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## Anti-freeze valve AAV

Art.-No 17 100 00, 17 300 00

### NOTE

The product may only be used if you have fully read and understood these operating instruction. The manual is also available on the AFRISO websites on the Internet.

### WARNING!



The product may only be installed, commissioned and dismantled by suitably qualified and trained personnel.

Changes and modifications carried out by unauthorised persons may result in danger and are prohibited for safety reasons.

Risk of burns from hot medium - see the chapter MAINTENANCE.

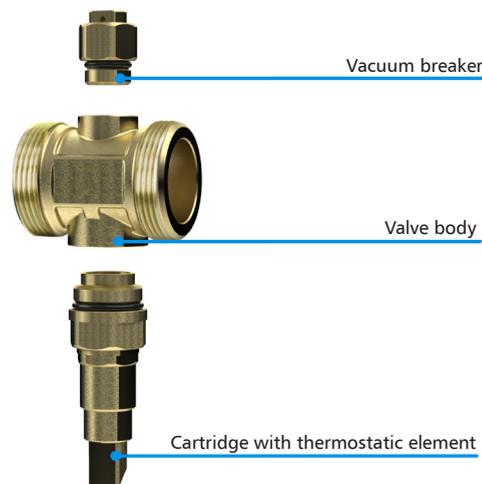
### APPLICATION

Used in heating and cooling systems with air source heat pump monoblock type. Mounted on the return and supply pipe of the system, as close as possible to the heat pump outdoor unit, outside the building. Protects the internal components of the heat pump and the system from damage due to freezing of the medium in the system.

### WORKING PRINCIPLE

In a system with a monoblock air source heat pump, during a loss of circulation (e.g., due to a power failure), the medium in the installation may freeze at sub-zero ambient temperatures. The created ice can damage the heat pump heat exchanger and other sensitive installation components. When the temperature of the medium in the system drops to 3°C, the thermostatic element inside the valve will open the flow of the medium to the outside, preventing potential damage. When the temperature of the medium rises above 4°C, the thermostatic element will automatically close the flow of medium from the system.

Fig. 1 VALVE CONSTRUCTION



1

2

### DIMENSIONS [mm]

Fig. 2 AAV 100 valve

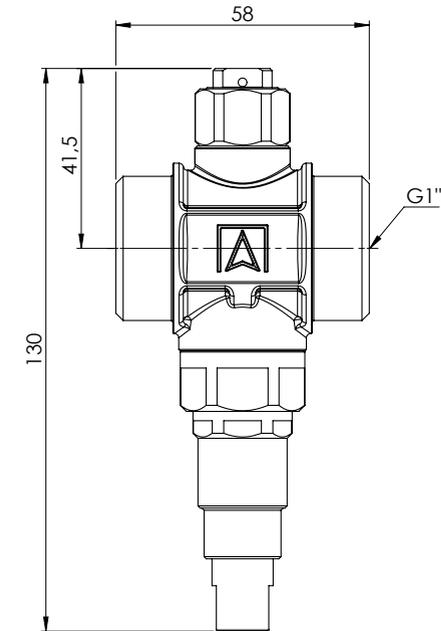
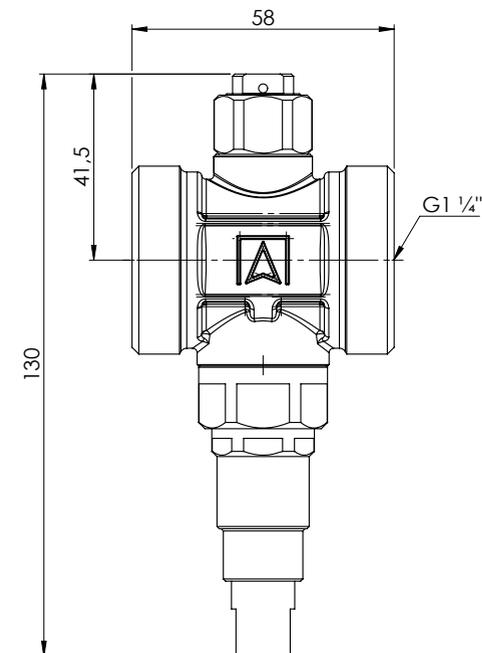


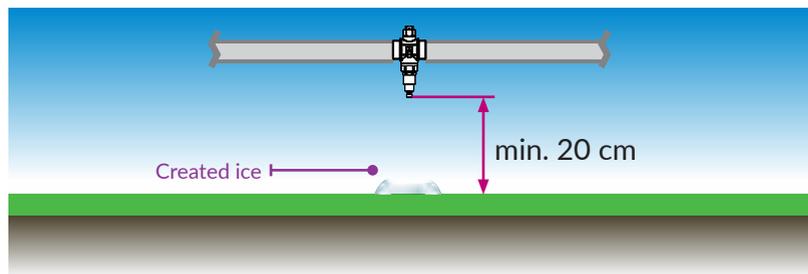
Fig. 3 AAV 300 valve



## MONTAGE

The AAV anti-freeze valve should be installed on the return and supply pipelines in a vertical position, in the coldest part of the system (between the building wall and the outdoor unit of the heat pump). For proper operation, the valve should not be thermally insulated and located near heat sources that could negatively affect to its operation. In addition, the valves should not be mounted one above the other. Between the valves should be min. 10 cm of horizontal clearance. The flowing medium from the upper valve, which will hit the valve located below may freeze and block the draining of the medium properly through the lower valve. Do not mount the valve directly on the ground. Keep a min. 20 cm clearance, so that the created ice does not block the drainage of water from the valve (Figure 4). The valve should be shielded from the direct influence of atmospheric conditions, which can lead to its incorrect operation.

Fig. 4 MINIMAL DISTANCE BETWEEN THE BOTTOM OF THE VALVE AND THE GROUND



Between the valve and the external unit of the heat pump, must not be any siphoned pipeline sections, which can cause a disturbance in the outflow of the medium from the system. In this case, the pipes may not be fully drained and the protection against freezing will not be ensured (Figure 5). Lead the pipes with a constant slope toward the valve (Figure 6). In order to minimize the impact of any impurities on the proper operation of valves in the system, it is recommended to install a magnetic dirt separator (Art.-No 77 180 00) and application of a corrosion inhibitor (Art.-No 90 700 00) in the installation.

Fig. 5 UNACCEPTABLE PIPE ROUTING DUE TO SIPHONED SECTIONS

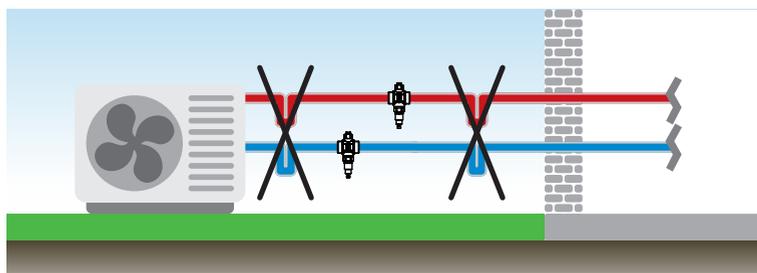
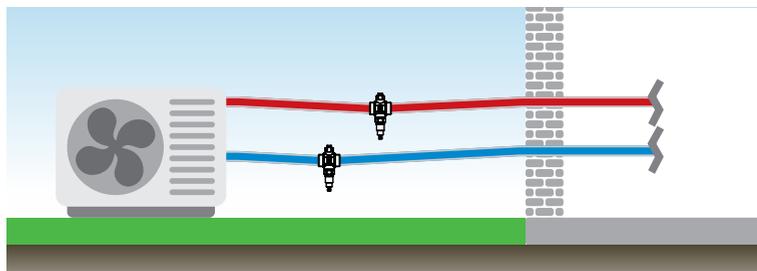


Fig. 6 ACCEPTABLE INSTALLATION POSITION AND PIPE ROUTING IN THE SYSTEM



## APPROVALS AND CERTIFICATES

Anti-freeze valves AAV complies with the Pressure Directive PED 2014/68/EU and according to article 4.3 (sound engineering practice) must not wear the CE mark

## TECHNICAL DATA

Parameter	Value / material
Opening temperature	3°C
Closing temperature	4°C
Accuracy	±1°C
Operating temperature range	0÷80°C
Ambient temperature range	-30÷60°C
Operating pressure	max 10 bar
Kvs (depending on the version)	AAV 100 - 55 m³/h AAV 300 - 70 m³/h
Connections (depending on the version)	AAV 100 - G1" AAV 300 - G1 ¼"
Body material	brass CW617N
Spring material	stainless steel
Sealing material	EPDM

## MAINTENANCE

**Warning! Maintenance operations should be done only after the installation will completely cooled down.**

The AAV valve is a completely maintenance-free. In case of water leaks through the vacuum breaker, it is possible to replace it with a new one (Art.-Nr. 17 000 03). If the thermostatic cartridge malfunctions, replace the cartridge together with the thermostatic element (for AAV 100 valve Art.-No. 17 000 01, for AAV 300 valve Art.-No 17 000 02). In order to replace the cartridge with the thermostatic element and/or the vacuum breaker, first disconnect the AAV valve from the rest of the system by closing the flow on the nearest shut-off valves. Then unscrew the defective element from the valve and screw in a new one. After the replacement is completed, open the shut-off valves and check the pressure in the system. If necessary fill the installation with medium.

## DECOMMISSIONING, DISPOSAL

1. Dismount the product
2. To protect the environment, this product must not be disposed of together with normal household waste. Dispose of the product in accordance with the local directives and guidelines.

Anti-freeze valves AAV consist of materials that can be recycled.

## WARRANTY

Product warranty in accordance with the general conditions of sale and delivery. The warranty becomes invalid as a result of unauthorized modifications or installation that is inconsistent with these operating instructions.

## CUSTOMER SATISFACTION

For AFRISO customer satisfaction is paramount. If you have any questions, suggestions or product problems, please contact us.