Anti- Freeze Valve Instruction Manual

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 monobloc 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.

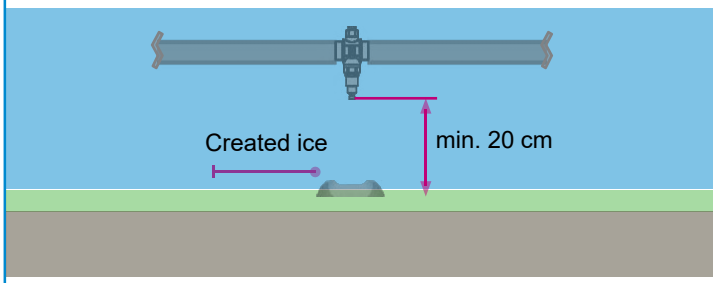
WORKING PRINCIPLE

In a system with a monobloc 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 tempera- ture 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.

MONTAGE

The 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 It is best to have a shelter above the antifreeze valve to prevent rain, snow or direct sunlight.

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 and application of a corrosion inhibitor in the installation.

Fig. 5 UNACCEPTABLE PIPE ROUTING DUE TO SIPHONED SECTIONS

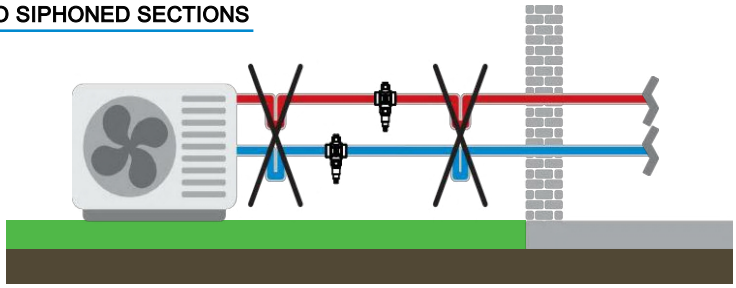
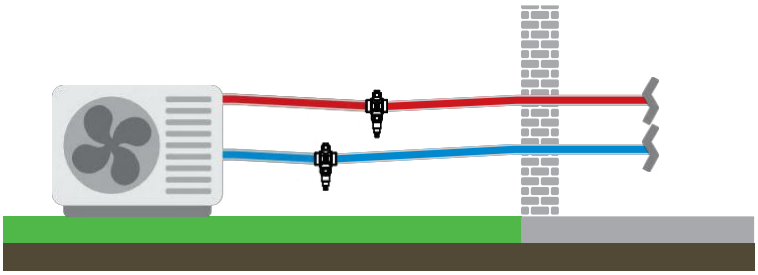


Fig. 6 ACCEPTABLE INSTALLATION POSITION AND PIPE ROUTING IN THE SYSTEM



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)	55 m^3/h
Connections (depending on the version)	100 - 28MM

MAINTENANCE

Warning! Maintenance operations should be done only after the installation will completely cooled down. Regular Inspection: Conduct regular inspections of the anti- freeze valve to ensure it is functioning properly. Check for any signs of wear, damage, or leaks.

Cleaning: Clean the valve periodically to remove any dirt or debris that may affect its operation. Use appropriate cleaning agents and follow the manufacturer's recommendations.

Replacement: If the anti- freeze valve shows signs of significant wear or damage, replace it promptly to avoid potential failure during cold weather.

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.