

Antifreeze valve for heat pumps

Art. 1520



100% MADE IN ITALY 

Function Antifreeze valves, specifically designed to be used on heat pumps systems, are safety devices, with the aim to **prevent ice forming** of the fluid in the system circuit.

These valves are particularly suitable to be used on **monoblock heat pumps**, meaning the ones equipped with an external unit directly connected to the hydronic circuit, through a supply and return pipe.

The functioning of the valve takes place through the action of a sensitive element which detects the temperature of the fluid. In the event the temperature goes lower a pre-set temperature level (**3°C**), the valve automatically opens, avoiding ice formation.

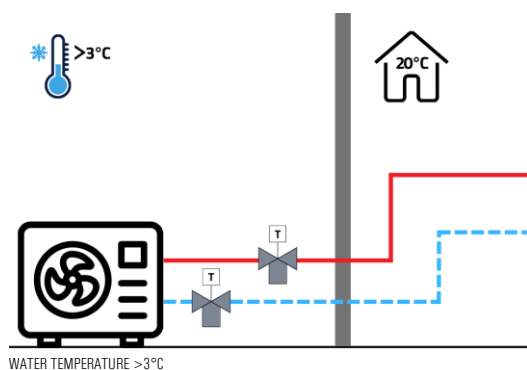
This important function gives an extra protection to the heat pump system, in addition to the ones provided by the heat pump itself.

The functioning of the valve takes place with the mechanical movement of the obturator led by the sensitive element, **avoiding the need of electrical devices** and making the valve functioning even during power outage.

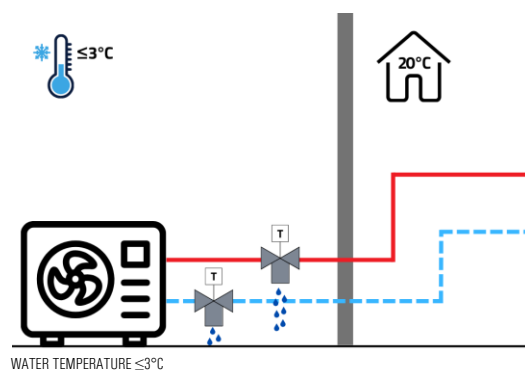
Thanks to the **thread on both sides**, the valve is equipped with a male and female thread in the same item. Available even with compression ends for copper pipe.

Yellow brass finishing.

WINTER FUNCTIONING (HEATING MODE)



WINTER FUNCTIONING (HEAT PUMP FAIL)



Product range

Threaded connections:	3/4"F - 1"M / 1"F - 1 1/4"M / 1 1/4"F - 1 1/2"M
Compression connections:	28mm

Technical specifications

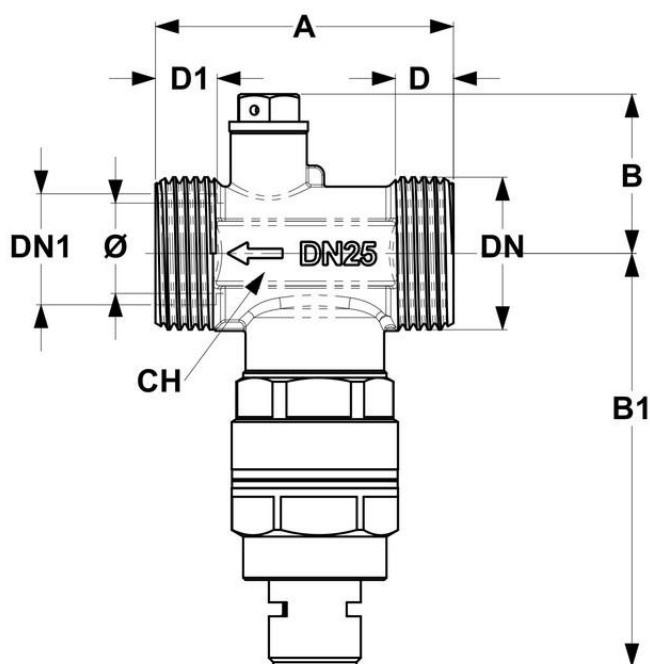
Fluids:	Water and glycol solutions
Max glycol:	30%
Max working pressure:	10bar
Working temperature range:	0-75°C
Environment temperature:	-30-60°C
Fluid temperature (opening):	3°C
Fluid temperature (closing):	4°C
External temperature anti freeze activation:	<5°C
Temperature measuring accuracy:	+/- 1°C

Materials

Body:	Brass CW617N
Gaskets:	EPDM

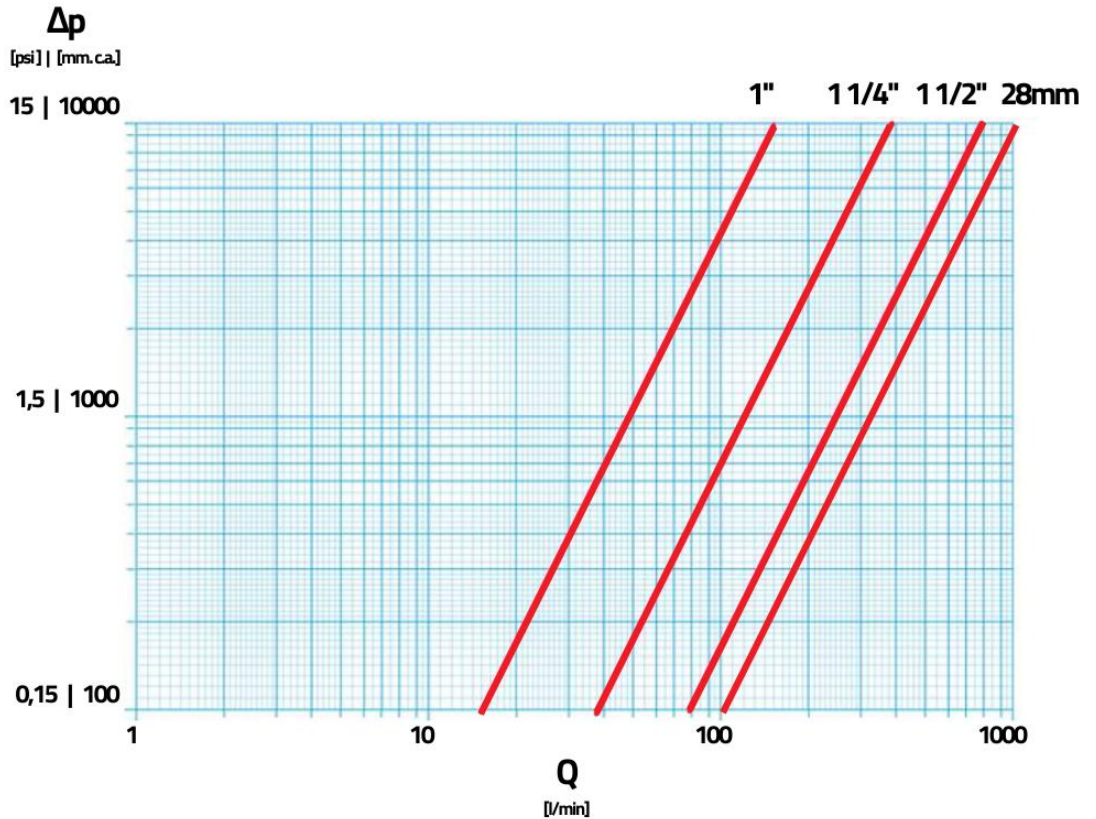
Dimensions

DN MALE	DN FEMALE	Ø	A	B	B1	D	D1	CH
1"	3/4"	16	64,5	34,5	92	13	12	30
1 1/4"	1"	23	64,5	38	95,5	13	12,5	36
1 1/2"	1 1/4"	31	64,5	42	99,5	13	12,5	44
28mm	28mm	38,3	82	34,5	92,5			



Head loss

DN		Kv [m³/h]
MASCHIO	FEMMINA	
1"	3/4"	9
1 1/4"	1"	23
1 1/2"	1 1/4"	47
28mm	28mm	64



Components

The anti freeze valve is composed by 3 elements:

- A. Vacuum breaker valve
- B. Valve body
- C. Thermostatic cartridge with sensitive element

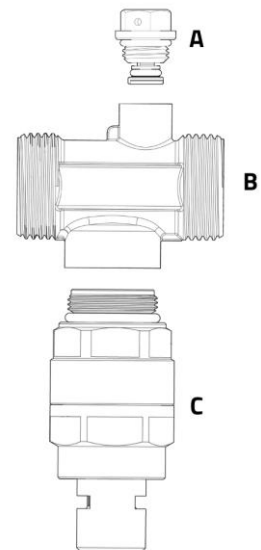
The vacuum breaker valve has the function to protect the system from negative pressures or from vacuum formation, that might happen in the event of fluid drain.

The valve body is threaded both externally and internally.

The thermostatic cartridge holds the sensitive element for the opening/closing operations of the valve. The cartridge provides a precise temperature measurement and consequently ensures an high response speed to temperature changes.

In the event of malfunctioning of the vacuum breaker valve or of the thermostatic cartridge, they can be replaced by the appropriate spare part.

All the maintenance operations must be done when the system is off and not under pressure.



Installation

The device must only be installed in a vertical position, with the drain hole facing downwards, to allow the drained water to flow out properly in opening mode.

It's important to install the antifreeze valves outdoors, where the lowest temperatures can be reached. Besides the antifreeze valves must be positioned well away from sources of heat in order to correctly detect the fluid temperature and keep them working properly.

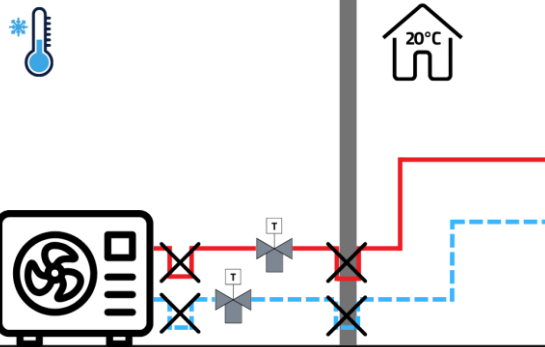
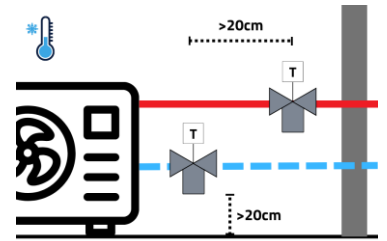
It is recommended to install the valves both on the supply and return pipes.

Depending on local norms the drain fluid must be conveyed in specific pipes to collect it.

Furthermore it's recommend to always keep the system pressurized, even while draining, to ensure the antifreeze device works properly.

Valves must be installed leaving at least 20cm from the ground to avoid the ice, which may form below the valve, stopping or obstructing the fluid outflow.

Besides it is necessary to leave at least 20cm between the valves installed on the two pipes, so that in the event of opening, the upper valve doesn't drain on the bottom one.



Finally avoid to make trap connections in the circuit, as drainage would be inhibited and frost protection will no longer be guaranteed

When the system is set in cooling mode, it's important to configure the fluid temperature minimum set-point 2-3°C higher than the valve set-point opening temperature.

Fluid characteristics

Reference standard for water treatments in heating systems is Norm UNI 8065:2019 which regulates the parameters that must be observed to avoid scale and corrosion phenomena.

In order to grant product warranty, the fluids characteristics must comply with the rules in force in the country of relevance or at least present features not less to the ones prescribed by the Norm UNI 8065:2019.

In particular, minimum standards necessary but not sufficient to control are the following:

Fluid aspect: Limpid

PH: Between 7 and 8

Iron (FE): < 0,5 mg/kg (< 0,1 mg/kg for steam)

Copper (CU): < 0,1 mg/kg (< 0,05 mg/kg for steam)

Antifreeze: Passivated Propylene Glycol

Conditioning: as indicated by the producer

In any case when using antifreeze and conditioning solutions, is required to control and verify the correct compatibility between these substances and the construction materials stated in Pintossi+C technical datasheet.