2	75.2	85.2	100.4	120.4	150.4	170.4
Max absorbed power	(1),(3)	kW	23,8 (25,1)	28,7 (30)	35,2 (36,5)	39,9 (41,2)	47,6 (50)	57,4 (59,8)	70,3 (72,8)	79,7 (82,7)
Max absorbed current	(2),(3)	A	43 (45,4)	52 (54,4)	62,4 (64,8)	68,4 (70,9)	86 (90,5)	104 (109)	125 (129)	137 (143)
Max inrush current	(4)	A	169 (172)	174 (176)	173 (176)	221 (224)	212 (217)	226 (230)	236 (240)	290 (296)
Electrical power supply		V/ph/Hz	400/3~/50 ±5%							
Auxiliary power supply		V/ph/Hz	230/1~/50 ±5%							

(1) Electric power that must be available from the mains for unit operation
(2) Current at which the unit internal protection devices are triggered. It is the maximum current absorbed by the unit. This value is never exceeded and must be used for sizing the line and related protection devices (please refer to the wiring diagram supplied with the units.)
(3) The values in brackets refer to the units in the version with pump (with or without storage tank).
(4) Maximum inrush current calculated considering the compressor starting at the highest power value and the maximum current absorption by all the other devices

Notes
Frequency unbalance: max ±2%
Tollerance on voltange: max ±5%

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