

571T, 560T, 561T, 580T Series

Zone valves and electrothermal actuator

Technical Data Sheet



Description

561T, 560T and 571T Series valve bodies coupled with **580T Series** electrothermal actuators form two-position (ON/OFF) automatic control devices, known as zone valves, which can shut off the fluid flow in the circuit on which they are installed, on the basis of input from the electrical control device (thermostat or programmable thermostat) with which they are paired.



571T

Two-way bronze zone valve, normally closed (NC). ON/OFF operation with an electrothermal actuator (**580T Series**) with bayonet fitting for connection to the body.

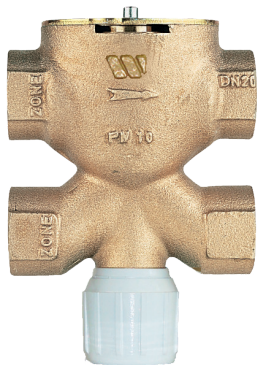
Type	Part No.	DN	Kvs	Weight (g)
571T	571T34	3/4" FF	5.5	850
571T	571T1	1" FF	6.2	900
571T	571T114	1.1/4" FF	7.0	1,050



560T

Three-way bronze zone valve, normally closed (NC). ON/OFF operation with an electrothermal actuator (**580T Series**) with bayonet fitting for connection to the body. Designed for fitting a **566T Series** bypass setting valve. To connect the zone valve and the setting valve to the Modul coplanar manifolds, use **565T Series** eccentric unions.

Type	Part No.	DN	Kvs	Kvs bypass	Weight (g)
560T	560T34	3/4" FF	5.5	3.0	900
560T	560T1	1" FF	6.2	3.0	1,000



561T

Bronze 3-way 4-port normally closed (NC) zone valve with built-in bypass setting valve. ON/OFF operation with an electrothermal actuator (**580T Series**) with bayonet fitting for connection to the body. To connect the zone valve to the Modul coplanar manifolds, use **531C Series** eccentric unions.

Type	Part No.	DN	Kvs	Kvs bypass	Weight (g)
561T	561T34	3/4" FF	5.5	3.0	1,200
561T	561T1	1" FF	6.2	3.0	1,350

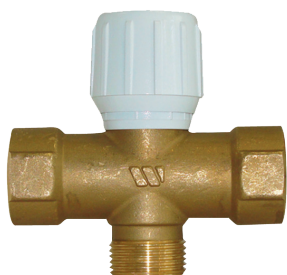


580T

Two-position electrothermal actuator for **561T, 560T and 571T Series** zone valves. Normally open (NO) auxiliary microswitch for supplementary controls (e.g. pump, boiler). Bayonet-fitting for connection to valve body. External manual opening control. Positioning time: 4 min. Power consumption: 20W (230V), 18W (24V).

Compliant with Directives LVD 2014/35/EU and EMC 2014/30/EU.

Type	Part No.	Power supply	Protection	Weight (g)
580T	580T220VX	230V	IP20	250
580T	580T24VX	24V	IP20	250



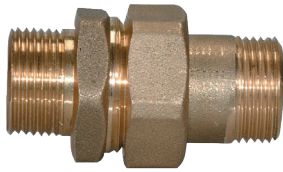
566T

Bypass setting valve. Suitable for fitting on **560T Series** zone valves.

Type	Part No.	DN	Weight (g)
566T	566T34X	3/4" FF	350
566T	566T1X	1" FF	980

567T

Straight three-piece union for connection between zone valves and distribution manifolds.



Type	Part No.	DN	Weight (g)
567T	567T3434	3/4" x 3/4"	400
567T	567T11	1" x 1"	800

565T

Three-piece eccentric union with centre distance of 16 mm for connecting **560T Series** three-way zone valves to **566T Series** bypass setting valves and Modul coplanar manifolds.



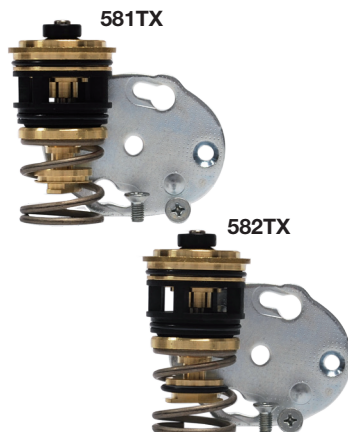
Type	Part No.	DN	Weight (g)
565T	565T3434	3/4" x 3/4"	450
565T	565T134	1/2" x 3/4"	500
565T	565T11	1" x 1"	550

531T

Three-piece eccentric union with centre distance of 6 mm for connecting **561T Series** 3-way 4-port zone valves and Modul coplanar manifolds.



Type	Part No.	DN	Weight (g)
531C	5310C	3/4" x 3/4"	350
531C	5311C	1/2" x 3/4"	400
531C	5312C	1" x 1"	450



58T

Disc assembly for zone valves: for **571T Series** (Art. 581TX and two O-rings), for **560T** and **561T Series** (Art. 582TX with three O-rings).

Type	Part No.	Description	Weight (g)
58T	581TX	for 571T	200
58T	582TX	for 560T, 561T	200

Valve body technical features

Max. operating pressure	10 bar
Max. differential pressure (with connection to 580T Series actuator)	1.5 bar
Operating temperature	4÷100°C
Disc stroke	4 mm

Valve body design characteristics

Body and seat	BZN LG2 bronze
Stem	Brass hardened by chemical nickel-plating
Disc	Brass
Bypass disc	Modified polyester

580T Series actuator technical features

Marking	CE
Motor	Electrothermal
Auxiliary contact	NO voltage-free
Auxiliary contact rating	700 mA
Power consumption	20 W (230 VAC), 18W (24V)
Maximum room temperature	0÷50°C
Maximum ambient humidity	90% R.H.
Protection rating	IP 20
Control type	ON/OFF
Response time	4 minutes
Control	Start of opening 2-3 minutes, fully open 4 minutes
Connection to valve body	Bayonet-fitting
Cable gland	9 mm
Housing	Self-extinguishing ABS

Application

Zone valves are generally used in central and independent heating systems as a control device for dividing individual dwelling units into uniform heating zones under the control of programmable room thermostats (e.g. **MILUX Series**) or as an indirect control device in thermal energy metering systems by means of connection to a meter (**OH6 Series**). The function of the valves is to shut off (**571T Series** 2-way model), or divert by means of an adjustable bypass (**561 T** or **560T Series** with **566T Series** bypass setting valve) the heat carrier fluid to a secondary circuit supplying the heat emitters of one or more rooms (zone) according to the demand transmitted by the room thermostat, thus making it possible to manage the desired comfort temperature level independently. **560T** and **561T Series** valves are recommended for systems with multiple zones and a central pump. They prevent hydraulic imbalances even when the majority of the valves are in the fully closed position: appropriate setting of the pre-setting valve on the bypass (**566T Series**) ensures a constant flow rate, irrespective of whether the flow runs through the circuit (valve open) or the bypass (valve closed).

Operation

The zone valves are electrically connected to a room thermostat and offer two-position operation (ON/OFF). The slow, quiet movement of the valve disc, which is normally closed in the rest position, is brought about by a wax sensing element inside the **580T Series** actuator. In automatic mode, when the room thermostat contact closes, the valve opens because the heat generated by the electric resistor wound round the thermostatic element causes the element to expand and hence exert force on the valve stem. A safety microswitch interrupts the power supply to the electric resistor when the stem has reached the end of its stroke (valve fully open), but keeps supplying power at regular intervals until the room thermostat contact opens. A counter-spring returns the stem to its starting position (valve closed), when power stops being supplied to the resistor. A voltage-free auxiliary switching contact closes before the microswitch is triggered, and starts the pump, the metering system or other device. In manual mode (**Fig.1**), which must be used only when the valve is closed, the control lever on the outside the actuator enables you to open the valve without disabling the auxiliary contact, thus ensuring correct operation of the system, especially in the case of thermal energy metering.

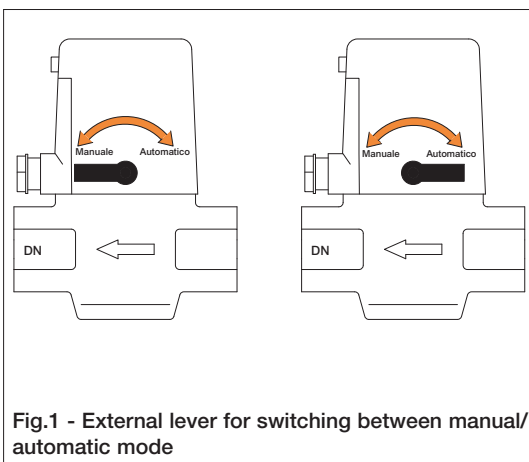
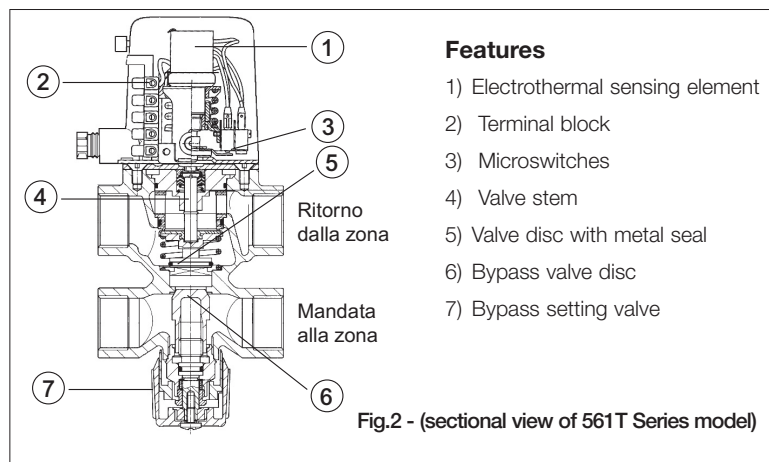


Fig.1 - External lever for switching between manual/automatic mode



Features

- 1) Electrothermal sensing element
- 2) Terminal block
- 3) Microswitches
- 4) Valve stem
- 5) Valve disc with metal seal
- 6) Bypass valve disc
- 7) Bypass setting valve

Fig.2 - (sectional view of 561T Series model)

Bypass setting valve

When calculating the maximum flow rate to be supplied to heating systems divided into heating zones, all the zone valves should be considered to be in use and fully open. Frequently, however, they are not used simultaneously and individual zone valves are left in the open or closed position, which can cause variations in flow rate and consequent hydraulic imbalances in the circuits, which also affect pump performance. Using a 566T Series bypass setting valve significantly reduces these effects, because even when the zone valves are closed, the heat carrier fluid can still flow through the third way (bypass). If you set the bypass valve in such a way that it has the same pressure drop as the downstream circuit concerned, the amount of fluid flowing through the zone unit will remain constant both in the open position (zone secondary circuit) and in the closed position (bypass). The correlation between flow rate and pressure drop can be determined from the appropriate flow curve. To connect the 566T Series valve to the 560T Series 3-way valve body, screw the duly sealed setting valve to the central port of the three-way zone valve: two eccentric unions (565T Series) adapt the centre distance of the unit to the centre distance of the Modul coplanar manifold. The setting valve does not impose directional constraints but is installed on the flow pipe in order to adhere to the direction of flow (the same applies to the 561T Series model with built-in bypass valve). To set 561T and 566T Series bypass valves, proceed as follows:

- 1- Fully close the handwheel.
- 2- Remove the handwheel by unscrewing the retaining screw (A).
- 3- Pre-set the valve by repositioning the handwheel so that the reference (B) marked on the inner part is aligned with the number selected from the flow curve.
- 4- Refit the handwheel and fasten it with the screw.
- 5- Fully open the valve, which will now assume the desired position.

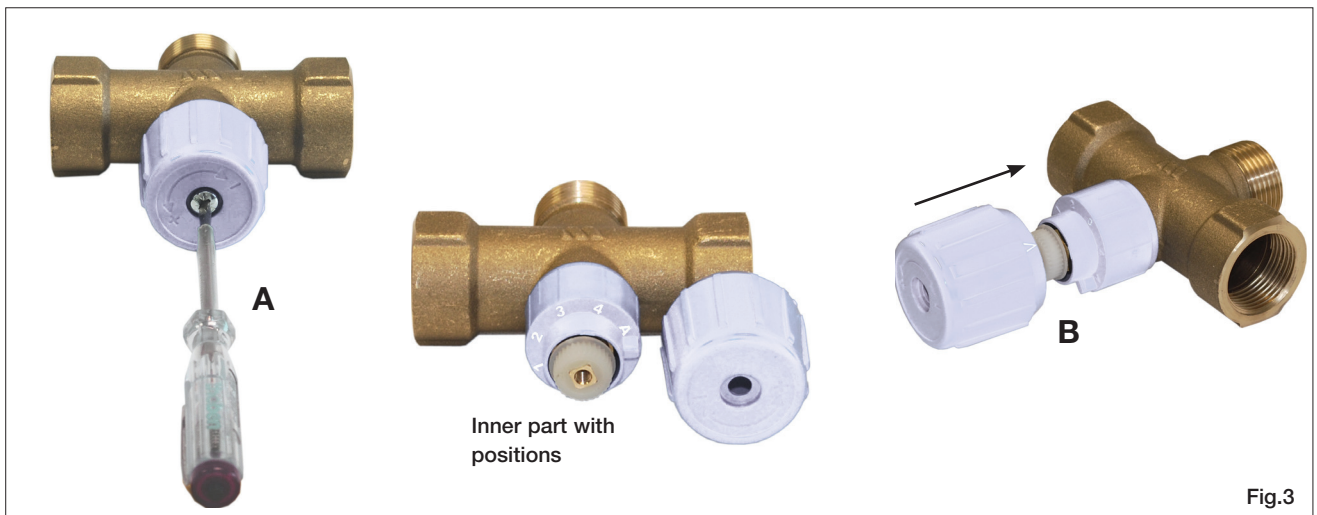


Fig.3

Bypass setting valve Kv values					
Setting position	1	2	3	4	A
Kv	1.4	2	2.4	2.7	3

Example:

Determine the pressure drop of a 3-way 4-port zone valve on an **815M Series** manifold (DN 1") and select the setting position of the bypass.

The manifold circuit has a flow rate of 900 l/h and an overall pressure drop of 1200 mm wg.

Pressure drop with valve open on the straight way:

$$(\Delta p) = \left(\frac{900}{10 \cdot 6.2} \right)^2 = 210.7 \text{ mm wg}$$

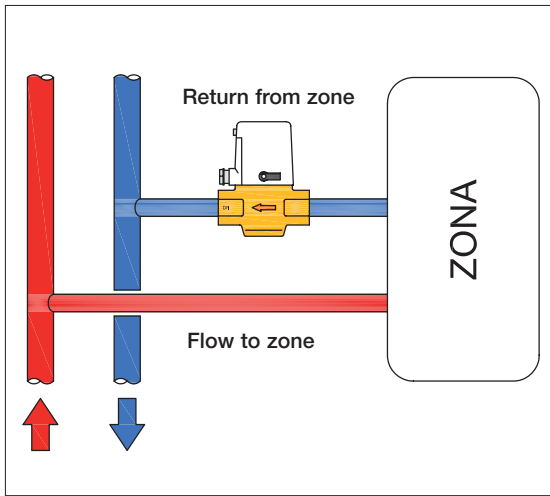
Calculate the setting position of the bypass valve by determining the necessary Kv.

$$Kv = \left(\frac{900}{10 \cdot \sqrt{1200+211}} \right) = 2.4$$

The desired setting position is 3 (see bypass Kv table).

We have thus ensured a constant flow rate of 900 l/h, irrespective of whether the water flows through the circuit (valve open) or recirculates through the bypass in the boiler (valve closed); the total pressure drop is 1411 mm wg.

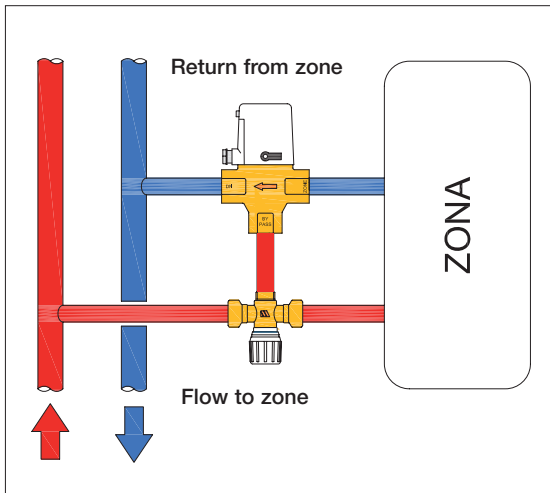
Valve plumbing diagrams



2-way valve

571T Series 2-way zone valves are designed to shut off the flow of heat carrier fluid.

They can be installed on either the flow or the return pipe, provided the direction of flow shown by the arrow cast into the valve body is adhered to.

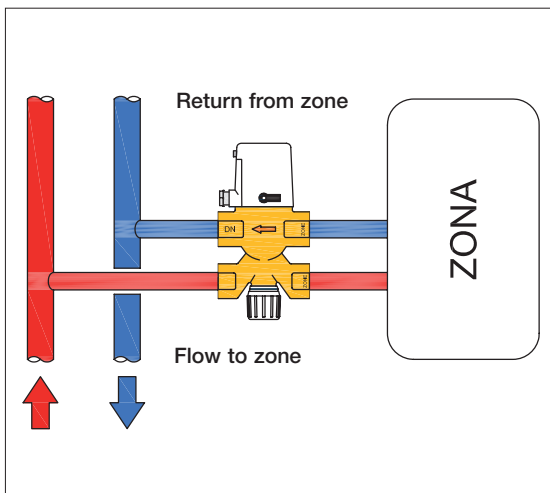


3-way valve with bypass valve

560T Series 3-way zone valves are designed to shut off the flow of heat carrier fluid to the zone, and divert it to the primary circuit.

For correct operation, they must be installed on the return pipe, with the ports marked with the word "ZONE" connected to the secondary circuit (zone).

With these valves, it is always advisable to install a 566T Series bypass valve for correct balancing of the primary circuit.



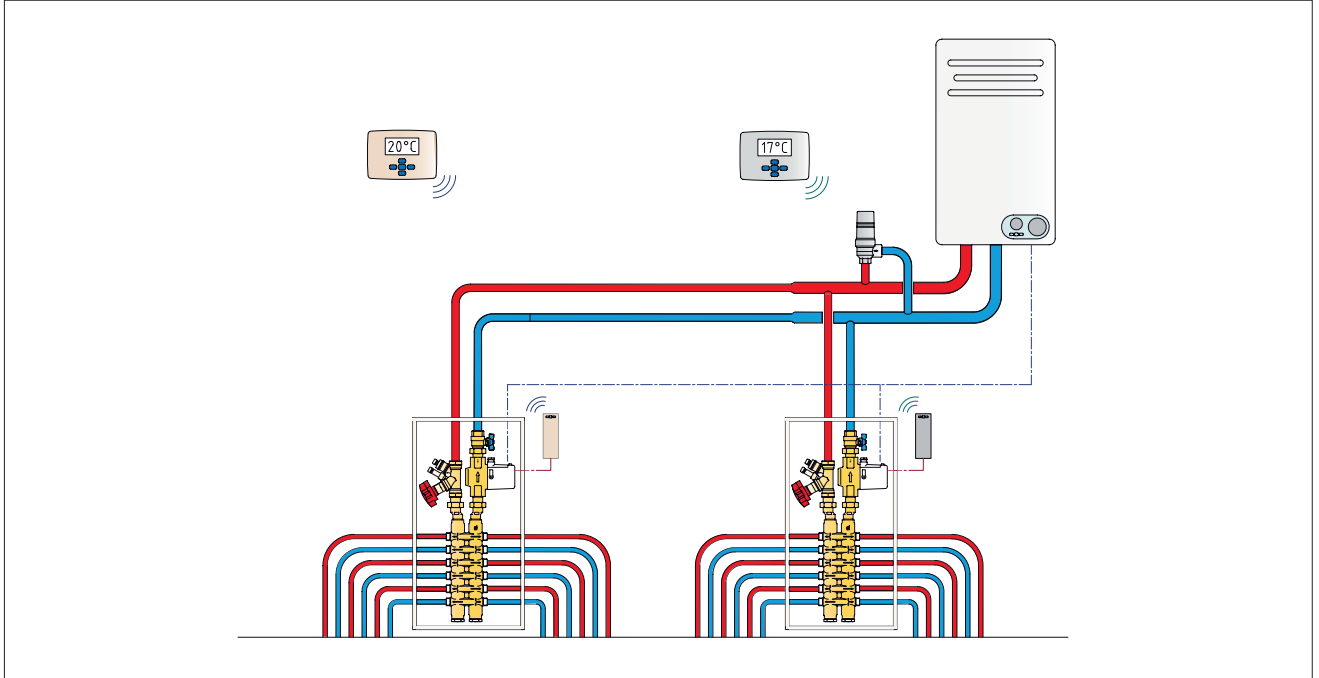
3-way 4-port valve

561T Series 3-way 4-port zone valves are designed to shut off the flow of heat carrier fluid to the zone, and divert it to the primary circuit.

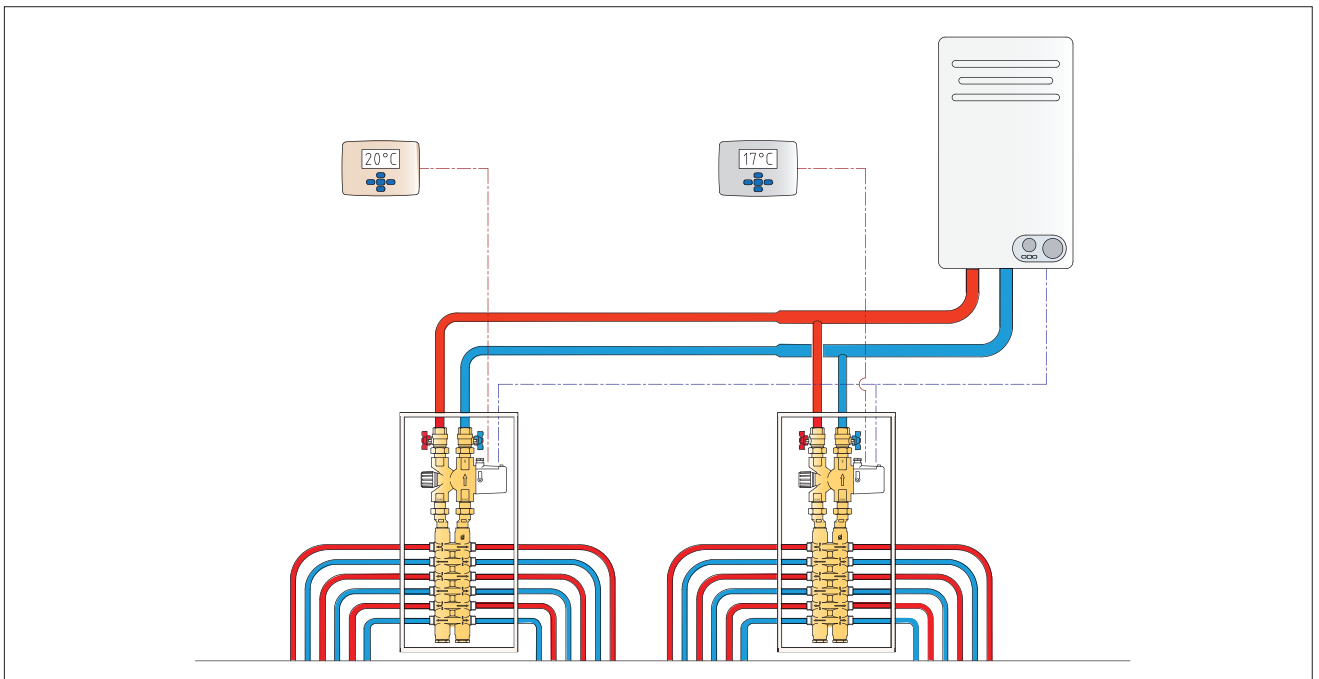
For correct operation, they must be installed on the return pipe, with the ports marked with the word "ZONE" connected to the secondary circuit (zone).

Typical application diagrams

System with **571T Series** 2-way zone valves complete with **580T Series** electrothermal actuator, **466 Series** relief valve, **STAD Series** balancing valve, distribution with Modul coplanar manifold, and room temperature controller with programmer on at least two temperature levels (**MILUX-RF Series**).



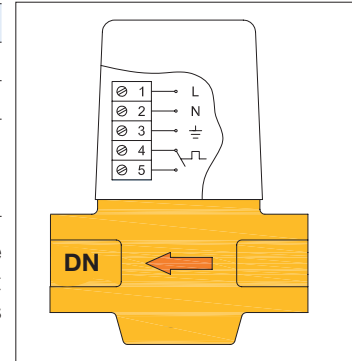
System with **561T Series** 3-way 4-port zone valves complete with **580T Series** electrothermal actuator, distribution with Modul coplanar manifold, and room temperature controller with programmer on at least two temperature levels (**MILUX Series**).



Electrical connections

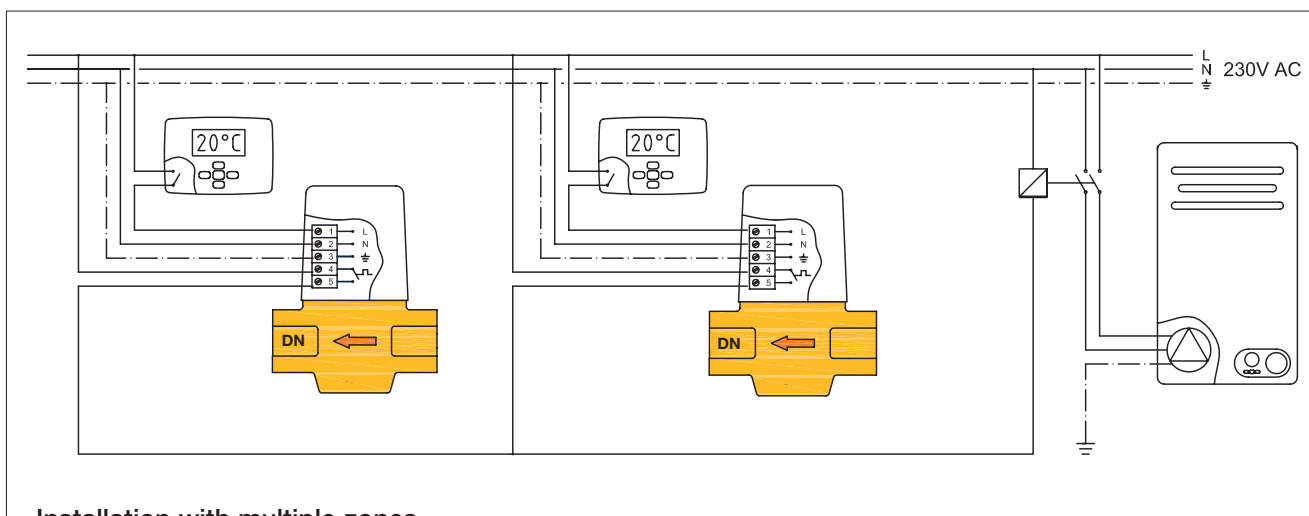
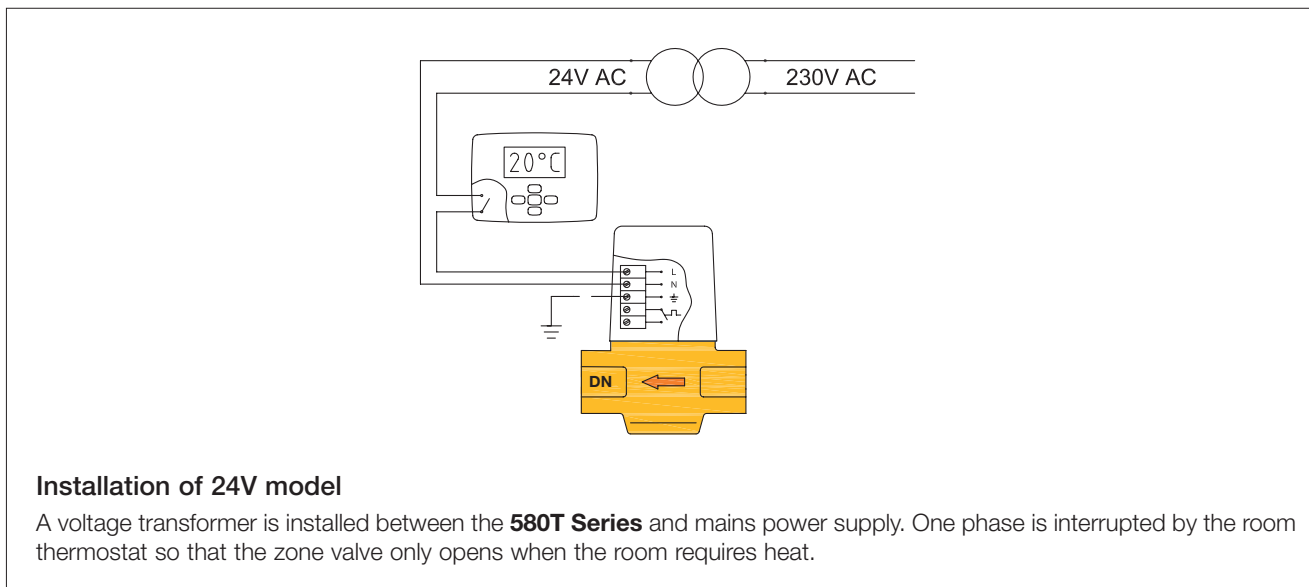
The zone valve is designed for 24V or 230V operation. The connection terminals (see table below) can be easily accessed by removing the cover retaining screw from the cap of the **580T Series** actuator.

Terminals	580T-230V	580T-24V
1 - 2	230V AC power supply	24V AC power supply
3	Earth	Earth
4 - 5	NO contact Voltage-free Max. 700mA	NO contact Voltage-free Max. 700mA



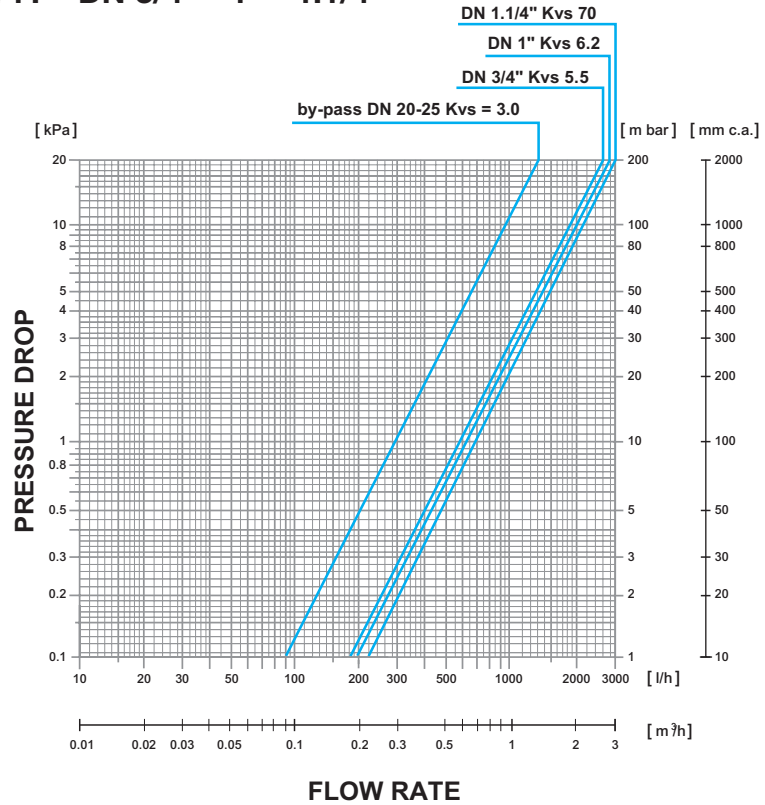
CAUTION: When the **580T Series** actuator is separated from the valve body, the microswitch assumes a random position and could therefore be closed despite the fact that the contact is normally open (NO). The contact only operates correctly when the actuator is fitted on the valve body.

Typical wiring diagrams

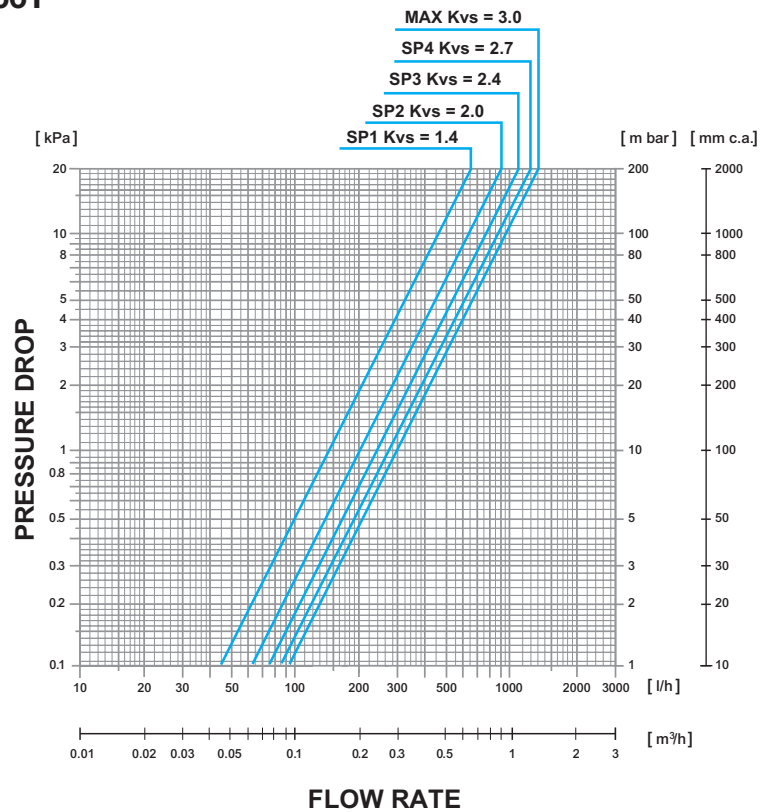


Charts

Maximum openings of main way 561T - 560T - 571T - DN 3/4" - 1" - 1.1/4"



Bypass setting 561T - 560T + 566T



Installation

The valves must be installed in accordance with the direction of flow as per the plumbing diagrams set out below, and preferably in a horizontal position (**Fig.4**) so as to prevent the build-up of residues on the valve seat. Never install the valve with the actuator facing downwards (**Fig.5**) because dripping caused by leakage or condensation could damage the actuator. **580T Series** electrothermal actuators are fixed to the body by means of a bayonet-fitting. To separate the actuator from the valve body, simply turn it anticlockwise by a short distance. Always switch off the power supply and ensure that the sensing element is in the rest position (valve closed) before removing the actuator. Always leave enough space to carry out maintenance operations (**Fig.6**), such as removal of the **580T Series** actuator and setting of the **566T Series** bypass valve.

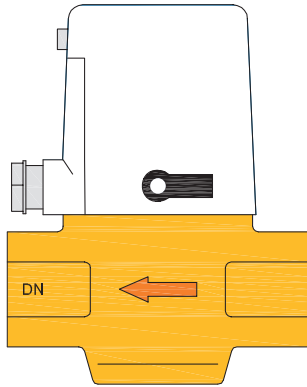


Fig. 4

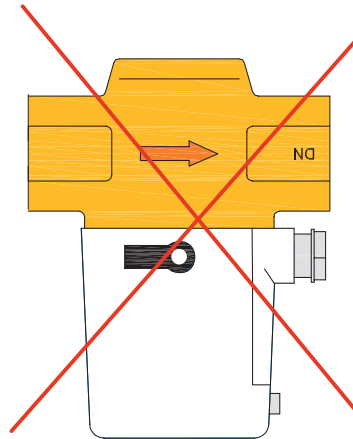


Fig. 5

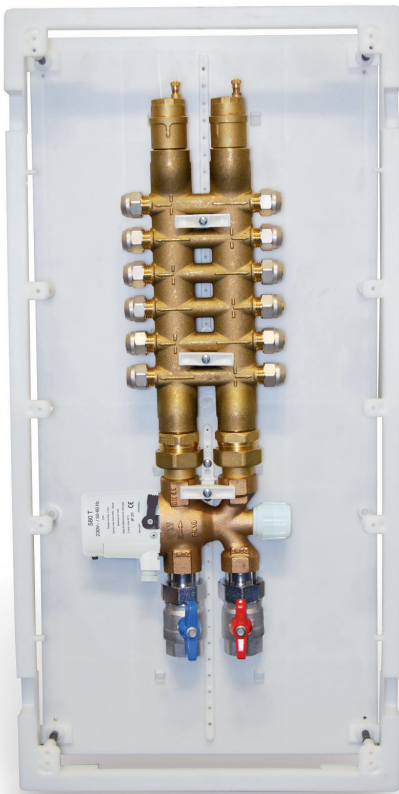
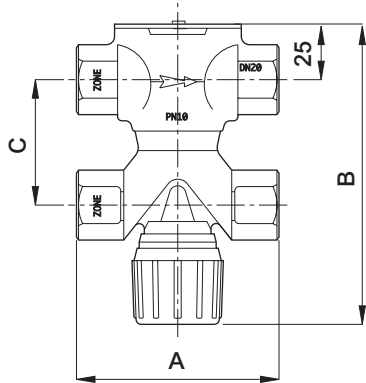


Fig.6 - Installation example for zone valve (561T Series + 580T Series actuator) in 824M Series inspection box.

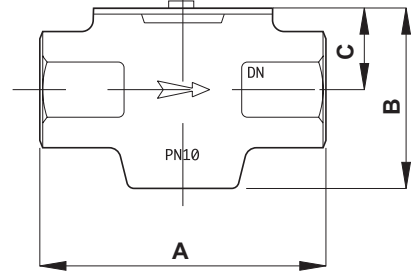
Overall dimensions (mm)

561T



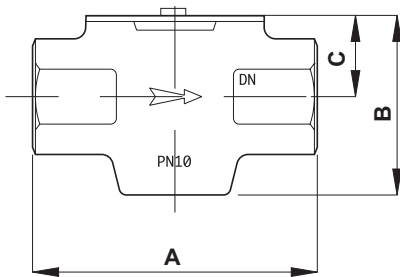
DN	A	B	C
3/4"	90	130	50
1"	100	140	60

560T



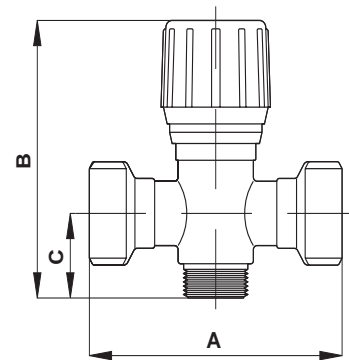
DN	A	B	C
3/4"	90	78	25
1"	100	78	25

571T



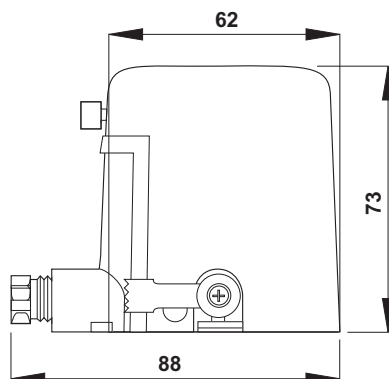
DN	A	B	C
3/4"	90	61	25
1"	100	61	25
1.1/4"	103	59	25

566T

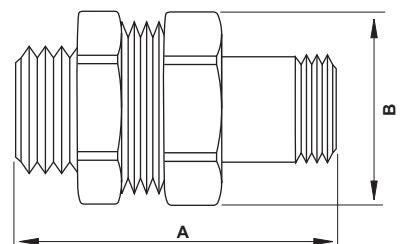


DN	A	B	C
3/4"	90	100	34
1"	100	104	34

580T



567T



DN	A	B
3/4"	66	37
1"	77	46

Specification text

571T Series

Normally closed (NC) ON/OFF two-way bronze zone valve **571T Series** – WATTS brand – with an electrothermal actuator (WATTS 580T Series) with bayonet fitting for connection to the body.

560T Series

Normally closed (NC) three-way bronze zone valve **560T Series** – WATTS brand. ON/OFF operation with an electrothermal actuator (WATTS 580T Series) with bayonet fitting for connection to the body. Designed for fitting a bypass setting valve (WATTS 566T Series).

561T Series

Normally closed (NC) three-way four-port bronze zone valve **561T Series** – WATTS brand – with built-in bypass setting. ON/OFF operation with an electrothermal actuator (WATTS 580T Series) with bayonet fitting for connection to the body.

580T Series

Two-position electrothermal actuator **580T Series** – WATTS brand – for WATTS 561T, 560T and 571T Series zone valves. Normally open (NO) auxiliary microswitch for supplementary controls. Bayonet-fitting for connection to valve body. Positioning time: 4 min. Power consumption: 20W (230V), 18W (24V). Compliant with Directives LVD 2014/35/EU and EMC 2014/30/EU.

566T Series

Bypass setting valve **566T Series** – WATTS brand. Suitable for fitting on WATTS 560T Series zone valves.

567T Series

Straight three-piece union **567T Series** – WATTS brand – for connection between zone valves and distribution manifolds.

565T Series

Three-piece eccentric union with centre distance of 16 mm **565T Series** – WATTS brand – for connecting WATTS 560T Series three-way zone valves to bypass setting valves and Modul coplanar manifolds.

531T Series

Three-piece eccentric union with centre distance of 6 mm **531T Series** – WATTS brand – for connecting 561T Series 3-way 4-port zone valves to coplanar manifolds.

58T Series

Disc assembly for zone valves **581TX Series** – WATTS brand – for 571T Series, and **582TX Series** – WATTS brand – for 560T and 561T Series.

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