DATA SHEET

T 8056 EN

Series 250 · Type 3253-1 and Type 3253-7 Pneumatic Control Valves

Type 3253 Three-way Valve

ANSI version

Application

Mixing or diverting valve for process engineering applications with high industrial requirements

Nominal size	**NPS ½ to 20**
Pressure rating	**Class 150 to 900**
Temperatures	**-325 to +1022 °F (-196 to +550 °C)**



Fig. 1: *Type 3253-1 Pneumatic Control Valve with Type 3271 Actuator*

Special features

Type 3253 Three-way Valve with

- Type 3271 Pneumatic Actuator (Type 3253-1 Control Valve)
- Type 3277 Pneumatic Actuator (Type 3253-7 Control Valve) for integral positioner attachment

Valve body made of

- Cast steel
- Cast stainless steel, high-temperature cast steel or cast cold-resisting steel

Two spring-loaded PTFE V-ring packings or two adjustable high-temperature packings. On request with a test connection between the two packings.

Conversion between mixing and diverting services by reversing the seat-guided valve plug

Optional with RFID tags with unique identification according to DIN SPEC 91406.

The control valves with their modular design can be equipped with various accessories, such as positioners, limit switches, solenoid valves and other devices according to DIN EN 60534-6-1[1)] and NAMUR Recommendation (see Information Sheet ▶ T 8350).

1) Accessories required. See associated actuator documentation.

Versions

Operating temperature (medium temperature) with PTFE packing for temperatures from 14 to 428 °F (-10 to +220 °C) or with adjustable high-temperature packing for 14 to 662 °F (-10 to

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+350 °C), nominal sizes NPS ½ to 20, Class 150 to 900

- **Type 3253-1** (Fig. 1) • Type 3253 Valve and Type 3271 Actuator with 350 to 2800 cm² actuator area (see Data Sheets ▶ T 8310-1, ▶ T 8310-2 and ▶ T 8310-3)
- **Type 3253-7** • Type 3253 Valve and Type 3277 Actuator with 350 to 750v2 cm² actuator area for integral positioner attachment (see Data Sheet ▶ T 8310-1)

Further versions

- **Version with insulating section**
- **Version with bellows seal**
- **Additional handwheel** • See Data Sheets ▶ T 8310-1, ▶ T 8310-2 and ▶ T 8310-3
- **DIN version** • Nominal sizes DN 15 to 500, pressure rating PN 16 to 160 • See Data Sheet ▶ T 8055
- **Type 3244** • DN 15 to 150, PN 10 to 40 • NPS ½ to 6, Class 150 and 300 • See Data Sheet ▶ T 8026
- **Type 3253-2 Electric Control Valve** • Details on request
- **Type 3253-3 Manually Operated Valve** • With Type 3273 Hand-operated Actuator • See Data Sheet ▶ T 8312

Principle of operation

Depending on the plug arrangement, the three-way valve can be used either as a mixing or diverting valve.

In mixing valves, the process media to be mixed enter at valve ports **A** and **B**. The combined flow exits the valve at port **AB** (see Fig. 2 and Fig. 3). The flow rate from ports A or B to AB depends on the cross-sectional area of flow between the seats and plugs.

In diverting valves, the process medium enters at the valve port **AB** and the partial flows exit at ports **A** and **B** (see Fig. 4).

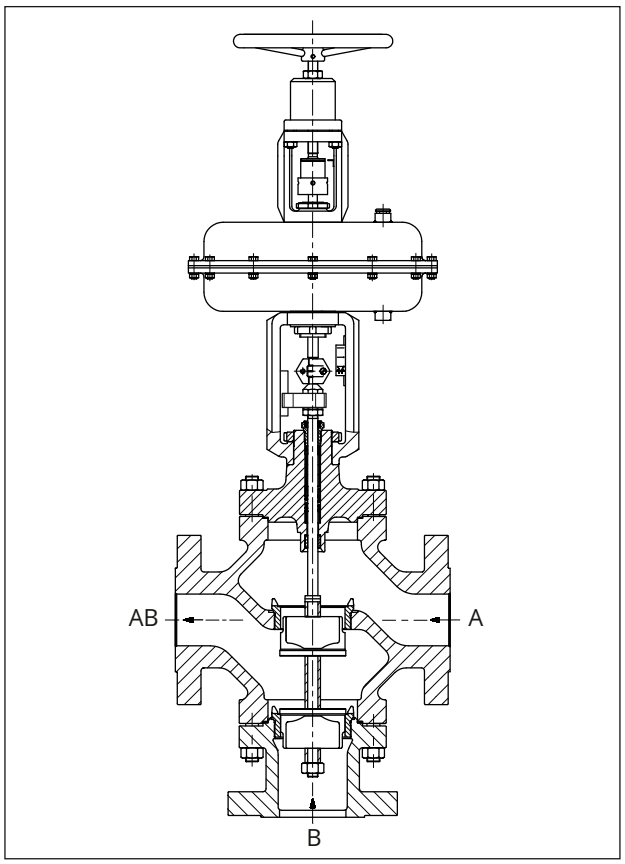


Fig. 2: *Type 3253-1 Control Valve with Type 3271 Pneumatic Actuator and additional handwheel • Valve body version for DN 50 to 500/NPS 2 to 20 • Plug arrangement for mixing service • (anti-rotation fixture for DN 50/NPS 2 and larger)*

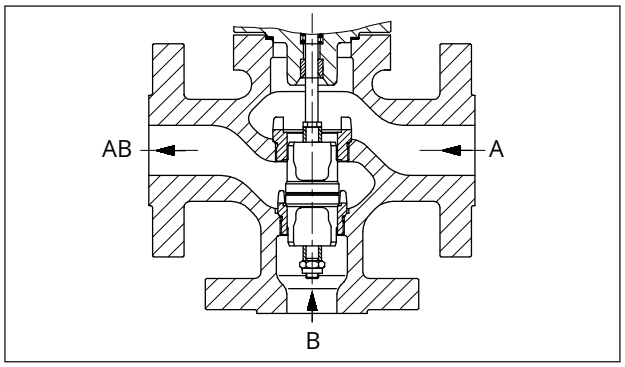


Fig. 3: *Type 3253 Three-way Valve • Body version for DN 15 to 40/NPS ½ to 1½ • Plug arrangement for mixing service • Plug arrangement for diverting service DN 15 to 25/NPS ½ to 1*

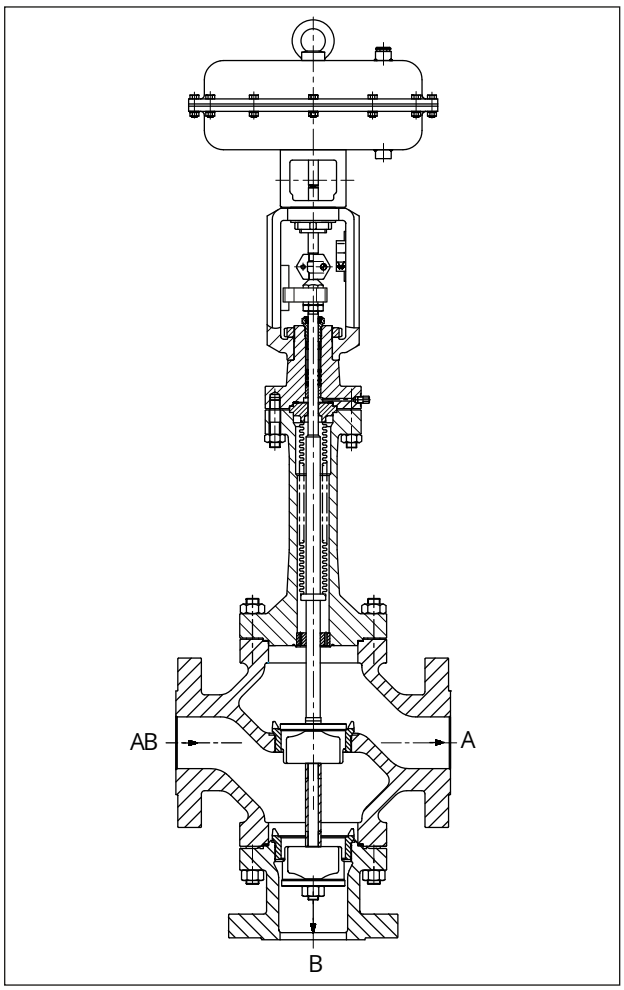


Fig. 4: *Type 3253-7 Control Valve with Type 3277 Pneumatic Actuator (only up to DN 100/NPS 2) • Valve body version for DN 40 to 500/NPS 1½ to 20 • Plug arrangement for diverting service • (anti-rotation fixture for DN 50/NPS 2 and larger)*

Fail-safe positions

Depending on how the springs are arranged in the Type 3271 or Type 3277 Pneumatic Actuator (see Data Sheets ▶ T 8310-1, ▶ T 8310-2 and ▶ T 8310-3), the valve has two different fail-safe positions that become effective when the supply air fails:

- **Actuator stem extends:**
  Port **B** in mixing valves is closed and port **A** in diverting valves is closed when the supply air fails.
  Port **B** of diverting valves in NPS ½ to 1 is closed since these valves have the same design as mixing valves.

- **Actuator stem retracts:**
  Port **A** in mixing valves is closed and port **B** in diverting valves is closed when the supply air fails.
  Port **A** of diverting valves in NPS ½ to 1 is closed since these valves have the same design as mixing valves.

Table 1: *Technical data for Type 3253 · ANSI version*

Material		**Cast steel A216 WCC**		**Cast steel A217 WC6**		**Cast stainless steel A351 CF8M**	
Nominal size[1]	NPS	½ to 4	6 to 20	½ to 4	6 to 20	½ to 4	6 to 20
Pressure rating[1]	Class	150 to 900	150 to 900	150 to 900	150 to 900	150 to 900	150 to 900
Type of end connections	Flanges	All ANSI versions					
Seat-plug seal		Metal seal					
Characteristic		Linear					
Rangeability		50:1					
Conformity		CE					
Optional RFID tag		Application range according to the technical specifications and the explosion protection certificates. These documents are available on our website: ▶ www.samsongroup.com > Products > Electronic nameplate The permissible range for temperatures at the RFID tag is between -40 and +185 °F (-40 and +85 °C).					
Temperature ranges in °F (°C) · Permissible operating pressures according to pressure-temperature diagrams (see Information Sheet ▶ T 8000-2)							
Body without insulating section		14 to 428 (-10 to +220) · Up to +662 (+350) with high-temperature packing					
Body with	Insulating section	-20 to +800 (-29 to +425)		-20 to +932 (-29 to +500)		-325 to +1022 (-196 to +550)[2]	
	Bellows seal	-20 to +800 (-29 to +425)		-20 to +932 (-29 to +500)		-325 to +1022 (-196 to +550)[2]	
Valve plug	Metal seal	-325 to +1022 (-196 to +550)[2]					
Leakage class according to ANSI FCI 70-2		0.05 % of C_V					

1) Up to Class 2500 on request · NPS 16 and 20 only up to Class 900

2) Note: The temperature limits are not directly converted temperatures.

Table 2: *Materials for Type 3253 · ANSI version*

Standard version **Body**	**Cast steel A216 WCC**	**Cast steel A217 WC6**	**Cast stainless steel A351 CF8M**
Valve bonnet	A216 WCC/A105	A217 WC6/A182 F12 Cl. 2	A351 CF8M/A182 F316
Seat and plug[1]	410-2/1.4008		316L/CF3M
Guide bushings	1.4112		2.4610
Packing[2]	V-ring packing: PTFE with carbon, spring: 302 or high-temperature packing		
Body gasket	Graphite seal on metal core		
Insulating section	A216 WCC/A105	A217 WC6/A182 F12 Cl. 2	A351 CF8M/A182 F316
Bellows seal[4]			
Intermediate piece	A216 WCC/A105	A217 WC6/A182 F12 Cl. 2	A351 CF8M/A182 F316
Metal bellows	1.4571[3]		

1) All seats and plugs also available with Stellite® facing

2) Other packings on request (▶ T 8000-6)

3) Other bellows material on request

4) Bellows with both >NPS 8 and >Class 600 on request

Flow rate

Terms for control valve sizing according to DIN IEC 60534-2-1 and DIN IEC 60534-2-2: F_L = 0.95, x_T = 0.75

Table 3: *Available C_V and K_{VS} coefficients*

C_V[1)]		**5 (4.2)**	**10 (9)**	**30 (26)**	**47 (42)**	**120 (105)**	**190 (170)**	**420 (375)**	**735 (650)**	**950 (–)**	**1730 (1560)**	**2900 (2600)**	**4200 (3700)**
K_{VS}[1)]		**4 (3.6)**	**8 (7.5)**	**25 (22)**	**40 (36)**	**100 (90)**	**160 (144)**	**360 (320)**	**630 (560)**	**800 (–)**	**1500 (1350)**	**2500 (2250)**	**3600 (3200)**
Seat Ø	in	0.94	0.94	1.5	1.97	3.15	3.94	5.91	7.87	9.84	11.81	15.75	19.69
	mm	24	24	38	50	80	100	150	200	250	300	400	500
Rated travel	in	0.59	0.59	0.59	1.18	1.18	1.18	2.36	2.36	2.36	4.72	4.72	4.72
	mm	15	15	15	30	30	30	60	60	60	120	120	120
NPS	**DN**												
½	15	•[1)]											
1	25		•[1)]										
1½	40			•[1)]									
2	50				•[1)]								
3	80					•[1)]							
4	100						•[1)]						
6	150							•[1)]					
8	200								•[1)]				
10	250[2)]									•[1)]			
12	300										•[1)]		
16	400											•[1)]	
20	500												•[1)]

1) Reduced C_V/K_{VS} coefficients with Class 900 to 2500 in parentheses

2) Special version C_V 1150 (K_{VS} 1000) only for NPS 10 (DN 250) as mixing valve with 120 mm travel

Differential pressures

Notes on the differential pressure tables:

- Bench ranges not marked apply to standard operation (p_2 = 0), i.e. at rated travel.
- Values marked with * apply to the maximum pretensioned springs.
- Differential pressures in parentheses refer to the values for half travel in parentheses in the bench range row.
- The springs in actuators with fail-safe action “actuator stem retracts” cannot be preloaded.

Table 4: *Permissible differential pressures* **Δ***p for valves with and without bellows seal: Fail-safe action “actuator stem extends” • Pressures in bar*

Bench range [bar] with actuator area [cm²]				**350**	**0.2 to 1.0 (0.8 to 1.2)**	**0.4 to 2.0 (1.6 to 2.4)**	**1.4 to 2.3 (1.85 to 2.3)**	**2.1 to 3.3 (2.7 to 3.3)**	**–**
				700					
				1400			**0.5 to 2.5 (2 to 3)**	**1.1 to 2.4 (2.05 to 2.7)**	**1.3 to 2.8 (2.45 to 3.2)**
				2800	**–**			**1.1 to 2.3 (2.0 to 2.6)**	**1.3 to 3.3**
				2x 2800					
Required supply pressure					**Lower bench range value + Upper bench range value**				
NPS	**C_V**	**Travel [mm]**	**Seat bore [mm]**	**Actuator [cm²]**	**Δp in bar**				
½	5	15	24	350	8	22	90	140	–
				700	(105)	(215)	(250)	(370)	–
1	10	15	24	350	8	22	90	140	–
				700	(105)	(215)	(250)	(370)	–
1½	30	15	38	350	–	8	35	55	–
				700	(140)	(85)	(100)	(145)	–
2	47	30	50	700	4	10	42	65	–
				1400	(49)	(100)	(126)	(129)	(155)
3	120	30	80	700	–	–	(16)	25	–
				1400	(18)	(38)	(49)	(50)	(60)
4	190	30	100	700	–	–	10	15	–
				1400	(11)	(24)	(31)	(32)	(38)
6	420	60	150	1400	–	2	3	7	8.5
				2800	–	(22)	(28)	(28)	–
8	735	60	200	1400	–	–	–	4	4.5
				2800	–	(12)	(15.5)	(15.5)	–
				2x 2800	–	(25)	(32)	(32)	–
10	950	60	250	2800	–	–	–	(10)	–
				2x 2800	–	–	–	(20)	–
12	1730	120	300	2800	–	–	–	3.5	–
				2x 2800	–	–	–	7.5	–
16	2900	120	400	2800	–	–	–	–	2.3
				2x 2800	–	–	–	–	5
20	4200	120	500	2x 2800	–	–	–	–	3

Table 5: *Permissible differential pressures* **Δ***p for valves with and without bellows seal: Fail-safe action "actuator stem extends"* • *Pressures in psi*

Bench range [psi] with actuator area [cm²]				350	2 to 14 (11 to 17)	5 to 29 (23 to 34)	20 to 33 (26 to 33)	30 to 47 (39 to 47)	–
				700					
				1400			7 to 36 (29 to 43)	15 to 34 (29 to 39)	18 to 40 (35 to 46)
				2800	–			15 to 33 (29 to 37)	18 to 47
				2x 2800					
Required supply pressure					Lower bench range value + Upper bench range value				
NPS	C_V	Travel [mm]	Seat bore [mm]	Actuator [cm²]	Δp in psi				
½	5	15	24	350	116	319	1305	2030	–
				700	(1522)	(3118)	(3625)	(5366)	–
1	10	15	24	350	116	319	1305	2030	–
				700	(1522)	(3118)	(3625)	(5366)	–
1½	30	15	38	350	–	116	507	797	–
				700	(2030)	(1232)	(1450)	(2103)	–
2	47	30	50	700	58	145	609	942	–
				1400	(710)	(1450)	(1827)	(1870)	(2248)
3	120	30	80	700	–	–	(232)	362	–
				1400	(261)	(551)	(710)	(725)	(870)
4	190	30	100	700	–	–	145	217	–
				1400	(159)	(348)	(449)	(464)	(551)
6	420	60	150	1400	–	29	43	101	123
				2800	–	(319)	(406)	(406)	–
8	735	60	200	1400	–	–	–	58	65
				2800	–	(174)	(224)	(224)	–
				2x 2800	–	(362)	(464)	(464)	–
10	950	60	250	2800	–	–	–	(145)	–
				2x 2800	–	–	–	(290)	–
12	1730	120	300	2800	–	–	–	50	–
				2x 2800	–	–	–	108	–
16	2900	120	400	2800	–	–	–	–	33
				2x 2800	–	–	–	–	72
20	4200	120	500	2x 2800	–	–	–	–	43

Table 6: *Permissible differential pressures* **Δ***p for valves with and without bellows seal: Fail-safe action "actuator stem retracts"* • *Pressures in bar*

Bench range [bar] with actuator area [cm²]				350	0.2 to 1.0 (0.2 to 0.6)	0.4 to 2.0 (0.4 to 1.2)	1.4 to 2.3 (1.4 to 1.85)	2.1 to 3.3 (2.1 to 2.7)	–
				700					
				1400			0.5 to 2.5 (0.5 to 1.5)	1.1 to 2.4 (1.1 to 1.75)	1.3 to 2.8 (1.3 to 2.05)
				2800	–			1.1 to 2.3 (1.1 to 1.7)	1.3 to 3.3 (1.3 to 2.3)
				2x 2800					
Required supply pressure					Lower bench range value + Upper bench range value				
NPS	**C_V**	**Travel [mm]**	**Seat bore [mm]**	**Actuator [cm²]**	**Δp in bar**				
½	5	15	24	350	8.5	22.5	92	141	–
				700	(22.5)	(50)	(189)	(287)	–
1	10	15	24	350	8.5	22.5	92	141	–
				700	(22.5)	(50)	(189)	(287)	–
1½	30	15	38	350	–	8	36	55	–
				700	(8.5)	(19)	(75)	(114)	–
2	47	30	50	700	4	10.5	42.5	65	–
				1400	(10.5)	(23.5)	(30)	(68)	(80)
3	120	30	80	700	–	–	16	25	–
				1400	(3.5)	(9)	(11.5)	(26)	(31.5)
4	190	30	100	700	–	–	10.5	16	–
				1400	–	(5.5)	(7)	(16.5)	(20)
6	420	60	150	1400	–	–	–	7	8.5
				2800	–	(5)	(6.5)	(15)	–
8	735	60	200	1400	–	–	–	4	4.5
				2800	–	–	–	(8)	–
				2x 2800	–	(5.5)	(7)	(17)	–
10	950	60	250	2800	–	–	–	(5)	(13)
				2x 2800	–	–	(4.5)	(10)	–
12	1730	120	300	2800	–	–	–	–	–
				2x 2800	–	–	–	7.5	9
16	2900	120	400	2800	–	–	–	–	–
				2x 2800	–	–	–	–	5
20	4200	120	500	2x 2800	–	–	–	–	3

Table 7: *Permissible differential pressures* **Δ***p for valves with and without bellows seal: Fail-safe action "actuator stem retracts"* • *Pressures in psi*

Bench range [psi] with actuator area [cm²]				350	2 to 14 (2 to 8)	5 to 29 (5 to 17)	20 to 33 (20 to 26)	30 to 47 (30 to 39)	–
				700					
				1400			7 to 36 (7 to 21)	15 to 34 (15 to 25)	18 to 40 (18 to 29)
				2800	–			15 to 33 (15 to 39)	18 to 47 (18 to 33)
				2x 2800					
Required supply pressure					Lower bench range value + Upper bench range value				
NPS	C_V	Travel [mm]	Seat bore [mm]	Actuator [cm²]	Δp in psi				
½	5	15	24	350	123	326	1334	2045	–
				700	(326)	(725)	(2741)	(4162)	–
1	10	15	24	350	123	326	1334	2045	–
				700	(326)	(725)	(2741)	(4162)	–
1½	30	15	38	350	–	116	522	797	–
				700	(123)	(275)	(1087)	(1653)	–
2	47	30	50	700	58	152	616	942	–
				1400	(152)	(340)	(435)	(986)	(1160)
3	120	30	80	700	–	–	232	362	–
				1400	(50)	(130)	(166)	(377)	(456)
4	190	30	100	700	–	–	152	232	–
				1400	–	(79)	(101)	(239)	290
6	420	60	150	1400	–	–	–	101	123
				2800	–	(72)	(94)	(217)	–
8	735	60	200	1400	–	–	–	58	65
				2800	–	–	–	(116)	–
				2x 2800	–	(79)	(101)	(246)	–
10	950	60	250	2800	–	–	–	(72)	(188)
				2x 2800	–	–	(65)	(145)	–
12	1730	120	300	2800	–	–	–	–	–
				2x 2800	–	–	–	108	130
16	2900	120	400	2800	–	–	–	–	–
				2x 2800	–	–	–	–	72
20	4200	120	500	2x 2800	–	–	–	–	43

Table 8: *Dimensions in inches and mm for Type 3253 Three-way Valve · ANSI version*

Valve		NPS	½	1	1½	2	3	4	6	8	10	12	16	20
		DN	15	20	40	50	80	100	150	200	250	300	400	500
Length L	Class 150	in	7.25	7.25	8.75	10	11.75	13.88	17.75	21.38	26.5	29	40	On req.
		mm	184	184	222	254	298	352	451	543	673	737	1016	On req.
	Class 300	in	7.5	7.75	9.25	10.5	12.5	14.5	18.62	22.38	27.88	30.5	41.62	On req.
		mm	190	197	235	267	318	368	473	568	708	775	1057	On req.
	Class 600	in	8	8.25	9.88	11.25	13.25	15.5	20	24	29.62	32.25	On req.	On req.
		mm	203	210	251	286	337	394	508	610	752	819	On req.	On req.
	Class 900	in	8.5	10	12	14.5	15	18	24	29	33	38	On req.	On req.
		mm	216	254	305	368	381	457	610	737	838	965	On req.	On req.
H4	Class 150 to 300	in	5.98	5.98	6.46	8.54	8.74	9.53	12.4	15.31	17.36	25.67	25.08	On req.
		mm	152	152	164	217	222	242	315	389	441	652	637	On req.
	Class 600	in	5.98	5.98	6.46	8.54	8.74	9.53	12.4	15.31	20.39	25.67	On req.	On req.
		mm	152	152	164	217	222	242	315	389	518	652	On req.	On req.
	Class 900	in	7.32	7.32	7.68	9.88	8.74	9.53	12.4	15.31	20.39	–	–	–
		mm	186	186	195	251	222	242	315	315	518	–	–	–
H8 for actuator	350 cm²	in	9.45	9.45	9.45	9.45	9.45	9.45	–	–	–	–	–	–
		mm	240	240	240	240	240	240	–	–	–	–	–	–
	350v2 cm²	in	9.45	9.45	9.45	9.45	9.45	9.45	–	–	–	–	–	–
		mm	240	240	240	240	240	240	–	–	–	–	–	–
	355v2 cm²	in	9.45	9.45	9.45	9.45	9.45	9.45	16.46	–	–	–	–	–
		mm	240	240	240	240	240	240	418	–	–	–	–	–
	750v2 cm²	in	9.45	9.45	9.45	9.45	9.45	9.45	16.46	16.46	16.46	–	–	–
		mm	240	240	240	240	240	240	418	418	418	–	–	–
	1000 cm²	in	–	–	–	11.61	11.61	11.61	16.46	16.46	On req.	On req.	On req.	On req.
		mm	–	–	–	295	295	295	418	418	On req.	On req.	On req.	On req.
	1400-60 cm²	in	–	–	–	11.61	11.61	11.61	16.46	16.46	16.46	19.8	19.8	On req.
		mm	–	–	–	295	295	295	418	418	418	503	503	On req.
	1400-120 cm²	in	–	–	–	18.9	18.9	18.9	19.8	19.8	19.8[1)]	25.59	25.59	On req.
		mm	–	–	–	480	480	480	503	503	503[1)]	650	650	On req.
	2800 cm²	in	–	–	–	18.9	18.9	18.9	19.8	19.8	19.8[1)]	25.59	25.59	On req.
		mm	–	–	–	480	480	480	503	503	503[1)]	650	650	On req.
	2 x 2800 cm²	in	–	–	–	–	–	18.9	19.8	19.8	19.8[1)]	25.59	25.59	On req.
		mm	–	–	–	–	–	480	503	503	503[1)]	650	650	On req.

Valve			NPS	½	1	1½	2	3	4	6	8	10	12	16	20
			DN	15	20	40	50	80	100	150	200	250	300	400	500
H2 (approx.)	Class 150		in	–	4.13	–	–	10.83	12.01	18.9	20.47	23.43	28.58	32.68	On req.
			mm	–	105	–	–	275	305	480	520	595	726	830	On req.
	Class 300		in	4.53	4.53	5.12	10.91	12.2	14.72	21.14	23.23	27.87	28.58	32.68	On req.
			mm	115	115	130	277	310	374	537	590	708	726	830	On req.
	Class 600		in	4.53	4.53	5.12	10.91	12.2	14.72	21.26	23.23	28.74	31.1	–	–
			mm	115	115	130	277	310	374	540	590	730	790	–	–
	Class 900		in	–	–	–	14.53	12.44	14.84	22.52	23.23	28.74	–	–	–
			mm	–	–	–	369	316	377	572	590	730	–	–	–
With insulating section															
H4	Class 150 to 600		in	13.9	13.9	14.37	19.17	19.37	20.16	26.18	37.17	41.89	45.28	44.72[2]	On req.
			mm	353	353	365	487	492	512	665	944	1064	1150	1136[2]	On req.
	Class 900		in	15.04	15.04	15.4	20.32	19.37	20.16	26.18	37.17	41.89	–	–	–
			mm	382	382	391	516	492	512	665	944	1064	–	–	–
With bellows seal															
		Travel													
H4	Class 150	0.59 to 2.36	in	13.78	13.78	14.25	23.46	23.66	23.66	28.43	40.87	58.78	–	–	–
		15 to 60	mm	350	350	362	596	601	601	722	1038	1493	–	–	–
	Class 300	0.59 to 2.36	in	13.78	13.78	14.25	23.46	23.66	23.66	33.7	40.87	On req.	–	–	–
		15 to 60	mm	350	350	362	596	601	601	856	1038	On req.	–	–	–
	Class 600	0.59 to 2.36	in	13.78	13.78	14.25	23.46	23.66	23.66	33.7	56.61	On req.	–	–	–
		15 to 60	mm	350	350	362	596	601	601	856	1438	On req.	–	–	–
	Class 900	0.59 to 2.36	in	13.46	13.46	13.86	23.03	23.66	23.66	33.7	61.89	On req.	–	–	–
		15 to 60	mm	342	342	352	585	601	601	856	1572	On req.	–	–	–
	Class 150	4.72	in	–	–	–	–	–	–	–	–	–	59.84	59.33	–
		120	mm	–	–	–	–	–	–	–	–	–	1520	1507	–
	Class 300	4.72	in	–	–	–	–	–	–	–	–	–	On req.	On req.	On req.
		120	mm	–	–	–	–	–	–	–	–	–	On req.	On req.	On req.
	Class 600	4.72	in	–	–	–	–	–	–	–	–	–	On req.	On req.	On req.
		120	mm	–	–	–	–	–	–	–	–	–	On req.	On req.	On req.

1) H8 = 650 mm (25.59 in) with 250 mm (9.84 in) seat bore

2) NPS 16 up to Class 300

Table 9: *Further dimensions[1] in combination with Type 3271 Pneumatic Actuator or Type 3277 Pneumatic Actuator*

Actuator area		cm²	350	350v2	355v2	750v2	1400-60	1400-120	2800	2x 2800
Diaphragm ØD		in	11.02	11.02	11.02	15.51	20.87	21.02	30.32	30.32
Diaphragm ØD		mm	280	280	280	394	530	534	770	770
H[2]	Type 3271	in	3.23	3.62	5.16	9.29	13.27	23.54	28.07	47.76
H[2]	Type 3271	mm	82	92	131	236	337	598	713	1213

Actuator area		cm²	350	350v2	355v2	750v2	1400-60	1400-120	2800	2x 2800
H[2)]	Type 3277	in	3.23	3.23	4.76	9.29	–	–	–	–
H[2)]	Type 3277	mm	82	82	121	236	–	–	–	–
H3[3)]		in	4.33	4.33	4.33	7.48	24.02	25.59	25.59	25.59
H3[3)]		mm	110	110	110	190	610	650	650	650
H5	Type 3277	in	3.98	3.98	3.98	3.98	–	–	–	–
H5	Type 3277	mm	101	101	101	101	–	–	–	–
Thread	Type 3271		M30x1.5	M30x1.5	M30x1.5	M30x1.5	M60x1.5	M100x2	M100x2	M100x2
Thread	Type 3277		M30x1.5	M30x1.5	M30x1.5	M30x1.5	–	–	–	–
a	Type 3271		G ⅜ (⅜ NPT)	G ⅜ (⅜ NPT)	G ⅜ (⅜ NPT)	G ⅜ (⅜ NPT)	G ¾ (¾ NPT)	G 1 (1 NPT)	G 1 (1 NPT)	G 1 (1 NPT)
a2	Type 3277		G ⅜[4)]	G ⅜[4)]	G ⅜[4)]	G ⅜[4)]	–	–	–	–

1) The specified dimensions are theoretical maximum design values for a specific standard device configuration. They do not reflect every possible case of use. The actual values for individual devices may differ depending on the device configuration and the specific application.

2) Height including lifting eyelet or female thread and eyebolt according to DIN 580. Height of the swivel hoist may differ. Actuators up to 355v2 cm² without lifting eyelet or female thread.

3) Minimum clearance required to remove the actuator

4) An adapter G ⅜ to ⅜ NPT is available for the a2 connection. It can be ordered separately using the following article number: 100160362

Dimensional drawings

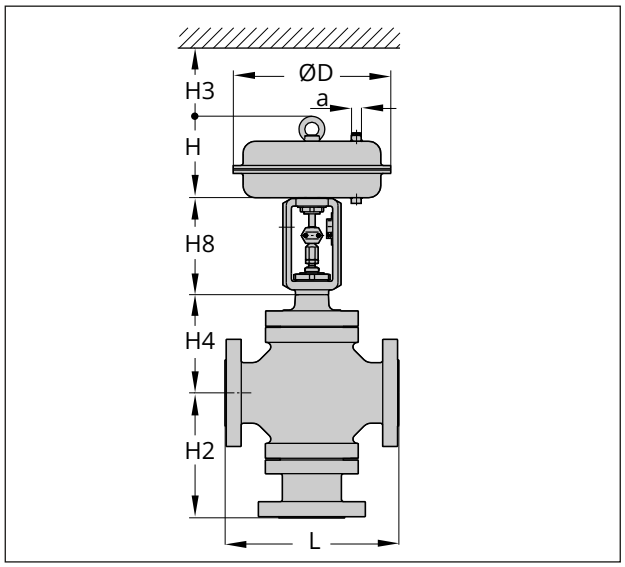


Fig. 5: *Type 3253-1*

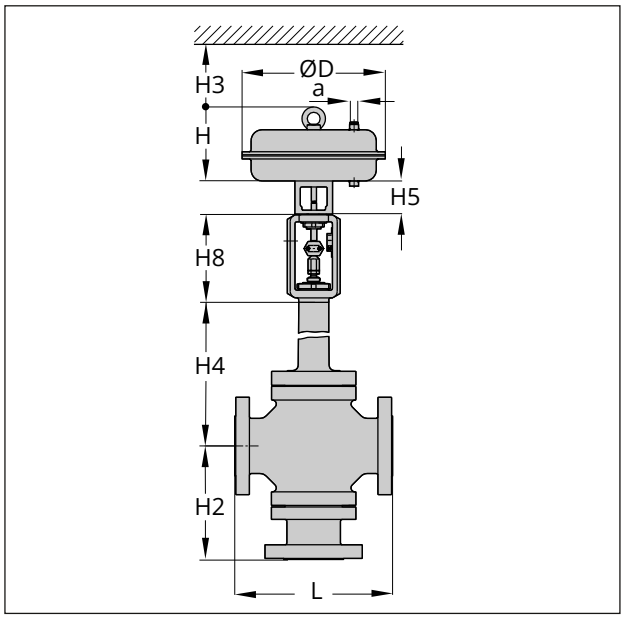


Fig. 6: *Type 3253-7*

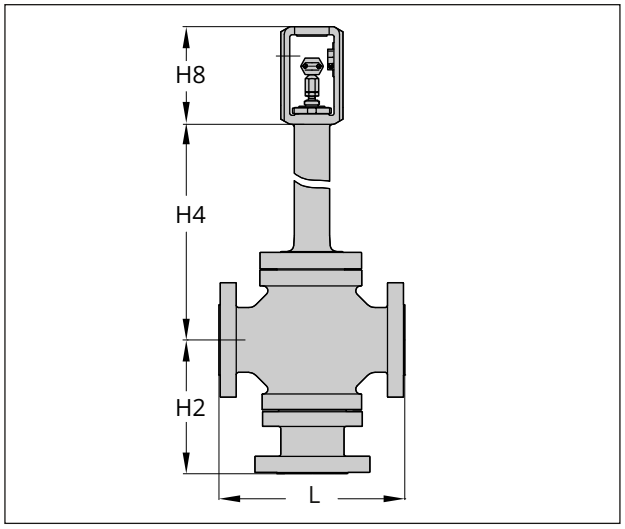


Fig. 7: *Type 3253 with insulating section or bellows seal*

Table 10: *Weights in lbs and kg for Type 3253 Three-way Valve · ANSI version*

Valve	NPS		½	1	1½	2	3	4	6	8	10	12	16	20
	DN		15	20	40	50	80	100	150	200	250	300	400	500
Weight[1] without actuator	Class 150 to 900	lbs	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.
		kg	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.
With insulating section														
Weight[1] without actuator	Class 150 to 900	lbs	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.
		kg	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.
With bellows seal														
Weight[1] without actuator	Class 150 to 900	lbs	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.
		kg	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.

1) The weights specified apply to a specific standard device configuration. Weights of other valve configurations may differ depending on the version (material, trim etc.).

Table 11: *Weights[1] for Type 3271 and Type 3277 Pneumatic Actuators*

Type ... Actuator	Actuator area in cm²		350	350v2	355v2	750v2	1400-60	1400-120	2800	2x 2800
3271	Without handwheel	lbs	18	26	33	79	154	386	992	2095
3271	Without handwheel	kg	8	11.5	15	36	70	175	450	950
3271	With handwheel	lbs	29	37	44	90	386	661[2]/ 937[3]	1268[2]/ 1544[3]	On req.
3271	With handwheel	kg	13	16.5	20	41	175	300[2]/ 425[3]	575[2]/ 700[3]	On req.
3277	Without handwheel	lbs	27	33	42	89	–	–	–	–
3277	Without handwheel	kg	12	15	19	40	–	–	–	–
3277	With handwheel	lbs	38	44	53	100	–	–	–	–
3277	With handwheel	kg	17	20	24	45	–	–	–	–

1) The weights specified apply to a specific standard device configuration. Weights of other actuator configurations may differ depending on the version (material, number of actuator springs etc.).

2) Side-mounted handwheel up to 80 mm travel

3) Side-mounted handwheel with travel higher than 80 mm travel

Selection and sizing of the valve

1. Calculate C_V coefficient according to DIN EN 60534-1.
2. Select nominal size NPS and C_V coefficient from Table 3.
3. Actuator sizing and calculation of permissible differential pressure Δp on request
4. Select the valve body material from Table 1 and Table 2 as well as from the pressure-temperature diagrams (see Information Sheet ▶ T 8000-2).
5. Select accessories from Table 1 and Table 2.

Ordering text

The following specifications are required on ordering:

Nominal size	NPS ...
Pressure rating	Class ...
Body material	See Table 2
Bonnet	Standard bonnet, insulating section or bellows seal
Type of end connections	Flanges
Actuator	Type 3271 or Type 3277 (see Data Sheets ▶ T 8310-1, ▶ T 8310-2 and ▶ T 8310-3)
Fail-safe action	Actuator stem extends/retracts
Process medium	Density in lb/cu.ft or kg/m³ and temperature in °F or °C
Flow rate	lbs/h or kg/h or cu.ft/min or m³/h in standard or operating state
Pressure	p_1 and p_2 in bar or psi (absolute pressure p_{abs}), with minimum, normal and maximum flow rate
RFID tag	Yes/No
Valve accessories	Positioner and/or limit switch

Associated Information Sheet	▶ T 8000-X
Associated Data Sheets for pneumatic actuators	▶ T 8310-1 to ▶ T 8310-3
Associated Mounting and Operating Instructions	▶ EB 8056

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