

Pneumatic Control Valve Type 3252-1 and Type 3252-7 High Pressure Valve Type 3252



Application

Control valve used to control very low flow rates in process engineering

Valve sizes	G ½ to G 1	·	½ NPT to 1 NPT
	DN 15 to 25	·	NPS ½ to 1
Pressure rating	PN 40 to 400	·	Class 300 to 2500
Temperatures	-200 to 450 °C	·	-328 to 842 °F

Type 3252 High Pressure Valve with globe-style or angle-style valve body with:

- Type 3271 Pneumatic Actuator (Type 3252-1 Control Valve) or
- Type 3277 Pneumatic Actuator (Type 3252-7 Control Valve)

Valve body

- Material 1.4404/A 316 L
- G or NPT threaded connection, optionally welding ends or weld-on flanges

Valve plug

- With metal sealing

The control valves have a modular-assembly design and can be equipped with various accessories as follows:

Positioners, limit switches, solenoid valves and other equipment for attachment according to IEC 60534-6 and NAMUR recommendation. For more details, refer to Information Sheet T 8350 EN.

Versions

Standard version designed as globe-style or angle-style valve body with V-ring PTFE packing suitable for temperatures from -10 to 220 °C (15 to 430 °F) · Nominal pressure PN 40 to PN 400, Class 300 to 2500

Female thread G ½, G ¾, G 1 or ½ NPT, ¾ NPT, 1 NPT · Body material 1.4404/A 316 L

- **Type 3252-1** · Valve with Type 3271-5 Pneumatic Actuator (120 cm²) or Type 3271 Pneumatic Actuator (350 cm²)
- **Type 3252-7** · Valve (Fig. 1) with Type 3277-5 Pneumatic Actuator (120 cm²) or with Type 3277 Pneumatic Actuator (350 cm²) for integral positioner attachment.

Additional versions available with

- **Welding ends** · DN 15, 20, 25 or NPS ½, ¾, 1
- **Flanges** · DN 15, 20, 25 or NPS ½, ¾, 1
- **Male thread** · On request
- **Extension bonnet** · For temperatures from -200 to 450 °C (-328 to 842 °F)
- **Bellows seal** · For PN 40 to PN 400 or Class 150 to 2500
- **Special valve body materials** · On request
- **Adjustable packing**
- **Heating jacket** · Details on request



Fig. 1 · Type 3252-7 High Pressure Valve with Type 3767 Electropneumatic Positioner

Principle of operation

The process medium flows through the valve in the direction indicated by the arrow. The position of the plug determines the cross-sectional area of flow between the seat and the plug. The plug stem is connected to the actuator stem by a stem connector and sealed with a self-adjusting packing. In case stricter emissions requirements are specified, the valve can be equipped with a multiple-walled metal bellows.

Fail-safe position

Depending on how the compression springs are arranged in the actuator (see Data Sheet T 8310-1 EN for details), the control valve has two different fail-safe positions in case the supply air fails:

Actuator stem extends (FA)

Whenever the supply air fails, the valve closes.

Actuator stem retracts (FE)

Whenever the supply air fails, the valve opens.

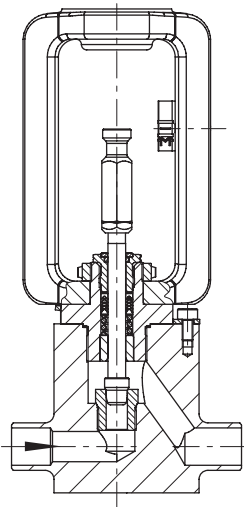


Fig. 2 · Type 3252 High Pressure Valve as globe-style valve with welding ends

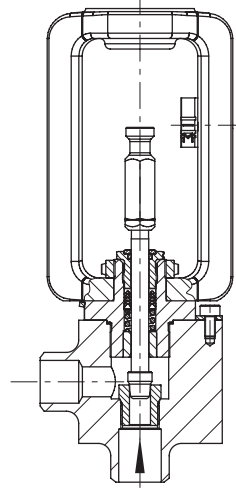


Fig. 3 · Type 3252 High Pressure Valve as angle-style valve with welding ends

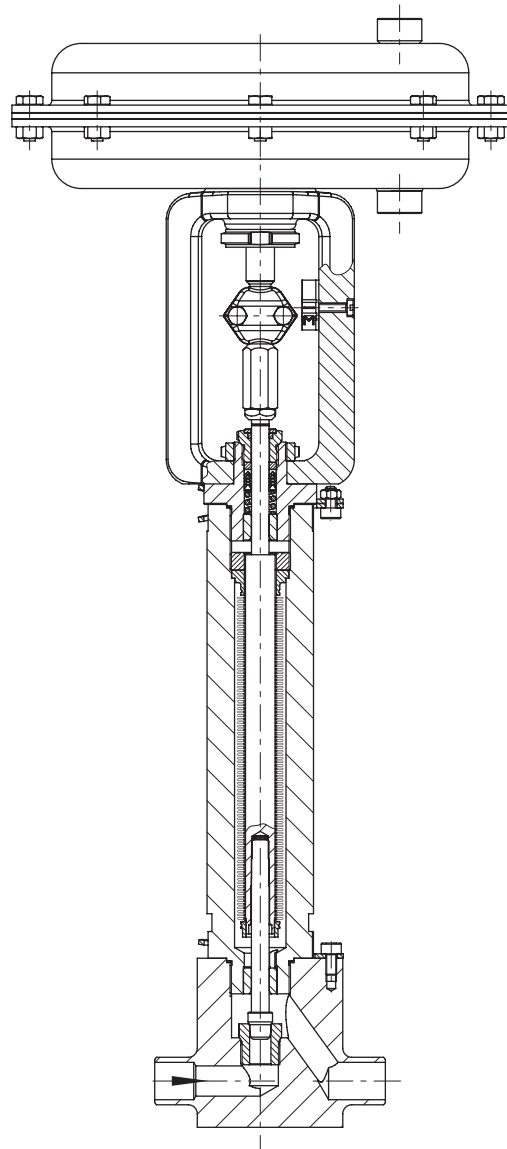


Fig. 4 · Type 3252-1 High Pressure Valve with extension bonnet or bellows seal

Table 1 · Technical data for Type 3252

Connection	Female thread	Welding ends	Weld-on flanges
Nominal sizes	G ½, G ¾, G 1 ½ NPT, ¾ NPT, 1 NPT	DIN 15, 20, 25 NPS ½, ¾, 1	DIN 15, 20, 25 NPS ½, ¾, 1
Nominal pressures	PN 40 ... 400 or Class 300 ... 2500		
Seat/plug sealing	Metal sealing or lapped-in metal, Soft sealing for K _{VS} 0.1 and larger up to an operating pressure of 50 bar		
Characteristic	Equal percentage · Linear · Quick opening		
Rangeability	50 : 1		
Temperature ranges			
Body without extension bonnet	-10 ... 220 °C (14 ... 428 °F)		
Body with	Ext. bonnet	short	long
	Bellows seal	-50 ... 450 °C (-58 ... 842 °F) -200 ... 450 °C (-328 ... 842 °F)	
		-50 ... 450 °C (-58 ... 842 °F)	
Leakage class acc. to DIN EN 1349	Metal sealing: IV · Lapped-in metal: IV-S2 · Soft sealing: VI		

Table 2 · Materials

Standard version	
Valve body	1.4404 / A 316 L · Other materials on request
Valve bonnet (wetted parts)	1.4404 / A 316 L
Seat and plug	1.4404 / A 316 L (stellite seats as well as plugs made of solid Stellite available)
Packing	V-ring packing PTFE with carbon
Body gasket	1.4404 / A 316 L
Extension bonnet	1.4404 / A 316 L
Metal bellows seal	
Intermediate piece	1.4404 / A 316 L
Metal bellows	1.4571 / A 316 Ti

Table 3 · Available K_{VS} and C_V coefficients
Table 3a · Overview

K _{VS}	0.1	0.16	0.25	0.4	0.63	1	1.6	2.5	4
C _V	0.12	0.2	0.3	0.5	0.75	1.2	2	3	5
Seat Ø	6						12		14
Travel Ø	7.5								
Plug stem Ø	10								

Table 3b · Nominal sizes and associated K_{VS} and C_V coefficients

K _{VS}	0.1	0.16	0.25	0.4	0.63	1	1.6	2.5	4
C _V	0.12	0.2	0.3	0.5	0.75	1.2	2	3	5
DN	NPS								
15	½	•	•	•	•	•	•		
20	¾	•	•	•	•	•	•	•	
25	1	•	•	•	•	•	•	•	•

Table 4 · Permissible differential pressures for versions without bellows seal · Pressures in bar

Table 4a · Fail-safe position “Valve CLOSED”

Bench range		0.2 ... 1.0	0.4 ... 2.0	1.4 ... 2.3	2.1 ... 3.3	
Operating range with 7.5 mm travel and actuator size		120 cm ²	0.6 ... 1.0	1.2 ... 2.0	1.85 ... 2.3	
		350 cm ²	0.8 ... 1.2	1.6 ... 2.4		2.7 ... 3.3
Required supply pressure		bar	1.4	2.6	2.5	
Valve size	K _{VS}	Actuator in cm ²	Δp when p ₂ = 0 bar			
DN 15 to 25 NPS ½ to 1	0.1 to 1.0	120	50	120	200	300
		350	250	400	–	–
	1.6 · 2.5	120	35	85	140	210
		350	175	350	400	–
	4	120	25	60	100	150
		350	130	270	310	400

Table 4b · Fail-safe position “Valve OPEN”

Bench range		0.2 ... 1.0				
Operating range with 7.5 mm travel and actuator size		120 cm ²	0.2 ... 0.6			
		350 cm ²				
Required supply pressure		bar	1.4	2.5	3.5	
Valve size	K _{VS}	Actuator in cm ²	Δp when p ₂ = 0 bar			
DN 15 to 25	0.1 to 1.0	120	90	230	375	
		350	300	400	–	
	1.6 · 2.5	120	60	165	260	
		350	210	400	–	
	4	120	45	120	190	
		350	150	375	400	

Table 5 · Permissible differential pressures for versions with bellows seal · Pressures in bar

Table 5a · Fail-safe position “Valve CLOSED”

Bench range		120/350 cm ²	0.2 ... 1.0	0.4 ... 2.0	1.4 ... 2.3	2.1 ... 3.3
Operating range with 7.5 mm travel and actuator size		120 cm ²	0.6 ... 1.0	1.2 ... 2.0	1.85 ... 2.3	2.7 ... 3.3
		350 cm ²	0.8 ... 1.2	1.6 ... 2.4		
Bench range		700 cm ²	–		0.6 ... 3.0	0.6 ... 3.0
Operating range with 7.5 mm travel and actuator size		700 cm ²			2.4 ... 3.0	3.0 ... 3.6
Required supply pressure		bar	1.4	2.6	2.5	3.5
Valve size	K _{VS}	Actuator in cm ²	Δp when p ₂ = 0 bar			
DN 15 to 25	0.1 to 1.0	120	–	15	30	50
		350	45	100	120	185
		700	–	–	325	400
	1.6 · 2.5	120	–	15	30	50
		350	45	100	120	185
		700	–	–	325	400
	4	120	–	15	30	50
		350	45	100	120	185
		700	–	–	300	400

Table 5b · Fail-safe position “Valve OPEN”

Bench range		0.2 ... 1.0			
Operating range with 7.5 mm travel and actuator size		120 cm ²	0.2 ... 0.6		
		350 cm ²			
		700 cm ²			
Required supply pressure		bar	1.4	2.5	3.5
Valve size	Kvs	Actuator in cm ²	Δp when p ₂ = 0 bar		
DN 15 to 25	0.1 to 1.0	120	6	39	68
		350	52	145	230
		700	153	340	400
	1.6 · 2.5	120	–	36	62
		350	47	130	210
		700	140	310	400
	4	120	–	32	56
		350	42	120	190
		700	125	284	400

Table 6 · Dimensions and weights for Type 3252 High Pressure Valve with globe-style valve body

Valve	Size	DIN			ANSI			
	DN	15	20	25	NPS	½	¾	1
Length L with female thread	PN 40 ... 400	130			Cl. 300 ...2500	130		
Length L with welding ends	PN 40 ... 400	130	130 (PN 40 only)	130	Cl. 300 ...2500	130		
Length L with flanges	PN 40	210	210	230	Cl. 300	190	194	197
	PN 63 ... 160	210	–	230	Cl. 600	203	206	210
	PN 250 ... 400	230	–	260	Cl. 900/ 1500 Cl. 2500	216 264	229 273	254 308
B	PN 40 ... 400	70	70	70	Cl. 300 ... 2500	70	70	70
H1		246	246	246		246	246	246
H2		26	26	26		26	26	26
Weights in kg for globe valve including yoke								
With female thread	PN 40 ... 400	8.5			Cl. 300 ... 2500	On request		
With welding ends		6.5						
With flanges	PN 400	13	–	19.5	Cl. 2500	12.5	13.5	16.5

Table 7 · Dimensions and weights for Type 3252 High Pressure Valve with angle-style valve body

Valve	Size	DIN			ANSI			
	DN	15	20	25	NPS	½	¾	1
Length L with female thread	PN 40 ... 400	60			Cl. 300 ...2500	60		
Length L with welding ends	PN 40 ... 400	57	57 (PN 40 only)	57	Cl. 300 ...2500	57		
Length L with flanges	PN 40	90	95	100	Cl. 300	95 ¹⁾	97 ¹⁾	98 ¹⁾
	PN 63 ... 160	105	–	115	Cl. 600	102 ¹⁾	103 ¹⁾	105 ¹⁾
	PN 250 ... 400	115	–	130	Cl. 900/ 1500	108	114	127
Cl. 2500					132	136	154	
B	PN 40	70			Cl. 300	70		
H1	... 400	212			... 2500	212		
Weights in kg for angle valve including yoke								
With female thread	PN 40	7.5			Cl. 300	On request		
With welding ends	... 400	5.5			... 2500			
With flanges	PN 400	12	–	18.5	Cl. 2500	11.5	12.5	15.5

¹⁾ Special length

Table 8 · Dimensions in mm for versions with extension bonnet or bellows seal

Globe-style valve	DN	15	20	25	NPS	½	¾	1
H4 with extension bonnet	PN 40 ... 400	433			Cl. 300 ... 2500	433		
H4 with bellows seal	PN 40 ... 160	433			Cl. 300 ... 900	433		
	PN 250	501			Cl. 1500	501		
	PN 400	606			Cl. 2500	606		

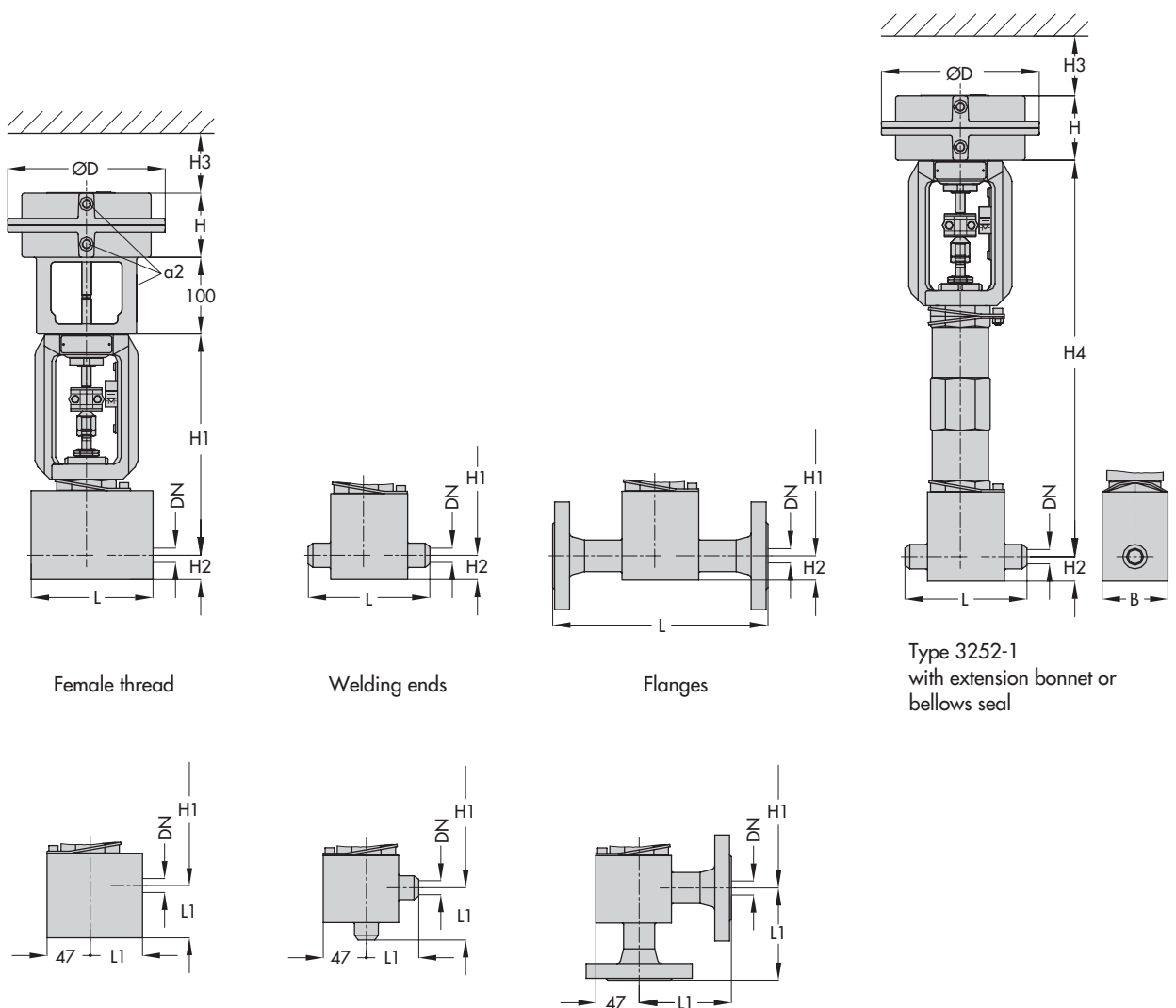
Angle-style valve	DN	15	20	25	NPS	½	¾	1
H4 with extension bonnet	PN 40 ... 400	400			Cl. 300 ... 2500	400		
H4 with bellows seal	PN 40 ... 160	400			Cl. 300 ... 900	400		
	PN 250	468			Cl. 1500	468		
	PN 400	572			Cl. 2500	572		

Weights	DN	15	20	25	NPS	½	¾	1
Bellows seal, additional weight in kg	PN 40/160	3.5			Cl. 300 ... 2500	On request		
	PN 250	5.0						
	PN 400	6.5						

Table 9 · Dimensions and weights for actuators

Actuator	cm ²	120	350	700
Diaphragm Ø D		168	280	390
H (700 cm ² and larger with lifting ring)		69	85	199
H3 ¹⁾ (Type 3271 and Type 3277 Actuator)		225		300
Thread		M30 x 1.5		
a (for Type 3271 Actuator)		G 1/8 (1/8 NPT)	G 3/8 (3/8 NPT)	G 3/8 (3/8 NPT)
a2 (for Type 3277 Actuator)		–	G 3/8 (3/8 NPT)	G 3/8 (3/8 NPT)
Weight of Type 3271 Actuator (approx. kg)	W/o handwh.	3	8	22
	With handwh.	–	13	27
Weight of Type 3277 Actuator (approx. kg)	W/o handwh.	3.5	12	26
	With handwh.	–	17	31

Dimensions for Type 3252 High Pressure Valve with globe-style and angle-style body



Ordering text

Type 3252 Valve	Globe- or angle-style valve body
Valve size	DN .../NPS ...
Pressure rating	PN .../Class ...
Type of connection	Female thread G or NPT/ welding ends or flanges
Characteristic	Equal percentage or linear
Direction of flow	FTO or FTC
Pneumatic actuator	Type 3271 or Type 3277 see T 8310-1 EN
Fail-safe position	Valve CLOSED or valve OPEN
Process medium	Density in kg/m ³ and temperature in °C
Max. flow rate	in kg/h or m ³ /h
Pressure	p ₁ in bar (absolute pressure p _{abs}) p ₂ in bar (absolute pressure p _{abs})
Accessories	Positioner and/or limit switch

Specifications subject to change without notice.



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