

Control Valves with Zero Travel 1 Trim for Type 3251 and Type 3256

DIN and ANSI versions



Application

Trim for single-stage high-pressure letdown

Valve size DN 50 to 80 · NPS 2 to 3
Pressure rating PN 16 to 400 · Class 150 to 2500
Medium temperature -196 to +550 °C · -325 to +1022 °F

The Zero Travel 1 Trim (ZT-1) is intended for a single-stage letdown in the FTC (flow-to-close) direction of flow. It is suitable for liquids, two-phase flows, or gases.

The benefit of the trim is that a single-stage letdown at differential pressures up to $\Delta p = 250$ bar can be achieved under certain conditions.

Typical applications include:

- High-pressure letdown
- Critical steam applications

Versions

Valves with leakage class IV

- **ZT-1-I Trim for Type 3251** (Fig. 1) · Globe valve up to DN 80 and PN 400 (NPS 3 and Class 2500) · See Table 1 · See Data Sheets ▶ T 8051 and ▶ T 8052
- **ZT-1-II Trim for Type 3256** (Fig. 2) · Angle valve up to DN 80 and PN 400 (NPS 3 and Class 2500) · See Table 1 · See Data Sheets ▶ T 8065 and ▶ T 8066

Further versions

- Higher leakage classes on request
- Higher differential pressures on request
- Other materials on request

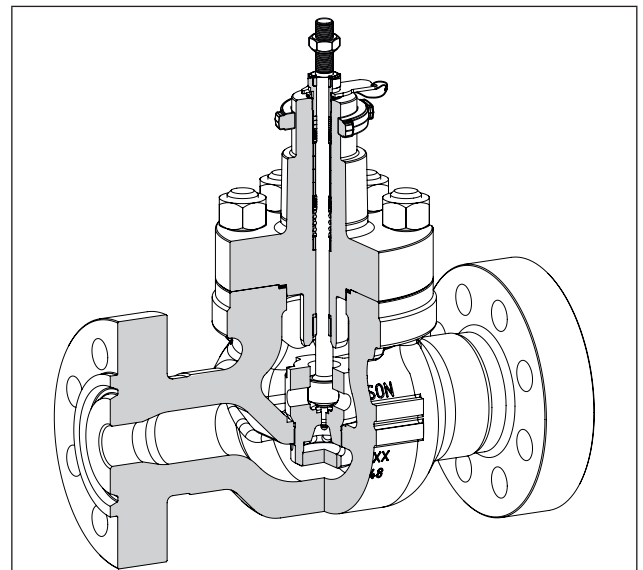


Fig. 1: Type 3251 Globe Valve with ZT-1-I Trim

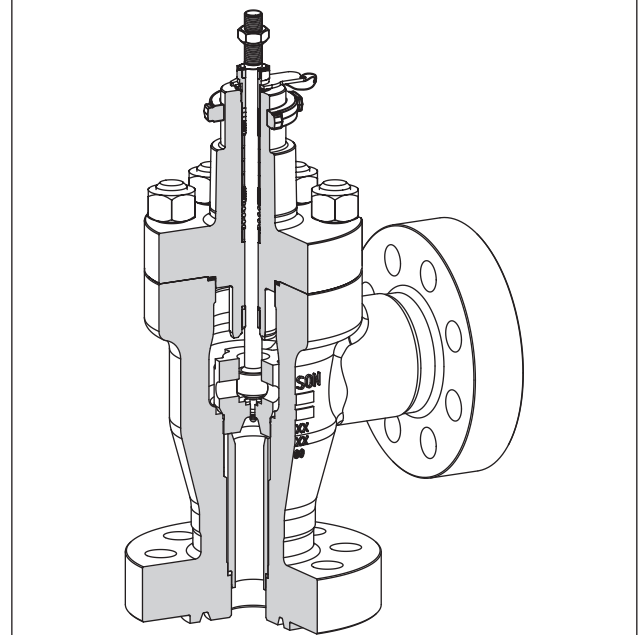


Fig. 2: Type 3256 Angle Valve with ZT-1-II Trim

Principle of operation

The medium flows against the trim in the flow-to-close direction. The actual characteristic starts after the plug has passed through the zero travel.

The separation of the seating surface and throttling area increases the service life of the valve. Additionally, an additional guide in the seat area improves the stability.

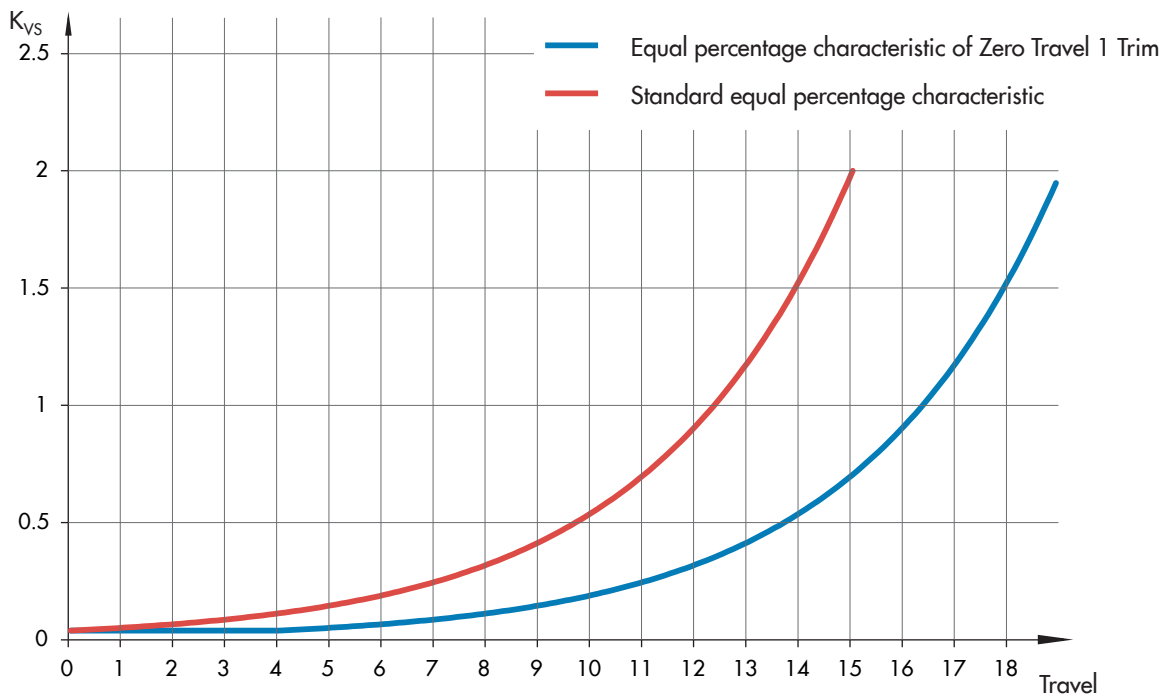


Fig. 3: Comparison: equal percentage characteristics of a standard trim and a Zero Travel 1 Trim



Fig. 4: CFD velocity profile for ZT-1-II in an angle valve

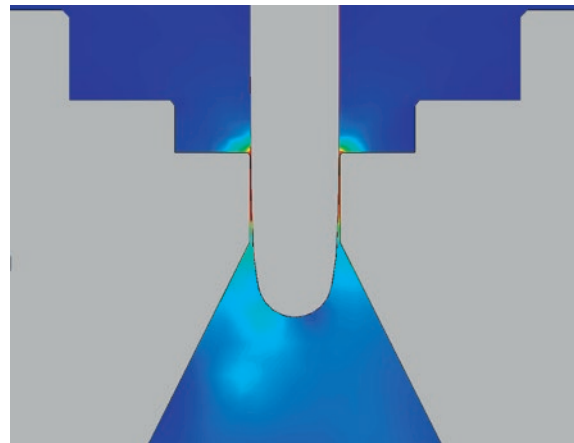


Fig. 5: CFD velocity profile (detailed view)

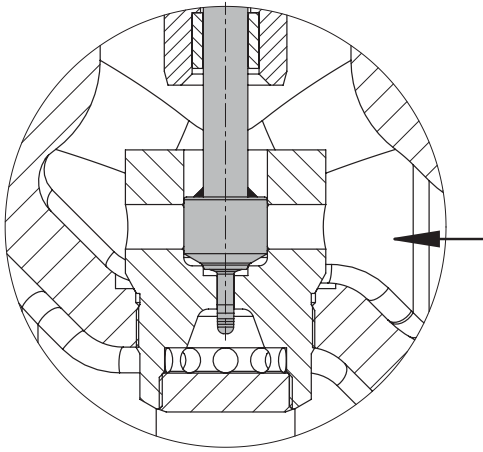


Fig. 6: Closed globe valve (ZT-1-I)

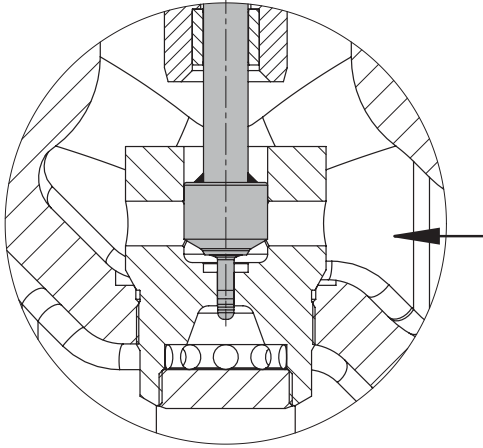


Fig. 7: Globe valve with zero travel (ZT-1-I)

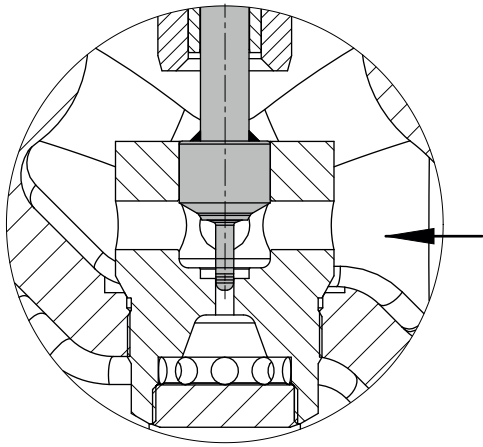


Fig. 8: Open globe valve (ZT-1-I)

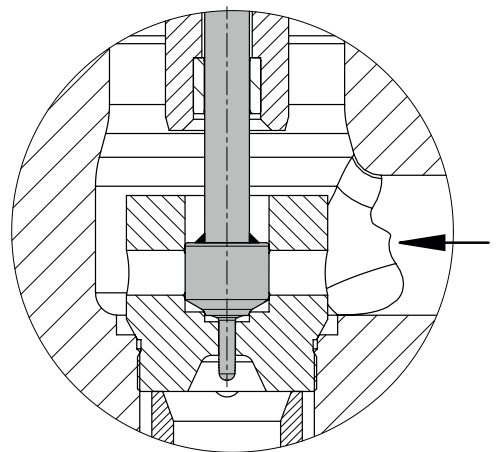


Fig. 9: Closed angle valve (ZT-1-II)

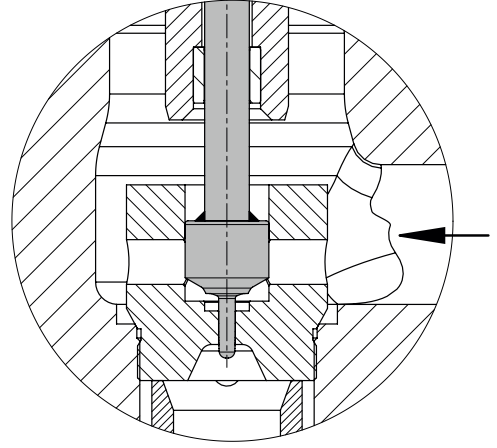


Fig. 10: Angle valve with zero travel (ZT-1-II)

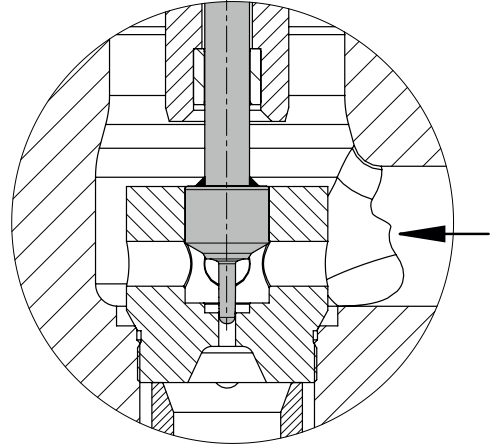


Fig. 11: Open angle valve (ZT-1-II)

Table 1: Technical data of ZT-1-I and ZT-1-II Trims

Zero travel		DIN	ANSI
Valve size	Type 3251 Type 3256	DN 50 to 80	NPS 2 to 3
Pressure rating	Type 3251 Type 3256	PN 16 to 400	Class 150 to 2500
Temperature range (depending on the valve bonnet)	Type 3251 Type 3256	-196 to +550 °C	-325 to 1022 °F ³⁾
Max. permissible differential pressure	$\Delta p = 250 \text{ bar (3625 psi)}^{1)}$		
Direction of flow	FTC		
Leakage class	Metal seal	Class IV according to IEC 60534-4 ²⁾	Class IV according to ANSI/FCI 70-2 ²⁾
Characteristic	Equal percentage · Linear · ▶ T 8000-3		
Rangeability	▶ T 8000-3		
Valve bonnet	Standard · Insulating section · Bellows seal		
Materials			
Seat and plug	Stellite® 6B		
	1.4401/1.4404 with Stellite® facing · 316/316L with Stellite® facing		
	1.4006 with Stellite® facing · 410 T		

- 1) Higher differential pressures on request
2) Class V on request
3) The temperature limits are not directly converted temperatures.

Table 2: K_{VS} and C_V coefficients for Type 3251 Globe Valve and Type 3256 Angle Valve · FTC direction of flow · Equal percentage and linear characteristics

K_{VS}	0.16	0.25	0.4	0.63	1.0	1.3
C_V	0.2	0.3	0.5	0.75	1.2	1.5
Rangeability	20:1	30:1	50:1			
Seat Ø	mm	6				12
Gasket diameter ¹⁾	mm	16				20
Rated travel	mm	15				
Total travel	mm	19				22
Valve size						
DN	NPS					
50	2	•	•	•	•	•
80	3	•	•	•	•	•

- 1) Decisive for actuator sizing

Ordering text

Trim	Zero Travel 1-I (ZT-1-I) for Type 3251 Zero Travel 1-II (ZT-1-II) for Type 3256	Flow coefficients	$K_{VS} \dots / C_V \dots$ according to Table 2
Body material	See associated Data Sheet ▶ T 8051/ ▶ T 8052 for Type 3251 ▶ T 8065/ ▶ T 8066 for Type 3256	Direction of flow	FTC
Valve size	DN .../NPS ... according to Table 1		
Pressure rating	PN .../Class ... according to Table 1		

Specifications subject to change without notice

