

R148HP-1



Energy
Management



Renewable
Sources

Freezing protection valve for monobloc heat pumps

Datasheet
1166EN 11/2025



Freezing protection valve is key to prevent damages to the system caused by the formation of ice. Specifically designed for monobloc heat pump systems, this valve allows to drain circuit fluids when the temperature drops to 2 °C.

NOTE. Freezing protection valve is designed to work with glycol-free heat pump systems.

Versions and product codes

PRODUCT CODE	CONNECTIONS	CONNECTION CODES
R148HPY015	G 1"M	P15Y015: pair of brass tail pieces, G 1"F x G 1/2"M connections, complete with nuts and gaskets P15Y016: pair of brass tail pieces, G 1"F x G 3/4"M connections, complete with nuts and gaskets P15Y017: pair of brass tail pieces, G 1"F x G 1"M connections, complete with nuts and gaskets P15FY004: pair of brass tail pieces, G 1"F x Rp 3/4" connections, complete with nuts and gaskets P15FY005: pair of brass tail pieces, G 1"F x Rp 1" connections, complete with nuts and gaskets RM179Y073: straight multitong press fitting, with nut and gasket, 1"F x (26x3) RM179Y074: straight multitong press fitting, with nut and gasket, 1"F x (32x3)
R148HPY016	G 1-1/4"M	RM179Y082: straight multitong press fitting, with nut and gasket, 1-1/4"F x (40x3,5)
R148HPY017	G 1-1/2"M	RM179Y093: straight multitong press fitting, with nut and gasket, 1-1/2"F x (50x4)

Spare parts

- P148HPY010: drain valve with thermostatic sensor

➤ Technical data

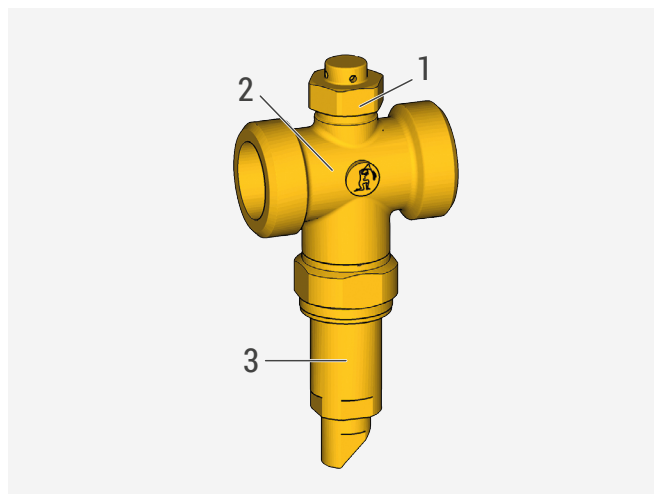
Performance

- Fluid: water
- Temperature range: 0÷90 °C
- Outdoor air temperature range: -30÷60 °C
- Fluid temperature for drain opening: 2 °C
- Fluid temperature for drain closing: 3 °C -0/+1 °C
- Max working pressure: 10 bar
- Kv (with straight pipes): 1": 60 m³/h
1-1/4": 70 m³/h
1-1/2": 90 m³/h

Materials

- Main body: CW617N - UNI EN 12165 brass
- Drain valve with thermostatic sensor: CW617N - UNI EN 12164 brass
- Cap: CW617N - UNI EN 12164 brass
- Vacuum breaker valve: POM
- Seal elements: EPDM

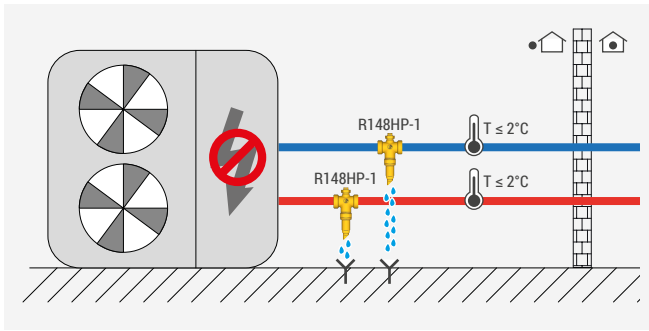
➤ Components



- | | |
|---|--------------------------------------|
| 1 | Vacuum breaker valve |
| 2 | Valve body |
| 3 | Drain valve with thermostatic sensor |

Operation

The freezing protection valve activates when the temperature of the glycol-free water reaches the freezing temperature.

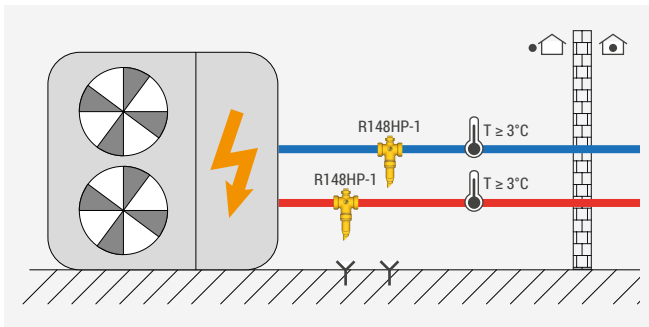


When the water temperature drops down to 2 °C, the valve opens and drain the pipe to prevent freezing.

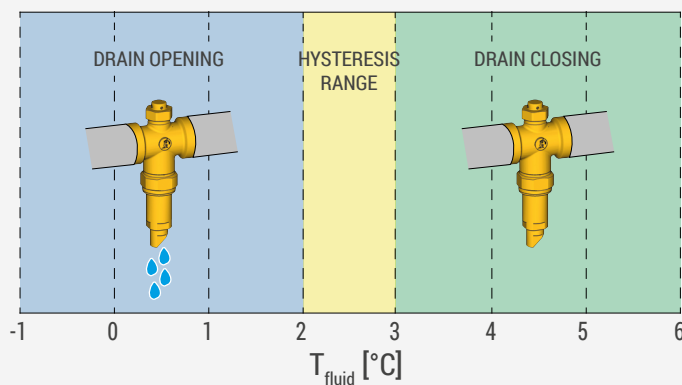
NOTE. During normal operation of the heat pump, the chances for the fluid temperature to drop below 2 °C are extremely remote.

Freezing protection valves generally brake into action when the heat pump is cut off from power for extended periods of time (such as blackouts and failures).

WARNING. Following a power cut off to the heat pump, check the system pressure.



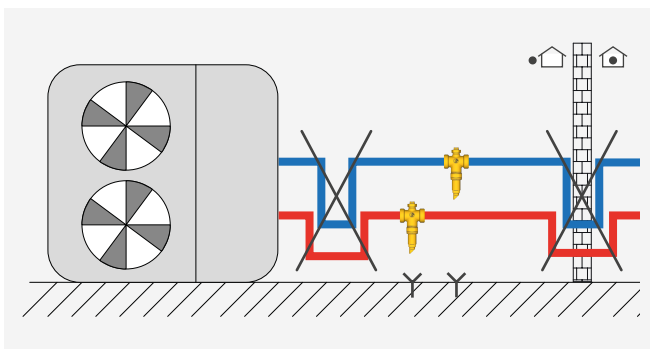
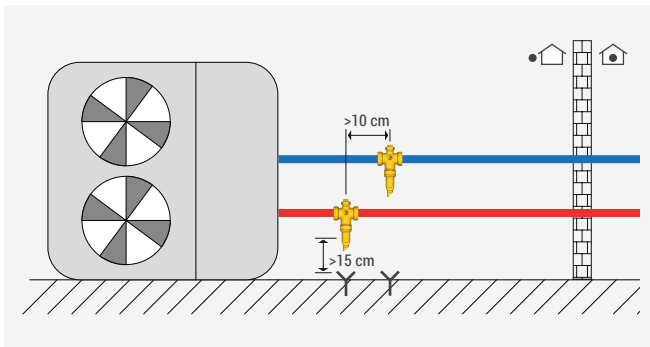
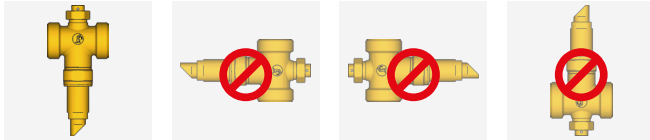
When the temperature of the water rises above 3 °C, the freezing protection valve closes and the system returns to normal operations.



HYSTERESIS RANGE.

If the drain of the freezing protection valve is closed, it will remain closed until the water temperature drops below 2 °C. If the drain of the freezing protection valve is open, draining the water, it remains open and keeps draining until the water temperature returns above 3 °C.

Installation



Freezing protection valves must be installed:

- only vertically, with the drain facing downwards.
- with the drain facing downward to channel the drain fluid to an appropriate collection point and avoid the formation of ice in trampling areas. Leave a gap of at least 15 cm between the drain valve and the collection point to prevent ice stacks of drained fluid.
- on both delivery and return pipes, keeping a distance between the two valves of at least 10 cm, possibly with the pipes slightly slanted towards the freezing protection valves.
- outside the building, on the point where the pipes may reach the lowest temperatures should the heat pump fail to work.
- far from other heat sources and protected by rain, snow and direct sunlight.

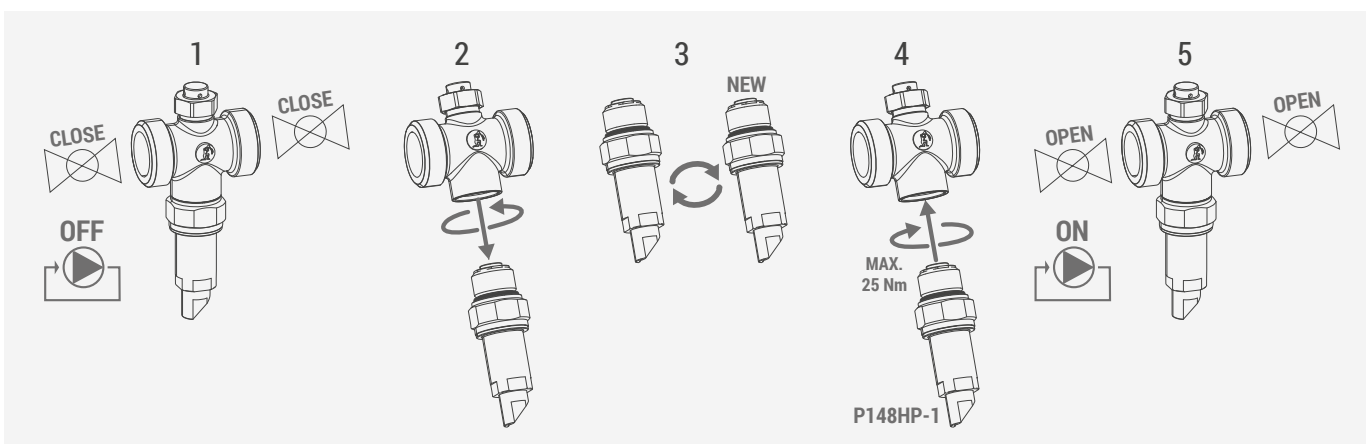
For correct use:

- the freezing protection valve should NOT be insulated or covered by other materials.
- avoid siphoning as it may prevent drainage of the fluid left in the circuit.
- provide for an automatic filling unit, always active and open.
- before installation, clean the system pipes and install appropriate filtering devices.

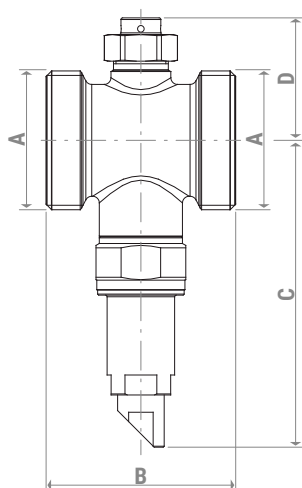
Maintenance

If needed, it's possible to replace the drain valve with thermostatic sensor proceeding as follows:

- 1) turn off the system and intercept the fluid upstream and downstream of the freezing protection valve;
- 2) unscrew the drain valve (Components - Ref.3);
- 3) replace the drain valve with a new one;
- 4) screw the drain valve back on (max. torque 25 Nm);
- 5) restore the normal operation of the system.



➤ Dimensions



PRODUCT CODE	A [inch.]	B [mm]	C [mm]	D [mm]
R148HPY015	G 1"M	57	87,5	32,5
R148HPY016	G 1-1/4"M	57	92	37
R148HPY017	G 1-1/2"M	57	95	40

➤ Product specifications

R148HP-1

Freezing protection valve for monobloc heat pump systems. It drains the circuit fluid when its temperature drops to 2 °C and prevents the formation of ice inside the system pipes. Available with threaded connections from G 1"M to G 1-1/2"M. Main body, cap and drain valve with thermostatic sensor: brass. Vacuum breaker valve: POM. Seal elements: EPDM. Fluid: water. Temperature range: 0÷90 °C. Room temperature range: -30÷60 °C. Fluid temperature for drain opening: 2 °C. Fluid temperature for drain closing: 3 °C -0/+1 °C. Max working pressure: 10 bar. Possibility to replace the drain valve with thermostatic sensor if needed.

⚠ Safety Warning. Installation, commissioning and periodical maintenance of the product must be carried out by qualified operators in compliance with national regulations and/or local standards. A qualified installer must take all required measures, including use of Individual Protection Devices, for his and others' safety. An improper installation may damage people, animals or objects towards which Giacomini S.p.A. may not be held liable.

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