

Compact antifreeze valve iStop® PLUS

108 series



Function

The antifreeze valve has the task of keeping the water in the heating and cooling circuit moving and preventing ice from forming. When the temperature of the medium reaches a value of 3 °C the internal sensor opens and allows water to drain out of the system. Designed for systems served by monobloc heat pumps, it prevents damage to the machine and the circuit components if the electric supply is cut off and the air temperature is below zero.

The iStop® PLUS antifreeze valve is suitable for use with standard heat pumps as well as heat pumps which use the new refrigerant gases and can reach flow temperatures up to 90 °C.

PATENT PENDING

Product range

108 series	Compact antifreeze valve with threaded connections	sizes DN 25 (1")
108 series	Compact antifreeze valve with fittings for copper pipe	sizes DN 25 (Ø 28)

Technical specifications

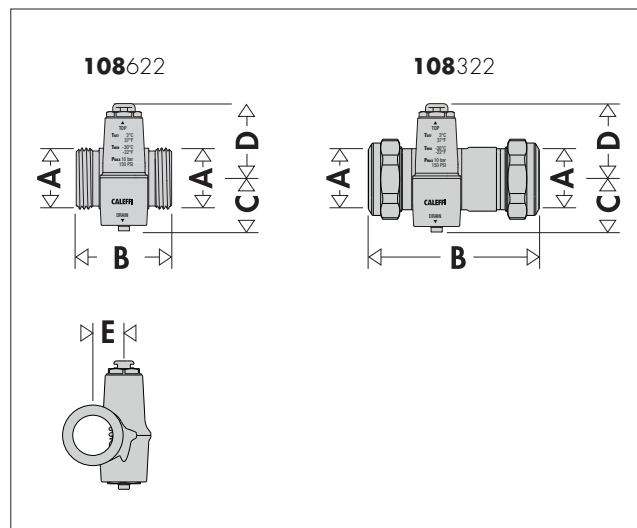
Materials

Body:	brass EN 12165 CW617N
Springs:	stainless steel
Seals:	EPDM
Connections:	(108622) G 1" (ISO 228-1)
	(108322) Ø 28 for copper pipe

Performance

Medium:	water
Maximum working pressure:	10 bar
Working temperature range:	0-90 °C
Ambient temperature range:	-30-60 °C
Medium temperature (opening):	3 °C
Medium temperature (closing):	4 °C
Accuracy:	±1 °C
Kv (straight path):	(108622) 39 m³/h
	(108322) 32.5 m³/h
Tightening torque:	(108322) 80 N·m

Dimensions






Code	A	B	C	D	E
108622	1"	52	30	41	17
108322	Ø 28	91	30	41	17

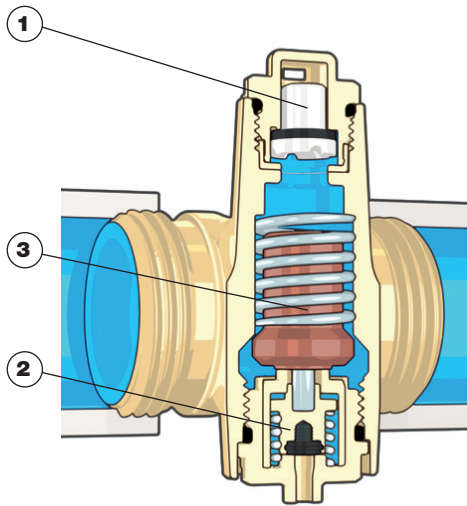
Sizing

Antifreeze valves are sized according to the diameter of the system pipes. In the table below, based on the nominal power of the heat pump, a typical flow rate is shown with a temperature difference of 5 °C. In relation to the flow rate, we can identify the diameter of a pipe that has a pressure drop $r=20\text{--}22\text{ mm w.g./m}$ (50 °C). The model to use is identified based on the pipe diameter.

Table for sizing components for heat pump systems

HP nominal power [kW]		3	4	5	6	7	8	9	10	11	12	14	16	18	22	25
Max. set flow rate [l/h] ($\Delta T = 5\text{ °C}$) 		516	688	860	1032	1204	1376	1,548	1720	1892	2064	2408	2752	3096	3784	4300
Nominal pipe diameter		3/4"	3/4"	1"	1"	1"	1"	1"	1"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/2"
iStop		108622 (1")								-						
		108322 (Ø 28)												-		

Characteristic components

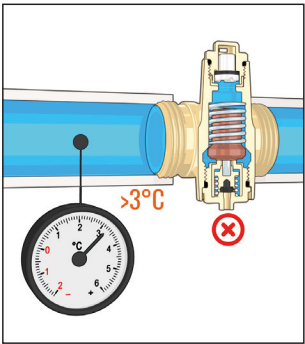
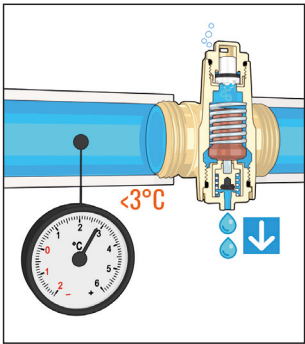
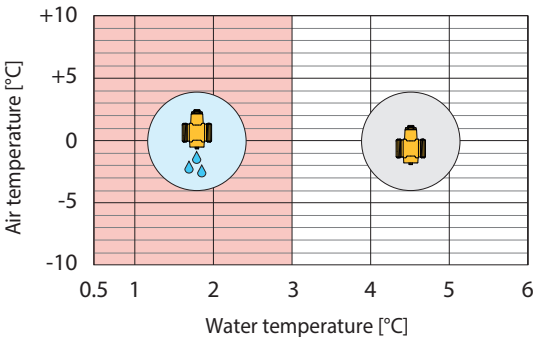


Antifreeze valve

- 1. Vacuum breaker
- 2. Obturator
- 3. Water temperature sensor

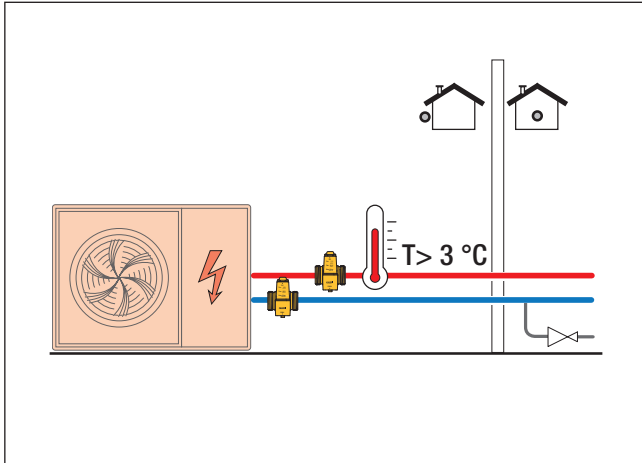
Operating principle

The 108 series antifreeze valve allows drainage of the medium in the circuit when the circuit temperature reaches a value of 3 °C.

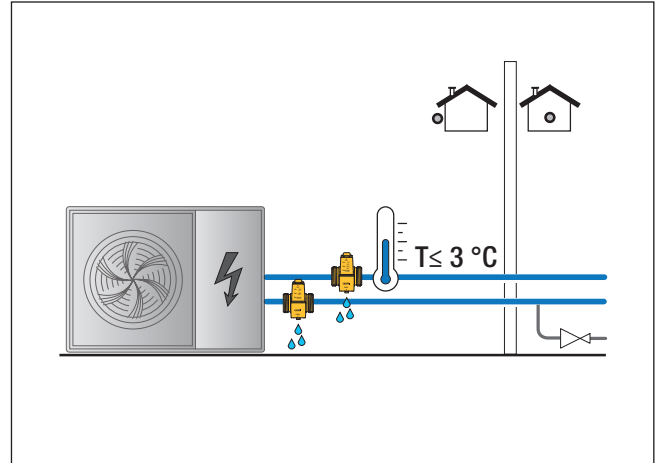


Operating phases

Winter operation in heating mode



Winter operation in the event of electric supply failure



Installation

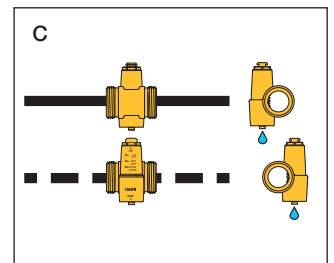
The device must only be installed in a vertical position, with the outlet facing downwards, to allow the drained water to flow out properly and free from obstructions.

The antifreeze valves must be installed outdoors, where the lowest temperatures can be reached if the heat pump is locked. The antifreeze valves must be positioned well away from sources of heat in order to keep them working properly.

It is recommended to install the antifreeze valves on both pipes (flow and return). Otherwise, water may be left in one pipe which could then freeze.

We recommend always keeping the system pressurised, even while draining, to ensure the antifreeze device works properly.

For compact installation, devices can be installed on the same vertical axis; make sure the drains are positioned eccentrically to one another (fig. C).

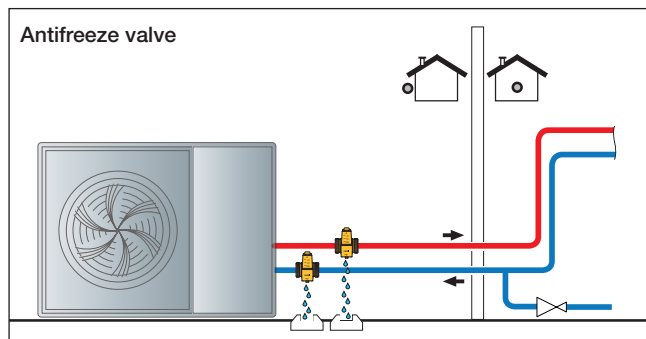


The antifreeze valve must be free of insulation for the system to work properly.

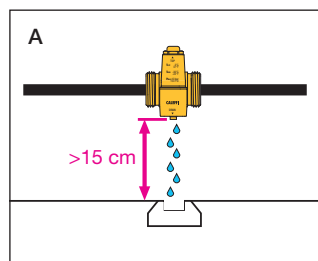
When installed outdoors, the antifreeze valve must be protected from rain, snow and direct sunlight.

Presence of traps

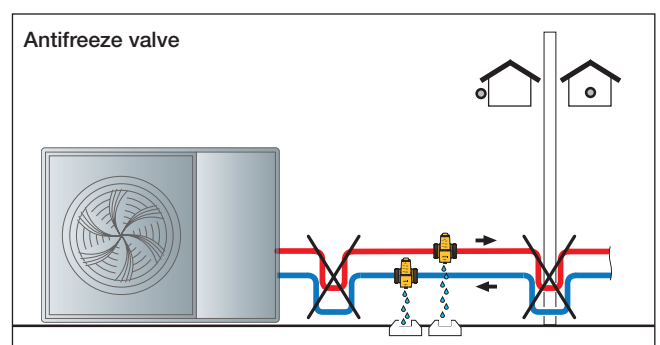
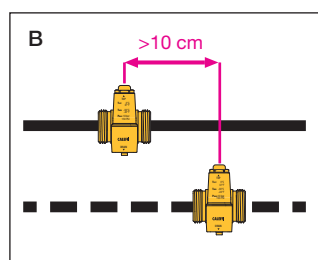
Do not make any trap connections. If the shape of the connection pipe has the potential to create a trap effect (as shown in the following figure), drainage is inhibited and frost protection will no longer be guaranteed.



Leave at least 15 cm clearance from the ground (fig. A) to prevent the block of ice which may form below from stopping water from draining from the valve. Route the drain to a suitable collection point.



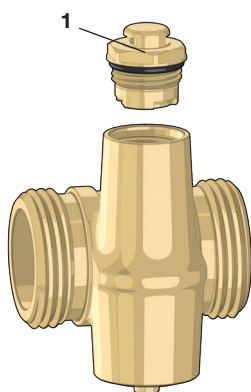
Keep a distance of at least 10 cm between the antifreeze valves (fig. B), if the drains are facing the same way.



Antifreeze valve maintenance

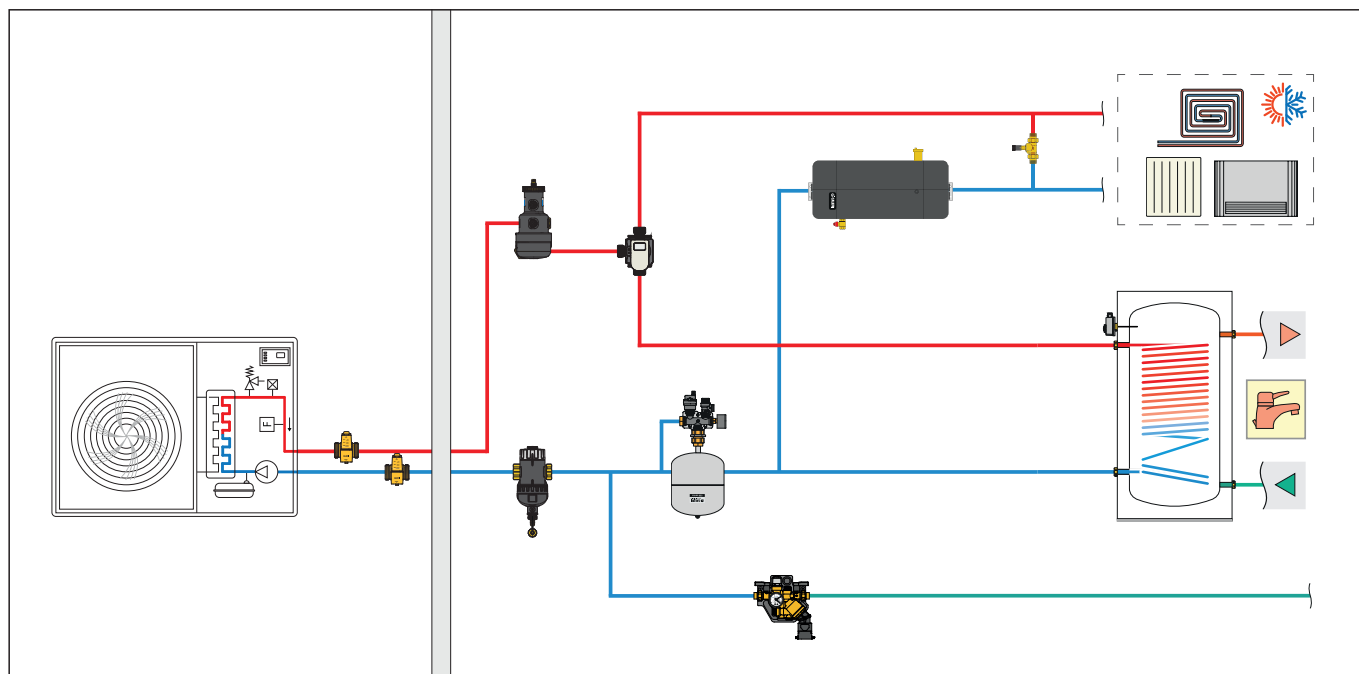
1. Vacuum breaker

The vacuum breaker can be replaced with spare part code F0002131.



Compact antifreeze
valve
108.22

Application diagram



SPECIFICATION SUMMARY

108.22 series

Compact antifreeze valve. Threaded connections DN 25 (1") (ISO 228-1). Brass body. Maximum working pressure 10 bar. Working temperature range 0–90 °C. Ambient temperature range: -30–60 °C. Water temperature for opening drain: 3 °C. Water temperature for closing drain: 4 °C.

108.22 series

Compact antifreeze valve. With fittings for copper pipe DN 25 (Ø 28). Brass body. Maximum working pressure 10 bar. Working temperature range 0–90 °C. Ambient temperature range: -30–60 °C. Water temperature for opening drain: 3 °C. Water temperature for closing drain: 4 °C.

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