

PLP Chillers and Inverter HP with natural refrigerant



Outdoor packaged unit with R290

PLP 37 - 63 kW



Heat pumps with inverter compressor and low GWP refrigerant

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 has led to the creation of PLP, a new range of natural refrigerant air/water units with inverter compressors. Its extremely wide operating range and high performance under all operating conditions make it the perfect answer to the need to phase out the use of fossil fuels for heating and cooling buildings.

Thanks to the high temperature of the water produced (up to 80°C), we can replace a fossil fuel generator while maintaining the full performance of the existing emissions system.

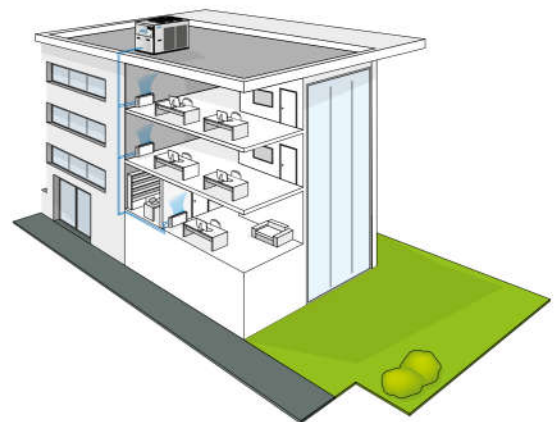
By taking advantage of the continuous modulation of compressor capacity, we produce exactly what is needed to keep people comfortable, no more and no less, without waste, working to maximise the efficiency of the whole system.

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.

PLUS

- R290 refrigerant (GWP=3)
- Inverter driven variable speed scroll compressor
- Very low refrigerant charge (< 5 kg)
- Production of hot water up to 80°C
- Full load operation down to -20°C air (60°C water)
- Very high seasonal efficiency values SCOP up to 4,50 and SEER up to 5,24)
- Power output and COP monitoring (option)
- Availability of silenced setups



PLP heat pumps and water chillers are designed for heating or cooling the water to be used in air-conditioning systems for residential, commercial or industrial use.

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).



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
PLP057HS2A		A	1	S	0	E	E	0	0	0	I	G	0	1	0	1

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

AVAILABLE VERSIONS

Only cooling versions

PLP.CS2A

Power supply 400V-3N-50Hz + circuit breaker

Reversible heat pump versions

PLP.HS2A

Power supply 400V-3-50Hz + circuit breaker

PLP.CSSA

Power supply 400V-3N-50Hz + circuit breaker + transformer

PLP.HSSA

Power supply 400V-3N-50Hz + circuit breaker + transformer

CONFIGURATION OPTIONS

1 Expansion valve

A Electronic valve

2 Water pump and accessories

0 Absent

1 Single standard pump

2 Standard dual OR pump

3 Single HP pump

4 Dual HP OR pump

5 Standard single pump with Viton seal

6 Standard dual OR pump with Viton seal

7 Single HP pump with Viton seal

8 Dual HP OR pump with Viton seal

A Single inverter standard pump

B Standard dual inverter OR pump

C Inverter Single HP pump

D Dual inverter HP OR pump

E Standard single inverter pump with Viton seal

F Standard dual inverter OR pump with Viton seal

G Single inverter HP pump with Viton seal

H Dual inverter HP OR pump with Viton seal

3 Water buffer tank

0 Absent

S Selected

4 De-superheater

0 Absent

D Included with pump free contact

5 Condensation/Evaporation Control

C Phase-cut (up to size 57)

E With EC Fans (available for all models, standard only on 62)

6 Antifreezing kit

E Plate exchangers only

P Plate exchanger and pump

S For plate exchanger, pump and tank

T For plate exchanger and tank

7 Acoustic insulation and attenuation

0 Absent

2 Compressor soundproof insulation

5 Compressor soundproof insulation + low-noise fans

8 Refrigeration circuit options

0 Absent

9 Remote control

0 Absent

2 RS485 connection port (Modbus protocol or Carel)

B BACNET IP/pCOWeb serial board

G BACNET IP / pCOWeb serial board + supervision software

S Simplified additional remote control panel

X Additional remote control for advanced control (up to 50m)

10 Special coils / Protective treatments

C Cataphoresis (only for HP versions)

E Microchannel in Long Life Alloy (standard for chiller)

I Hydrophilic (standard for HP, only for HP versions)

M Microcanali con e-coating (solo versione C)

P Pre-painted fins with epoxy painting (only HP versions)

R Rame-rame (solo versione H)

11 Base vibration dampers

0 Absent

G Made of rubber

M With spring

12 Outdoor coil trace heater

0 Absent

1 Present (only HP versions)

13 Control panel

1 Advanced

14 Water flow control

1 Water differential pressure switch

3 Hot-wire electronic flow switch

15 DHW accessory only (if option 3 = 0)

0 Absent

1 3-way DHW valve + DHW tank probe

2 DHW mode enabling with dry contact

3 DHW 3-way valve + DHW mode enabling with dry contact

ACCESSORIES

B Outdoor finned coil heat exchanger protection grille

C Smart Grid Certification (excludes accessory E)

D ON/OFF status of the compressors (mandatory only if opt.4 = D)

E Remote control for power step limits (excludes accessories C)

F Configurable digital alarm board

G Air separator for the water system (supplied loose)

H Dirt separator for the water system (supplied loose)

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 2 = 0)

N Integration system enabling contact (boiler / electric heater) plant

O Night-time low-noise (only if opt 7 is different from 5)

Q Temperature probe for pump shutdown on the primary circuit

R Enabling 2nd set-point

T Mains power analyzer for monitoring of power consumption

U Unit lifting pipes

V Set-point modification with 4-20mA signal

Z Flow meter for calculating power output

1 Integration system enabling contact (electric heater) DHW (only if opt 15 different from 0)

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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.

Inverter scroll compressors

The inverter scroll compressor used is part of the fourth and latest generation of scroll compressors offering a variable speed solution. In addition to the advantages offered by the technology (precise cooling and humidity management, low starting current, precise and seasonal energy efficiency), these compressors are equipped with specific features that add value to the PLP range.

These include intermediate discharge valves, which increase efficiency at low compression ratios and further improve partial-load efficiency, and permanent magnet brushless motors.

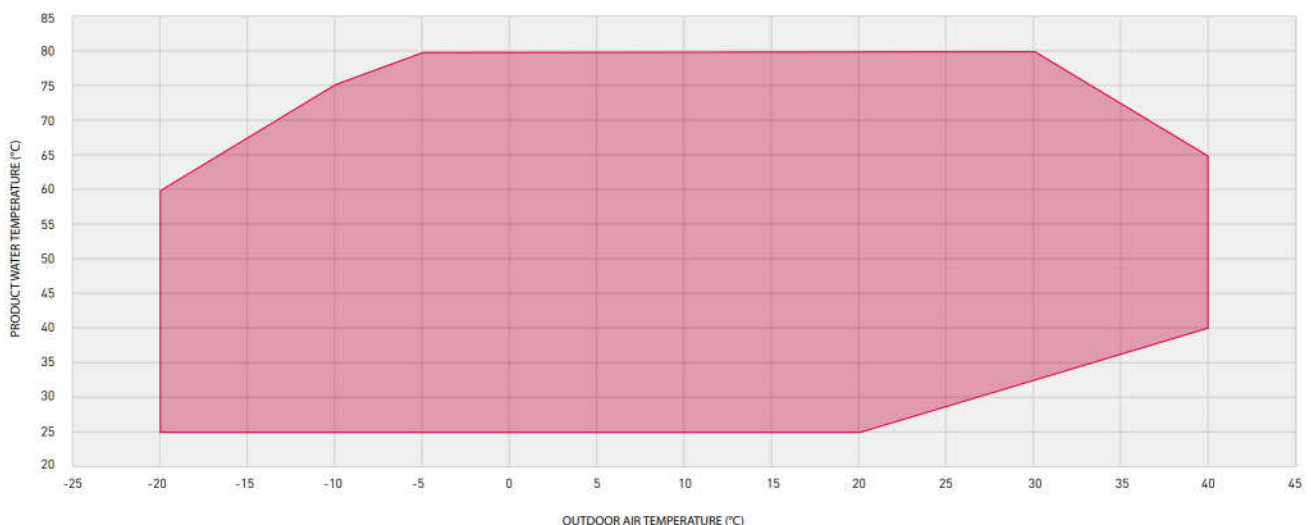
EXTENDED OPERATING RANGE FOR EACH APPLICATION

Extremely extended operating limits

It is now clear that heat pumps will play a fundamental role in achieving the objectives of the European Green Deal, first and foremost the phasing out of fossil fuels. One of the basic requirements for the heat pump to be considered as a valid alternative to boilers, even in the most hostile climates, is undoubtedly the extension of the operating limits that have characterised the traditional heat pumps used until now.

Thanks to the use of scroll inverter technology, combined with the use of propane as a refrigerant and the innovative solutions developed by Galletti's Advanced Design Unit during the design and prototyping phase, PLP guarantees the possibility of producing hot water at very high temperatures (up to 80°C) and operating at full load at extremely low outdoor temperatures (down to -20°C).

In this way (given the temperatures of the water produced, which cannot be achieved with traditional heat pumps), we can imagine replacing a combustion generator with an R290 heat pump, even if the insulation work on the casing is postponed to a later stage. This makes it possible to significantly increase the proportion of renewable energy used for heating without compromising indoor comfort. Advanced Design's solutions look to the future of our environment and the needs of the people who use our products.



PLP C WATER CHILLERS RATED TECHNICAL DATA

PLP			037	045	052	057	062
Power supply		V-ph-Hz			400-3N-50		
Cooling capacity	(1)(E)	kW	36,0	41,4	46,7	51,2	57,1
Total power input	(1)(E)	kW	12,0	14,0	16,4	18,1	19,2
EER	(1)(E)		3,01	2,97	2,84	2,83	2,97
SEER	(2)(E)		5,00	4,88	5,02	5,02	5,24
Water flow	(1)	l/h	6201	7140	8038	8814	9843
Water pressure drop	(1)(E)	kPa	37	50	37	44	45
Available pressure head - LP pumps	(1)	kPa	125	89	120	113	111
Available pressure head - HP pumps	(1)	kPa	213	173	205	199	196
Compressors / circuits					1/1		
Maximum current absorption		A	42,0	48,0	56,0	59,0	62,0
Start up current		A	43	50	57	61	63
Buffer tank volume		dm ³	125	125	125	125	125
Sound power level	(3)(E)	dB(A)	82	83	83	83	84
Sound power level, low-noise version	(3)	dB(A)	79	80	80	80	81
Weight without options		kg	449	449	456	456	538
Maximum transport weight		kg	567	567	586	586	686

(1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2022)

(2) 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.

(3) Sound power level measured according to ISO 9614

(E) EUROVENT certified data

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HEAT PUMPS RATED TECHNICAL DATA PLP H

PLP			037	045	052	057	062
Power supply		V-ph-Hz	400-3-50				
Cooling capacity	(1)(E)	kW	30,0	35,7	41,6	45,5	50,3
Total power input	(1)(E)	kW	12,0	14,4	16,8	18,2	19,3
EER	(1)(E)		2,49	2,48	2,48	2,50	2,60
SEER	(2)(E)		4,32	4,24	4,15	4,12	4,45
Water flow	(1)	l/h	5165	6143	7155	7832	8653
Water pressure drop	(1)(E)	kPa	28	39	30	34	36
Available pressure head - LP pumps	(1)	kPa	145	114	131	126	123
Available pressure head - HP pumps	(1)	kPa	234	200	217	211	209
Heating capacity	(3)(E)	kW	37,2	45,7	52,5	57,1	63,0
Total power input	(3)(E)	kW	11,0	13,8	15,8	17,3	18,8
COP	(3)(E)		3,37	3,31	3,32	3,31	3,35
SCOP	(4)(E)		4,50	4,20	4,35	4,25	4,49
Heating energy efficiency class	(5)(E)		A+++	A++	A++	A++	A++
Water flow	(3)	l/h	6442	7906	9087	9887	10903
Water pressure drop	(3)(E)	kPa	44	62	48	56	60
Available pressure head - LP pumps	(3)	kPa	114	70	108	101	93
Available pressure head - HP pumps	(3)	kPa	200	154	193	185	178
Maximum current absorption		A	42,0	48,0	56,0	59,0	62,0
Compressors / circuits			1/1				
Buffer tank volume		dm ³	125	125	125	125	125
Sound power level	(6)(E)	dB(A)	82	83	83	83	84
Sound power level, low-noise version	(6)	dB(A)	79	80	80	80	81
Weight without options		kg	495	495	500	500	535
Maximum transport weight		kg	625	625	635	635	695

(1) Outdoor air temperature 35°C, water temperature 12°C / 7°C (EN14511:2022)

(2) 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.

(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. Low temperature conditions.

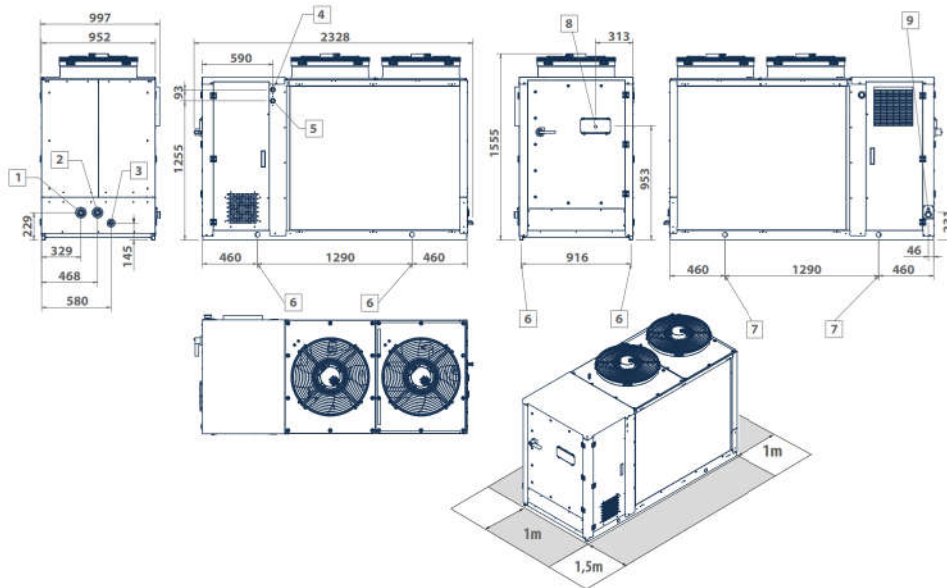
(5) Seasonal energy efficiency class for LOW TEMPERATURE room heating under AVERAGE climatic conditions [EUROPEAN REGULATION No 811/2013. The energy efficiency class of this product is included in the range A+++ → D]

(6) Sound power level measured according to ISO 9614

(E) EUROVENT certified data

DIMENSIONAL DRAWINGS

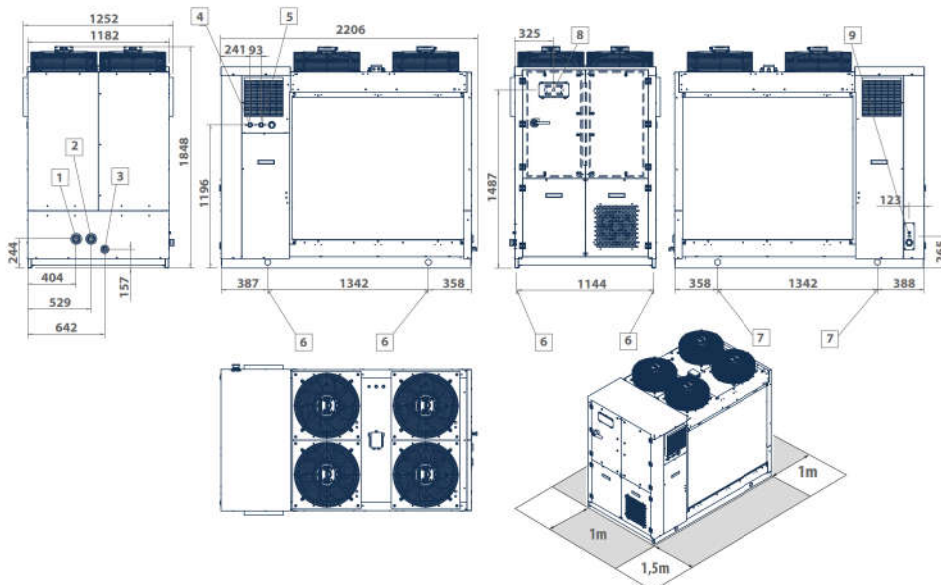
PLP 037 - 057



LEGEND

1	Water inlet 1" 1/4 F (037-045) and 1" 1/2 F (052-057)	6	Vibration dumpers
2	Water outlet 1" 1/4 F (037-045) and 1" 1/2 F (052-057)	7	Lifting points
3	Water drainage 1/2" F	8	User interface
4	Desuperheater water inlet 1" F	9	Power supply input
5	De-superheater water outlet 1" F		

PLP 062



LEGEND

1	Water inlet 1" 1/2 F	6	Vibration dumpers
2	Water outlet 1" 1/2 F	7	Lifting points
3	Water drainage 1/2" F	8	User interface
4	Desuperheater water inlet 1" F	9	Power supply input
5	De-superheater water outlet 1" F		