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Anti-freeze valve AAV

NOTE!

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

WARNING!



Anti-freeze valve AAV may only be installed, commissioned, and dismantled by trained personnel.

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

Risk of scalding by hot medium – see the MAINTENANCE section.

APPLICATION

Used in heating and cooling systems with a monobloc heat pump. Installed on the return and supply pipes of the system, as close as possible to the outdoor heat pump unit outside the building. Protects the internal components of the heat pump and the system against damage caused by freezing of the medium in the system.

PREDICTABLE INCORRECT APPLICATION

Do not use the anti-freeze valve AAV in the following cases and with the following media:

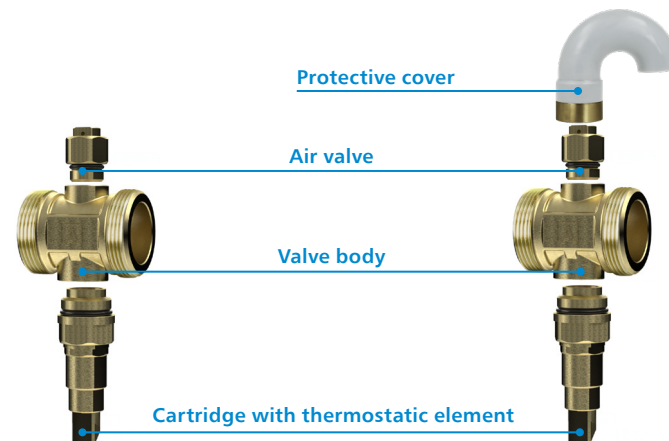
- a mix of water and glycol with a glycol concentration greater than 50%, vapour, oil, petrol, drinking water;
- for safety-related purposes.

OPERATION

In a system with a monobloc heat pump, when circulation stops (e.g. due to a power failure), the medium in the system may freeze at sub-zero ambient temperatures. The resulting ice can damage the heat pump's heat exchanger and other sensitive components of the system.

When the temperature of the medium in the system decreases to 3°C, the thermostatic component inside the valve will open the outlet for the medium to flow outside, thus preventing potential damage. When the temperature of the medium rises above 4°C, the thermostatic component will automatically close the water outlet from the system.

CONSTRUCTION



Art. No. 17 100 00, 17 300 00

Art. No. 17 100 34, 17 300 34

DIMENSIONS [mm]

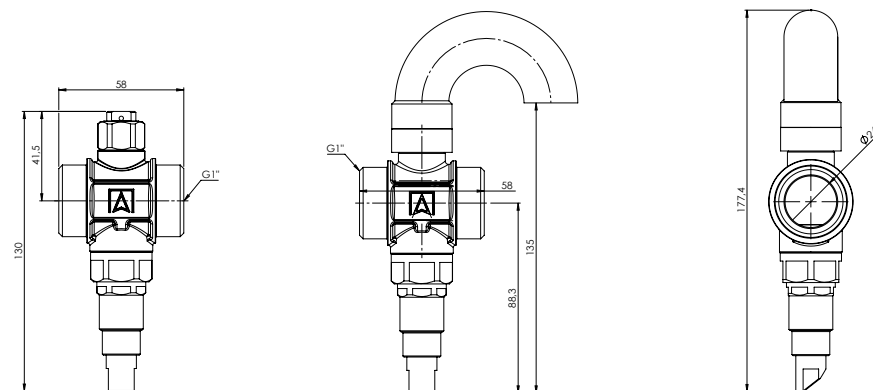


Fig. 1. Dimensions of AAV 100 valve

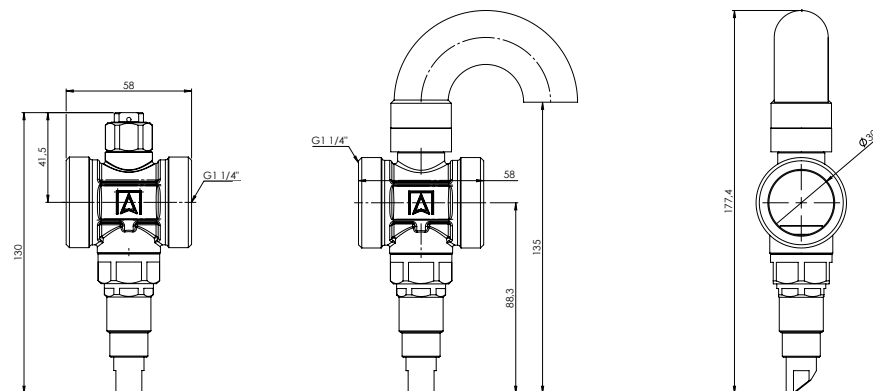


Fig. 2. Dimensions of AAV 300 valve

MOUNTING

The AAV anti-freeze valve should be installed on the return and supply pipes in a vertical position, in the coolest part of the system (between the building wall and the outdoor unit of a monobloc heat pump). For proper operation, the valve should not be thermally insulated or placed near heat sources that could adversely affect its function. Thermal insulation may be installed on the valve body (see Fig. 3).



Fig. 3. Permissible degree of insulation of the AAV valve

AAV valves without protective covers (Art. No. 1710000 and 1730000) should not be installed one above the other. A minimum horizontal distance of 10 cm should be maintained between the valves. The medium flowing out of the upper valve, if it comes into contact with the lower valve, may freeze and prevent the lower valve from properly draining the medium from the system.

AAV valves with covers (Art. No. 1710034 and 1730034) can be installed one below the other, as the cover protecting the air valve is designed to shield it from water dripping from the upper valve. This allows AAV valves to be used in locations with limited space between the heat pump and the building wall.

Do not install anti-freeze valves directly on the ground. Maintain a minimum clearance of 20 cm to ensure that ice does not obstruct the water outlet of the valve in any way (Fig. 3). AAV valves (Art. No. 1710034 and 1730034) are equipped with factory-fitted covers that protect the air valve against direct exposure to weather conditions and other factors (e.g. water flowing from a higher-mounted AAV valve). Valves without factory-fitted protection can be retrofitted with a cover, available as an accessory (Art. No. 1700004).

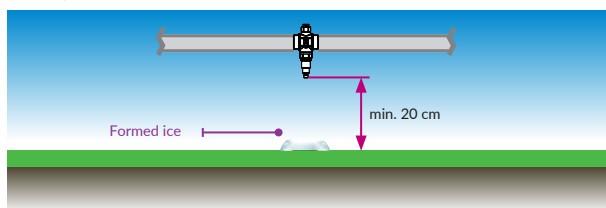


Fig. 3. Minimum clearance between the bottom of the valve and the ground

No pipe sections with a siphoned course that could disturb the outflow of the medium from the system may be located between the valve and the outdoor unit of the heat pump. In such a case, the pipes may not be completely drained, and frost protection will not be ensured (Fig. 4). Whenever possible, the pipes should be laid with a constant slope towards the valve (Fig. 5 and Fig. 6). To minimize the impact of dirt on the correct operation of the valves, it is recommended to install an AFRISO ADS dirt separator and to use corrosion inhibitor.

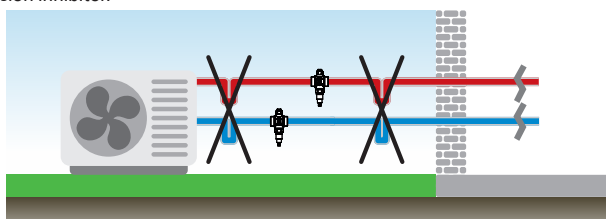


Fig. 4. Unacceptable pipe layout due to siphoned sections

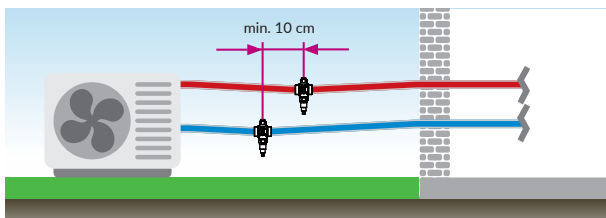


Fig. 5. Permissible installation position of valves without covers and pipe routing in the system

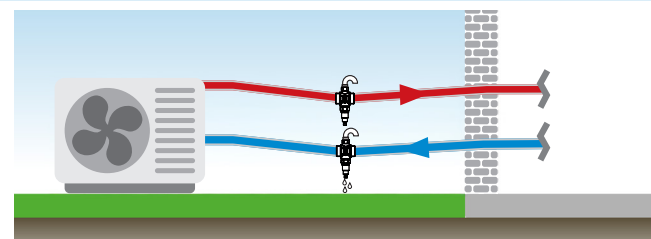


Fig. 6. Permissible installation position of valves with covers

APPROVALS AND CERTIFICATES

Anti-freeze valve AAV is subject to the Pressure Directive 2014 /68/EU and is not CE marked in accordance with Article 4.3 (recognised engineering practice).

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 1/4"
Body material	brass CW617N
Spring material	stainless steel
Sealing material	EPDM

MAINTENANCE

Caution! Maintenance work should only be carried out once the system has cooled down completely. Otherwise, there is a risk of burns from the hot medium.

The AAV valve is a fully maintenance-free device and requires no servicing. If water leaks through the air valve, it must be replaced with a new one (Art. No. 1700003). If the thermostatic insert malfunctions, replace the cartridge together with the insert (for AAV 100 valve – Art. No. 1700001, for AAV 300 valve – Art. No. 1700002).

To replace the cartridge with the thermostatic insert and/or the air valve, first disconnect the AAV valve from the system by closing the flow at the nearest shut-off valves. Then unscrew the faulty component from the valve and screw in the new one. After completing the replacement, reopen the shut-off valves and check the system pressure.

DECOMMISSIONING, DISPOSAL

1. Dismount the product.
2. Dispose of the product according to local directives and guidelines.

The product is built from recyclable materials. If you have any questions or problems with disposal, please contact the appropriate distributor or manufacturer's point.

WARRANTY

Product guarantee in accordance with the general conditions of sale and delivery.

CUSTOMER SATISFACTION

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