Series AFV

Antifreeze valve

Technical Data Sheet

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Description

AFV

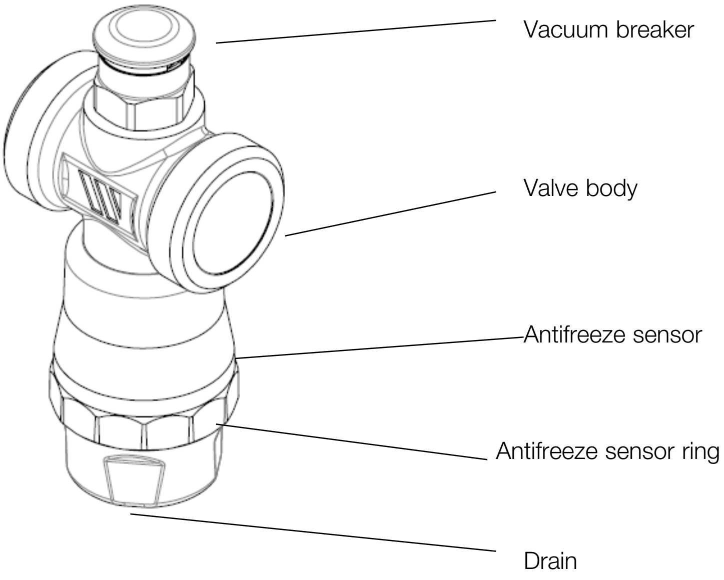
Mechanical drain valve used to protect hydronic circtuits from feezing. Settable opening and closing temperature. Vacuum breaker valve included. Body in brass CW617N, gaskets in EPDM.
Male thread connections for flat sealing, dimensions 1", 1 1/4", 1 1/2".
Maximum operating pressure: 10 bar. Maximum operating temperature: 90°C.

Type	**Code**	**DN**	**Pcs. per box**
AFV25	AFV0A100A	1"	1
AFV32	AFV0A114A	1 1/4"	1
AFV40	AFV0A112A	1 1/2"	1

Application and Working Principle

The AFV valve is to be used in heating and cooling systems. The product is particularly suitable for monoblock air-water heat pump systems. AFV protects internal heat pump and system components from damage due to freezing of the working fluid. It cannot be used for open circuits or potable water systems.

The opening and closing of the valve is determined by the temperature of the intercepted fluid.
In the event that the fluid temperature is below the set-point temperature mechanically set on the frost sensor, the valve will allow the intercepted fluid to drain.
In case the fluid temperature is higher than the set-point temperature, the antifreeze sensor will remain closed and the entire flow will flow through the valve body.



<table>
<tr><th colspan="2">Technical Features</th></tr>
<tr><td>Fluid</td><td>Water</td></tr>
<tr><td>Maximum Allowable Pressure (PS)</td><td>10 bar</td></tr>
<tr><td>Ambient Temperature min-max</td><td>-30°C ÷ 60°C</td></tr>
<tr><td>Fluid Temperature min-max</td><td>0°C ÷ 90°C</td></tr>
<tr><td>Fluid Temperature - Opening and Closing of antifreeze sensor</td><td><table>
<tr><th></th><th>Pos. I</th><th>Pos. II</th><th>Pos. III</th></tr>
<tr><td>°T opening</td><td>2°C</td><td>3°C</td><td>4°C</td></tr>
<tr><td>°T closing</td><td>3°C</td><td>4°C</td><td>5°C</td></tr>
</table></td></tr>
<tr><td>Connections</td><td>G1, G1 1/4, G1 1/2. Male thread for flat sealing</td></tr>
<tr><td rowspan="3">Kv</td><td>1”: 20</td></tr>
<tr><td>1 1/4”: 48</td></tr>
<tr><td>1 1/2”: 79</td></tr>
<tr><td>CE Marking</td><td>None (Article 4.3 directive PED 2014/68/EU)</td></tr>
</table>

Materials	
Body	Brass CW617N
Springs	Stainless steel
O-rings and sealing	EPDM Perox.
Shutter	Brass CW617N
Nut	Brass CW617N

Sizing and Installation

Select the antifreeze valve based on the specifications of the installed heat pump. The water temperature produced by the heat pump may vary depending on the refrigerant used; refer to the heat pump manufacturer’s documentation for accurate temperature data. Always verify the maximum water temperature before installing AFV valves.

The size of the antifreeze valve must correspond to the diameter of the heat pump piping. Proper sizing should consider the heat pump’s power and flow characteristics, including temperature and pressure drops. Choose the appropriate AFV model according to the pipe diameter.

Install antifreeze valves outdoors, away from heat sources and in locations where the sensor is not affected by external influences such as air drafts. Position the valve at the point in the system where the lowest temperatures may occur, especially in the event of heat pump shutdown.

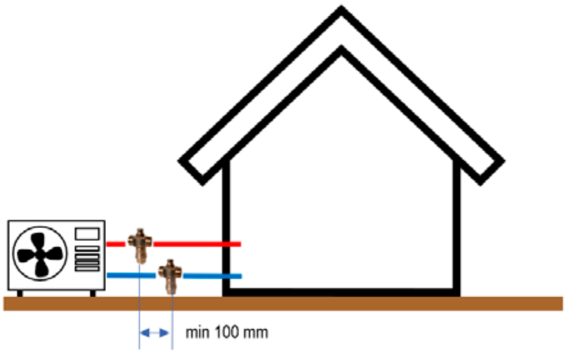
Install the valve vertically with the drain port facing downward to ensure proper water discharge. Maintain a minimum clearance of 200 mm between the valve and the ground to prevent ice from obstructing the drain. A ground drain is recommended to manage discharged water. Ensure the piping is clean before installation

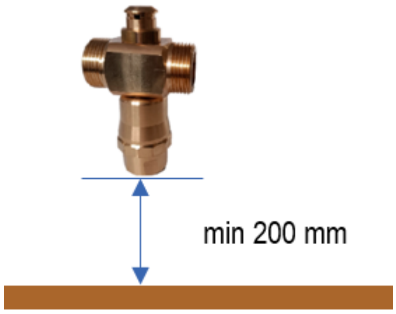
During the insulation of the heat pump piping, it is essential to follow the guidelines illustrated in the image below. This ensures proper thermal protection and avoids interference with the antifreeze valve operation.

Do not insulate the valve if installed in environments where ambient temperatures remain above -25°C. For installations in colder climates (below -25°C), appropriate insulation shells must be used. When insulating the connected piping, the guidelines illustrated in the image at the end of this section must be respected.

Avoid siphonage sections upstream and downstream of the valve. It is recommended to install antifreeze valves on both the supply and return lines. If installing two valves, maintain a horizontal spacing of at least 100 mm between them and avoid vertical alignment.

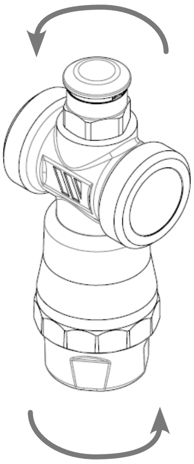
The opening temperature can be manually adjusted using the antifreeze sensor ring. To close the drain port, rotate the sensor ring to the ‘0’ position.

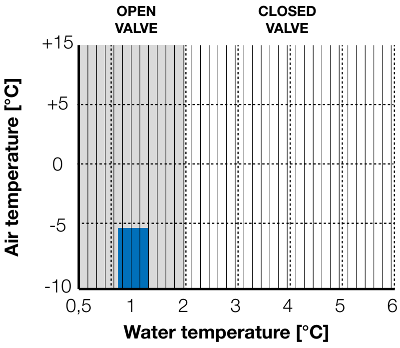


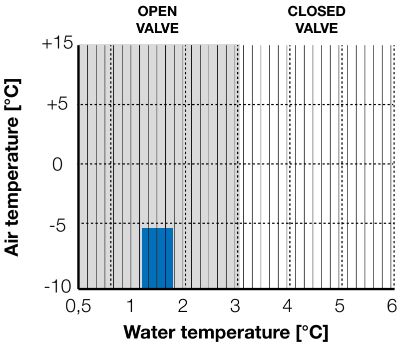


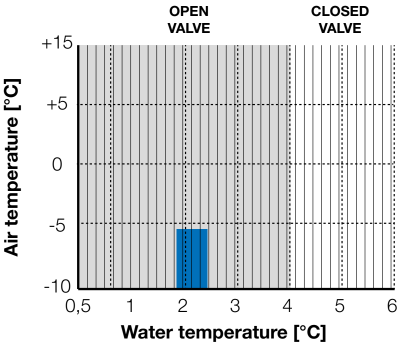
Setting and regulations

The opening temperature can be manually adjusted using the antifreeze sensor ring. To close the drain port, rotate the sensor ring to the ‘0’ position.







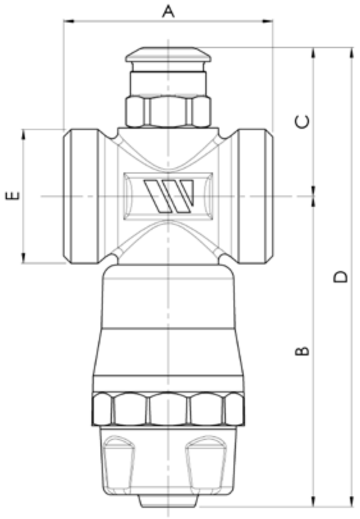


Maintenance

The antifreeze valve normally does not require maintenance.
The vacuum breaker and the antifreeze sensor can be replaced in case of malfunction.
The antifreeze sensor, when set to the “OFF” position, is completely closed.

Spare Parts	Code
Antifreeze Sensor	AFV0A
Vacuum Breaker	VB0A38

Overall Dimensions (mm)



DN - E	A	B	C	D
1”	52	77	38	115
1 1/4”	62	81	42	123
1 1/2”	62	84	48	129

Specification text

Series AFV

Thermostatic drain valve that protects non-potable water circuits from freezing with settable opening and closing temperatures of the drain port. Male threaded connection for flat sealing, sizes from DN25 to DN40. PS 10 bar, brass body. Suitable for water up to 90°C. Opening temperature can be regulated from 2°C to 4°C.

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