

Series 240

Pneumatic Control Valve Type 3241-1 and Type 3241-7 Globe Valve Type 3241

ANSI version

Application

Control valve for process engineering and industrial applications

Valve size $\frac{1}{2}$ " to 12"

Pressure rating ANSI Class 125 to 300

Temperatures -320 to 842 °F · -196 to 450 °C



Type 3241 Globe Valve with:

- Type 3271 Pneumatic Actuator (Type 3241-1 Control Valve)
- Type 3277 Pneumatic Actuator (Type 3241-7 Control Valve)

Valve body manufactured of:

- Cast iron
- Carbon steel, stainless or cold-resisting carbon steel
- Forged steel or forged stainless steel
- Special materials

Undivided valve bonnet in valve sizes up to 6"

Valve plug with:

- Metal sealing
- Soft sealing
- Lapped-in metal

The control valves are designed according to the modular assembly principle and can be equipped with various accessories: Positioners, limit switches, solenoid valves and other accessories according to IEC 60534-6 and NAMUR recommendation. See Information Sheet T 8350 EN for details.

Versions

Standard version for temperatures ranging from 15 to 430 °F (-10 to 220 °C)

- **Type 3241-1** (Figs. 1 and 3) · $\frac{1}{2}$ " to 12" with Type 3271 Actuator (see Data Sheet T 8310-1/-2 EN)
- **Type 3241-7** (Figs. 2 and 4) · $\frac{1}{2}$ " to 6" with Type 3277 Actuator for integral positioner attachment (see Data Sheet T 8310-1 EN)

Other versions with

- **NPT threaded connections** (Fig. 3) · $\frac{1}{2}$ " to 2", Class 250
- **Adjustable packing** · See Information Sheet T 8000-1 EN
- **Flow divider or AC-1/AC-2 Trim** for noise reduction · See Data Sheets T 8081 EN and T 8082 EN
- **Valve plug with pressure balancing** · See Technical data
- **Insulating section or bellows seal** · See Technical data
- **Heating jacket** · On request
- **Actuator made of stainless steel** · See T 8310-1 EN
- **Additional handwheel** · See T 8310-1/-2 EN

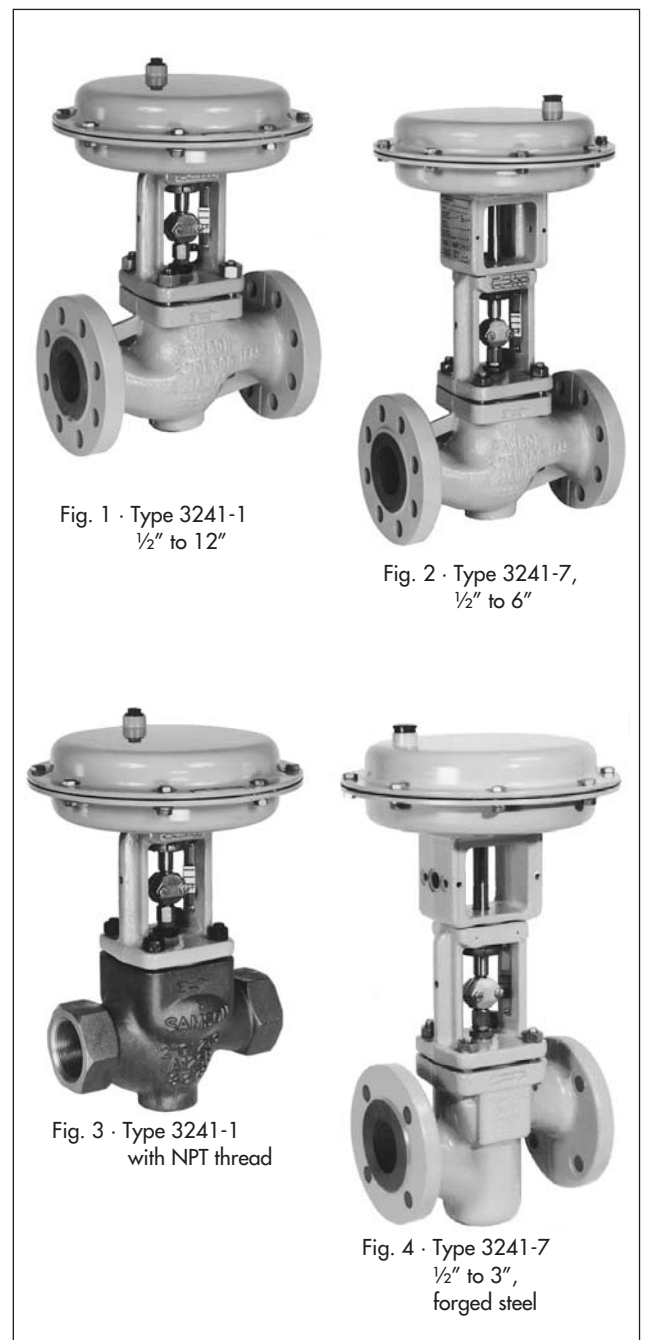


Fig. 1 · Type 3241-1
 $\frac{1}{2}$ " to 12"

Fig. 2 · Type 3241-7,
 $\frac{1}{2}$ " to 6"

Fig. 3 · Type 3241-1
with NPT thread

Fig. 4 · Type 3241-7
 $\frac{1}{2}$ " to 3",
forged steel

- **Typetested version** · For heating systems (see Data Sheet T 8016 EN), DIN/DVGW-tested version for gas (see Data Sheet T 8020 EN) or liquid fuels and liquefied petroleum gas in the liquid phase (see Data Sheet T 8022 EN)
- **DIN version** · See Data Sheet T 8015 EN
- **Versions with dimensions according to Japanese Industry Standard (JIS)** · Details on request

Principle of operation

The process medium flows through the valve in the direction indicated by the arrow. The position of the valve plug determines the cross-sectional area between the seat and plug.

Fail-safe positions

Depending on how the compression springs are arranged in the actuator (see Data Sheets T 8310-1 EN and T 8310-2 EN for details), the control valve has two different fail-safe positions which become effective upon supply air failure:

Actuator stem extends (FA)

The actuator springs close the valve when the supply air fails.

Actuator stem retracts (FE)

The actuator springs open the valve when the supply air fails.

Note

Figs. 5 to 8 show configuration examples.
Refer also to the notes on differential pressures.

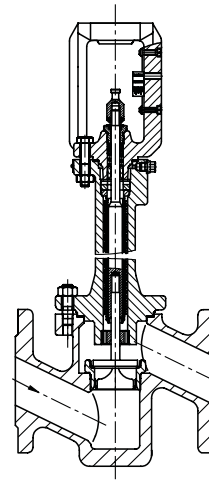


Fig. 6 · Type 3241 Valve, forged steel version, 1/2" to 3" with insulating section

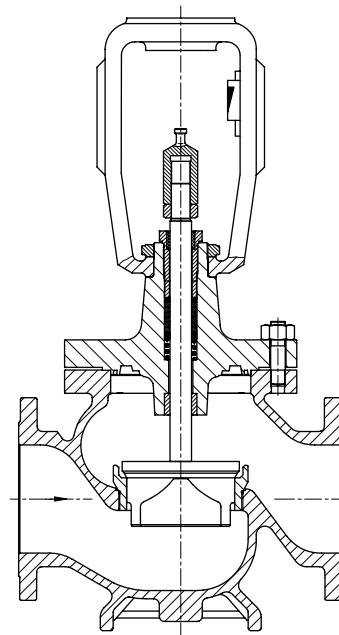


Fig. 7 · Type 3241 Valve, 8" to 12"

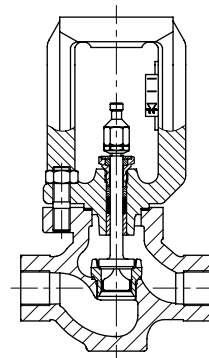


Fig. 8 · Type 3241 Valve, 1/2" to 2" with NPT thread

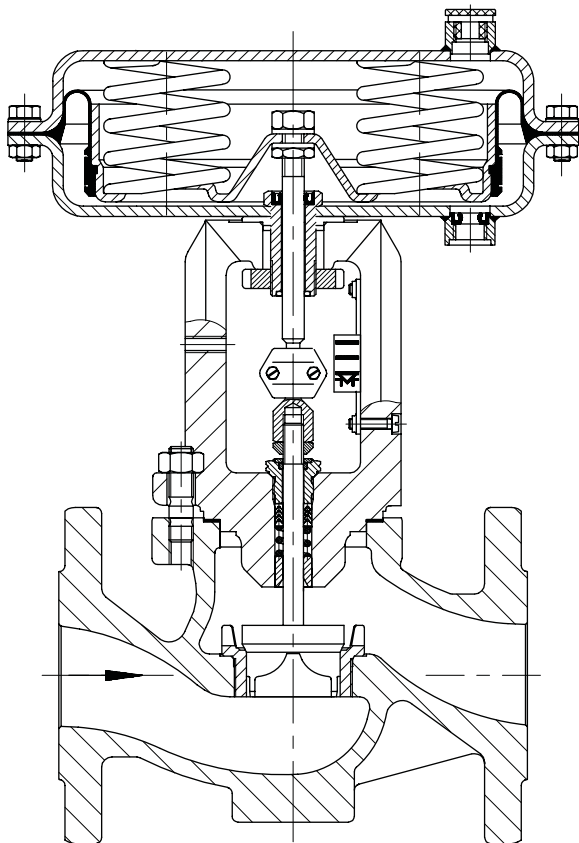


Fig. 5 · Type 3241-1 Control Valve 1/2" to 6" and Type 3271 Actuator

Table 1 · Technical data

Valve size	in	1" ... 6"	½" ... 2"	½" ... 12"	½, 1, 1½, 2, 3	½" ... 10"	½, 1, 1½, 2, 3
ASTM material		A 126 B		A 216 WCC	A 105	A 351 CF8M	A 182 F316
End connections		Flange	Thread	Flange		Flange	
Type of connection		FF	NPT	RF ¹⁾		RF ¹⁾	
Pressure rating ANSI Class		125	250	150/300	300	150/300	300
Seat-plug sealing		Metal sealing, soft sealing or lapped-in metal					
Characteristic		Equal percentage or linear					
Rangeability		50 : 1 for ½" ... 2" · 30 : 1 for 2½" ... 12"					
Temperature ranges in °C (°F) · Permissible operating pressures acc. to pressure-temperature diagrams (see Information Sheet T 8000-2 EN)							
Valve body without insulating section		-10 ... 220 °C (15 ... 430 °F)					
Body with	Insulating section	Short	-29 ... 230 °C (-20 ... 445 °F)	-29 ... 427 °C (-20 ... 800 °F)		-50 ... 450 °C (-58 ... 842 °F)	
		Long	-	-		-198 ... 450 °C (-325 ... 842 °F)	
	Bellows seal	Short	-29 ... 230 °C (-20 ... 445 °F)	-29 ... 427 °C (-20 ... 800 °F)		-50 ... 427 °C (-58 ... 800 °F)	
		Long	-	-		-198 ... 427 °C (-325 ... 800 °F)	
Valve plug	Standard	Metal sealing	-196 ... 450 °C (-325 ... 840 °F)				
		Soft sealing	-196 ... 220 °C (-325 ... 428 °F)				
	Balanced	with PTFE ring	-196 ... 220 °C (-325 ... 428 °F)				
		w. graphite ring ²⁾	+220 ... 450 °C (+430 ... 842 °F)				
Leakage class according to DIN EN 1349							
Valve plug	Standard	Metal sealing	IV				
		Soft sealing	VI				
		Lapped-in metal	IV-S2 · 4" and larger: IV-S1				
	Balanced	Metal sealing	With PTFE ring: IV · With graphite ring: III				

1) Other versions on request

2) Special version, details on request

Table 2 · Materials

Standard version					
Valve body ¹⁾	Cast iron A 126 B	Carbon steel A 216 WCC	Forged steel A 105	Carbon stainless steel A 351 CF8M	Forged stainless steel A 182 F316
Valve bonnet	A 126 or A 105	A 105		A 182 F 316	
Seat and plug ²⁾	1.4006			1.4571	
	Sealing ring for soft sealing: PTFE with glass fiber				
	Sealing ring for balanced plug: PTFE with carbon				
Guide bushing	1.4104			1.4571	
Packing ³⁾	V-ring packing PTFE with carbon · Spring 1.4310				
Body gasket	Metal and graphite				
Insulating section					
	A 105			A 182 F 316	
Metal bellows seal					
Intermediate piece	A 105			A 182 F 316	
Metal bellows	1.4571				
Heating jacket					
	On request				

1) See pressure-temperature diagram, other materials on request

2) All seats and plugs with metal sealing are also available with Stellite facing; for valve sizes ≤ 4", plugs in SB 48 and larger are also available made of solid Stellite

3) Other packings available on request

Table 3 · C_V and K_{Vs} coefficients

Table 3a · Overview (with flow divider St I (C_V I, K_{Vs} I) or St III (C_V III, K_{Vs} III))

C_V	0.12	0.2	0.3	0.5	0.75	1.2	2	3	5	7.5	12	20	30	47	70	75	95	120	190	290	300	420	735	1150	1730		
K_{Vs}	0.1	0.16	0.25	0.4	0.63	1.0	1.6	2.5	4.0	6.3	10	16	25	40	60	63	80	100	160	250	260	360	630	1000	1500		
C_V I				–			1.7	2.6	4.2	7	10.5	17	26	42	62	67	85	105	170	265	275	375	650	1040	1560		
K_{Vs} I				–			1.45	2.2	3.6	5.7	9	14.5	22	36	54	57	72	90	144	225	234	320	560	900	1350		
C_V III						–					9	–	23	35	–	55	–	90	140	220	–	315	560	880	1280		
K_{Vs} III						–					7.5	–	20	30	–	47	–	75	120	190	–	270	480	750	1100		
Seat	in	0.12		0.24		0.47		0.945		1.22	1.5	1.9	2.48		3.15		3.94	4.92	5.12	5.91	7.87	9.84	11.8				
Ø D	mm	3		6		12		24		31	38	48	63		80		100	125	130	150	200	250	300				
Travel	in	0.59														1.18	0.59	1.18	2.36	1.18	2.36	4.72					
	mm	15														30	15	30	60	30	60	120					

Table 3b · Versions without flow divider · Gray-shaded areas indicate versions also with pressure balancing

C_V	0.12	0.2	0.3	0.5	0.75	1.2	2	3	5	7.5	12	20	30	47	70	75	95	120	190	290	300	420	735	1150	1730
K_{Vs}	0.1	0.16	0.25	0.4	0.63	1.0	1.6	2.5	4.0	6.3	10	16	25	40	60	63	80	100	160	250	260	360	630	1000	1500
	in/mm																								
1/2"	15	•	•	•	•	•	•	•	•																
3/4"	20	•	•	•	•	•	•	•	•	•															
1"	25	•	•	•	•	•	•	•	•	•	•														
1 1/2"	40			•	•	•	•	•	•	•	•	•													
2"	50			•	•	•	•	•	•	•	•	•	•												
2 1/2"	65													•	•	•									
3"	80													•	•	•	•	•							
4"	100															•	•	•	•						
6"	150															•		•	•		•				
8"	200																	•	•		•	•	•		
10"	250																		•	•		•	•	•	•
12"	300																							•	•

Table 3c · Versions with flow divider St I (C_V I, K_{Vs} I) · Gray-shaded areas indicate versions also with pressure balancing

C_V I							1.7	2.6	4.2	7	10.5	17	26	42	62	67	85	105	170	265	275	375	650	1040	1560
K_{Vs} I							1.45	2.2	3.6	5.7	9	14.5	22	36	54	57	72	90	144	225	234	320	560	900	1350
	in/mm																								
1/2"	15						•	•	•																
3/4"	20						•	•	•																
1"	25						•	•	•																
1 1/2"	40									•	•	•	•												
2"	50									•	•	•	•	•											
2 1/2"	65													•	•	•									
3"	80													•	•	•	•	•							
4"	100															•	•	•	•						
6"	150															•		•	•		•				
8"	200																	•	•		•	•	•		
10"	250																		•	•		•	•	•	•
12"	300																							•	•

Table 3d · Versions with flow divider St III (C_V III, K_{Vs} III) · Gray-shaded areas indicate versions also with pressure balancing

C_V III							9	–	23	35	–	55	–	90	140	220	–	315	560	880	–				
K_{Vs} III							7.5	–	20	30	–	47	–	75	120	190	–	270	480	750	–				
	in/mm																								
1/2"	15																								
3/4"	20																								
1"	25																								
1 1/2"	40																								
2"	50									•															
2 1/2"	65													•	•										
3"	80													•	•										
4"	100															•									
6"	150															•		•	•						
8"	200															•		•	•		•	•	•		
10"	250																	•	•		•	•	•	•	•
12"	300																							•	•

Table 4 · Differential pressure tables · Unbalanced plug

Values specified in shaded columns apply to standard cases · Differential pressures specified in white columns apply to maximum pretensioned springs · Differential pressures in parentheses in the table refer to the values in parentheses in the bench range row · See notes concerning the differential pressure

Table 4a · Permissible differential pressures Δp · Pressures in bar

For valves with fail-safe position "Actuator stem extends" · Valve closed with signal pressure at 0 bar

Bench range (bar) for actuators (cm ²)	240		0.2...1.0	0.3...1.1	0.4...2.0 (1.2...2.0)	-	0.6...2.2	0.6...3.0 ¹⁾ (1.8...3.0)	0.9...3.3	-	-	-		
	120, 350, 700	-		0.4...1.2			0.8...2.4		1.2...3.6		1.4...2.3 (1.85...2.3)	2.1...3.3 (2.7...3.3)		
	1400	-	-	0.5...2.5	-	1.0...3.0	-	-						
	2800	-	0.8 ... 1.2	-	2.0 ... 3.0	1.6...2.4	2.4...3.6	-	-					
Required supply pressure (bar)			1.2	1.4	2.2	2.7	2.6	3.2	3.8	3.2	2.5	3.5		
Valve size in	Cv	Actuator cm ²	Δp when p ₂ = 0 bar											
1/2" to 1"	0.12 to 0.3	120	22	-	49	-	-	-	-	-	-	-		
		240	49	50	-	-	-	-	-	-	-	-		
1/2" to 2"	0.5 to 1.2	120	22	-	49	-	-	-	-	-	-	-		
		240	49	50	50	-	-	-	-	-	-	-		
	2 to 5	120	9	-	28	-	-	-	-	-	50	-		
		240	28	47	50	-	50	50	50	-	-	-		
350	45	50	50	-	50	50	-	-	50	-				
3/4" to 2"	7.5	120	-	-	5.5	-	-	-	-	-	30	46		
		240	5.2	9.3	14.8	-	24	24	39	-	-	-		
	12	350	10	24	24	-	38	38	50	-	50	50		
700		-	-	(50)	-	-	-	-	-	-	-			
1 1/2" and 2"	20	120	-	-	3	-	-	-	-	-	18	28		
		240	2.5	5.2	8.0	-	14	14	23	-	-	-		
		350	5.2	13.5	13.5	-	30	22	47	-	50	50		
		700	-	-	(50)	-	-	(50)	-	-	-	-		
1 1/2" to 3"	30	120	-	-	1.5	-	-	-	-	-	12	19		
		240	1.3	3.1	5.0	-	9.0	9.0	15	-	-	-		
		350	3.1	8.5	8.5	-	20	14	31	-	37	50		
		700	-	-	(50)	-	-	(50)	-	-	-	-		
2" to 3"	47	240	-	-	3.0	-	5.0	5.0	9.0	-	-	-		
		350	1.6	5.0	5.0	-	12	8.5	19	-	23	35		
		700	-	-	(40)	-	-	(50)	-	-	-	-		
2 1/2" and 3"	70	240	-	-	1.4	-	2.8	2.8	5.0	-	-	-		
		350	0.8	2.7	2.7	-	6.5	4.5	10.5	-	13	20		
		700	-	-	(23)	-	-	(35)	-	-	(36)	(50)		
3"	95	240	-	-	0.6	-	1.5	1.5	2.8	-	-	-		
		350	-	1.4	1.4	-	4.0	2.7	6.5	-	8	12		
		700	-	-	1.4	-	-	(21)	-	-	(22)	(33)		
4"	75	700	2.6	6.5	6.5	-	15	10.5	23	-	27	41		
4"	120	700	1.4	4.0	4.0	-	9.0	6.5	14	-	16.5	25		
4", 6"	190	700	0.7	2.3	2.3	-	5.5	4.0	8.5	-	10.5	15.5		
6"	300	700	0.3	1.2	1.2	-	3.0	2.2	6.0	-	6.0	9.5		
			1400	-	3.4	3.4	4.4	7.5	-	-	9.6	-	-	
		290	2800	-	15.8	-	40	32.4	-	48	-	-	-	
				1400	-	2.3	2.3	3.0	5.1	-	-	6.6	-	-
			420	2800	-	10.8	-	28.2	22.4	-	33.9	-	-	-
				1400	-	-	-	1.6	2.8	-	-	3.6	-	-
735	2800	-	6	-	15.8	12.5	-	19	-	-	-			
	1400	-	-	-	4.8	-	-	5.8	-	-	-			
10" 12"	1150	2800	-	-	-	-	-	-	4	-	-	-		
		2x2800	-	-	-	9.6	7.4	-	11.6	-	-	-		
12"	1730	2800	-	-	-	-	-	-	8	-	-	-		
		2x2800	-	-	-	6.6	5	-	8	-	-	-		

¹⁾ Not for actuators with 120 cm² effective area

Table 4b · Permissible differential pressures Δp · Pressures in psi

For valves with fail-safe position "Actuator stem extends" · Valve closed with signal pressure at 0 bar

Bench range (bar) for actuators (cm ²)		240	3...15	4...17	6...30 (18...30)	-	9...32	9...44 ¹⁾ (26...44)	13...48	-	-	
		120, 350, 700		6...18		-	12...35		-	20...34 (26...34)	30...48 (39...48)	
		1400	-	-	7...36	-	15...44	-				
		2800	-	12...18	-	30...44	23...35	-	34...52	-	-	
Required supply pressure (psi)		18	21	33	39	38	47	55	47	38	55	
Valve size in	Cv	Actuator cm ²	Δp when p ₂ = 0 psi									
½" to 1"	0.12 to 0.3	120	320	-	710	-	-	-	-	-	-	-
		240	710	725	-	-	-	-	-	-	-	-
½" to 2"	0.5 to 1.2	120	320	-	710	-	-	-	-	-	-	-
		240	725	725	725	-	-	-	-	-	-	-
	2	120	130	-	405	-	-	-	-	-	725	-
	3	240	406	680	725	-	725	725	725	-	-	-
¾" to 2"	7.5	120	-	-	80	-	-	-	-	-	435	665
		240	75	135	215	-	350	350	565	-	-	-
	12	350	145	350	350	-	550	550	725	-	725	725
		700	-	-	(725)	-	-	-	-	-	-	-
1½" and 2"	20	120	-	-	44	-	-	-	-	-	260	405
		240	36	75	115	-	200	200	335	-	-	-
		350	75	195	195	-	435	320	680	-	725	725
		700	-	-	(725)	-	-	(725)	-	-	-	-
1½" to 3"	30	120	-	-	22	-	-	-	-	-	175	275
		240	19	45	72	-	130	130	218	-	-	-
		350	45	125	125	-	290	200	450	-	535	725
		700	-	-	(725)	-	-	(725)	-	-	-	-
2" to 3"	47	240	-	-	43	-	72	72	130	-	-	-
		350	23	72	72	-	175	123	275	-	330	507
		700	-	-	(580)	-	-	(725)	-	-	-	-
2½" and 3"	70	240	-	-	20	-	40	40	72	-	-	-
		350	12	39	39	-	94	65	152	-	190	290
		700	-	-	(333)	-	-	(507)	-	-	(520)	(725)
3"	95	240	-	-	9	-	22	22	40	-	-	-
		350	-	20	20	-	58	39	94	-	115	174
		700	-	-	20	-	-	(305)	-	-	(320)	(475)
4"	75	700	38	94	94	-	217	152	333	-	390	595
4"	120	700	20	58	58	-	130	94	203	-	239	362
4", 6"	190	700	10	33	33	-	80	58	123	-	152	225
6"	300	700	4.4	17	17	-	43	32	85	-	85	135
8" and 10"	290	1400	-	49	49	64	110	-	-	139	-	-
		2800	-	230	-	580	470	-	695	-	-	-
	420	1400	-	33	33	43	74	-	-	95	-	-
		2800	-	157	-	410	325	-	490	-	-	-
	735	1400	-	-	-	23	41	-	-	52	-	-
		2800	-	87	-	229	181	-	276	-	-	-
10" 12"	1150	2800	-	-	-	70.5	-	-	85	-	-	-
		2x2800	-	-	-	141	108	-	170	-	-	-
12"	1730	2800	-	-	-	-	-	-	58	-	-	-
		2x2800	-	-	-	97	73	-	117	-	-	-

1) Not for actuators with 120 cm² effective area

Tables 4c and 4d · Permissible differential pressures Δp

For valves with fail-safe position "Actuator stem retracts" · Valve closed with signal pressure at 0 bar

Bench range (bar/psi) for actuators (cm ²)		Table 4c · Pressures in bar			Table 4d · Pressures in psi			
		120 ... 2800	0.2 ... 1.0		3 ... 15			
		1400	(0.4 ... 2.0)		(6 ... 30)			
		2800	(0.3 ... 1.1)		(4 ... 17)			
Required supply pressure (bar/psi)			1.2	2.4	4	18	36	58
Valve size in	C _v	Actuator cm ²	Δp when p ₂ = 0 bar			Δp when p ₂ = 0 psi		
½" to 1"	0.12 to 0.3	120	23	50	–	330	725	–
		240	49	–	–	710	–	–
½" to 2"	0.3 to 1.2	120	23	50	–	330	725	–
		240	49	50	–	710	725	–
	2 to 5	120	9	50	–	130	725	–
		240	28	50	–	410	725	–
¾" to 2"	7.5	120	0.6	31	50	10	450	725
		240	5.2	50	50	80	725	725
	12	350	10	50	50	145	725	725
		700	24	50	–	350	725	–
1½" and 2"	20	120	–	18	40	–	260	580
		240	2.5	37	50	35	540	725
		350	5.2	50	50	75	725	725
		700	13.5	50	–	200	725	–
1½" to 3"	30	120	–	11	28	–	160	410
		240	1.3	24	50	20	350	725
		350	3.1	37	50	45	540	725
		700	8.7	50	50	130	725	725
2" to 3"	47	240	0.5	15	34	10	220	490
		350	1.6	23	50	25	330	725
		700	5.0	46	50	75	665	725
2½" and 3"	70	240	–	8.5	20	–	120	290
		350	0.6	13	29	10	190	420
		700	2.7	27	50	40	390	725
3"	95	240	–	5.0	12	–	75	170
		350	0.2	7.8	18	5	110	260
		700	1.4	16	37	20	230	540
4"	75	700	2.6	27	50	40	390	725
4"	120	700	1.4	16	36	20	230	520
4" and 6"	190	700	0.7	10	23	10	145	330
6"	300	700	0.3	6.0	13.5	5	85	200
8" and 10"	290	1400	1.3	13.7	30.3	20	200	440
		2800	3.4	28.3	50	50	410	725
		1400	–	9.5	21.0	–	140	300
	420	2800	2.3	19.5	42	35	280	610
		1400	–	5.2	11.7	–	75	170
		2800	–	10.9	23.9	–	160	350
10" 12"	1150	2800	–	6.8	15	–	98	217
		2x2800	–	13.6	30	–	197	435
12"	1730	2800	–	4.7	10.4	–	26	150
		2x2800	–	9.4	20.8	–	136	301

Table 5 · Differential pressure tables · Valves with balanced plug with metal sealing and PTFE ring

Values specified in shaded columns apply to standard cases, i.e. operation at rated travel.

Differential pressures specified in white columns apply to maximum pretensioned springs.

Fail-safe position "Actuator stem extends" · Valve closed with a signal pressure at 0 bar

Fail-safe position "Actuator stem retracts" · Valve closed when the required supply pressure is applied

Tables 5a and 5b · Permissible differential pressures Δp · Pressures in bar

Table 5a · "Actuator stem extends"					Table 5b · "Actuator stem retracts"				
Bench range in bar			0.2...1.0	0.4...1.2	0.4...2.0	0.8...2.4	0.2...1.0	0.2...1.0	0.4...2.0
Required supply pressure in bar			1.2	1.4	2.2	2.6	1.2	2.0	3.0
Valve size in	C_v	Actuator cm^2	Δp when $p_2 = 0$ bar						
2½"	70	350	–	50	50	50	–	50	50
3"		700	50	50	–	–	50	–	–
3"	95	350	–	50	50	50	–	50	50
		700	50	50	–	–	50	–	–
4"	75	700	30	50	50	50	30	50	50
4" 6"	190	700	–	50	50	50	12	50	50
6"	300	700	–	50	50	50	–	50	50

Table 5c and 5d · Permissible differential pressures Δp · Pressures in psi

Table 5c · "Actuator stem extends"					Table 5d · "Actuator stem retracts"				
Bench range in psi			3...15	6...18	6...30	12...36	3...15	3...15	6...30
Required supply pressure in psi			18	21	33	39	18	18	33
Valve size in	C_v	Actuator cm^2	Δp when $p_2 = 0$ psi						
2½"	70	350	–	725	725	725	–	725	725
3"		700	725	725	–	–	725	–	–
3"	95	350	–	725	725	725	–	725	725
		700	725	725	–	–	725	–	–
4"	75	700	440	725	725	725	440	725	725
4" 6"	190	700	–	725	725	725	170	725	725
6"	300	700	–	725	725	725	–	725	725

Notes concerning the differential pressure tables

The differential pressure tables were prepared under the following conditions:

- The maximum permissible supply pressure is 4 bar (60 psi) for valves sizes ½" to 3" and actuators with an effective area of 700 cm^2 .
- Direction of flow: FTO
- Version with PTFE packing

- The leakage rates specified in Table 1 are not exceeded with the maximum differential pressures specified.
- The specified differential pressure can be limited by the values given in the pressure-temperature diagram.

The actuator sizing needs to be checked separately for versions with metal bellows seal and $p_2 \neq 0$ bar (0 psi).

Table 6 · Differential pressure tables · Valves with metal bellows and balanced plug with metal sealing and PTFE ring

Values specified in shaded columns apply to standard cases, i.e. operation at rated travel · Differential pressures specified in white columns apply to maximum pretensioned springs · Values in parentheses apply to 50 % travel

Fail-safe position "Actuator stem extends" · Valve closed with a signal pressure of 0 bar

Fail-safe position "Actuator stem retracts" · Valve closed when the required supply pressure is applied

Tables 6a and 6b · Permissible differential pressures Δp · Pressures in bar

Table 6a · "Actuator stem extends"							Table 6b · "Actuator stem retracts"				
Bench range in bar			0.2...1.0	0.4...1.2	0.4...2.0 (1.2...2)	0.8...2.4	0.6...3.0	1.2...3.6	0.2...1.0	0.4...2.0	0.6...3.0
Required supply pressure in bar			1.2	1.4	2.2	2.6	3.2	3.8	1.2	3.0	4.0
Valve size in	C _v	Actuator cm ²	Δp when p ₂ = 0 bar								
2½"	70	350	–	17	17	50	36	50	–	–	50
3"		700	17	50	(50)	–	–	–	17	50	–
3"	95	350	–	12	12	50	31	50	–	–	50
		700	12	50	(50)	–	–	–	12	50	–
4"	75	700	5.0	17	17	50	30	50	5.0	–	50
4" 6"	190	700	–	14	14	38	26	50	1.5	–	50
6"	300	700	–	11	11	35	23	50	–	–	50

Tables 6c and 6d · Permissible differential pressures Δp · Pressures in psi

Table 6c · "Actuator stem extends"							Table 6d · "Actuator stem retracts"				
Bench range in psi			3...15	6...18	6...30 (18...30)	12...36	9...44	18...52	3...15	6...30	9...44
Required supply pressure in psi			18	21	33	39	47	55	18	44	60
Valve size in	C _v	Actuator cm ²	Δp when p ₂ = 0 psi								
2½"	70	350	–	250	250	725	520	725	–	–	725
3"		700	250	725	(725)	–	–	–	250	725	–
3"	95	350	–	170	174	725	450	725	–	–	725
		700	170	725	(725)	–	–	–	170	725	–
4"	75	700	75	250	250	725	440	725	75	–	725
4" 6"	190	700	–	200	200	550	380	725	20	–	725
6"	300	700	–	160	160	510	330	725	–	–	725

Table 7 · Dimensions in mm for standard versions of Type 3241-1 and Type 3241-7

Valve		in	½"	¾"	1"	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	
		mm	15	20	25	40	50	65	80	100	150	200	250	300	
		NPT	½	¾	1	1½	2	-							
Length L	Class 125 and 150	in	7.25	7.25	7.25	8.75	10.0	10.87	11.75	13.87	17.75	21.38	26.49	28.97	
		mm	184	184	184	222	254	276	298	352	451	543	673	736	
	Class 300	in	7.50	7.62	7.75	9.25	10.50	11.50	12.50	14.50	18.62	22.36	27.87	30.51	
		mm	191	194	197	235	267	292	318	368	473	568	708	775	
Length L1	Class 250	in	6	6	6	8	9.25	-							
		mm	152.4	152.4	152.4	203.2	235	-							
H1 for actuators	≤ 700 cm ²	in	8.66				10.24		13.78	15.34	-				
		mm	220				260		350	390	-				
	1400 cm ²	in	-						16.34	17.9	31.7		-		
		mm	-						415	455	805		-		
	2800 cm ²	in	-						-			41.73		50.78	
		mm	-						-			1060		1290	
H2 (approx.)	in	1.77			2.84		3.86		4.64	6.89	9.25	10.24	18.89		
	mm	45			72		98		118	175	235	260	480		
H2 - Forged steel version (approx.)	in	2.1	-	2.75	3.6	3.85	-	5.05	-						
	mm	53	-	70	92	98	-	128	-						

Actuator	cm ²	120	240	350	700	1400	2800
	in ²	18.6	37.2	54.25	108.5	217	434
Diaphragm Ø D	in	6.6	9.45	11.02	15.35	20.87	30.31
	mm	168	240	280	390	530	770
H (700 cm ² and larger including lifting ring)	in	2.44	2.44	3.23	7.87	11.30	19.53
	mm	62	62	82	200	287	620
H3 (Type 3271 and Type 3277 Actuators) ¹⁾	in	4.33			7.48	24.02	25.51
	mm	110			190	610	648
Thread	M30 x 1.5					M60 x 1.5	M100 x 2
α (for Type 3271 Actuator)	G ¼ (¼ NPT)			G ⅜ (⅜ NPT)		G ¾ (¾ NPT)	G 1 (1 NPT)
α2 (for Type 3277 Actuator)	-			G ⅜ (⅜ NPT)		-	

¹⁾ Minimum clearance required to remove the actuator

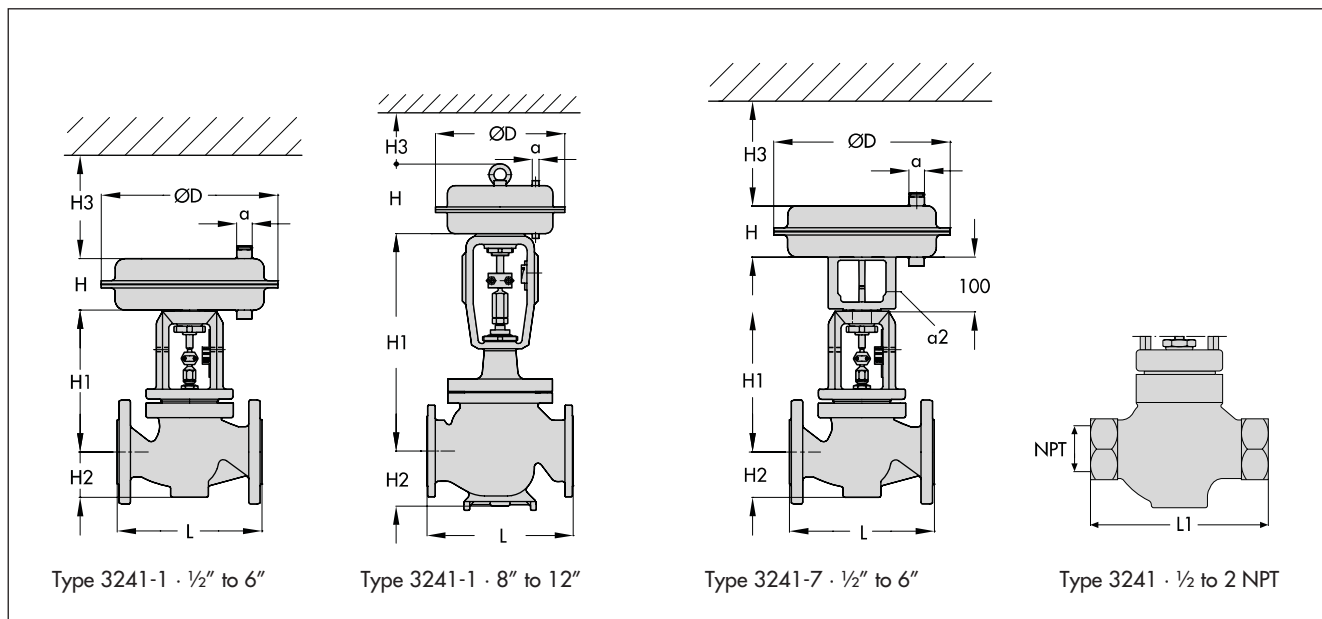


Table 8 · Weights for Type 3241-1 and Type 3241-7 Control Valves

Valve	in	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"
	mm	15	20	25	40	50	65	80	100	150	200	250	300
Weight without actuator	lbs	11	13	15	26	33	53	66	92	264	728	840	On request
	kg	5	6	7	12	15	24	30	42	120	330	380	

Actuator	cm ²	120	240	350	700	1400	2800
	in ²	18.6	37.2	54.25	108.5	217	434
Weight of Type 3271	lbs	6.6	11	18	48.5	154	772
	kg	3	5	8	22	70	450
Weight of Type 3277	lbs	7.7	20	26.5	57.5	-	
	kg	3.5	9	12	26	-	

Table 9 · Dimensions and weights for special versions with insulating section or bellows seal · Without actuator

Table 9a · Valve sizes 1/2" to 6" and NPT threads 1/2" to 2"

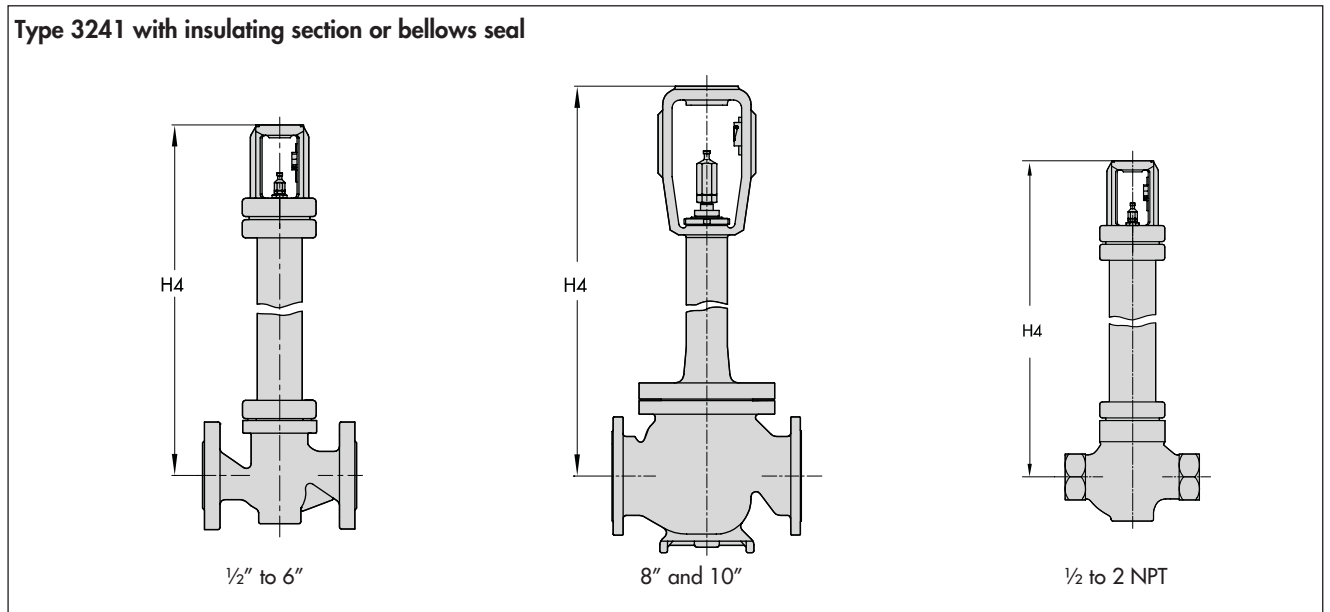
Valve	in	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	
	mm	15	20	25	40	50	65	80	100	150	
Height H4	Short ins. section/bellows	in	16.06			16.06		17.7		25	25.39
		mm	408			408		450		635	645
	Long ins. section/bellows	in	27.95			28.03		29.68		34.76	34.88
		mm	710			712		754		883	886
Weight (approx.)	lbs	18	20	22	40	46	71	84	132	330	
	kg	8	9	10	18	21	32	38	60	150	

Table 9b · Valve sizes 8" and 10"

Version with		Insulating section		Bellow seal	
Actuator	cm ²	1400	2800	1400	2800
	in ²	217	434	217	434
H4 for 8", 10"	in	49.21	52.56	57.21	60.63
	mm	1250	1335	1453	1540
Weight (approx. lbs) for	8"	840	885	860	905
	10"	950	995	970	1015
Weight (approx. kg) for	8"	380	400	390	410
	10"	430	450	440	460

Dimensions and weights for versions with heating jacket on request

Type 3241 with insulating section or bellows seal



Ordering text

Globe valve	Type 3241
Valve size	..."
Pressure rating	ANSI Class ...
Valve body material	According to Table 2
End connections	Flanges (RF or FF) or NPT thread
Seat and plug	Metal sealing/soft sealing/ lapped-in metal
Characteristic	Equal percentage or linear
Pneumatic actuator	Type 3271 or Type 3277
Fail-safe position	Valve CLOSED or OPEN
Process medium	Density and temperature
Maximum flow rate	in kg/h or m ³ /h
Pressure	p ₁ and p ₂ in bar or psi (absolute pressure)
Accessories	Positioner and/or limit switch

Specifications subject to change without notice.



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