



Outdoor packaged unit with R290

PLN P 50 - 150 kW



Scroll compressor



R-290 Refrigerant



A3 gas leak
detection



Multi-purpose
4 pipes system



Heating/Cooling

PLUS

- » R290 refrigerant (GWP=3)
- » Multi-scroll solutions
- » Low refrigerant charge (<10 kg for circuit)
- » Production of hot water up to 78°C
- » Full load operation down to -20°C air (50°C water)
- » Very high seasonal efficiency values
- » Total heat recovery
- » Availability of silenced setups

The PLN P multi-purpose units have been designed for cooling or heating water intended for air-conditioning and heating systems in residential, commercial, or industrial applications. The use of the natural refrigerant R290 (propane) ensures compliance with the more stringent limits imposed by the F-GAS regulation regarding gases with a potential contribution to global warming (greenhouse gases).

Outdoor packaged air-water polyvalent units with R290 refrigerant and multi-scroll compressors

The reduction of polluting emissions, whether directly related to the use of greenhouse gases or more indirectly related to emissions from the production of electricity used during the lifetime of a heat pump, is the first and most important pillar on which Galletti has based its Advanced Design solutions.

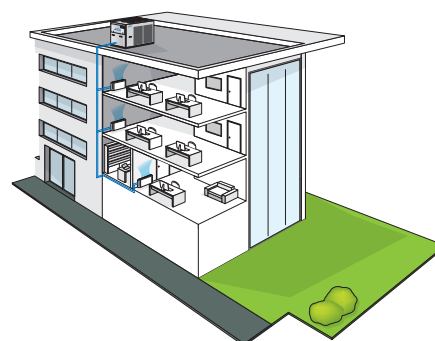
This journey led to the creation of PLN P, a new range of air-water units with total heat recovery, natural refrigerant, and multi-scroll solutions. Its extremely wide operating range and high performance under all operating conditions make it the ideal answer to the growing need to gradually move away from fossil energy sources for the heating and cooling of buildings.

Thanks to the high temperature of the water produced (up to 78°C), we can replace a fossil fuel generator while maintaining the full performance of the existing emissions system.

By leveraging multi-scroll configurations (with up to 4 compressors), we produce exactly what is needed at any given moment to ensure people's comfort no more, no less while working to maximize the overall system efficiency.

We look to the future of our environment as well as the needs of the people who use our products.

We work every day to make indoor comfort more sustainable.



Natural refrigerant (R290)

R290 (propane) is a natural refrigerant with a GWP (Global Warming Potential) of only 3. This makes it a strong contender to be one of the leading refrigerants for air conditioning solutions. It has a much lower contribution to the greenhouse effect than synthetic refrigerants and physical properties that make it ideal for the design requirements associated with the ever-increasing use of heat pumps.

Scroll compressor

The new scroll compressor for R290 is designed for both single and parallel configurations, offering higher efficiency and extended durability. Featuring innovative elements such as intermediate discharge valves (IDV) for superior seasonal efficiency, lead-free polymer bearings for improved performance under low-lubrication conditions, and a patented motor for optimal cooling, this series sets a new benchmark in compressor technology. In addition, the internal non-return valve (INRV) minimizes the risk of leakage, while the brazed oil tube connection ensures leak-free operation.

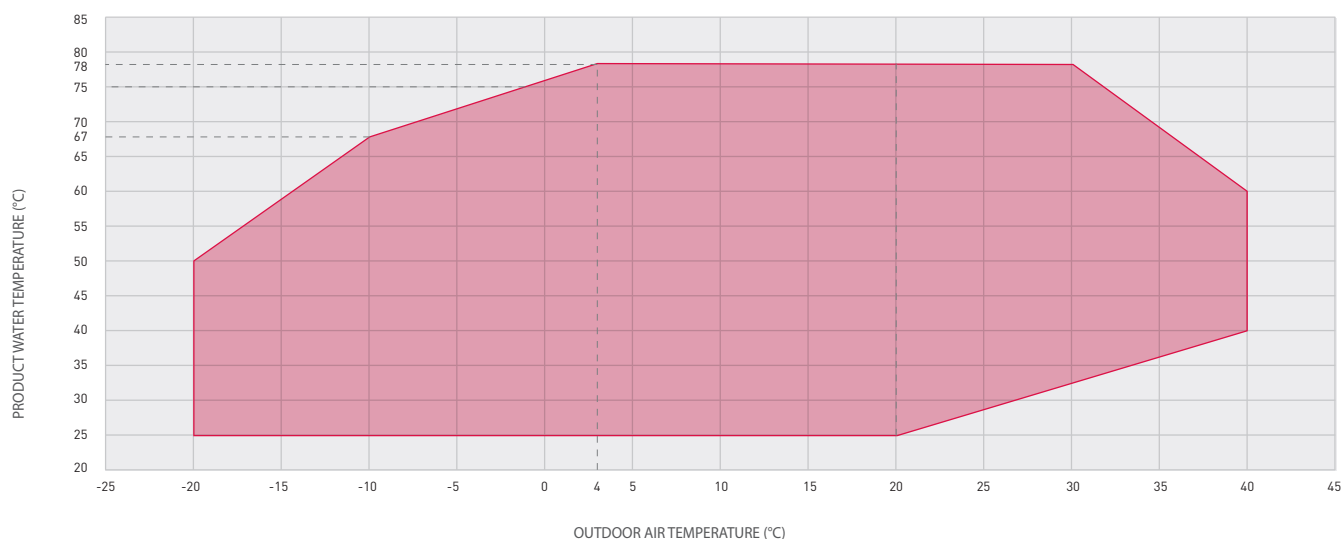
EXTENDED OPERATING RANGE FOR EACH APPLICATION

Extremely extended operating limits

It is now clear that heat pumps will play a key role in achieving the objectives of the European Green Deal first and foremost, the phase-out of fossil fuels. One of the essential requirements for heat pumps to be considered a true alternative to boilers, even in the harshest climates, is undoubtedly the extension of the operating limits that have traditionally constrained conventional heat pumps. Thanks to the use of a new-generation scroll compressor technology, combined with propane as a natural refrigerant and the innovative solutions developed by the Advanced Design Unit of Galletti during the design and prototyping phase, PLN P ensures the ability to produce hot water at very high temperatures (up to 78 °C) and to operate at full load even at extremely low outdoor temperatures (down to -20 °C).

In this way (given the temperature levels achievable, unimaginable with a traditional heat pump) it becomes possible to replace a combustion generator with an R290 heat pump, even when building insulation improvements are postponed. This allows a significant increase in the share of renewable energy used for heating, without compromising indoor comfort.

Advanced Design's solutions look to the future of the environment and the needs of the people who use our products.



Multi-purpose units with natural refrigerant

CONFIGURATOR

The models are completely configurable by selecting the version and the options. To the right is shown an example of configuration.

Version	Field	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PLN071PS2A	A	1	S	0	E	E	0	0	0	I	G	0	1	2	0	

To verify the compatibility of the options, use the online selection software or the price list.

AVAILABLE VERSIONS

Multipurpose versions with full recovery for 4-pipe systems

PLN..PS2A	Electrical supply 400V-3N-50Hz with circuit breakers
PLN..PS5A	Electrical supply 400V-3-50Hz with circuit breakers

CONFIGURATION OPTIONS - PRELIMINARY

- 1 Expansion valve**
 - A Electronic valve
- 2 User side water pump**
 - 0 Absent
 - 1 Single standard pump
 - 2 Double std pump - OR
 - 3 Single HP pump
 - 4 HP double pump - OR
 - A Single inverter standard pump
 - B Standard double inverter pump - OR (excludes inverter pump recovery side)
 - C Inverter Single HP pump
 - D HP double inverter pump - OR (excludes inverter pump recovery side)
- 3 Water buffer tank**
 - 0 Absent
 - R Selected recovery side
 - S Selected user side
- 4 Recovery water pump**
 - 0 Absent
 - 1 Single standard pump
 - 2 Double std pump - OR
 - 3 Single HP pump
 - 4 HP double pump - OR
 - A Single inverter standard pump
 - B Std single inverter pump - OR (excludes inverter pump user side)
 - C Inverter Single HP pump
 - D HP double inverter pump - OR (excludes inverter pump user side)
- 5 Condensation/Evaporation Control**
 - A With EC Fans high pressure head
 - C With phase-cut (not available up to size 114)
 - E With EC Fans (supplied up to size 114)
- 6 Antifreezing kit**
 - E Only plate exchanger (supplied user and recovery)
 - P Plate exchanger and pump
 - S For plate exchanger, pump, tank and expansion vassel
 - T Plate exchanger, tank and expansion vassel
- 7 Acoustic insulation and attenuation**
 - 0 Absent
 - 3 Compressor compartment acoustic insulation and sound blanket
 - 6 Compressor compartment acoustic insulation and sound blanket + Low-noise fans
- 8 Remote communication**
 - 0 Absent
 - 2 RS485 Board (Modbus protocol or Carel)
 - B BACNET IP/pCOWeb serial board
 - G BACNET IP / pCOWeb serial board + supervision software
- 9 Remote control**

- 0 Absent
- S Remote simplified control panel
- T Touch screen control (up to 50m)
- X Additional remote control for advanced control (up to 50m)
- 10 Special coils / Protective treatments**
 - 0 Copper - aluminium
 - C Cataphoresis
 - I Hydrophilic
 - P Pre-painted fins with epoxy painting
 - R Copper-copper
- 11 Base vibration dampers**
 - 0 Absent
 - G Made of rubber
 - M With spring
- 12 Outdoor coil trace heater and unit base**
 - 0 Absent
 - 1 Selected
- 13 Control panel**
 - 1 Advanced
 - 2 Advanced with touch screen display
- 14 Water flow control**
 - 2 Vane-type flow switch
 - 3 Hot-wire electronic flow switch

ACCESSORIES

B	Outdoor finned coil heat exchanger protection grille
D	ON/OFF status of the compressors
E	Remote control for power step limits
F	Configurable digital alarm board
G	Soft starter
H	Power factor capacitors
I	Refrigerant sensors (standard)
L	Double insulation water side (as standard for tank)
M	0-10V signal for external user pump control (only if opt 4 =0)
N	Integration system enabling contact (boiler / electric heater) plant
O	Night-time low-noise (only if opt 7 different from 6)
Q	Couple of probes for buffer tank temperature regulation (user and recovery)
R	Enabling 2nd set-point
T	Mains power analyzer for monitoring of power consumption
V	Set-point modification with 4-20mA signal
3	2 Deaerators for hot and cold hydraulic circuits (supplied as an accessory)
4	2 Dirt separators for hot and cold hydraulic circuits (supplied as an accessory)



RATED TECHNICAL DATA PLN P

PLN P			051	071	081	104	114	134	154
Power supply		V-ph-Hz	400-3N-50						
Cooling mode operation									
Cooling capacity	(1)(E)	kW	50,8	63,0	73,0	103	115	125	147
Total power input	(1)(E)	kW	16,9	20,9	24,9	34,8	39,0	41,3	49,6
EER	(1)(E)		2,95	2,96	2,82	2,87	2,83	3,10	2,97
Water flow	(1)	l/h	8565	10652	12114	17206	19005	22025	25369
Water pressure drop	(1)(E)	kPa	25	34	41	48	57	32	38
Available pressure head - LP pumps	(3)	kPa	161	145	129	116	103	198	180
Available pressure head - HP pumps	(3)	kPa	195	180	165	175	162	322	303
Cooling and heating mode in total heat recovery									
Cooling capacity	(2)(E)	kW	50,8	63,0	73,0	103	115	125	147
Heating capacity	(2)(E)	kW	64,9	80,2	93,7	131	146	160	188
Total power input	(2)(E)	kW	15,1	18,2	21,9	30,2	33,9	36,4	43,1
TER	(2)(E)		7,68	7,86	7,62	7,71	7,71	7,82	7,80
Available pressure head LP pumps user side		kPa	163	149	133	120	111	200	183
Available pressure head HP pumps user side		kPa	197	184	168	179	169	324	307
Available pressure head LP pump total recovery side		kPa	157	139	118	114	99	190	170
Available pressure head HP pump total recovery side		kPa	191	173	152	172	157	313	292
Heating mode operation									
Heating capacity	(3)(E)	kW	54,2	67,8	78,2	106	121	135	156
Total power input	(3)(E)	kW	16,0	20,0	23,2	31,8	35,3	39,9	46,4
COP	(3)(E)		3,39	3,39	3,36	3,33	3,42	3,38	3,36
SCOP	(4)		3,10	3,05	3,06	3,25	3,36	3,16	3,30
SCOP	(5)		3,86	3,75	3,72	3,94	4,03	3,84	3,97
Heating energy efficiency class	(6)		A++	A+	A+	A+ +	A+ +	A++	A+ +
Heating energy efficiency class	(7)		A+	A+	A+	A+ +	A+ +	A+	A+ +
Water flow	(3)	l/h	9401	11759	13547	18321	20907	23362	27062
Water pressure drop	(3)(E)	kPa	25	35	45	48	59	33	40
Available pressure head - LP pumps	(3)	kPa	152	132	108	102	87	179	152
Available pressure head - HP pumps	(3)	kPa	187	167	144	160	145	301	273
General data									
Maximum current absorption		A	67,0	77,0	84,0	129	137	152	157
Start up current		A	187	240	247	249	264	315	320
Startup current with soft starter		A	143	181	188	205	217	256	261
Compressors / circuits			2/2	2/2	2/2	4/2	4/2	4/2	4/2
Buffer tank volume		dm³	125	200	200	200	200	600	600
Sound power level	(8)(E)	dB(A)	84	85	85	85	86	87	87
Sound power level, low-noise version	(8)	dB(A)	81	82	82	82	83	84	84
Maximum transport weight		kg	1105	1348	1348	1863	1863	2694	2694

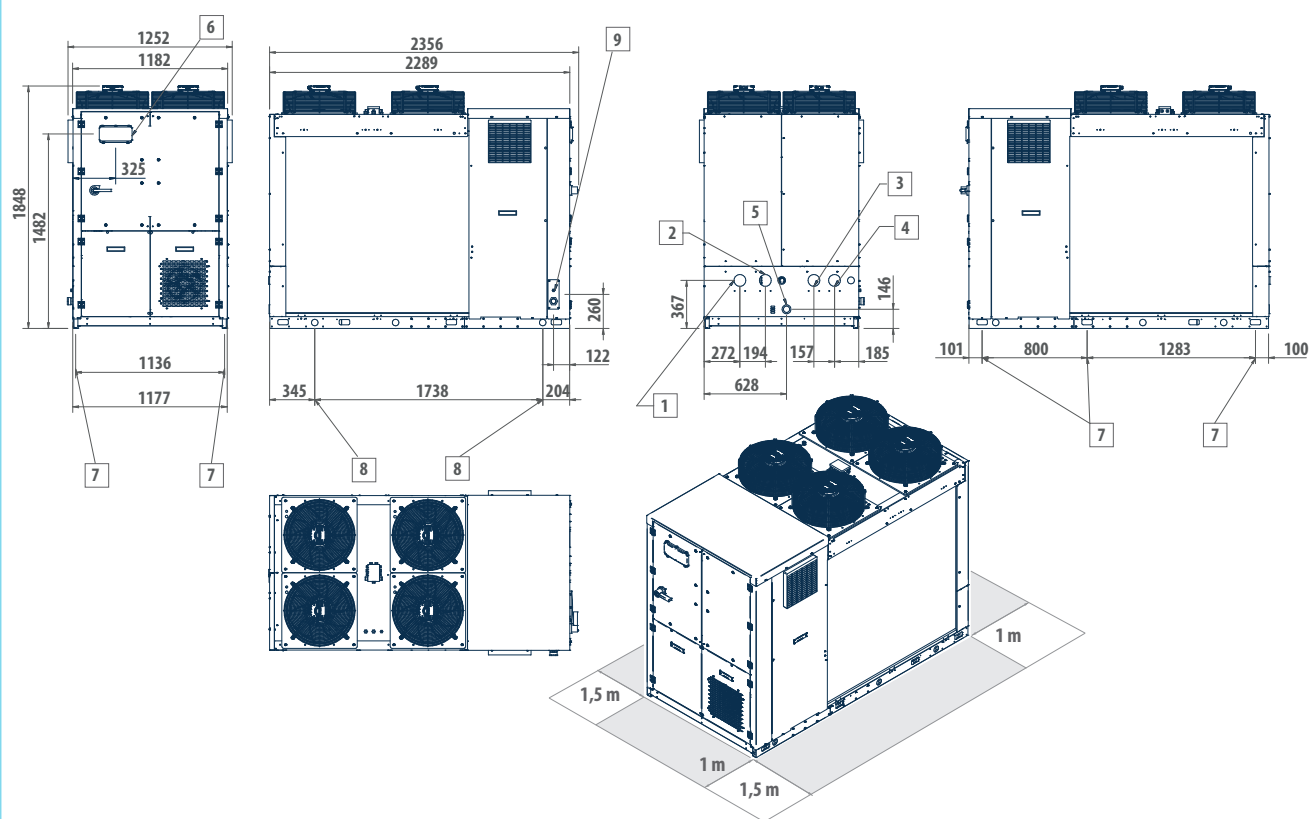
- (1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2022)
 (2) Cooling water temperature 7°C, water flow rate same as in cooling mode; Recovery water temperature 45°C, water flow rate same as in heating mode
 (3) Outdoor air temperature dry bulb 7°C / wet bulb 6°C, water temperature 40°C / 45°C (EN14511:2022)
 (4) η efficiency values for heating and cooling are respectively calculated by the following formulas: $[\eta = SCOP / 2,5 - F(1) - F(2)]$ e $[\eta = SEER / 2,5 - F(1) - F(2)]$. For further information, please refer to the technical document "ErP 2009/125/EC DIRECTIVE" in the catalogue introducing pages, or to the EN14825:2022 regulation. Medium temperature conditions.
 (5) η efficiency values for heating and cooling are respectively calculated by the following formulas: $[\eta = SCOP / 2,5 - F(1) - F(2)]$ e $[\eta = SEER / 2,5 - F(1) - F(2)]$. For further information, please refer to the technical document "ErP 2009/125/EC DIRECTIVE" in the catalogue introducing pages, or to the EN14825:2022 regulation. Low temperature conditions.
 (6) Seasonal energy efficiency class for LOW TEMPERATURE room heating under AVERAGE climatic conditions [EUROPEAN REGULATION No 811/2013]
 (7) Seasonal energy efficiency class for MEDIUM TEMPERATURE room heating under AVERAGE climatic conditions [EUROPEAN REGULATION No 811/2013]
 (8) Sound power level measured according to ISO 9614
 (E) EUROVENT certified data



Multi-purpose units with natural refrigerant

DIMENSIONAL DRAWINGS

PLN P 51

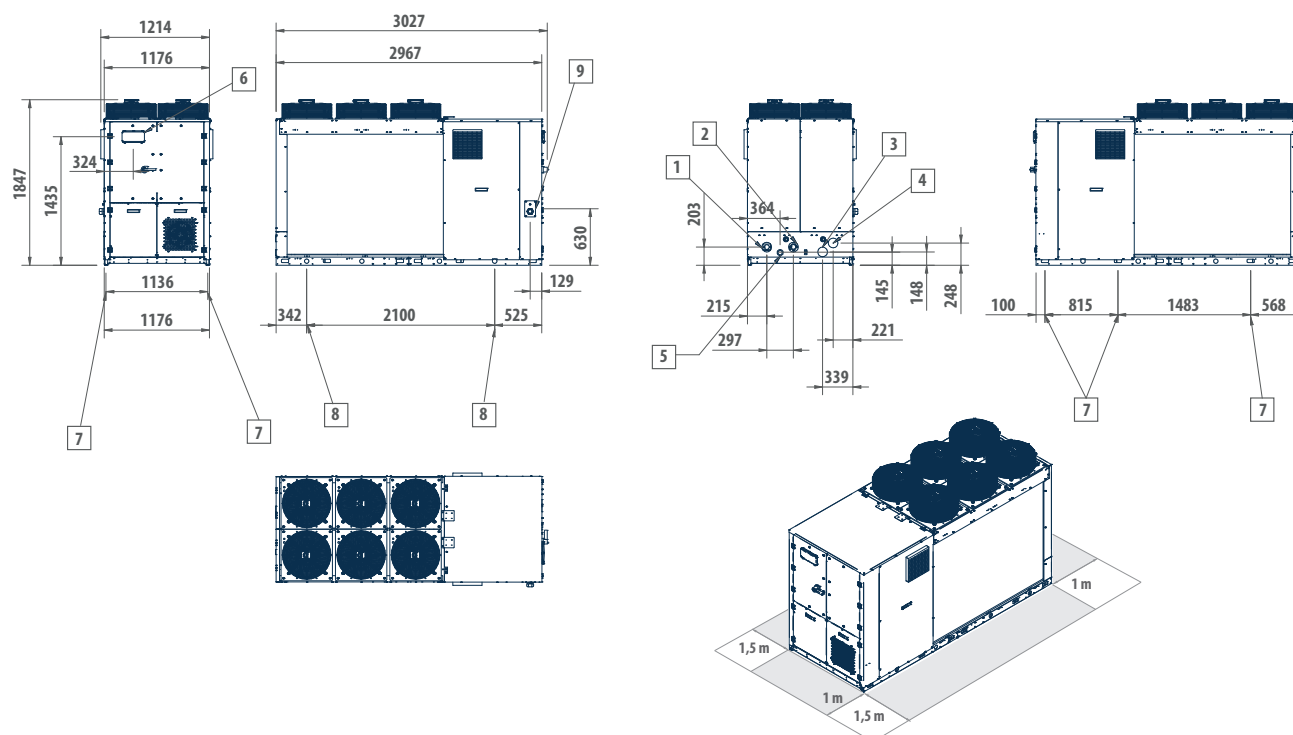


LEGENDA

- | | |
|---|---|
| 1 | Water inlet on user side 2" F |
| 2 | Water outlet user 2" F |
| 3 | Heat recovery hot water inlet 2" F |
| 4 | Recovery hot water outlet recovery 2" F |
| 5 | Water drainage tank 1/2" F |
| 6 | User interface |
| 7 | Vibration dampers |
| 8 | Lifting points |
| 9 | Power supply input |

DIMENSIONAL DRAWINGS

PLN P 71 - 81



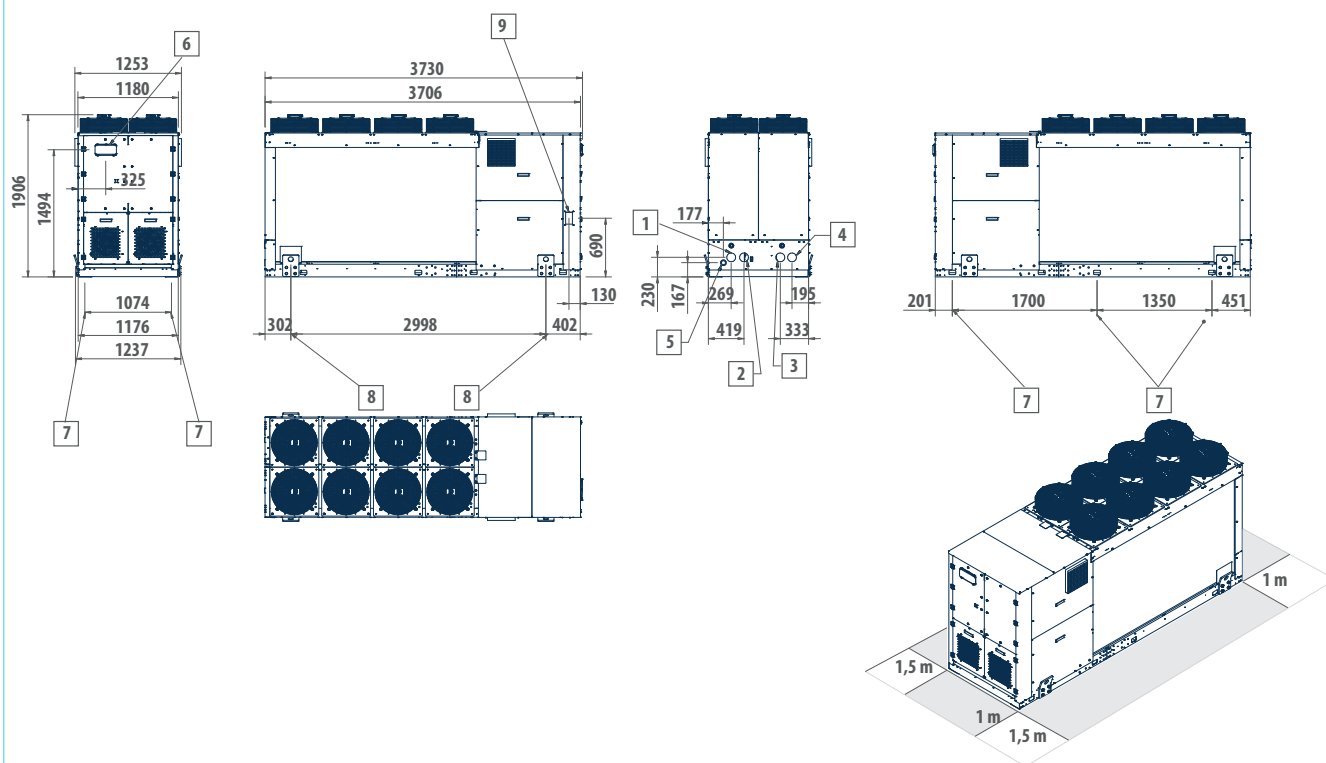
LEGENDA

1	Water inlet on user side 2" 1/2 F
2	Water outlet user 2" 1/2 F
3	Heat recovery hot water inlet 2" 1/2 F
4	Recovery hot water outlet recovery 2" 1/2 F
5	Water drainage tank 1/2 " F
6	User interface
7	Vibration dampers
8	Lifting points
9	Power supply input

Multi-purpose units with natural refrigerant

DIMENSIONAL DRAWINGS

PLN P 104 -114

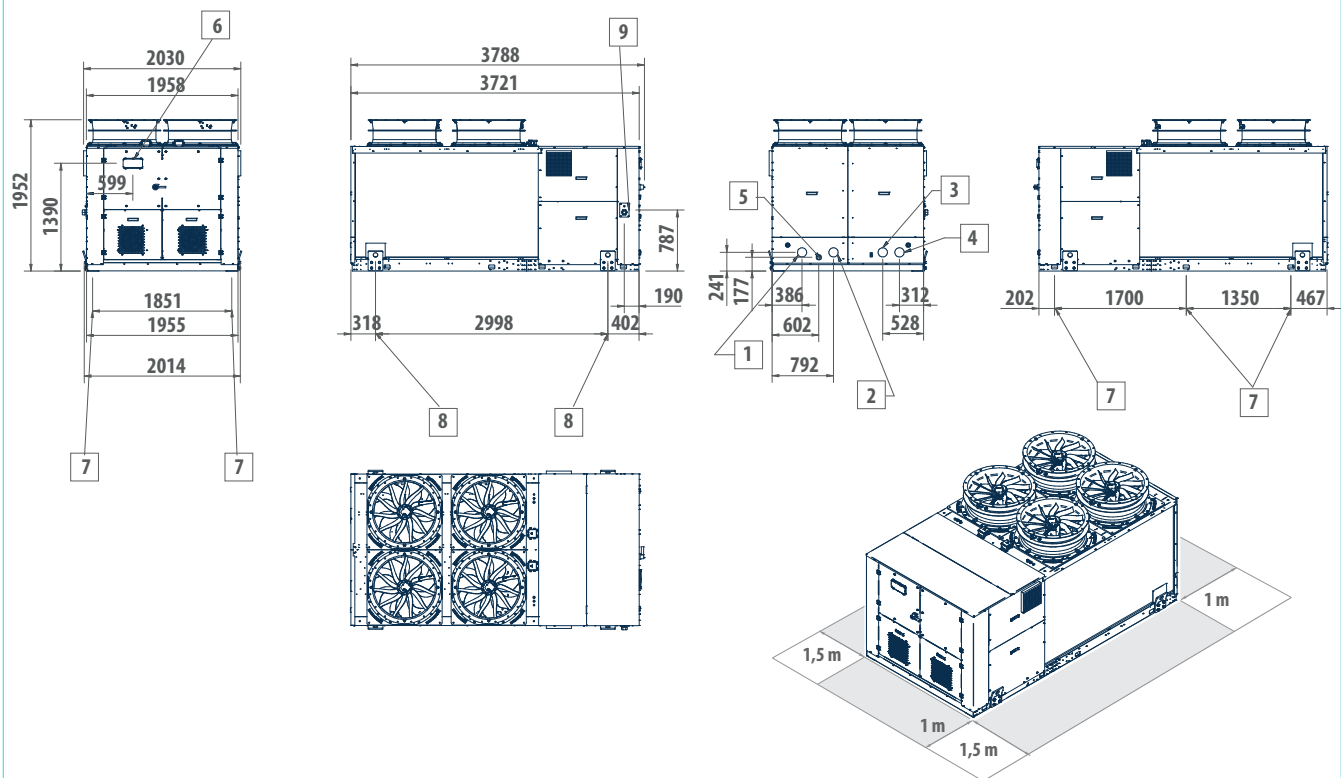


LEGENDA

- | | |
|---|---|
| 1 | Water inlet on user side 2" 1/2 F |
| 2 | Water outlet user 2" 1/2 F |
| 3 | Heat recovery hot water inlet 2" 1/2 F |
| 4 | Recovery hot water outlet recovery 2" 1/2 F |
| 5 | Water drainage tank 1/2" F |
| 6 | User interface |
| 7 | Vibration dampers |
| 8 | Lifting points |
| 9 | Power supply input |

DIMENSIONAL DRAWINGS

PLN P 134 - 154



LEGENDA

1	Water inlet on user side 3" VIC
2	Water outlet user 3" VIC
3	Heat recovery hot water inlet 3" VIC
4	Recovery hot water outlet recovery 3" VIC
5	Water drainage tank 1/2 " F
6	User interface
7	Vibration dampers
8	Lifting points
9	Power supply input