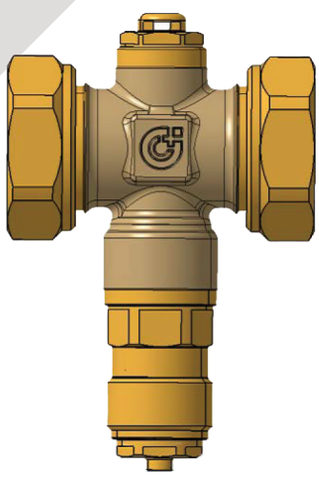
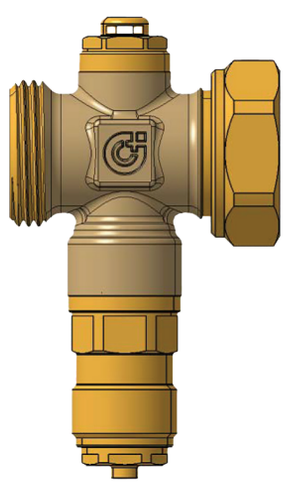
iStop®

antifreeze valve with
swivel connection
max. temperature 90°C





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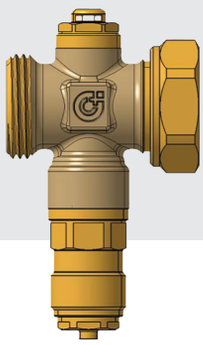
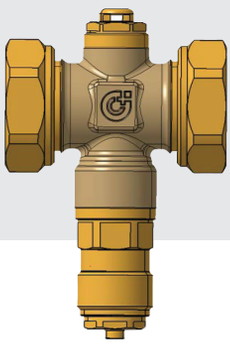
iStop® antifreeze valve with swivel connection - 90˚C max. temperature



108632



108642

Application

The iStop antifreeze valve allows the circuit medium to be drained when the temperature reaches an average of 3˚C.

This prevents ice forming in the circuit of a system, generally with a heat pump, avoiding potential damage to equipment, valves and pipework.

The iStop antifreeze valve has been developed for heat pumps which use the new refrigerant gases with delivery temperatures up to 90˚C.

The valves are suitable for a variety of fittings and pipes connected by a union or threaded fitting.

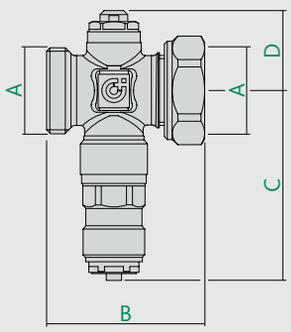
Construction Details

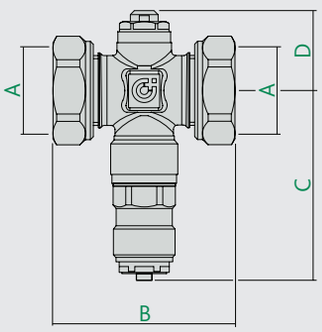
Component	Material	Grade
Body:	Brass	BS EN 12165 CW617N
Obturator:	Brass	BS EN 12164 CW617N
Springs:	Stainless steel	BS EN 10270-3 (AISI 302)
Seals:	EPDM	
Swivel Nut:	Brass	BS EN 12165 CW617N

Technical Specification

Medium:	water
Maximum working pressure:	10 bar
Working temperature range:	0 to 90˚C
Ambient temperature range:	-30 to 60˚C
Medium temperature - opening:	3˚C
Medium temperature - closing:	4˚C
Accuracy:	±1˚C
Connection threads:	BS EN ISO 228-1
Kv - straight path:	33 m³/hr

Dimensions

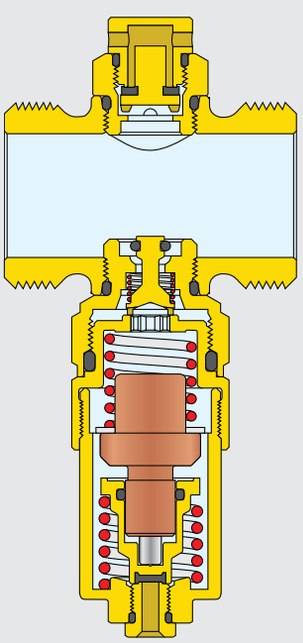




Ref No	A	B	C	D
108632	G1	61	73	31
108642	G1	70	73	31

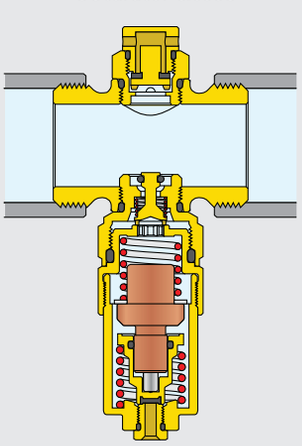
Operating Principle

When the temperature of the water in the pipe drops below 3˚C, the obturator of the antifreeze valve opens and drains off the water. The obturator closes when the medium temperature returns to 4˚C.



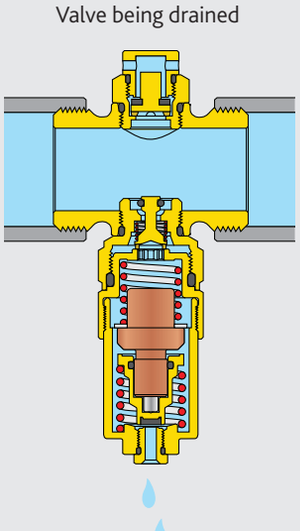
Medium temperature >3˚C

Obturator closed



Medium temperature <3˚C

Valve being drained



iStop® antifreeze valve with swivel connection - 90°C max. temperature

Technical Selection

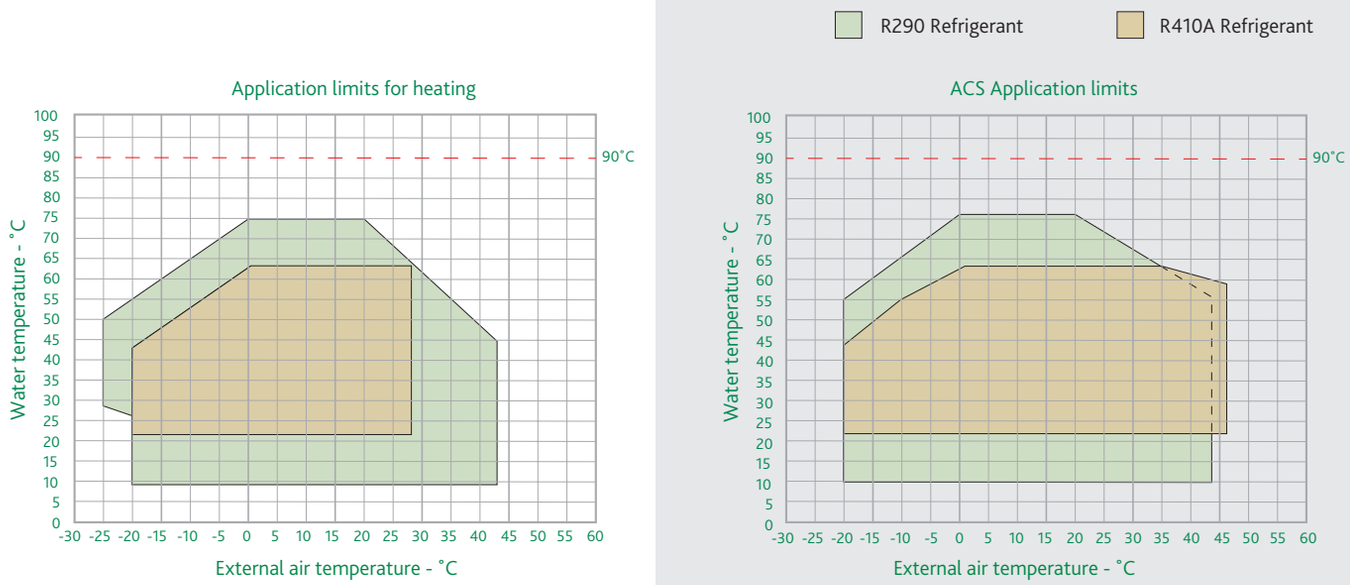
The technical selection is made based on the type of heat pump installed in the system.

Depending upon the refrigerant used, the temperature of the water produced may vary.

Manufacturers generally provide two graphs showing the temperature trend of the water during the heating phase and during the production of domestic hot water.

It is essential to evaluate the maximum temperatures achievable and select correctly the type of valve to be used.

Refrigerant R290 can only be used in new equipment and refrigerant R410A in existing equipment.



Sizing

Antifreeze valves are sized based on the diameter of the system piping.

In the table below, based on the nominal power of the heat pump, a typical flow rate with a temperature difference of 5 °C is defined.

In relation to the flow rate, the diameter of a pipe is identified has a pressure drop r=20-22 mm w.g./m (50°C).

The model to use is identified as a consequence of the diameter of the pipe.

Rated Power [kW]	3	4	5	6	7	8	9	10
Max. Flowrate [l/h] (ΔT = 5 °C)	0.516	0.688	0.860	1.032	1.204	1.376	1.548	1.720
Nonimal Size	¾"	¾"	1"	1"	1"	1"	1"	1"
iStop 	108632 (1")							

iStop® antifreeze valve with swivel connection - 90°C max. temperature

Installation

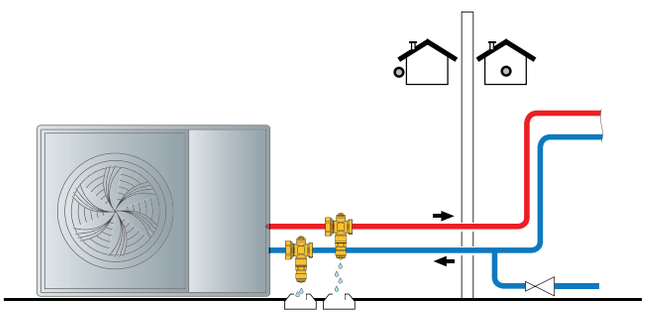
The iStop valve must only be installed in a vertical position, with the outlet facing downwards, to allow the draining water to flow out and free from obstructions.

It is recommended to install the antifreeze valves on both the flow and return pipes, otherwise water may be left in one pipe which could then freeze.

The antifreeze valves must be installed outdoors, where the lowest temperatures can be reached if the heat pump is not operating.

They must also not be placed close to heat sources which could interfere with their function.

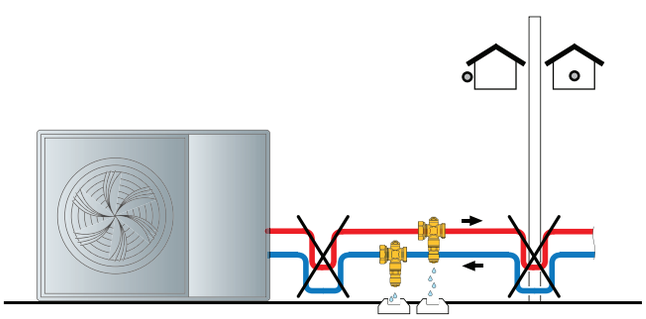
For the device to work properly, keep the system under pressure at all times, even when draining the antifreeze valve.



Presence of Traps

Do not make any trap connections.

If the shape of the connection pipes has the potential to create a trap effect (as shown below), part of the pipe will not be able to drain and frost protection will no longer be ensured.



Installation - Continued

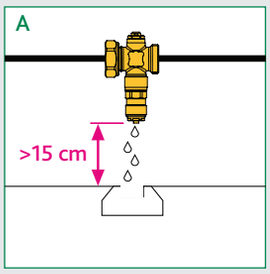
Leave at least 15 cm clearance from the ground (fig. A) to prevent the block of ice which may form below from stopping water from draining from the valve.

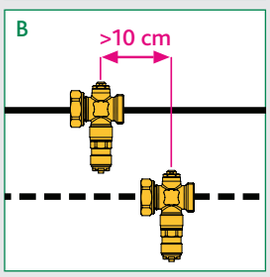
Route the drain to a suitable collection point.

Keep a distance of at least 10 cm between the antifreeze valves (fig. B).

The valve must be free of insulation for the system to work properly.

When installed outdoors, the antifreeze valve must be protected from rain, snow and direct sunlight.





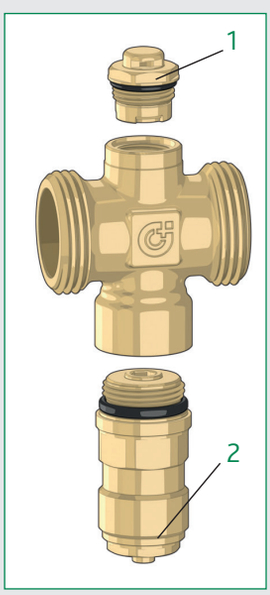
Vacuum Breaker Replacement

In the event of a malfunction, the vacuum breaker (1) can be replaced.

Thermostatic Cartridge Replacement

In the event of a malfunction, the thermostatic cartridge (2) can be replaced.

An automatic shut-off cock prevents the water from draining while the cartridge is being replaced, thereby keeping the system pressurised.



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