

TRV1 and TRV2 3-way Control Valves

TRV control valves series are especially designed for heat exchangers control where the flow rate of the heating fluid which enters the heat exchanger is changed by the temperature controller. As outlined in the sketches of Fig.1 and 2 both the two methods used for this process switch-off the flow rate into a by-pass line around the exchanger. In the layout of Fig.1 the valve is the diverting type TRV1 with one inlet and two outlets while in the arrangement of Fig 2 the valve is the mixing type TRV2 with two inlets from heat exchanger and by-pass. The use of the by-pass around the exchanger limits the changes of pressure in the main line with many benefits for the assisted final equipment (boilers, headers, etc.).

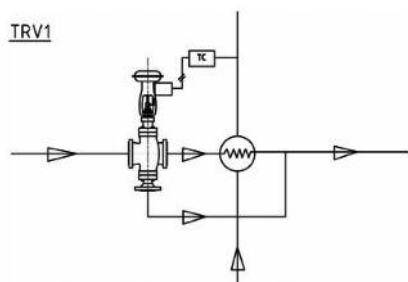


Fig.1 – DIVERTING TYPE 3-way control valve in heat exchanger application

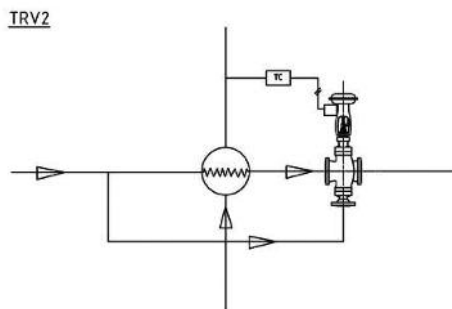
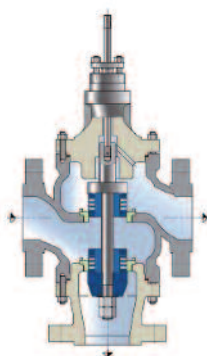
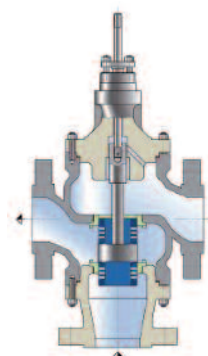


Fig.2 – Mixing type 3-way control valve in heat exchanger application



TRV Design

In both designs the fluid tends to open the plug to ensure the max stability to the valve operation. The selection between the two solutions is based principally on fluid temperature and on the differential temperature $T_1 - T_2$ across the exchanger. TRV1 diverting type is generally preferred for high ΔT (120° and over) but when T_1 exceeds 350°C (up to 450°C) mixing type TRV2 is preferred. Generally, mixing type is preferred as it is less expensive and due to easier maintenance.

Technical characteristics:

Body:

- Sizes: from 1" up to 12"
- Ratings: up to ANSI 150, 300, 600
900 and 1500 on request
- Flanged connections
- Cast standard construction; wrought or bar construction also available for small sizes
- Flow direction: see sketches
- Materials: carbon, Cr-Mo and stainless steels

Bonnet:

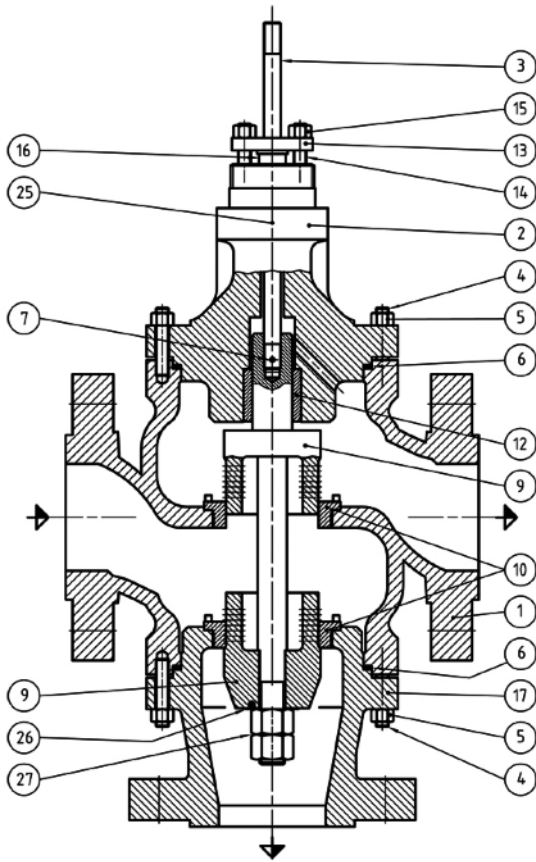
- Plain or extended type either for high or low temperature applications as a standard feature
- Bolted to body
- Same materials as body

Trim:

- Intrinsically balanced in heat exchanger application
- Plug is available in two design: standard and low-noise



TRV2 Control Valve
12" ANSI 600 (mixing type)



TRV1

ITEM	PART NAME
1	BODY
2	BONNET
3	STEM
4	STUD
5	NUT
6	BODY GASKET
7	PIN
9	PLUG
10	SEAT RING
12	GUIDE BUSHING
13	PACKING FLANGE
14	PACKING STUD
15	PACKING NUT
16	PACKING FOLLOWER
17	BOTTOM FLANGE
25	PACKING BOX
26	LOCKING WASHER
27	NUT

TRV2

ITEM	PART NAME
1	BODY
2	BONNET
3	STEM
4	STUD
5	NUT
6	BODY GASKET
7	PIN
9	PLUG
10	SEAT RING
12	GUIDE BUSHING
13	PACKING FLANGE
14	PACKING STUD
15	PACKING NUT
16	PACKING FOLLOWER
17	BOTTOM FLANGE
25	PACKING BOX

