

Zone valves

676 series



Function

Zone valves are used to shut off the heat-transfer medium in air conditioning systems.

When coupled with a thermo-electric actuator and controlled by a room thermostat, they automatically shut off the part of the plumbing circuit in which they are inserted.

They feature a high flow coefficient, which is why they are typically installed for zone control. Thanks to their special balanced obturator, they can work at high differential pressures.

PATENT PENDING.

Reference documents:

- Tech. Brochure 01142 6563 series thermo-electric actuator
- Tech. Brochure 01042 6561 series thermo-electric actuator

Product range

Code 676500 Two-way zone valve size DN 20 (1")

Technical specifications

Valves

Materials

Body:	brass EN 12165 CW617N
Obturator:	brass EN 12165 CW614N
Control stem:	stainless steel EN 10088-3 (AISI 303)
Hydraulic seals:	EPDM
Knob:	nylon

Performance

Medium:	water, glycol solutions
Maximum percentage of glycol:	30%
Operating temperature range:	0–95 °C
Max. pressure:	10 bar
Max. differential pressure:	2.5 bar

Connections:
1" M (ISO 228-1)

Actuator

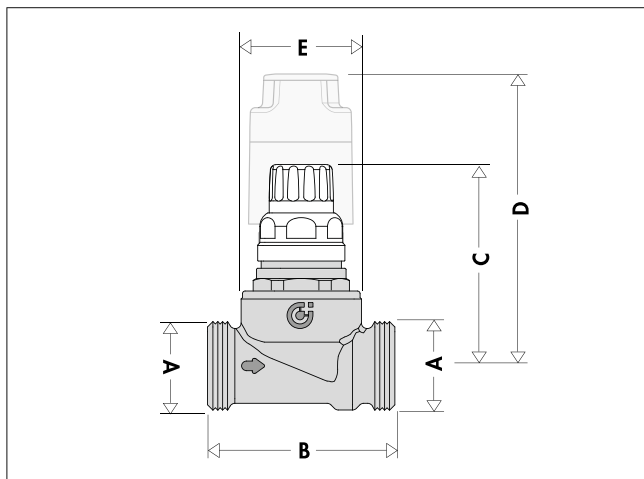
Materials

Protective shell:	self-extinguishing polycarbonate
Colour:	(code 6563 02/04 - 6561 02/04) white RAL 9010 (code 6563 12/14 - 6561 12/14) grey RAL 9002

Performance

Normally closed	
Electric supply:	230 V (ac) - 24 V (ac) - 24 V (dc)
Starting current:	≤1 A
Running current:	230 V (ac) = 13 mA 24 V (ac) - 24 V (dc) = 140 mA
Running power consumption:	3 W
Auxiliary microswitch contact rating (code 6563 12/14 - 6561 12/14):	0.8 A (230 V)
Protection class:	IP 40 (code 6563 ..) IP 44 (code 6561 ..)
Double insulation construction:	☑ CE
Maximum ambient temperature:	50 °C
Operating time:	opening and closing from 120 s to 180 s
Length of supply cable:	80 cm

Dimensions

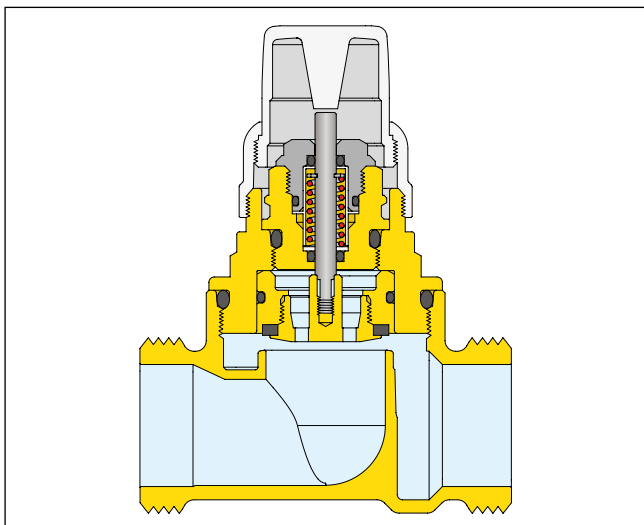


Code	DN	A	B	C	D	E	Mass (kg)
676500	20	1"	70	75	115	Ø45	0,476

Operating principle

When a room thermostat trips, the thermo-electric actuator opens or closes the obturator of the valve that controls the heat-transfer medium.

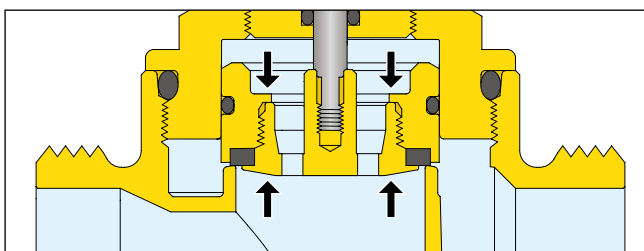
The actuator is operated by a wax expansion thermostat heated by a PTC resistor, which automatically limits the current flow when the working temperature is reached.



Construction details

High maximum differential pressure

The zone valve, code 676500, has a special obturator that can work at high differential pressures. As shown in the figure, the thrust towards the opening is counterbalanced by the force created by the pressure acting on the internal surface of the obturator. This feature reduces the thrust needed to close the obturator.

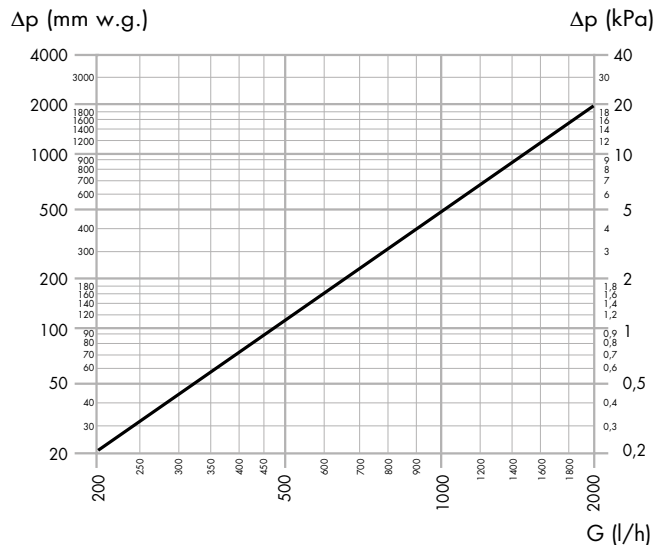


High Kv

The internal fluid-dynamic conformation of the obturator and body ensure fairly low pressure drops.

Hydraulic characteristics

Valve "OPENING" operation




Code	DN	CONNECTION	Kv (m ³ /h)	Δp_{max}^* (bar)
676500	20	1"	4.77	2.5

* Maximum pressure differential assured by the servo control for regular operation

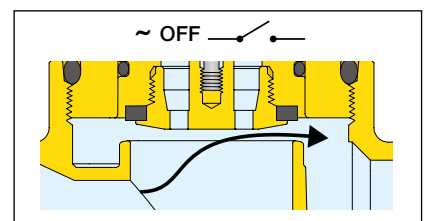
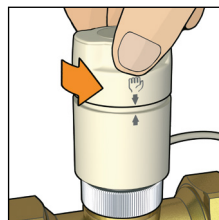
Use with 6563 series thermo-electric actuator

Manual opening

Turn the knob on the top of the actuator anticlockwise until its limit stop trips and the arrow symbols and overlap .

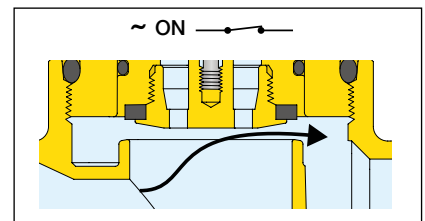
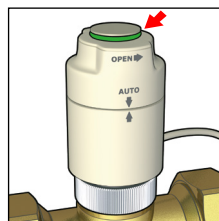
To close the valve manually and restore automatic operation of the device, turn the knob clockwise onto "AUTO".

Note: On the series equipped with an auxiliary microswitch, in the manual opening position the micro contact is closed.

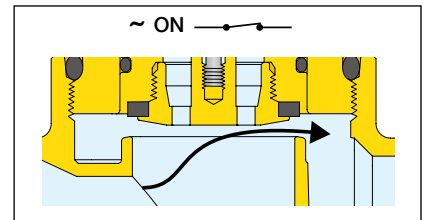
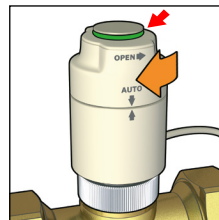


Automatic operation

Normal valve operation in automatic mode.



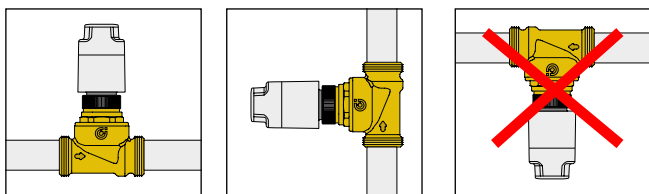
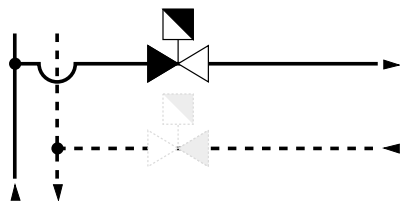
Automatic return from manual to automatic position.



Installation

When installing zone valves, ensure that the water flow is in the direction of the arrows on the valve body.

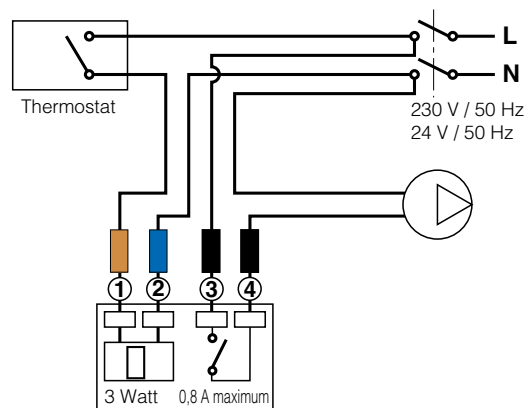
The valve can be installed on either the supply or return pipe. Install the valve with the control knob pointing upwards or horizontal, never upside down.



Electric connections with an auxiliary microswitch

Diagram with pump disconnection

The auxiliary microswitch can be used to turn off the pump when the user circuits need no heat and the valves are closed. If the pump consumption exceeds the capacity of the contacts equal to 0,8 A, an intermediate contactor should be used.



Thermo-electric actuators



6561

Thermo-electric actuator.
Normally closed.

tech. broch. 01042



Code	Voltage (V)	
656102	230	
656104	24	
656112	230	With auxiliary microswitch
656114	24	With auxiliary microswitch

Technical specifications

Materials

Protective shell:
Colour:

self-extinguishing polycarbonate
(code 656102/04) white RAL 9010
(code 656112/14) grey RAL 9002

Performance

Normally closed

Electric supply:

230 V (ac) - 24 V (ac) - 24 V (dc)

Starting current:

≤ 1 A

Running current:

230 V (ac) = 13 mA

24 V (ac) - 24 V (dc) = 140 mA

Running power consumption:

3 W

Auxiliary microswitch contact rating (code 656112/114): 0.8 A (230 V)

Protection class:

IP 44 (in vertical position)

Double insulation construction:

CE

Maximum ambient temperature:

50 °C

Operating time:

opening and closing from 120 s to 180 s

Length of supply cable:

80 cm

Thermo-electric actuators with manual opening knob and position indicator



6563

Thermo-electric actuator.
Normally closed.
PATENTED.

tech. broch. 01142



Code	Voltage (V)	
656302	230	
656304	24	
656312	230	With auxiliary microswitch
656314	24	With auxiliary microswitch

Technical specifications

Materials

Protective shell:
Colour:

self-extinguishing polycarbonate
(code 656302/04) white RAL 9010
(code 656312/14) grey RAL 9002

Performance

Normally closed

Electric supply:

230 V (ac) - 24 V (ac) - 24 V (dc)

Starting current:

≤ 1 A

Running current:

230 V (ac) = 13 mA

24 V (ac) - 24 V (dc) = 140 mA

Running power consumption:

3 W

Auxiliary microswitch contact rating (code 656312/14): 0.8 A (230 V)

Protection class:

IP 40

Double insulation construction:

CE

Maximum ambient temperature:

50 °C

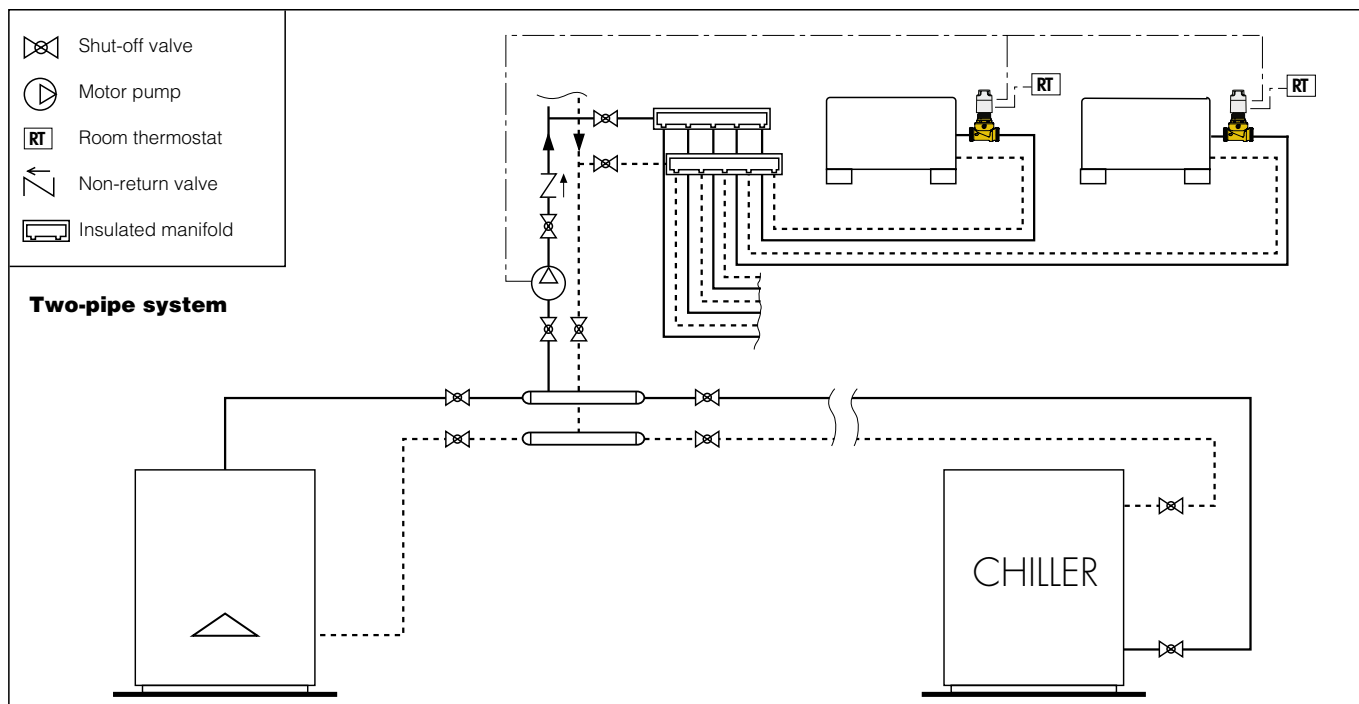
Operating time:

opening and closing from 120 s to 180 s

Length of supply cable:

80 cm

Application diagrams



SPECIFICATION SUMMARY

Code 676500

Two-way zone valve. Fitted for thermo-electric actuator. 1" M connections. Brass body. Size DN 20. Stainless steel control stem. Control stem seal with double EPDM O-Ring seal. Manual control knob made of nylon. Working temperature range 0–95°C. Maximum working pressure 10 bar. Maximum differential pressure 2,5bar.

Code 656102/04

Thermo-electric actuator. Normally closed. Electric supply 230 V (ac); 24 V (ac); 24 V (dc). Starting current 1 A. Running current 13 mA (230 V (ac)); 140 mA (24 V (ac) - 24 V (dc)). Running power consumption 3 W. Protection class IP 44 (in vertical position). Ambient temperature range 0–50°C. Operating time from 120 to 180 seconds. Length of supply cable 80 cm.

Code 656112/14

Thermo-electric actuator. Normally closed, with auxiliary microswitch. Electric supply 230 V (ac); 24 V (ac); 24 V (dc). Starting current ≤ 1 A. Running current 13 mA (230 V (ac)), 140 mA (24 V (ac) - 24 V (dc)). Running power consumption 3 W. Protection class IP 44 (in vertical position). Auxiliary microswitch contact capacity 0,8 A (230 V). Ambient temperature range 0–50°C. Operating time from 120 to 180 seconds. Length of supply cable 80 cm.

Code 656302/04

Thermo-electric actuator with manual opening and position indicator. Normally closed. Self-extinguishing polycarbonate protective shell. White RAL 9010. Electric supply voltage 230 V (ac); 24 V (ac); 24 V (dc). Starting current ≤ 1 A. Running current 13 mA (230 V (ac)), 140 mA (24 V (ac) - 24 V (dc)). Running power consumption 3 W. Protection class IP 40. Made with double insulation. Ambient temperature range 0–50 °C. Opening/closing time from 120 to 180 s. Length of supply cable 80 cm.

Code 656312/14

Thermo-electric actuator with manual opening and position indicator. Normally closed, with auxiliary microswitch. Self-extinguishing polycarbonate protective shell. Colour grey RAL 9002. Electric supply voltage 230 V (ac); 24 V (ac); 24 V (dc). Starting current ≤ 1 A. Running current 13 mA (230 V (ac)), 140 mA (24 V (ac) - 24 V (dc)). Running power consumption 3 W. Auxiliary microswitch contact rating 0,8 A (230 V). Protection class IP 40. Made with double insulation. Ambient temperature range 0–50 °C. Opening/closing time from 120 to 180 s. Length of supply cable 80 cm.

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