TECHNICAL BROCHURE - EN

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R290

PALLADIUM

NATURAL SOLUTIONS

ULTRA LOW NOISE

enerblue

INSPIRED BY NATURE

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PALLADIUM

NATURAL REFRIGERANT

GWP=3

ODP=0

The range of PALLADIUM heat pumps has been designed to allow units to be used with R290 natural refrigerant even in applications where noise must be minimised. The perfect balance between sizing of the aeraulic section, soundproofing of the unit and the combination of top performance and operating limits stretched to the furthest possible point has resulted in a range of reversible heat pumps designed to meet the requirements of even the most challenging heating applications.

Range	
Heating	(A7; W55) 51 ÷ 164 kW
Cooling	(A35; W7) 40 ÷ 135 kW

Reversible | Scroll compressors | Axial fans | Ultra Low Noise | Multifunctional | 4 pipe system

Quality is in the details

1. Fan with larger diameter and lower RPM.
2. Microtube coils with large exchange surface to minimise the refrigerant charge and noise levels.
3. Metal protection grid for the coils.
4. Scroll compressors optimised for operation with R290 refrigerant.
5. Acoustically insulated compressor compartment to reduce noise emissions.

7 Threaded hydraulic connections flush with the metalwork.

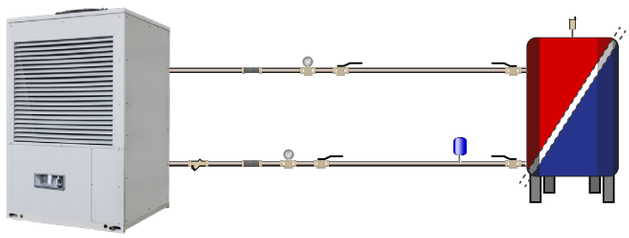
6 Leak detection system pre-installed and calibrated at the factory.

AVAILABLE VERSIONS

WATER
temperature limits

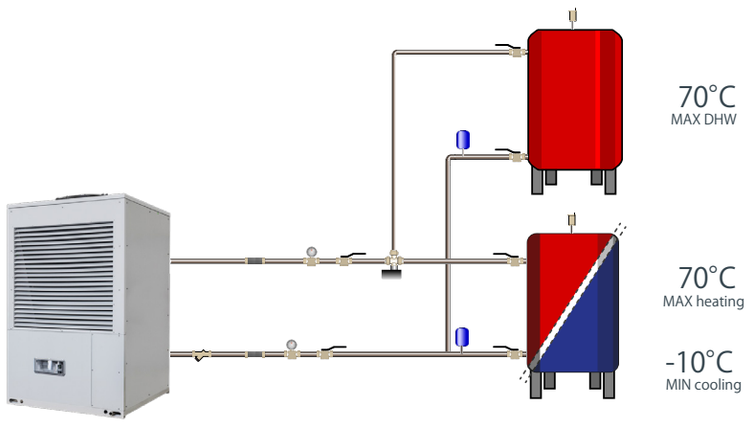
STANDARD

For dedicated 2-pipe systems
for cooling and/or heating with
temperatures up to 70°C.



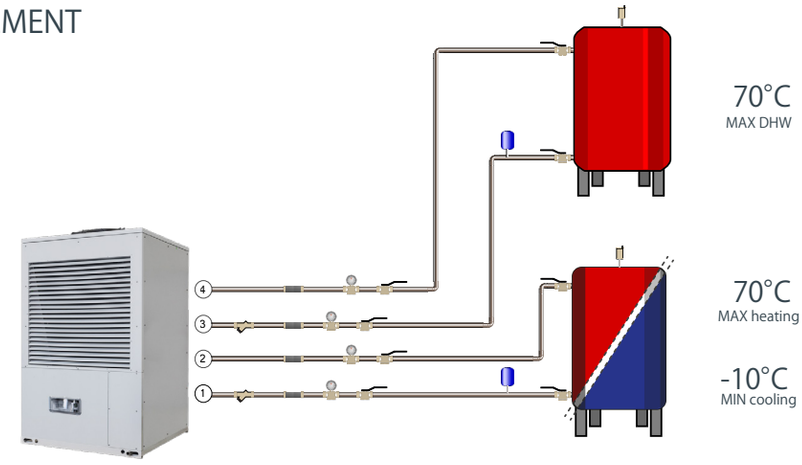
AUTOMATIC MANAGEMENT OF DOMESTIC HOT WATER

For dedicated 2-pipe systems for cooling and/
or heating designed to manage DHW production.
Maximum water outlet temperature 70°C.



DWS - AUTOMATIC DHW MANAGEMENT

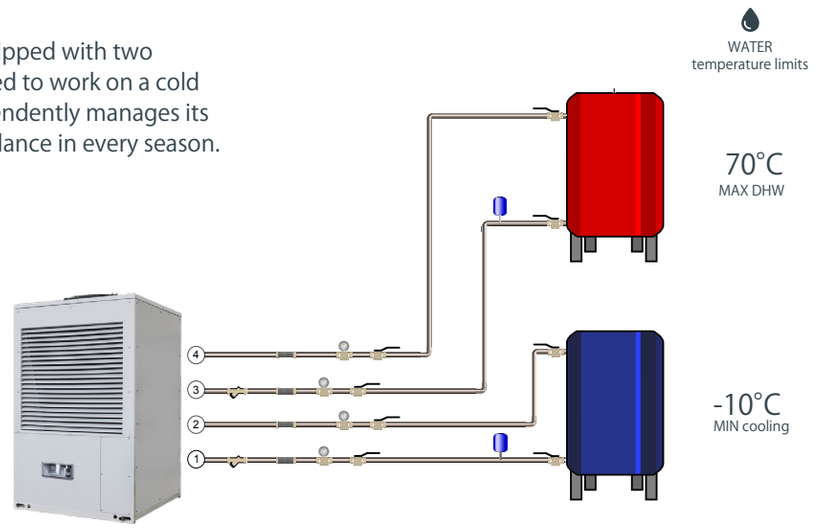
In this version the Palladium heat pump is
equipped with two plate exchangers. One
on system side for cooling and heating
and a dedicated one for DHW production.



(1/2) Users input/output (3/4) Recovery input/output

4T - 4 PIPE MULTIFUNCTIONAL

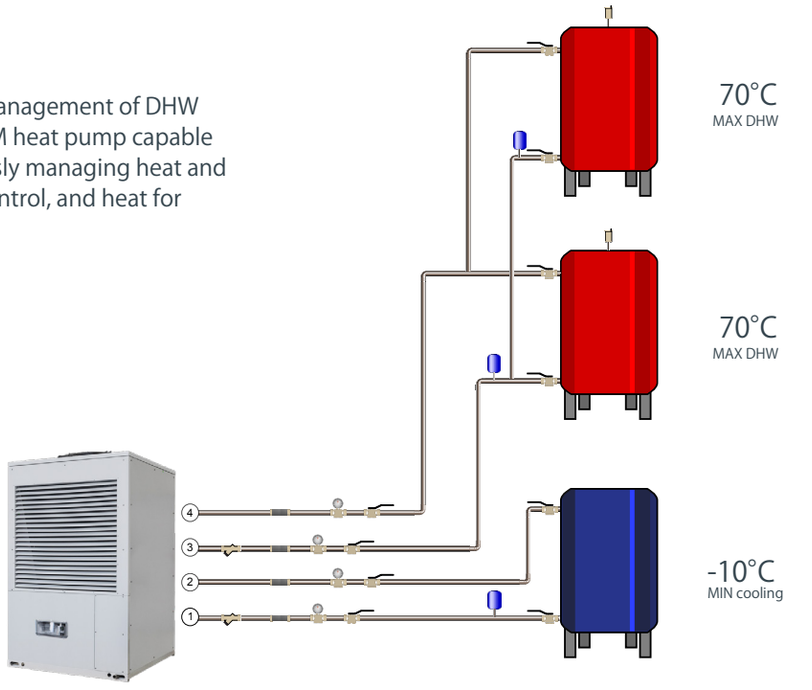
In this version the Palladium heat pump is equipped with two plate exchangers. The 4-pipe system is designed to work on a cold circuit and a hot circuit. The heat pump independently manages its operating mode to achieve the best energy balance in every season.



(1/2) Users input/output (3/4) Recovery input/output

6T - 6 PIPE MULTIFUNCTIONAL

By combining the 4T version with automatic management of DHW production it is possible to obtain a PALLADIUM heat pump capable of operating in a 6-pipe system by autonomously managing heat and cold conditioning production for internal air control, and heat for the production of DHW.



(1/2) Users input/output (3/4) Recovery input/output

CONFIGURATIONS

ULN Ultra Low Noise:

Standard

TECHNICAL SPECIFICATIONS

MODEL			50.2	60.2	75.2	85.2	100.4	120.4	150.4	170.4
Heating (EN14511 values) (A7;W35)										
Rated heating capacity	(1), (7)	kW	51.1	61.5	76.8	82.2	102	123	154	164
Total absorbed capacity during heating	(1), (7)	kW	13	13.9	19.8	20	25.8	27.8	39.1	40.1
COP	(1), (7)		3.93	4.42	3.88	4.11	3.95	4.42	3.94	4.1
Heating (EN14511 values) (A7;W55)										
Rated heating capacity	(2), (7)	kW	48.5	58.1	70.9	77	96.8	116	142	154
Total absorbed capacity during heating	(2), (7)	kW	16.9	19.4	24.2	25.8	33.5	38.9	47.8	51.7
COP	(2), (7)		2.87	2.99	2.93	2.98	2.89	2.98	2.97	3
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)	%	122.3	133.6	122.3	126.6	129.3	140.4	129.6	132.8
Seasonal Efficiency class	(8)		A+	A++	A+	A++	A++ (9)	A++ (9)	A++ (9)	A++ (9)
Cooling (EN14511 values) (A35;W7)										
Rated cooling capacity	(3), (7)	kW	40.3	47.6	60.9	68	81.1	95.5	122	135
Total absorbed capacity during cooling	(3), (7)	kW	16.4	18.9	22.7	25.1	32.9	37.7	45.2	50.1
EER	(3), (7)		2.46	2.52	2.68	2.71	2.47	2.53	2.7	2.69
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	13	13	13	13
Refrigerant charge per circuit		kg	2.5	3.2	4.2	6.5	5.4	7.2	9.3	12.4
Axial fans										
Quantity		no.	1	1	2	2	2	2	4	4
Air flow		m3/h	13,811	13,481	27,585	26,643	27,614	26,967	55,179	53,281
Heat exchanger at user end										
Type			Braze welded plates							
Water flow rate (A7/W35)	(1)	l/h	9	11	13	14	18	21	27	28
Pressure drop (A7/W35)	(1)	kPa	30	21	26	14	20	18	24	23
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	157	160	142	150	187	174	136	176
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)	53	53	55	55	55	55	56	56
Base unit dimensions and weights										
Length		mm	1,435	1,435	2,435	2,435	2,870	2,870	4,920	4,920
Depth		mm	1,505	1,505	1,505	1,505	1,505	1,505	1,505	1,505
Height		mm	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360

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	28.7	35.2	39.9	47.6	57.4	70.3	79.7
			(25.1)	(30)	(36.5)	(41.2)	(50)	(59.8)	(72.8)	(82.7)
Max absorbed current	(2),(3)	A	43	52	65.8	74.6	86	104	132	149
			(45.4)	(54.4)	(68.2)	(77.1)	(90.5)	(109)	(136)	(156)
Max inrush current	(4)	A	169	174	175	224	212	226	241	299
			(172)	(176)	(178)	(227)	(217)	(230)	(245)	(305)
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

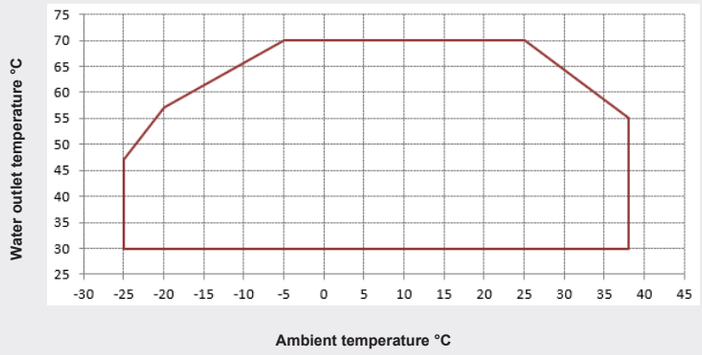
Notes
Voltage unbalance: max 2%

(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

This data sheet shows the characteristic data of the basic and standard versions of the series; for details, please refer to the specific documentation.

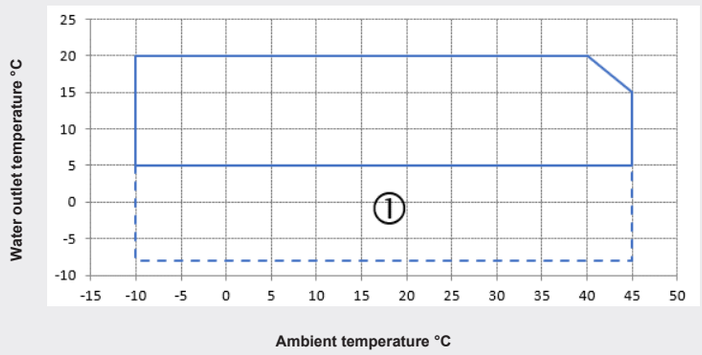
OPERATION LIMITS

HEATING



Notes
- The temperature difference at the exchanger on user side must be between 3°C and 8°C
- ① Working outside the operating limits can trigger the safety devices or cause severe malfunctions
- 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 Working outside the operating limits can trigger the safety devices or cause severe malfunctions
- 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

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