

PLP

Brand new R290 inverter-scroll compressor range
35-65 kW

Galletti Advanced Design - R290 PLP series

Regulatory scenario

2027	Chiller \leq 12 kW	GWP < 150
	Chiller > 12 kW	GWP < 750
	Unità self-contained AC-HP \leq 12 kW	GWP < 150
	Unità self-contained AC-HP \leq 50 kW	GWP < 150
	Split A2W \leq 12 kW	GWP < 150
2029	Split A2A	GWP < 150
	Split > 12 kW	GWP < 750
2030	Unità self-contained AC-HP > 50 kW	GWP < 150
2033	Split > 12 kW	GWP < 150
2035	Split A2A \leq 12 kW	Natural refrigerant only
	Split A2W \leq 12 kW	Natural refrigerant only

Galletti Advanced Design - R290 PLP series

General features



- 37 - 63 kW heating cap., 35 - 58 kW cooling cap.
- Cooling only or reversible heat pump versions
- **Inverter scroll compressor**
- Microchannels coil (C version) or "mini" channels coil (H version)
- SCOP up to 4,50 / SEER up to 5,24
- Warm water up to **80°C**
- Min **outdoor air temperature -20°C** (water produced at 60°C)
- **R290 / GWP = 3**
- EEV as a standard feature
- Up to 2 pumps + onboard buffer tank
- **Eurovent** and **Smart Grid** certification
- Accessories for reducing the sound power level

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General features



PLP 037	PLP 045	PLP 052	PLP 057
Danfoss VZN 104	Danfoss VZN 140		Danfoss VZN 175

PLP 062
Danfoss VZN 175

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Main components



Use of latest generation Microplate exchangers

- **25% volume reduction** compared to a previous generation exchanger of the same size
- Asymmetric channels to reduce pressure drops on the water side
- Optimized for operation with A3 (R290) refrigerant



The third generation of Danfoss **inverter scrolls** offers a high level of efficiency in a wide range of applications. The pre-qualified compressor and inverter package also **increases reliability** compared to conventional solutions.

Equipped with IDV and permanent magnet motor across the range, achieves **5% higher part load efficiency** than existing alternative scroll inverters

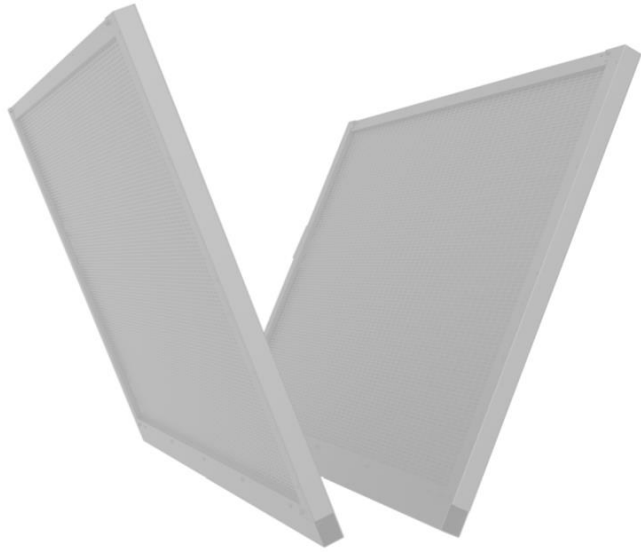


Use of bidirectional **electronic expansion valve** suitable for very high temperatures

- High response speed
- High stability of superheating

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Main components - C version



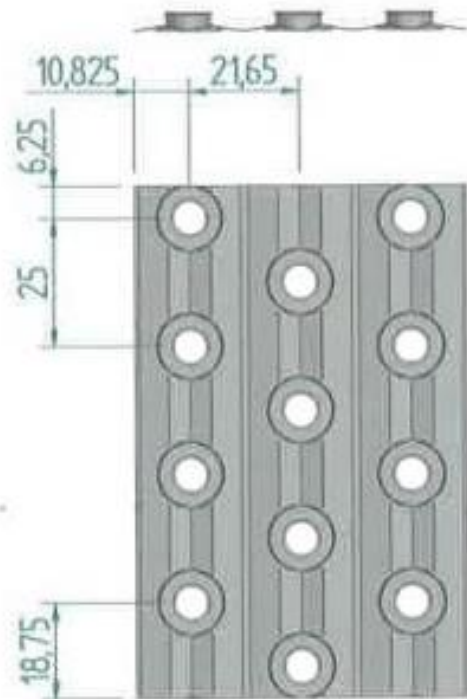
Microchannel coil with LLA (Long Life Alloy)



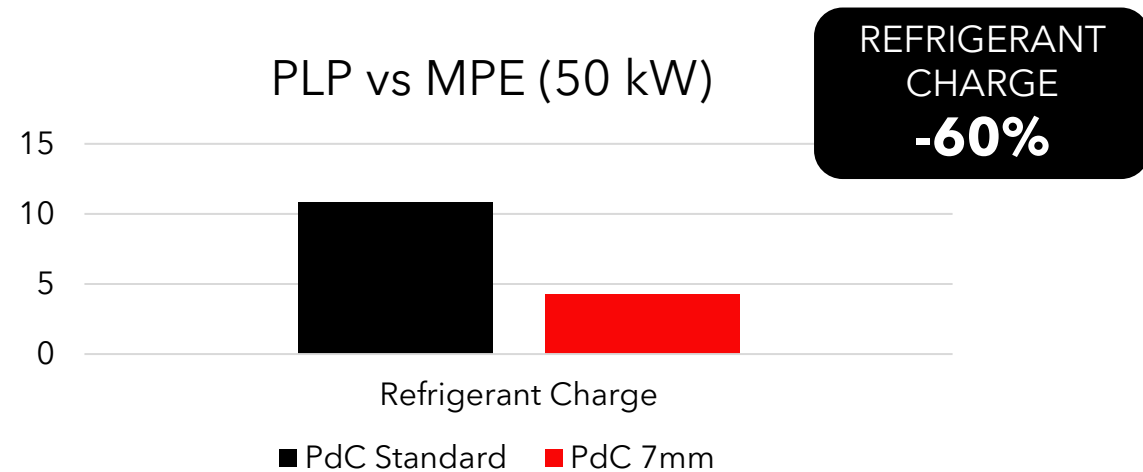
E-coating protection on request
3120 h
SWAAT test (ASTM G85-02 A3)

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Main components - H version



- Copper tube with 7 mm diameter
- Corrugated aluminum fin with 2.1 mm fin pitch
- Hydrophilic treatment as standard
- Lower refrigerant charge compared with traditional coil

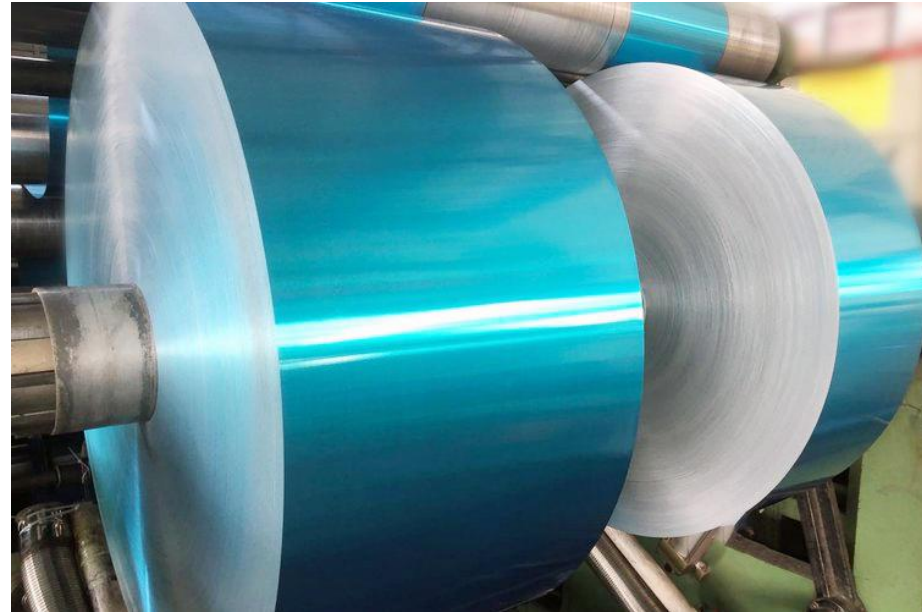
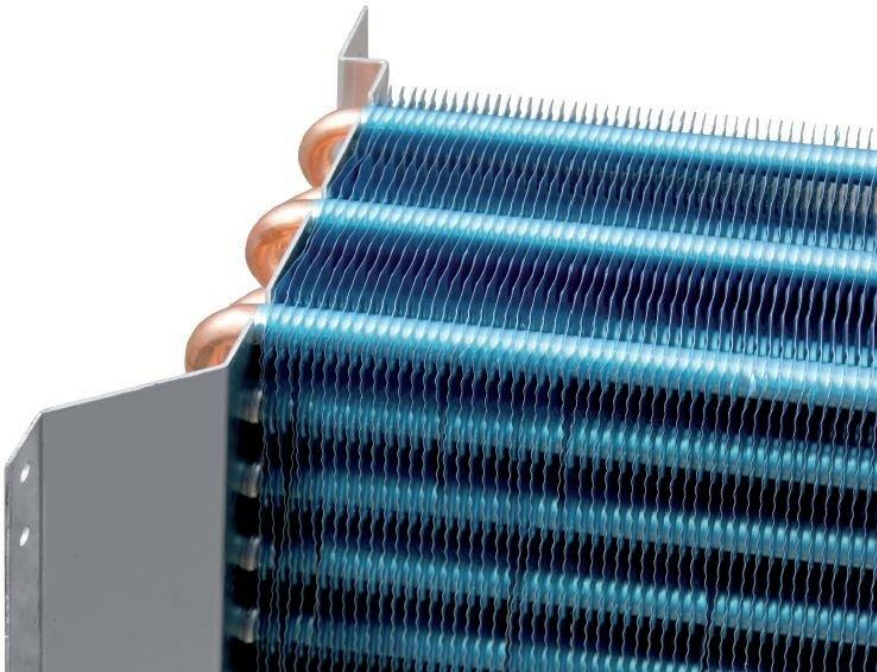


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Main components - H version

The hydrophilic fin has good wettability (contact angle $<10^\circ$), good protection against aluminum oxidation (white powder), prevents the appearance of mold and mildew, improves resistance to corrosive agents and ensures 2000 hours of resistance to water at 100% relative humidity (according to ASTM B2247).

Resistance under exposure to salt spray (ASTM B117) \approx 500 hours



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Main components - fans section



For models 37-57:

- Single row of fans with 630 mm diameter (depth < 1 m)
- AC motor as a standard / **EC as option**



For model 62:

- Double row of fans with a diameter of 450 mm for smaller overall dimensions (depth < 1,2 m)
- **EC motor as a standard**

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Main components - Microprocessor



- Carel PCOEM+ medium
- Management of DHW 3-way valve and anti-legionella cycles with set-point increase
- **LAN** up to 6 units
- Inverter frequency adjustment based on the **LWT**
- Management of **tank probe** for pump shutdown
- Monitoring of absorbed and produced power (**COP calculation**)
- **Smart logic** for safety procedures in the event of refrigerant leaks

Galletti Advanced Design - R290 PLP series

Main components - Safety against refrigerant leaks



ATEX Extraction fan

Refrigerant leak sensor with
MPS technology
(molecular properties spectrometry)

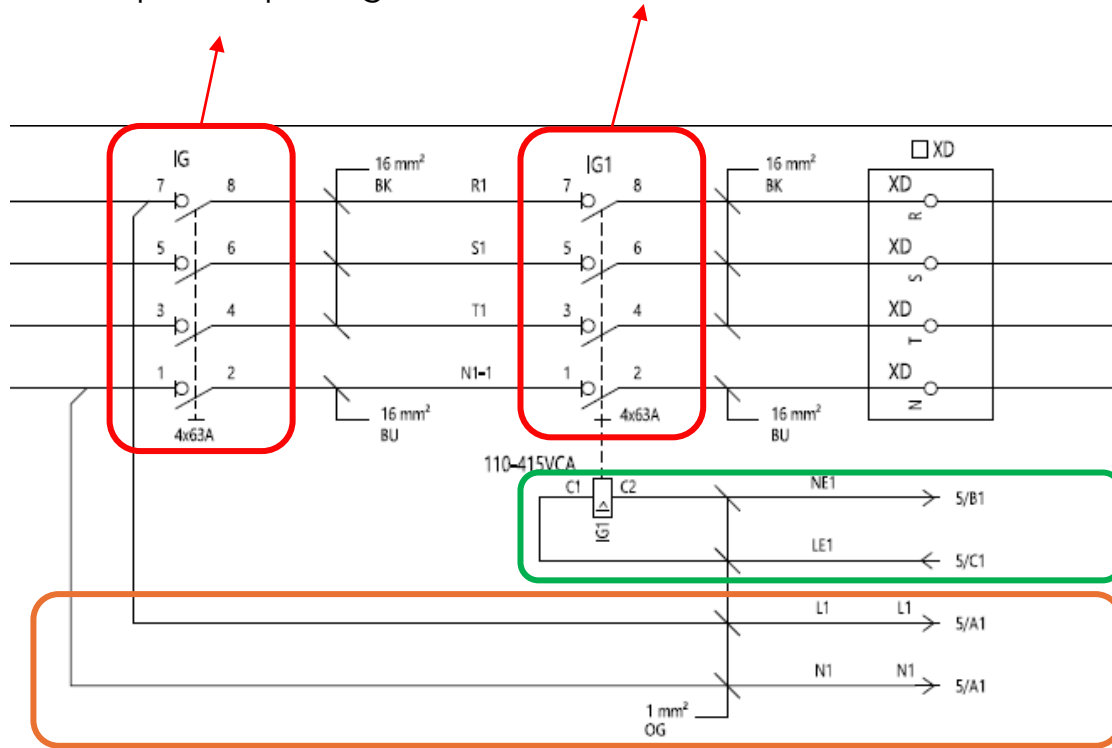
- ✓ **No field calibration**
- ✓ Long lifetime **15+ years**
- ✓ Fail-safe (built-in diagnostic)
- ✓ A3 gas concentration **5-100% LEL**
- ✓ Built-in T and Rh compensation
- ✓ **Immune to poisoning**
- ✓ Operating range **-40° to 75° C**, 0-100% R.H.

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Main components - Safety against refrigerant leaks

General **manual** release switch for panel opening

Automatic general release switch in the event of a refrigerant leak



Power supply line for the release coil **IG1**

230V power supply line dedicated to the safety components
(extraction fan and leak sensor)

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Preliminary Data

Chiller version - preliminary technical data						
FRAME		PLP37	PLP45	PLP52	PLP57	PLP62
Power supply	V-ph-Hz	400-3N-50				
Cooling capacity (1)	kW	35,7	42,2	47,6	52,3	58,0
EER (1)		2,83	2,82	2,84	2,90	2,98
SEER		5,00	4,88	5,02	5,02	5,24
Available pressure head standard pump (1)	kPa	90-140				
Available pressure head HP pump (1)	kPa	200-250				
n° scroll compressor / circuit		1/1 inverter				
Buffer tank volume	dm ³	125	125	125	125	125
Sound power level (2)	dB(A)	81	81	82	83	83
Sound power level low noise version (2)	dB(A)	79	79	79	80	80
Sound power level super low noise version (2)	dB(A)	78	78	78	79	79

(1) Water temperature 12/7°C, outdoor air temperature 35°C

(2) Sound power level determined by measurements made in accordance with UNI EN ISO 9614

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Preliminary Data

Heat Pump version - preliminary technical data						
FRAME		PLP37	PLP45	PLP52	PLP57	PLP62
Power supply	V-ph-Hz	400-3N-50				
Cooling capacity (1)	kW	30,0	35,7	41,6	45,5	50,3
EER (1)		2,51	2,48	2,47	2,50	2,58
SEER		4,45	4,34	4,26	4,25	4,50
Available pressure head standard pump (1)	kPa	90-140				
Available pressure head HP pump (1)	kPa	200-250				
Heating Capacity (2)	kW	37,2	45,7	52,4	57,1	63,2
COP (2)		3,38	3,32	3,30	3,31	3,35
SCOP L.T.		4,50	4,20	4,35	4,25	4,49
SCOP M.T.		3,63	3,40	3,57	3,50	3,62
Available pressure head standard pump (2)	kPa	90-140				
Available pressure head HP pump (2)	kPa	200-250				
n° scroll compressor / circuit		1/1 inverter				
Buffer tank volume	dm ³	125	125	125	125	125
Sound power level (3)	dB(A)	81	81	82	83	83
Sound power level low noise version (3)	dB(A)	79	79	79	80	80
Sound power level super low noise version (3)	dB(A)	78	78	78	79	79

(1) Water temperature 12/7°C, outdoor air temperature 35°C

(2) Water temperature 40/45°C, outdoor air temperature 7°C B.S. / 6°C B.U.

(2) Sound power level determined by measurements made in accordance with UNI EN ISO 9614

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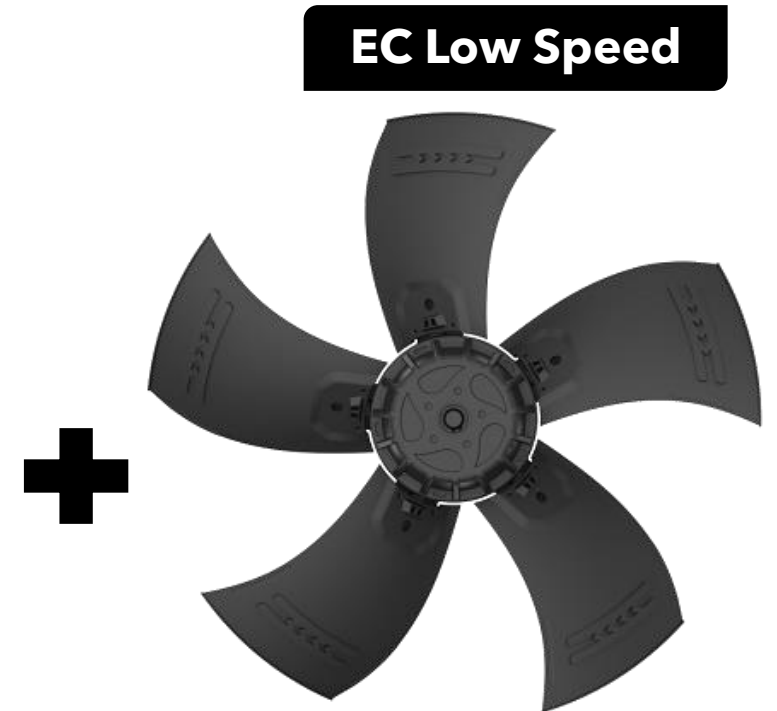
Acoustic arrangement



-2 dB(A)



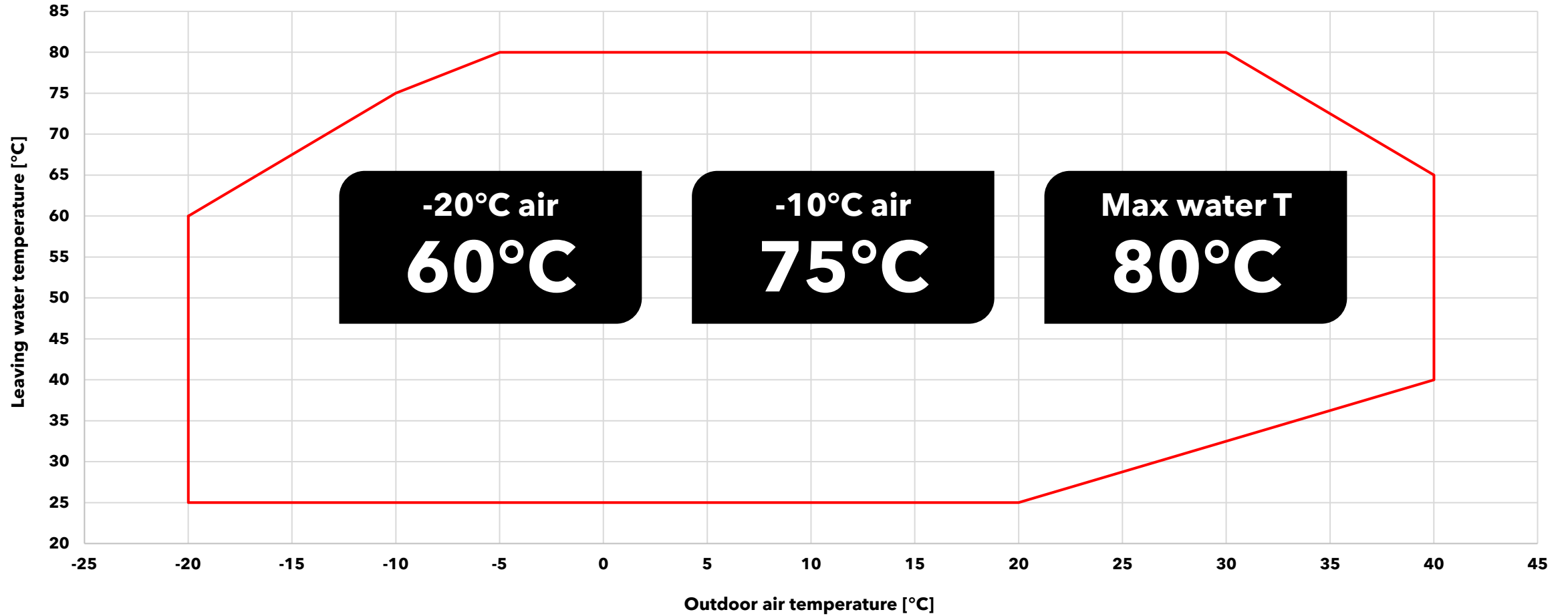
-4 dB(A)



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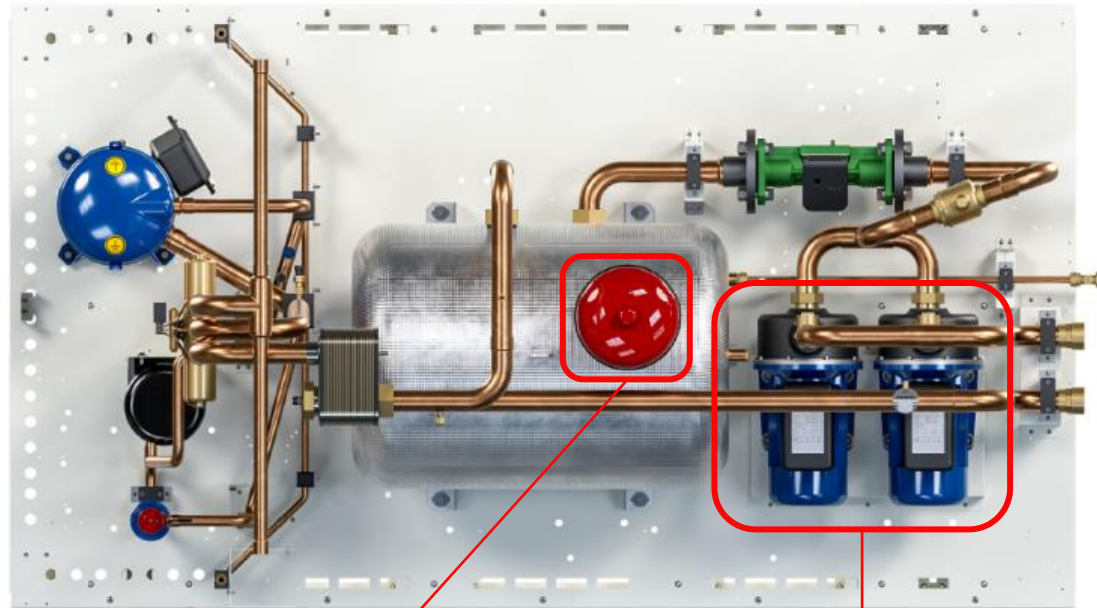
Tech. Benchmarking - Operating range

PLP - Heating mode



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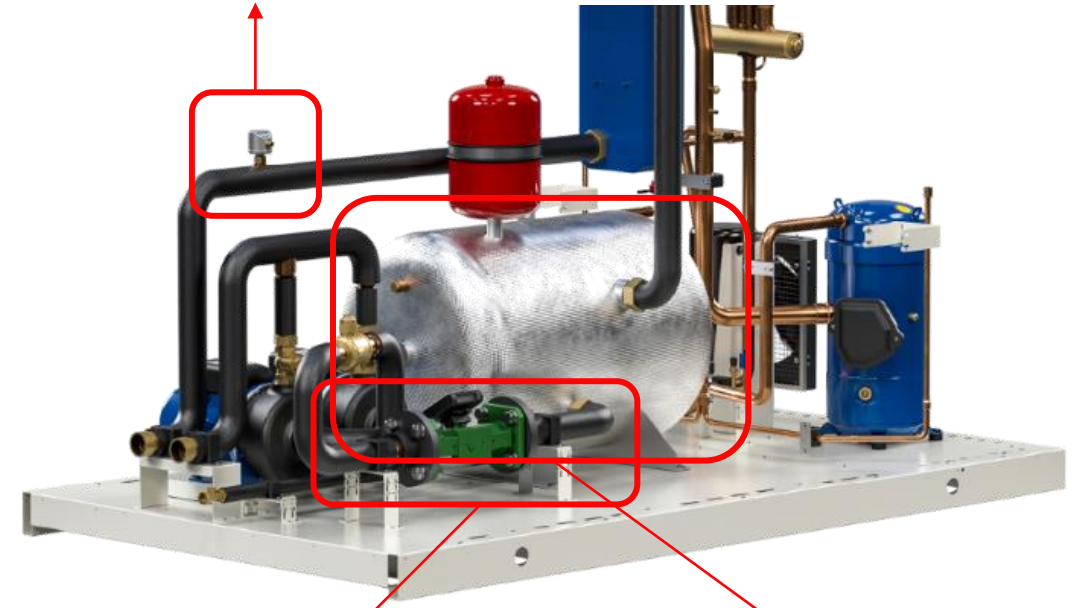
Hydronic kit configuration



Expansion vessel to protect the tank

Up to 2 pumps
On/off or modulating
low or high pressure head

Hot wire **electronic**
flow switch



Flow meter for calculating the **power delivered and the COP** (coupled with the network analyzer)

Storage tank with **increased insulation** (>19 mm) for high T water storage

Galletti Advanced Design - R290 PLP series

Unique selling point

1. **NATURAL REFRIGERANT** R290 (GWP =3)
2. **INVERTER SCROLL COMPRESSOR** (first manufacturer able to use this technology)
3. EXTREMELY HIGH **SEASONAL EFFICIENCY**:
 - SCOP L.T. UP TO 4,50
 - SCOP M.T. UP TO 3,63
 - SEER UP TO 5,24
4. VERY LOW REFRIGERANT CHARGE(< 5 kg)
5. OPERATING RANGE
 - Water produced **up to 80°C** and up to 60°C with outdoor air temperature of -20°C
6. HYDRAULIC KIT:
 - Copper pipes to resolve limescale deposition at high temperatures
 - Up to 2 pumps + storage tank with increased insulation
 - Flow meter for **COP calculation**
7. **EUROVENT** and **SMART GRID** certification
8. **Increased fin pitch** and **hydrophilic treatment** as standard to reduce defrost cycles

Galletti Advanced Design - R290 PLP series

Special Project in collaboration with Danfoss and UniBo



- **2x 60 kW units** to replace old boilers (Forlì - Romagna)
- **Full Inverter** Technology
 - Compressor
 - Pump
 - Fans
- Flow meter
- Electronic flow switch
- Network analyzer
- Remote monitoring and data collection
- **First VZN175 installed in the world!!!**