BANICO Controls

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ANTI-FREEZE VALVES

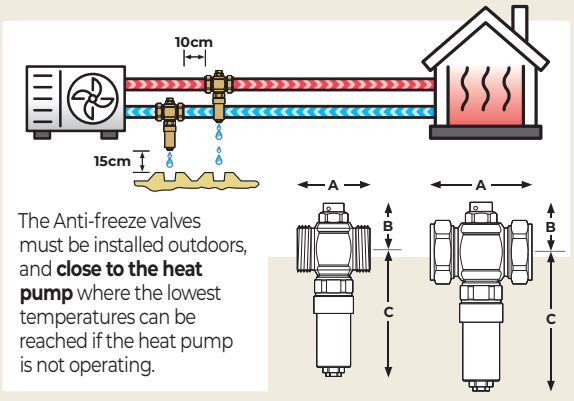
NEW

The Anti-freeze valve maintains water flow within heating and cooling circuits, preventing freezing. When the medium temperature reaches 3°C, the internal sensor activates, allowing water to be discharged from the system. They are designed for single-unit heat pump systems, preventing damage to the machine and circuit components during power off and low temperatures.

TECHNICAL SPECIFICATIONS

Performance

> Medium:	**water**
> Maximum working pressure:	**10 bar**
> Working temperature range:	**0 – 65 °C**
> Ambient temperature range:	**-30 – 60 °C**
> Medium temperature (opening):	**3 °C**
> Medium temperature (closing):	**4 °C**
> Enabling of antifreeze function with outside air temperature:	**<5 °C**
> Accuracy:	**±1 °C**
> Kv (straight path): Ø28 mm:	**64 m³/h**
> Tightening torque:	**80 Nm**



The Anti-freeze valves must be installed outdoors, and **close to the heat pump** where the lowest temperatures can be reached if the heat pump is not operating.

AFV28 (28mm Compression)	**A** = 72.5	**B** = 33	**C** = 74
AFV25 (1")	**A** = 55	**B** = 33	**C** = 74
AFV32 (1 ¼")	**A** = 61	**B** = 36.5	**C** = 77.5
AFV40 (1 ½")	**A** = 63	**B** = 40	**C** = 81

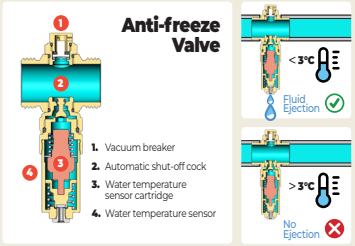
All figures are in mm

Materials

> Press-forged brass body - BS EN 12165 (CW617N)

> Stainless Steel Springs - EN 10270-3 (AISI 304)

> Seals - EPDM



DISCHARGE FLOW RATE

Pressure *bar*	Temperature Outside *°C*	Flow Rate *l/h*
3	-5	0.5
	-20	1

TEST CONDITIONS

> Straight pipe (Ø 12 mm, length 1 m) exposed to the outside.
> Water temperature inside building 18 °C.

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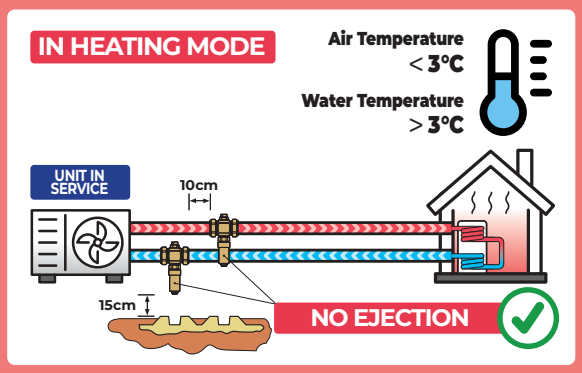
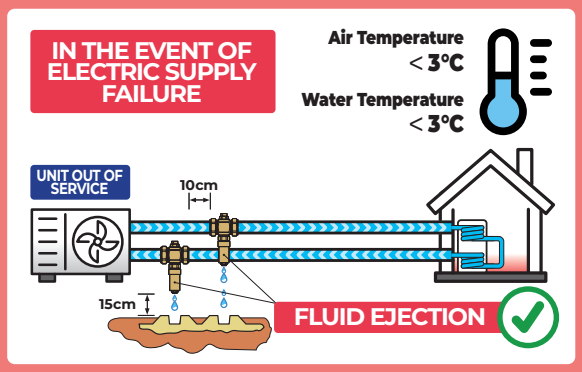
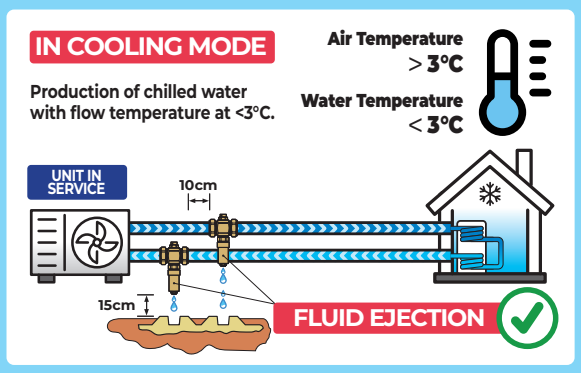
British design. British quality.

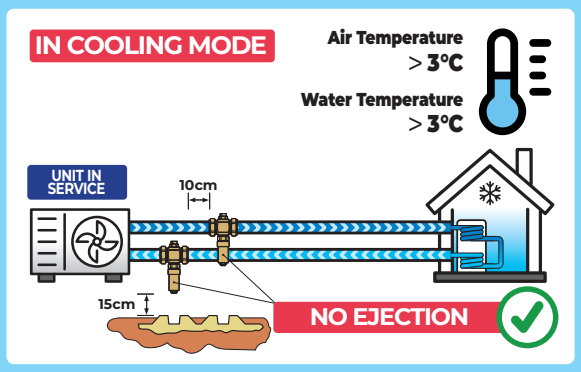




When the water temperature in the pipeline is <3°C, the lower end of the anti-freeze valve is opened and water drops down to form water flow, thereby preventing the water in the pipeline from freezing.

WINTER OPERATION
WARMING





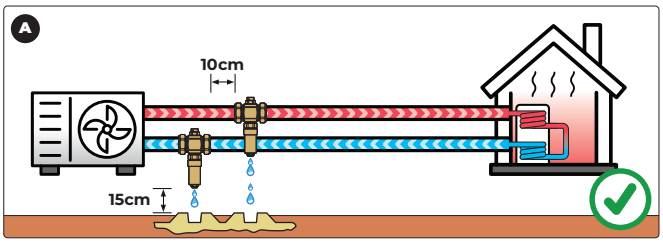
When the water temperature in the pipeline is >3°C, the anti-freeze valve is closed and stops working and does not drip, because the water in the pipeline will not freeze at this temperature.

SUMMER OPERATION
COOLING

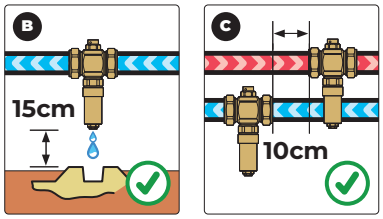
INSTALLATION REQUIREMENTS

The anti-freeze valve must be installed vertically, with the discharge outlet facing downward to ensure proper drainage.

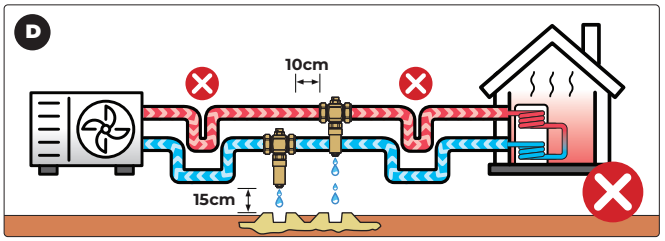
It should be installed outdoors, away from heat sources, and with the system pressurized (Figure A).



Ensure at least 15cm of clearance from the ground to prevent ice blockage in the discharge outlet (Figure B). Maintain a minimum distance of 10cm between valves, and avoid covering the valve with insulation material to ensure the unit functions correctly (Figure C).



Avoid creating any trap connections. If the connection pipe is shaped in a way that could cause a trap effect (Illustrated in Figure D), it will impede drainage and compromise frost protection.



The anti-freeze valve **must be free of insulation** for the system to work properly.

When installed outdoors, the anti-freeze valve **must be protected from rain, snow and direct sunlight.**

MAINTENANCE

Keep the discharge area clear of debris. Vacuum Breaker and Temperature Sensor Core are replaceable, ensuring the system remains pressurized.

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