

T 8026 EN

Type 3244-1 and Type 3244-7 Pneumatic Control Valves

Type 3244 Three-way Valve

DIN and ANSI versions



Application

Mixing or diverting valve for process engineering and industrial applications

Nominal size	DN 15 to 150 · NPS ½ to 6
Pressure rating	PN 10 to 40 · Class 150 and 300
Temperatures	-196 to +550 °C · -325 to +842 °F



Fig. 1: Type 3244-1 Pneumatic Control Valve with Type 3271 Actuator



Fig. 2: Type 3244-7 Pneumatic Control Valve with Type 3277 Actuator

Special features

Type 3244 Three-way Valve with

- Type 3271 Pneumatic Actuator (Type 3244-1 Control Valve)
- Type 3277 Pneumatic Actuator (Type 3244-7 Control Valve) for integral positioner attachment

Undivided valve bonnet

Valve body made of

- Cast iron (DIN version only)
- Cast steel
- Cast stainless steel

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 60534-6-1¹⁾ and NAMUR Recommendation (see Information Sheet ► T 8350).

¹⁾ Accessories required. See associated actuator documentation.

Versions

Standard version designed for temperatures from -10 to +220 °C (15 to 430 °F) with pneumatic actuator

- **Type 3244-1** (Fig. 1) • Type 3244 Valve and Type 3271 Actuator (see Data Sheet ► T 8310-1)
- **Type 3244-7** (Fig. 2) • Type 3244 Valve and Type 3277 Actuator for integral positioner attachment (see Data Sheet ► T 8310-1)

Further versions

- **Adjustable packing** · See Information Sheet
▶ T 8000-6
- **Version with insulating section or bellows seal** · See Technical data
- **Heating jacket**
- **Additional handwheel** · See Data Sheet
▶ T 8310-1
- **Type 3244-3 Valve with Type 3273 Hand-operated Actuator** · See Data Sheet
▶ T 8312 for details
- **Type 3244-2 Electric Control Valve** · Details on request

Principle of operation

Depending on the version, 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. 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).

Note: The design of the mixing and diverting valves in sizes DN 15 to 25 (NPS ½ to 1) is identical.

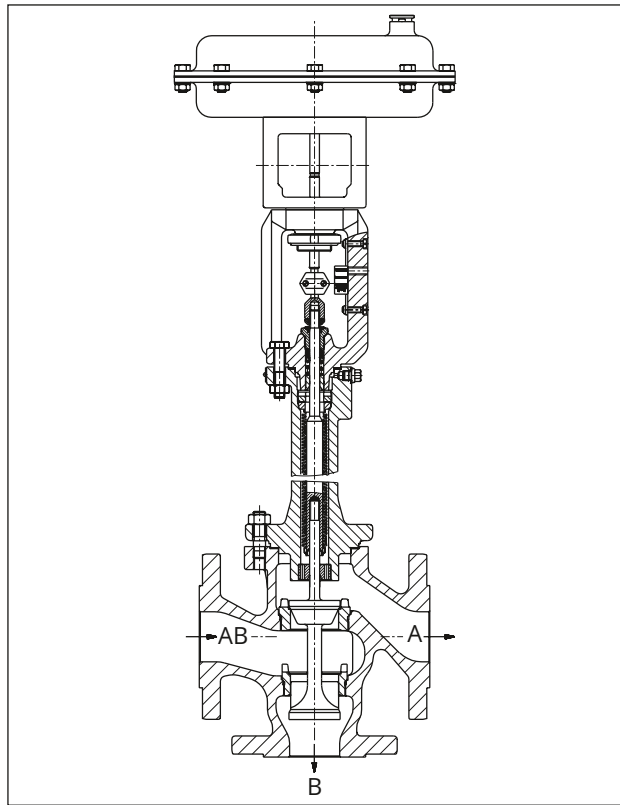


Fig. 4: Type 3244-7 Pneumatic Control Valve with Type 3244 Three-way Valve, DN 32 to 150 (plug arrangement for diverting service), additional bellows seal and Type 3277 Actuator

Fail-safe positions

Depending on how the springs are arranged in the Type 3271 or Type 3277 Actuator (see Data Sheet ▶ T 8310-1), 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 DN 15 to 25 (NPS ½ to 1) is closed since these valves have the same construction 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 DN 15 to 25 (NPS ½ to 1) is closed since these valves have the same construction as mixing valves.

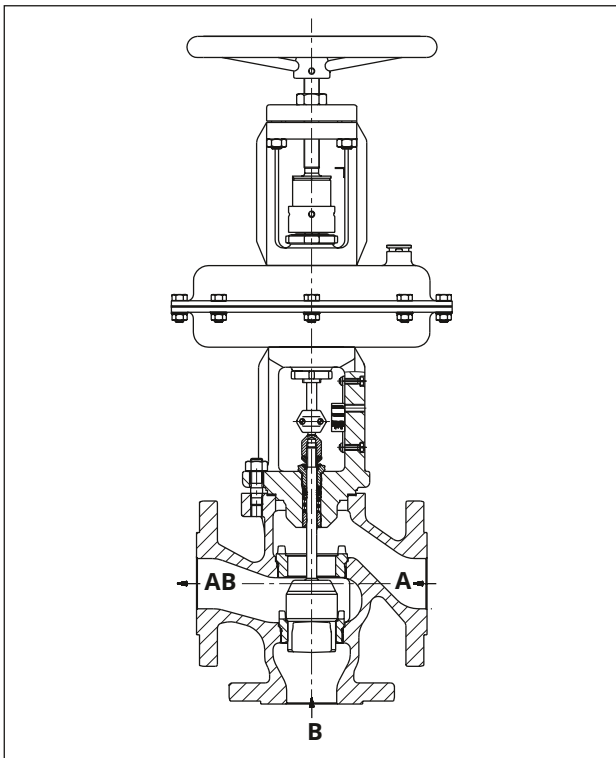


Fig. 3: Type 3244-1 Pneumatic Control Valve with Type 3244 Three-way Valve (plug arrangement for mixing service, DN 15 to 25 for diverting service as well; Type 3271 Actuator with additional handwheel)

Table 1: Technical data for Type 3244

Version	DIN			ANSI	
Nominal size	DN 15 to 150			NPS ½ to 6	
Material	Cast iron EN-GJL-250 (EN-JL1040)	Cast steel 1.0619	Cast stainless steel 1.4408	Cast steel A216 WCC	Cast stainless steel A351 CF8M
Pressure rating	PN 10, 16, 25, 40			Class 150 or 300	
Type of end connections	All flange types according to DIN EN 1092-1/-2 ¹⁾			RF ²⁾	
Seat-plug seal	Metal seal			Metal seal	
Characteristic	Linear			Linear	
Rangeability	50:1 with DN 15 to 50 30:1 with DN 65 to 150			50:1 with NPS ½ to 2 30:1 with NPS 2½ to 6	
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 +85 °C (-40 and +185 °F).				
Temperature ranges in °C and °F) · Permissible operating pressures according to pressure-temperature diagram (see Information Sheet ▶ T 8000-2)					
Body without insulating section		-10 to +220 °C			-10 to +220 °C (14 to 428 °F)
Body with	Insulating section ³⁾	-10 to +300 °C	-10 to +400 °C ⁴⁾	-50 to +450 °C ⁴⁾	-29 to +425 °C (-20 to +800 °F) -50 to +450 °C (-58 to +842 °F)
	Bellows seal ³⁾	-10 to +300 °C	-10 to +400 °C ⁴⁾	-50 to +450 °C ⁴⁾	-29 to +400 °C (-20 to +750 °F) -50 to +450 °C (-58 to +842 °F)
Leakage class acc. to DIN EN 60534-4/ANSI FCI 70-2		I (0.05 % K _{VS})			I (0.05 % K _{VS})

¹⁾ Except for tongue form D, groove form D and female face form F for DN 15

²⁾ Other versions in NPS ¾ and larger available on request

³⁾ Long insulating section or bellows seal for temperatures up to -196 °C (-325 °F) on request

⁴⁾ Version for lower temperatures on request

Table 2: Materials

Standard version	DIN			ASTM	
Valve body ¹⁾	Cast iron EN-GJL-250 (EN-JL1040)	Cast steel 1.0619	Cast stainless steel 1.4408	Cast steel A216 WCC	Cast stainless steel A351 CF8M
Valve bonnet	1.0460/EN-GJL-250 (EN-JL1040)	1.0460	1.4401 · 1.4404 ⁵⁾	A105	A182 F316 · A182 F316L ⁵⁾
Seat ²⁾	1.4006		1.4404	A182 F6a Class2	A182 F316L
Plug ²⁾	1.4006		1.4404	A182 F6a Class2	A182 F316L
Seat-plug seal	Metal seal			Metal seal	
Guide bushing	1.4104		1.4404	A582 430F	A182 F316/ A182 F316L
Packing ³⁾	V-ring packing, PTFE with carbon · Spring 1.4310/A479 302				
Body gaskets	Graphite on metal core			Graphite on metal core	
Insulating section	1.0460		1.4401 · 1.4404 ⁵⁾	A105	A182 F316 · A182 F316L ⁵⁾

Standard version		DIN		ASTM	
Bellows seal					
	Intermediate piece	1.0460	1.4401 · 1.4404 ⁵⁾	A105	A182 F316 · A182 F316L ⁵⁾
	Metal bellows	1.4571 ⁴⁾		316 Ti	

¹⁾ Special materials for applications with seawater: 1.4538, duplex 1.4470; nickel-based alloy: 9.4610; other special materials on request

²⁾ All seats and plugs also with Stellite® facing; for nominal sizes ≤DN 100, plugs up to SB 38 made of solid Stellite® are available.

³⁾ Other packings on request (see Information Sheet ► T 8000-6)

⁴⁾ Other materials on request

⁵⁾ Material double stamping

Differential pressures

Notes on the differential pressure tables:

- Differential pressures in parentheses refer to the values for half travel in parentheses in the bench range column
- The tables apply to both fail-safe positions.
- The springs in actuators with fail-safe action “actuator stem retracts” cannot be preloaded.

Mixing valve • DIN version

Table 3: Flow coefficients and permissible differential pressures Δp for Type 3244 (mixing valve) • Pressures in bar

				Actuator area [cm²]	Bench range [bar]	Req. supply press. [bar]	Bench range [bar]	Req. supply press. [bar]	Bench range [bar]	Req. supply press. [bar]
				120	0.4 to 2.0	2.4	1.4 to 2.3	3.7	2.1 to 3.3	4.4
				175v2	0.4 to 2.0	2.4	0.5 to 2.5	3	1.3 to 2.9	4.2
				350	0.4 to 2.0	2.4	1.4 to 2.3	3.7	2.1 to 3.3	5.4
				355v2	0.4 to 2.0 (1.2 to 2.0)	2.4 (3.2)	1.4 to 2.6 (2.0 to 2.6)	4 (4.6)	1.9 to 3.3 (2.6 to 3.3)	5.2 (5.9)
				700	0.4 to 2.0 (1.2 to 2.0)	2.4 (3.2)	1.4 to 2.3 (1.85 to 2.3)	3.7 (4.15)	2.1 to 3.3 (2.7 to 3.3)	5.4 (6)
				750v2	0.4 to 2.0 (1.2 to 2.0)	2.4 (3.2)	1.4 to 2.4 (1.9 to 2.4)	3.8 (4.3)	1.9 to 3.1 (2.5 to 3.1)	5 (5.6)
DN	K _{vs}	Seat Ø [mm]	Rated travel [mm]	Actua- tor [cm²]	Δp when p ₂ = 0 bar					
15	2 · 4	24	15	120	5	5	29	29	40	40
20	2 · 4 · 6.3	24	15	175v2	9.5	9.5	13	13	40	40
25	2 · 4 · 6.3 · 10	24	15	350	23.5	23.5	40	40	40	40
32 to 50	6.3 · 10 · 16	31	15	120	2.5	2.5	17	17	27	27
32 to 50	6.3 · 10 · 16	31	15	175v2	5	5	7	7	24	24
32 to 50	6.3 · 10 · 16	31	15	350	13.5	13.5	40	40	40	40
40 and 50	25	38	15	120	–	–	10.5	10.5	17.5	17.5
40 and 50	25	38	15	175v2	3.1	3.1	4.5	4.5	15.5	15.5
40 and 50	25	38	15	350	8.5	8.5	36.5	36.5	40	40
50	40	48	15	120	–	–	6.5	6.5	10.5	10.5
50	40	48	15	175v2	–	–	2.5	2.5	9.5	9.5
50	40	48	15	350	5	5	22.5	22.5	35	35
50	40	48	15	355v2	(19.5)	(19.5)	(33.5)	(33.5)	(40)	(40)
50	40	48	15	700	(40)	(40)	–	–	–	–
50	40	48	15	750v2	(40)	(40)	–	–	–	–
65 and 80	25 and 40	48	15	350	5	5	22.5	22.5	35	35
65 and 80	25 and 40	48	15	355v2	(19.5)	(19.5)	(33.5)	(33.5)	(40)	(40)
65 and 80	25 and 40	48	15	700	(40)	(40)	–	–	–	–
65 and 80	25 and 40	48	15	750v2	(40)	(40)	–	–	–	–
65 and 80	60	63	15	350	2.7	2.7	12.5	12.5	20	20
65 and 80	60	63	15	355v2	(11)	(11)	(19)	(19)	(25.5)	(25.5)
65 and 80	60	63	15	700	(23)	(23)	(36)	(36)	(40)	(40)
65 and 80	60	63	15	750v2	(24.5)	(24.5)	(40)	(40)	(40)	(40)

				Actuator area [cm ²]	Bench range [bar]	Req. supply press. [bar]	Bench range [bar]	Req. supply press. [bar]	Bench range [bar]	Req. supply press. [bar]
				120	0.4 to 2.0	2.4	1.4 to 2.3	3.7	2.1 to 3.3	4.4
				175v2	0.4 to 2.0	2.4	0.5 to 2.5	3	1.3 to 2.9	4.2
				350	0.4 to 2.0	2.4	1.4 to 2.3	3.7	2.1 to 3.3	5.4
				355v2	0.4 to 2.0 (1.2 to 2.0)	2.4 (3.2)	1.4 to 2.6 (2.0 to 2.6)	4 (4.6)	1.9 to 3.3 (2.6 to 3.3)	5.2 (5.9)
				700	0.4 to 2.0 (1.2 to 2.0)	2.4 (3.2)	1.4 to 2.3 (1.85 to 2.3)	3.7 (4.15)	2.1 to 3.3 (2.7 to 3.3)	5.4 (6)
				750v2	0.4 to 2.0 (1.2 to 2.0)	2.4 (3.2)	1.4 to 2.4 (1.9 to 2.4)	3.8 (4.3)	1.9 to 3.1 (2.5 to 3.1)	5 (5.6)
DN	K _{VS}	Seat Ø [mm]	Rated travel [mm]	Actua- tor [cm ²]	Δp when p ₂ = 0 bar					
80	80	75	15	350	-	-	8.5	8.5	14	14
80	80	75	15	355v2	(7.5)	(7.5)	(13)	(13)	(17.5)	(17.5)
80	80	75	15	700	(16)	(16)	(25.5)	(25.5)	(37.5)	(37.5)
80	80	75	15	750v2	(17)	(17)	(28)	(28)	(37)	(37)
100	100	80	30	355v2	1.4	1.4	7.8	7.8	11	11
100	160	100	30	355v2	-	-	4.9	4.9	6.9	6.9
125	140	90	30	355v2	1	1	6.1	6.1	8.9	8.9
125	200	110	30	355v2	-	-	3.9	3.9	5.6	5.6
150	200	110	30	355v2	-	-	3.9	3.9	5.6	5.6
150	300	130	30	355v2	-	-	2.7	2.7	3.9	3.9
150	200	110	30	700	3.9	3.9	16.5	16.5	25	25
150	300	130	30	700	2.3	2.3	10	10	16	16
125	140	90	30	700	3	3	13	13	20	20
125	200	110	30	700	-	-	8.5	8.5	13	13
150	200	110	30	700	-	-	8.5	8.5	13	13
150	300	130	30	700	-	-	6	6	9	9
100	100	80	30	750v2	4.3	4.3	17.5	17.5	24.5	24.5
100	160	100	30	750v2	2.6	2.6	11	11	15.5	15.5
125	140	90	30	750v2	3.3	3.3	14	14	19	19
125	200	110	30	750v2	2.1	2.1	9	9	12.5	12.5
150	200	110	30	750v2	2.1	2.1	9	9	12.5	12.5
150	300	130	30	750v2	-	-	6.5	6.5	9	9

Mixing valve • ANSI version

Table 4: Flow coefficients and permissible differential pressures Δp for Type 3244 (mixing valve) • Pressures in psi

					Actuator area [cm ²]	Bench range [psi]	Req. supply press. [psi]	Bench range [psi]	Req. supply press. [psi]	Bench range [psi]	Req. supply press. [psi]
					120	5 to 29	34	20 to 33	53	30 to 47	63
					175v2	5 to 29	34	7 to 36	43	18 to 42	60
					350	5 to 29	34	20 to 33	53	30 to 47	78
					355v2	5 to 29 (17 to 29)	34 (46)	20 to 37 (29 to 37)	58 (66)	27 to 47 (37 to 47)	75 (85)
					700	5 to 29 (17 to 29)	34 (46)	20 to 33 (26 to 33)	53 (60)	30 to 47 (39 to 47)	78 (87)
					750v2	5 to 29 (17 to 29)	34 (46)	20 to 34 (27 to 34)	55 (62)	27 to 44 (36 to 44)	72 (81)
NPS	DN	C _v	Seat Ø [inch (mm)]	Rated travel [inch (mm)]	Actuator [cm ²]	Δp when p ₂ = 0 psi					
½	15	2.3 · 5	0.94 (24)	0.59 (15)	120	72	72	420	420	580	580
¾	20	2.3 · 5 · 7.5	0.94 (24)	0.59 (15)	175v2	137	137	188	188	580	580
1	25	2.3 · 5 · 7.5 · 12	0.94 (24)	0.59 (15)	350	340	340	580	580	580	580
1½ and 2	40 and 50	7.5 · 12 · 20	1.22 (31)	0.59 (15)	120	36	36	246	246	391	391
1½ and 2	40 and 50	7.5 · 12 · 20	1.22 (31)	0.59 (15)	175v2	72	72	101	101	348	348
1½ and 2	40 and 50	7.5 · 12 · 20	1.22 (31)	0.59 (15)	350	195	195	580	580	580	580
1½ and 2	40 and 50	30	1.49 (38)	0.59 (15)	120	–	–	152	152	253	253
1½ and 2	40 and 50	30	1.49 (38)	0.59 (15)	175v2	44	44	65	65	224	224
1½ and 2	40 and 50	30	1.49 (38)	0.59 (15)	350	123	123	529	529	580	580
2	50	47	1.89 (48)	0.59 (15)	120	–	–	94	94	152	152
2	50	47	1.89 (48)	0.59 (15)	175v2	–	–	36	36	137	137
2	50	47	1.89 (48)	0.59 (15)	350	72	72	326	326	507	507
2	50	47	1.89 (48)	0.59 (15)	355v2	(282)	(282)	(485)	(485)	(580)	(580)
2	50	47	1.89 (48)	0.59 (15)	700	(580)	(580)	–	–	–	–
2	50	47	1.89 (48)	0.59 (15)	750v2	(580)	(580)	–	–	–	–
2½ and 3	65 and 80	30 and 47	1.89 (48)	0.59 (15)	350	72	72	326	326	507	507
2½ and 3	65 and 80	30 and 47	1.89 (48)	0.59 (15)	355v2	(282)	(282)	(485)	(485)	(580)	(580)
2½ and 3	65 and 80	30 and 47	1.89 (48)	0.59 (15)	700	(580)	(580)	–	–	–	–
2½ and 3	65 and 80	30 and 47	1.89 (48)	0.59 (15)	750v2	(580)	(580)	–	–	–	–
2½ and 3	65 and 80	70	2.48 (63)	0.59 (15)	350	39	39	181	181	290	290

					Actuator area [cm ²]	Bench range [psi]	Req. supply press. [psi]	Bench range [psi]	Req. supply press. [psi]	Bench range [psi]	Req. supply press. [psi]
					120	5 to 29	34	20 to 33	53	30 to 47	63
					175v2	5 to 29	34	7 to 36	43	18 to 42	60
					350	5 to 29	34	20 to 33	53	30 to 47	78
					355v2	5 to 29 (17 to 29)	34 (46)	20 to 37 (29 to 37)	58 (66)	27 to 47 (37 to 47)	75 (85)
					700	5 to 29 (17 to 29)	34 (46)	20 to 33 (26 to 33)	53 (60)	30 to 47 (39 to 47)	78 (87)
					750v2	5 to 29 (17 to 29)	34 (46)	20 to 34 (27 to 34)	55 (62)	27 to 44 (36 to 44)	72 (81)
NPS	DN	C _v	Seat Ø [inch (mm)]	Rated travel [inch (mm)]	Actua- tor [cm ²]	Δp when p ₂ = 0 psi					
2½ and 3	65 and 80	70	2.48 (63)	0.59 (15)	355v2	(159)	(159)	(275)	(275)	(369)	(369)
2½ and 3	65 and 80	70	2.48 (63)	0.59 (15)	700	(333)	(333)	(522)	(522)	(580)	(580)
2½ and 3	65 and 80	70	2.48 (63)	0.59 (15)	750v2	(355)	(355)	(580)	(580)	(580)	(580)
3	80	95	2.95 (75)	0.59 (15)	350	–	–	123	123	203	203
3	80	95	2.95 (75)	0.59 (15)	355v2	(108)	(108)	(188)	(188)	(253)	(253)
3	80	95	2.95 (75)	0.59 (15)	700	(232)	(232)	(369)	(369)	(543)	(543)
3	80	95	2.95 (75)	0.59 (15)	750v2	(246)	(246)	(406)	(406)	(536)	(536)
4	100	120	3.15 (80)	1.18 (30)	355v2	20	20	113	113	159	159
4	100	190	3.93 (100)	1.18 (30)	355v2	–	–	71	71	100	100
6	150	230	4.33 (110)	1.18 (30)	355v2	–	–	56	56	81	81
6	150	350	5.12 (130)	1.18 (30)	355v2	–	–	39	39	56	56
4	150	120	4.33 (110)	1.18 (30)	700	56	56	239	239	362	362
4	150	190	5.12 (130)	1.18 (30)	700	33	33	145	145	232	232
6	150	230	4.33 (110)	1.18 (30)	700	–	–	123	123	188	188
6	150	350	5.12 (130)	1.18 (30)	700	–	–	87	87	130	130
4	100	120	3.15 (80)	1.18 (30)	750v2	62	62	253	253	355	355
4	100	190	3.93 (100)	1.18 (30)	750v2	37	37	159	159	224	224
6	150	230	4.33 (110)	1.18 (30)	750v2	30	30	130	130	181	181
6	150	350	5.12 (130)	1.18 (30)	750v2	–	–	94	94	130	130

Diverting valve • DIN version

Valves in DN 65 to 150

- Direction of flow AB → A with maximum K_{VS}
- Direction of flow AB → B with reduced K_{VS}

Table 5: Flow coefficients and permissible differential pressures Δp for Type 3244 (diverting valve) • Pressures in bar

				Actuator area [cm²]	Bench range [bar]	Req. supply press. [bar]	Bench range [bar]	Req. supply press. [bar]	Bench range [bar]	Req. supply press. [bar]
				120	0.4 to 2.0	2.4	1.4 to 2.3	3.7	2.1 to 3.3	4.4
				175v2	0.4 to 2.0	2.4	0.5 to 2.5	3	1.3 to 2.9	4.2
				350	0.4 to 2.0	2.4	1.4 to 2.3	3.7	2.1 to 3.3	5.4
				355v2	0.4 to 2.0 (1.2 to 2.0)	2.4 (3.2)	1.4 to 2.6 (2.0 to 2.6)	4 (4.6)	1.9 to 3.3 (2.6 to 3.3)	5.2 (5.9)
				700	0.4 to 2.0 (1.2 to 2.0)	2.4 (3.2)	1.4 to 2.3 (1.85 to 2.3)	3.7 (4.15)	2.1 to 3.3 (2.7 to 3.3)	5.4 (6)
				750v2	0.4 to 2.0 (1.2 to 2.0)	2.4 (3.2)	1.4 to 2.4 (1.9 to 2.4)	3.8 (4.3)	1.9 to 3.1 (2.5 to 3.1)	5 (5.6)
DN	K _{vs}	Seat Ø [mm]	Rated travel [mm]	Actua- tor [cm²]	Δp when p ₂ = 0 bar					
15	2 · 4	24	15	120	5	5	29	29	40	40
20	2 · 4 · 6.3	24	15	175v2	9.5	9.5	13	13	40	40
25	2 · 4 · 6.3 · 10	24	15	350	23.5	23.5	40	40	40	40
32 to 50	6.3 · 10 · 16	31	15	120	2.5	2.5	17	17	27	27
32 to 50	6.3 · 10 · 16	31	15	175v2	5	5	7	7	24	24
32 to 50	6.3 · 10 · 16	31	15	350	13.5	13.5	40	40	40	40
40 and 50	25	38	15	120	–	–	10.5	10.5	17.5	17.5
40 and 50	25	38	15	175v2	3.1	3.1	4.5	4.5	15.5	15.5
40 and 50	25	38	15	350	8.5	8.5	36.5	36.5	40	40
50	40	48	15	120	–	–	6.5	6.5	10.5	10.5
50	40	48	15	175v2	–	–	2.5	2.5	9.5	9.5
50	40	48	15	350	5	5	22.5	22.5	35	35
50	40	48	15	355v2	(19.5)	(19.5)	(33.5)	(33.5)	(40)	(40)
50	40	48	15	700	(40)	(40)	–	–	–	–
50	40	48	15	750v2	(40)	(40)	–	–	–	–
65 and 80	25 and 40	48	15	350	5	5	22.5	22.5	35	35
65 and 80	25 and 40	48	15	355v2	(19.5)	(19.5)	(33.5)	(33.5)	(40)	(40)
65 and 80	25 and 40	48	15	700	(40)	(40)	–	–	–	–
65 and 80	25 and 40	48	15	750v2	(40)	(40)	–	–	–	–
65 and 80	60	63	15	350	2.7	2.7	12.5	12.5	20	20
65 and 80	60	63	15	355v2	(11)	(11)	(19)	(19)	(25.5)	(25.5)
65 and 80	60	63	15	700	(23)	(23)	(36)	(36)	(40)	(40)
65 and 80	60	63	15	750v2	(24.5)	(24.5)	(40)	(40)	(40)	(40)
80	80	75	15	350	–	–	8.5	8.5	14	14
80	80	75	15	355v2	(7.5)	(7.5)	(13)	(13)	(17.5)	(17.5)
80	80	75	15	700	(16)	(16)	(25.5)	(25.5)	(37.5)	(37.5)
80	80	75	15	750v2	(17)	(17)	(28)	(28)	(37)	(37)
100	100	80	30	355v2	1.4	1.4	7.8	7.8	11	11
100	160	100	30	355v2	–	–	4.9	4.9	6.9	6.9
125	140	90	30	355v2	1	1	6.1	6.1	8.6	8.6
125	200	110	30	355v2	–	–	3.9	3.9	5.6	5.6
150	200	110	30	355v2	–	–	3.9	3.9	5.6	5.6
150	300	130	30	355v2	–	–	2.7	2.7	3.9	3.9
150	200	110	30	700	3.9	3.9	16.5	16.5	25	25
150	300	130	30	700	2.3	2.3	10	10	16	16
125	140	90	30	700	3	3	13	13	20	20
125	200	110	30	700	–	–	8.5	8.5	13	13
150	200	110	30	700	–	–	8.5	8.5	13	13
150	300	130	30	700	–	–	6	6	9	9

				Actuator area [cm ²]	Bench range [bar]	Req. supply press. [bar]	Bench range [bar]	Req. supply press. [bar]	Bench range [bar]	Req. supply press. [bar]
				120	0.4 to 2.0	2.4	1.4 to 2.3	3.7	2.1 to 3.3	4.4
				175v2	0.4 to 2.0	2.4	0.5 to 2.5	3	1.3 to 2.9	4.2
				350	0.4 to 2.0	2.4	1.4 to 2.3	3.7	2.1 to 3.3	5.4
				355v2	0.4 to 2.0 (1.2 to 2.0)	2.4 (3.2)	1.4 to 2.6 (2.0 to 2.6)	4 (4.6)	1.9 to 3.3 (2.6 to 3.3)	5.2 (5.9)
				700	0.4 to 2.0 (1.2 to 2.0)	2.4 (3.2)	1.4 to 2.3 (1.85 to 2.3)	3.7 (4.15)	2.1 to 3.3 (2.7 to 3.3)	5.4 (6)
				750v2	0.4 to 2.0 (1.2 to 2.0)	2.4 (3.2)	1.4 to 2.4 (1.9 to 2.4)	3.8 (4.3)	1.9 to 3.1 (2.5 to 3.1)	5 (5.6)
DN	K _{VS}	Seat Ø [mm]	Rated travel [mm]	Actua- tor [cm ²]	Δp when p ₂ = 0 bar					
100	100	80	30	750v2	4.3	4.3	17.5	17.5	24.5	24.5
100	160	100	30	750v2	2.6	2.6	11	11	15.5	15.5
125	140	90	30	750v2	3.3	3.3	14	14	19	19
125	200	110	30	750v2	2.1	2.1	9	9	12.5	12.5
150	200	110	30	750v2	2.1	2.1	9	9	12.5	12.5
150	300	130	30	750v2	–	–	6.5	6.5	9	9

Diverting valve • ANSI version

Valves in NPS 2½ to 6

- Direction of flow AB → A with maximum C_v
- Direction of flow AB → B with reduced C_v

Table 6: Flow coefficients and permissible differential pressures Δp for Type 3244 (diverting valve) • Pressures in psi

					Actuator area [cm ²]	Bench range [psi]	Req. supply press. [psi]	Bench range [psi]	Req. supply press. [psi]	Bench range [psi]	Req. supply press. [psi]
					120	5 to 29	34	20 to 33	53	30 to 47	63
					175v2	5 to 29	34	7 to 36	43	18 to 42	60
					350	5 to 29	34	20 to 33	53	30 to 47	78
					355v2	5 to 29 (17 to 29)	34 (46)	20 to 37 (29 to 37)	58 (66)	27 to 47 (37 to 47)	75 (85)
					700	5 to 29 (17 to 29)	34 (46)	20 to 33 (26 to 33)	53 (60)	30 to 47 (39 to 47)	78 (87)
					750v2	5 to 29 (17 to 29)	34 (46)	20 to 34 (27 to 34)	55 (62)	27 to 44 (36 to 44)	72 (81)
NPS	DN	C_v	Seat Ø [inch (mm)]	Rated travel [inch (mm)]	Actuator [cm ²]	Δp when $p_2 = 0$ psi					
½	15	2.3 · 5	0.94 (24)	0.59 (15)	120	72	72	420	420	580	580
¾	20	2.3 · 5 · 7.5	0.94 (24)	0.59 (15)	175v2	137	137	188	188	580	580
1	25	2.3 · 5 · 7.5 · 12	0.94 (24)	0.59 (15)	350	340	340	580	580	580	580
1½ and 2	40 and 50	7.5 · 12 · 20	1.22 (31)	0.59 (15)	120	36	36	246	246	391	391
1½ and 2	40 and 50	7.5 · 12 · 20	1.22 (31)	0.59 (15)	175v2	72	72	101	101	348	348
1½ and 2	40 and 50	7.5 · 12 · 20	1.22 (31)	0.59 (15)	350	195	195	580	580	580	580
1½ and 2	40 and 50	30	1.49 (38)	0.59 (15)	120	–	–	152	152	253	253
1½ and 2	40 and 50	30	1.49 (38)	0.59 (15)	175v2	44	44	65	65	224	224
1½ and 2	40 and 50	30	1.49 (38)	0.59 (15)	350	123	123	529	529	580	580
2	50	47	1.89 (48)	0.59 (15)	120	–	–	94	94	152	152
2	50	47	1.89 (48)	0.59 (15)	175v2	–	–	36	36	137	137
2	50	47	1.89 (48)	0.59 (15)	350	72	72	326	326	507	507
2	50	47	1.89 (48)	0.59 (15)	355v2	(282)	(282)	(485)	(485)	(580)	(580)
2	50	47	1.89 (48)	0.59 (15)	700	(580)	(580)	–	–	–	–
2	50	47	1.89 (48)	0.59 (15)	750v2	(580)	(580)	–	–	–	–
2½ and 3	65 and 80	30 and 47	1.89 (48)	0.59 (15)	350	72	72	326	326	507	507
2½ and 3	65 and 80	30 and 47	1.89 (48)	0.59 (15)	355v2	(282)	(282)	(485)	(485)	(580)	(580)
2½ and 3	65 and 80	30 and 47	1.89 (48)	0.59 (15)	700	(580)	(580)	–	–	–	–

					Actuator area [cm ²]	Bench range [psi]	Req. supply press. [psi]	Bench range [psi]	Req. supply press. [psi]	Bench range [psi]	Req. supply press. [psi]
					120	5 to 29	34	20 to 33	53	30 to 47	63
					175v2	5 to 29	34	7 to 36	43	18 to 42	60
					350	5 to 29	34	20 to 33	53	30 to 47	78
					355v2	5 to 29 (17 to 29)	34 (46)	20 to 37 (29 to 37)	58 (66)	27 to 47 (37 to 47)	75 (85)
					700	5 to 29 (17 to 29)	34 (46)	20 to 33 (26 to 33)	53 (60)	30 to 47 (39 to 47)	78 (87)
					750v2	5 to 29 (17 to 29)	34 (46)	20 to 34 (27 to 34)	55 (62)	27 to 44 (36 to 44)	72 (81)
NPS	DN	C _v	Seat Ø [inch (mm)]	Rated travel [inch (mm)]	Actua- tor [cm ²]	Δp when p ₂ = 0 psi					
2½ and 3	65 and 80	30 and 47	1.89 (48)	0.59 (15)	750v2	(580)	(580)	-	-	-	-
2½	65	47/70	1.89/2.48 (48/63)	0.59 (15)	350	39	39	181	181	290	290
2½	65	47/70	1.89/2.48 (48/63)	0.59 (15)	355v2	(159)	(159)	(275)	(275)	(369)	(369)
2½	65	47/70	1.89/2.48 (48/63)	0.59 (15)	700	(333)	(333)	(522)	(522)	(580)	(580)
2½	65	47/70	1.89/2.48 (48/63)	0.59 (15)	750v2	(355)	(355)	(580)	(580)	(580)	(580)
3	80	70	2.48 (63)	0.59 (15)	350	39	39	181	181	290	290
3	80	70	2.48 (63)	0.59 (15)	355v2	(159)	(159)	(275)	(275)	(369)	(369)
3	80	70	2.48 (63)	0.59 (15)	700	(333)	(333)	(522)	(522)	(580)	(580)
3	80	70	2.48 (63)	0.59 (15)	750v2	(355)	(355)	(580)	(580)	(580)	(580)
3	80	95/70	2.95/2.48 (75/63)	0.59 (15)	350	-	-	123	123	203	203
3	80	95/70	2.95/2.48 (75/63)	0.59 (15)	355v2	(108)	(108)	(188)	(188)	(253)	(253)
3	80	95/70	2.95/2.48 (75/63)	0.59 (15)	700	(232)	(232)	(369)	(369)	(543)	(543)
3	80	95/70	2.95/2.48 (75/63)	0.59 (15)	750v2	(246)	(246)	(406)	(406)	(536)	(536)
4	100	120	3.15 (80)	1.18 (30)	355v2	20	20	113	113	159	159
4	100	190/120	3.93/3.15 (100/80)	1.18 (30)	355v2	-	-	71	71	100	100
6	150	230	4.33 (110)	1.18 (30)	355v2	-	-	56	56	81	81
6	150	350/230	5.12/4.33 (130/110)	1.18 (30)	355v2	-	-	39	39	56	56
4	100	120	3.15 (80)	1.18 (30)	700	56	56	239	239	362	362
4	100	190/120	3.93/3.15 (100/80)	1.18 (30)	700	33	33	145	145	232	232
6	150	230	4.33 (110)	1.18 (30)	700	-	-	123	123	188	188
6	150	350/230	5.12/4.33 (130/110)	1.18 (30)	700	-	-	87	87	130	130
4	100	120	3.15 (80)	1.18 (30)	750v2	62	62	253	253	355	355
4	100	190/120	3.93/3.15 (100/80)	1.18 (30)	750v2	37	37	159	159	224	224
6	150	230	4.33 (110)	1.18 (30)	750v2	30	30	130	130	181	181
6	150	350/230	5.12/4.33 (130/110)	1.18 (30)	750v2	-	-	94	94	130	130

Dimensions

Table 7: Dimensions for Type 3244 Valve · DIN version

Valve	DN	15	20	25	32	40	50	65	80	100	125	150
Length L	mm	130	150	160	180	200	230	290	310	350	400	480
H1	mm	235						270		360	375	
H2	mm	70	80	85	100	105	120	130	140	150	200	210

Table 8: Dimensions for Type 3244 Valve · ANSI version

Valve		NPS	½	¾	1	1½	2	2½	3	4	6
		DN	15	20	25	40	50	65	80	100	150
Length L	Class 150	mm	184	184	184	222	254	276	298	352	451
		in	7.25	7.25	7.25	8.75	10	10.88	11.75	13.88	17.75
	Class 300	mm	190	194	197	235	267	292	318	368	473
		in	7.5	7.62	7.75	9.25	10.5	11.5	12.5	14.5	18.62
H1		mm	235					270		360	375
		in	9.25					10.63		14.17	14.76
H2	Class 150	mm	92	92	92	111	127	138	149	176	225.5
		in	3.62	3.62	3.62	4.37	5	5.43	5.87	6.93	8.88
	Class 300	mm	95	97	98.5	117.5	133.5	146	159	184	236.5
		in	3.76	3.82	3.88	4.63	5.26	5.75	6.26	7.24	9.31

Table 9: Dimensions of versions with insulating section/bellows seal or long insulating section/bellows seal

Valve		DN	15	20	25	32	40	50	65	80	100	125	150
		NPS	½	¾	1	–	1½	2	2½	3	4	–	6
H4	With ins. section or bellows seal	mm	420						455		645	655	
		in	16.54						17.91		25.39	25.79	
	With long ins. section or bellows seal	mm	725						760		895	900	
		in	28.54						29.92		35.24	35.43	

Table 10: Further dimensions¹⁾ in combination with Type 3271 Pneumatic Actuator or Type 3277 Pneumatic Actuator

Actuator area		cm ²	120	175v2	350	350v2	355v2	750v2
Diaphragm ØD		in	6.61	8.46	11.02	11.02	11.02	15.51
Diaphragm ØD		mm	168	215	280	280	280	394
H ²⁾	Type 3271	in	2.71	3.07	3.23	3.62	5.16	9.29
H ²⁾	Type 3271	mm	69	78	82	92	131	236
H ²⁾	Type 3277	in	2.71	3.07	3.23	3.23	4.76	9.29
H ²⁾	Type 3277	mm	69	78	82	82	121	236
H3 ³⁾		in	4.33	4.33	4.33	4.33	4.33	7.48
H3 ³⁾		mm	110	110	110	110	110	190
H5	Type 3277	in	3.46	3.98	3.98	3.98	3.98	3.98
H5	Type 3277	mm	88	101	101	101	101	101
Thread	Type 3271		M30x1.5	M30x1.5	M30x1.5	M30x1.5	M30x1.5	M30x1.5
Thread	Type 3277		M30x1.5	M30x1.5	M30x1.5	M30x1.5	M30x1.5	M30x1.5

Actuator area		cm ²	120	175v2	350	350v2	355v2	750v2
a	Type 3271		G 1/8 (1/8 NPT)	G 1/4 (1/4 NPT)	G 3/8 (3/8 NPT)	G 3/8 (3/8 NPT)	G 3/8 (3/8 NPT)	G 3/8 (3/8 NPT)
a2	Type 3277		–	G 3/8 ⁴⁾	G 3/8 ⁴⁾	G 3/8 ⁴⁾	G 3/8 ⁴⁾	G 3/8 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 3/8 to 3/8 NPT is available for the a2 connection. It can be ordered separately using the following article number: 100160362

Dimensional drawings

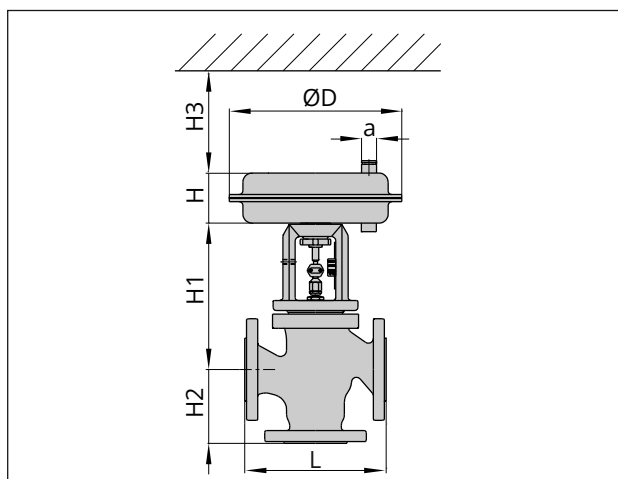


Fig. 5: Type 3244-1 (Type 3244 Valve with Type 3271 Pneumatic Actuator)

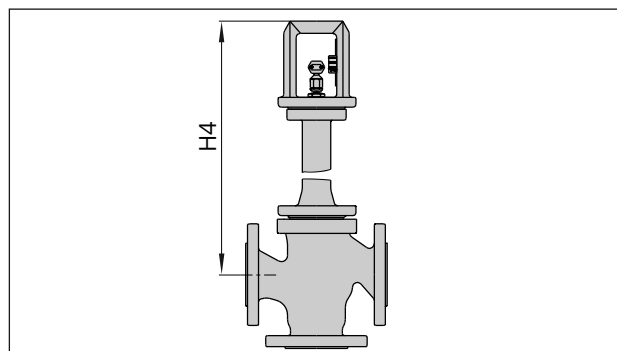


Fig. 7: Type 3244 Valve with insulating section/bellows seal

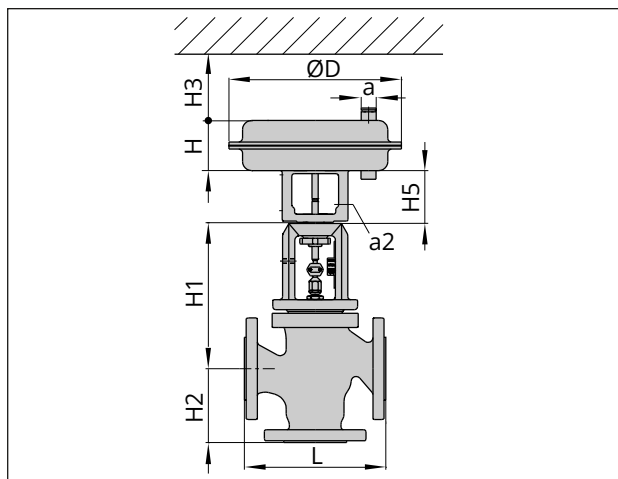


Fig. 6: Type 3244-7 (Type 3244 Valve with Type 3277 Pneumatic Actuator)

Table 11: Weights for Type 3244 Valve

Valve	DN	15	20	25	32	40	50	65	80	100	125	150
	NPS	1/2	3/4	1	–	1 1/2	2	2 1/2	3	4	–	6
Version with standard bonnet												
Weight ¹⁾ without actuator	kg	6	7	8	13	15	17	31	37	49	95	135
	lbs	13	15.5	17.5	28.7	33	37.5	68	82	108	210	298

Valve	DN	15	20	25	32	40	50	65	80	100	125	150
	NPS	½	¾	1	–	1½	2	2½	3	4	–	6
Version with insulating section or bellows seal												
Weight ¹⁾ without actuator	kg	9	10	11	19	21	23	40	45	68	120	165
	lbs	20	22	24	42	46.3	50.7	88	99	150	265	364
Version with long insulating section or bellows seal												
Weight ¹⁾ without actuator	kg	13	14	15	23	25	27	44	49	76	128	173
	lbs	28.7	30.9	33	50.7	55	59.5	97	108	168	282	382

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 12: *Weights¹⁾ for Type 3271 and Type 3277 Pneumatic Actuators*

Type ... Ac-tuator	Actuator area in cm ²		120	175v2	350	350v2	355v2	750v2
3271	Without handwheel	lbs	6	13	18	26	33	79
3271	Without handwheel	kg	2.5	6	8	11.5	15	36
3271	With handwheel	lbs	9	22	29	37	44	90
3271	With handwheel	kg	4	10	13	16.5	20	41
3277	Without handwheel	lbs	7	22	27	33	42	89
3277	Without handwheel	kg	3.2	10	12	15	19	40
3277	With handwheel	lbs	10	31	38	44	53	100
3277	With handwheel	kg	4.5	14	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.).

Ordering text

The following specifications are required on ordering:

Type 3244 Three-way Valve
Type 3244 Three- Mixing or diverting valve

Nominal size	DN .../NPS ...
Pressure rating	PN .../Class ...
Body material	See Table 2
Bonnet	Standard bonnet, insulating section or long insulating section, bellows seal or long bellows seal
Type of end connections	Flanges ...
Actuator	Type 3271 or Type 3277 (see Data Sheet ► T 8310-1)
Actuator area	... cm ²
Bench range	... bar or psi
Fail-safe action	Actuator stem extends or retracts
Process medium	Density in kg/m ³ or lb/cu.ft Temperature in °C or °F
Flow rate	in kg/h, lbs/h, m ³ /h or cu.ft/min 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 Sheets	► T 8000-X
Associated Data Sheet for pneumatic actuators	► T 8310-1
Associated Mounting and Operating Instructions	► EB 8026

