

ANSI version

Application

Control valve for process engineering and plants with industrial requirements

Nominal sizes	1/2" to 10"
Nominal pressures	ANSI Class 125 to 300
Temperatures	-320 °F to +800 °F (-196 °C to +427 °C)
Standards	ANSI, ASME and ASTM

Conversion of valve sizing coefficients:

$$C_v \text{ (in US gallons/min)} = 1.17 \cdot K_{vs} \text{ (in m}^3\text{/h)}$$

$$K_{vs} \text{ (in m}^3\text{/h)} = 0.86 \cdot C_v \text{ (in US gallons/min)}$$



Type 241 Globe Valve with

- Type 3271 Pneumatic Actuator (Type 241-1 Control Valve)
- Type 3277 Pneumatic Actuator (Type 241-7 Control Valve) for integral positioner attachment

Valve body optionally made of

- Cast iron
- Carbon steel
- Stainless carbon steel according to ASTM specifications
- Forged steel or stainless forged steel
- Stainless carbon steel

Undivided valve bonnet up to nominal size 6"

Valve plug optionally with

- Metal sealing
- Soft sealing
- Lapped-in metal

Thanks to their modular design, the control valves can be equipped with different accessories:

Positioners, solenoid valves and other accessories according to (DIN) IEC 534-6 and NAMUR recommendation. Refer to Information Sheet T 8350 EN for details.

Versions

Standard version · For temperatures from 15 °F to 430 °F (-10 °C to +220 °C)

- **Type 241-1** (Fig. 1) · Nominal sizes 1/2" to 10" with Type 3271 Pneumatic Actuator (see Data Sheet T 8310 EN)
- **Type 241-7** (Figs. 2 and 4) · Nominal sizes 1/2" to 6", valve made of forged steel in size 3", with Type 3277 Pneumatic Actuator for integral positioner attachment (see T 8311 EN)

Additional versions with

- **NPT threaded connections** (Fig. 3) · 1/2" to 2", Class 250
- **Adjustable packing** · On request
- **Flow divider** for noise reduction · See T 8081 EN
- **Insulating section or bellows seal** · See "Technical data"
- **Heating jacket** · On request
- **Additional handwheel** · See Data Sheet T 8310 EN
- **Dimensions according to DIN** · See Data Sheet T 8015 EN
- **Dimensions acc. to Japanese standards (JIS)** · On request
- **Typetested version** · See Data Sheets T 8016 EN, T 8020 EN and T 8022 EN

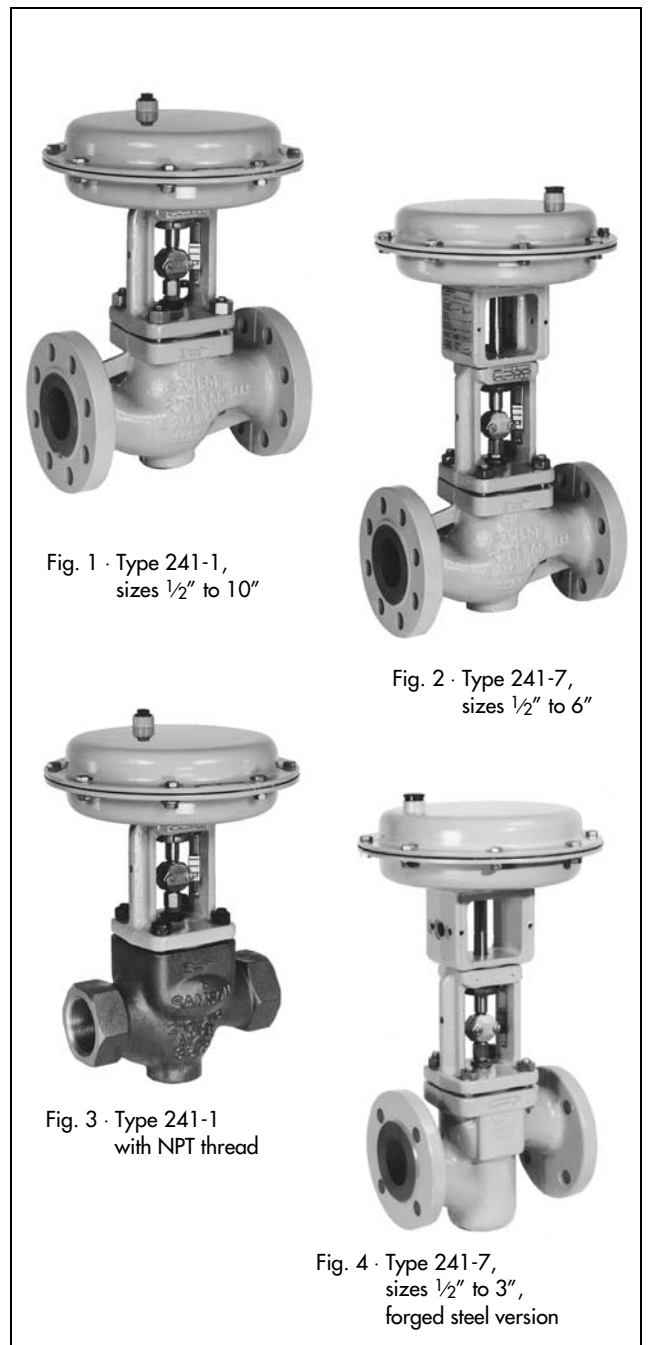


Fig. 1 · Type 241-1, sizes 1/2" to 10"

Fig. 2 · Type 241-7, sizes 1/2" to 6"

Fig. 3 · Type 241-1 with NPT thread

Fig. 4 · Type 241-7, sizes 1/2" to 3", forged steel version

Fail-safe action

Depending on the arrangement of the compression springs in the actuator (details in Data Sheets T 8310 EN and T 8311 EN), the control valve offers two fail-safe actions which become effective upon a supply air failure.

"Actuator stem extends" (fail-close)

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

"Actuator stem retracts" (fail-open)

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

Notes on the differential pressure tables 4a to 5d

The differential pressure tables were prepared under the following conditions:

- For valves in nominal sizes $\frac{1}{2}$ " to 3" and actuators with an effective area of 700 cm^2 , the max. permissible supply pressure is 4 bar.
- Process medium flow directed against the closing direction of the valve plug
- Version with PTFE stuffing box
- The leakage rates specified in Table 1 are not exceeded for the max. differential pressures listed.
- The specified differential pressure can be limited by the values given in the pressure-temperature diagram.

For versions with metal bellows seal and $p_2 \neq 0 \text{ psi}$, the sizing of the actuator needs to be checked separately.

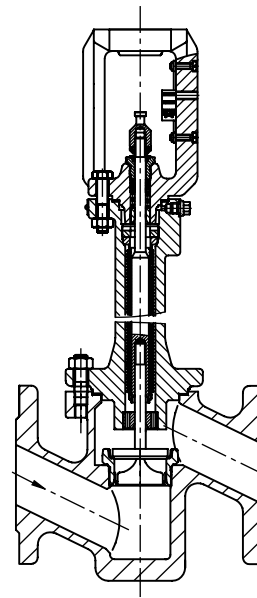
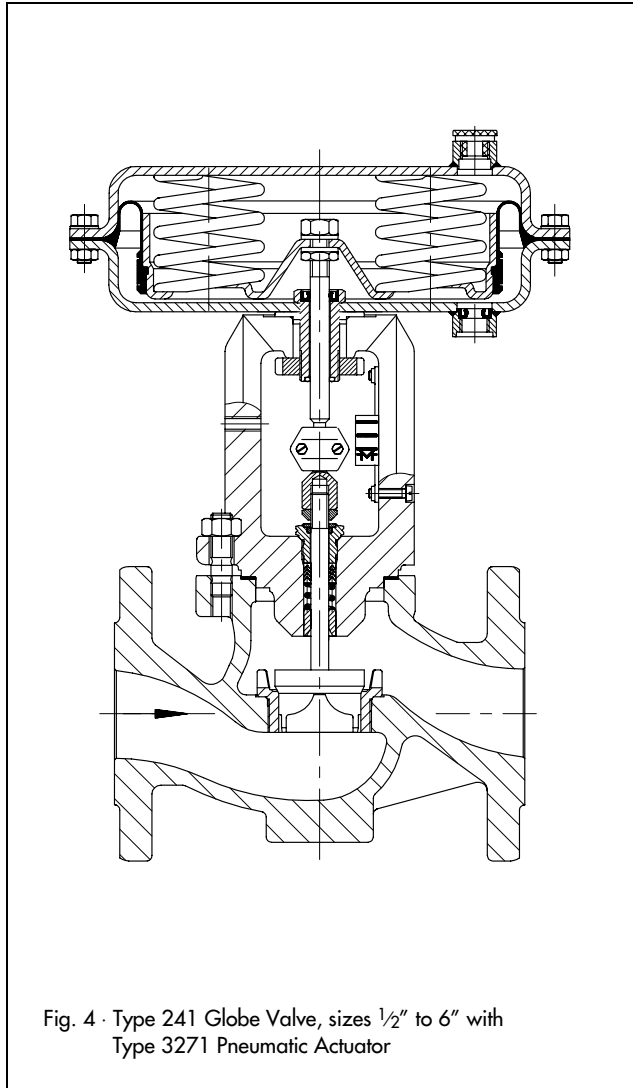


Fig. 5 · Type 241 Globe Valve, sizes $\frac{1}{2}$ " to 3"
Forged steel version with metal bellows seal

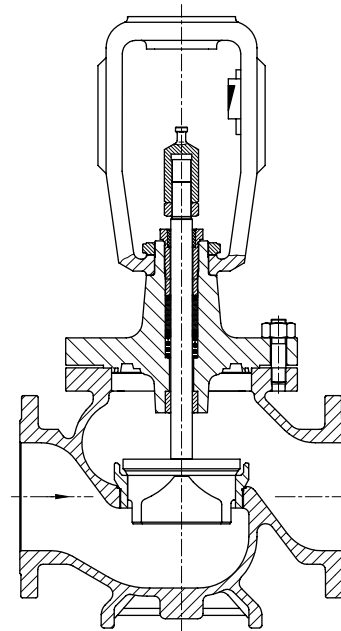


Fig. 6 · Type 241 Globe Valve, sizes 8" to 10"

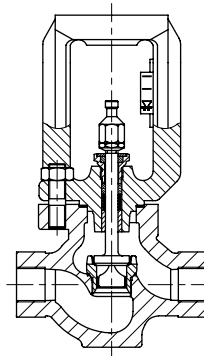


Fig. 7 · Type 241 Globe Valve, sizes $\frac{1}{2}$ " to 2" with NPT thread

Table 1 · Technical data

Nominal size	in	1" ... 6"	1/2" ... 2"	1/2" ... 10"	1/2, 1, 1 1/2, 2, 3	1/2" ... 10"	1/2, 1, 1 1/2, 2, 3
ASTM material		A 126 B		A 216 WCC	A 105	A 351 CF8M	A 182 F316
Type of connection		Flange	Thread	Flange		Flange	
Form of connection		FF	NPT	RF 1)		RF 1)	
Nominal pressure 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 1/2" ... 2" · 30:1 for 2 1/2" ... 10"					
Temperature ranges °C (°F) · Perm. operating pressures according to the pressure-temperature diagram (see Information Sheet T 8000-2 EN)							
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 ... 427 °C (-58 ... 800 °F)		
		Long	-	-	-198 ... 427 °C (-325 ... 800 °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)				
		With graph. ring ²⁾	+220 ... 450 °C (+430 ... 800 °F)				
Leakage class according to DIN EN 1349							
Valve plug	Standard	Metal sealing	IV				
		Soft sealing	VI				
		Lapped-in metal	IV-S2 · For 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 (WN = material number according to DIN)

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

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

2) All seats and plugs with metal sealing also available with stellite facing; for nominal sizes ≤ 4", plugs up to seat bore SB 48 are also available made of pure stellite.

3) Other packings available on request

Table 3 · C_v and K_{vs} values

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	40	70	75	95	120	190	290	300	420	735
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	35	60	63	80	100	160	250	260	360	630
C _v I	-						1.7	2.6	4.2	7	10.5	17	26	36	62	67	85	105	170	265	275	375	650
K _{vs} I	-						1.45	2.2	3.6	5.7	9	14.5	22	31	54	57	72	90	144	225	234	320	560
C _v III	-										9	-	23	30	-	55	-	140	220	-	315	-	
K _{vs} III	-										7.5	-	20	26	-	47	-	120	190	-	270	-	
Seat Ø D	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		
	mm	3		6		12		24		31	38	48	63		80		100	125	130	150	200		
Travel	in	0.59														1.18	0.59	1.18	2.36	1.18	2.36		
	mm	15														30	15	30	60	30	60		

Table 3b · Versions without flow divider · Versions in highlighted fields also available with balanced valve plugs

C _v	0.12	0.2	0.3	0.5	0.75	1.2	2	3	5	7.5	12	20	30	40	70	75	95	120	190	290	300	420	735	
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	35	60	63	80	100	160	250	260	360	630	
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																			•	•		•	•

Table 3c · Versions with Flow Divider St I (C_vI/K_{vs}I) · Versions in highlighted fields also available with balanced valve plugs

C _v I	-						1.7	2.6	4.2	7	10.5	17	26	36	62	67	85	105	170	265	275	375	650	
K _{vs} I	-						1.45	2.2	3.6	5.7	9	14.5	22	31	54	57	72	90	144	225	234	320	560	
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																			•	•		•	•

Table 3d · Versions with Flow Divider St III (C_vIII/K_{vs}III) · Versions in highlighted fields also available with balanced valve plugs

C _v III	-										9	-	23	30	-	55	-	-	140	220	-	315	-	
K _{vs} III	-										7.5	-	20	26	-	47	-	-	120	190	-	270	-	
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																			•	•		•	•

Terms for control valve sizing according to (DIN) IEC 534, Parts 2-1 and 2-2: F_L = 0,95, x_T = 0,75

Conversion of valve sizing coefficients: C_v (US gallons/min.) = 1.17 · K_{vs} (m³/h); K_{vs} (in m³/h) = 0.86 · C_v (in US gallons/min)

Table 4 · Differential pressure tables · Unbalanced valve plug

Values specified in the fields highlighted in gray correspond to the bench range, i.e. operation at rated travel · Differential pressures given in the white fields apply for maximally pretensioned springs · Values given in parenthesis apply for 50 % of travel

Observe the notes concerning the differential pressure tables in page 2.

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

For valve with fail-safe action "Actuator stem extends" · Valve closed at supply pressure 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
Size in	C _v	Actuator cm ²	Δp with 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	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"	40	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
8" and 10"	290	1400	-	3.4	3.4	4.4	7.5	-	-	9.6	-	-
		2800	-	15.8	-	40	32.4	-	48	-	-	-
	420	1400	-	2.3	2.3	3.0	5.1	-	-	6.6	-	-
		2800	-	10.8	-	28.2	22.4	-	33.9	-	-	-
	735	1400	-	-	-	1.6	2.8	-	-	3.6	-	-
		2800	-	6	-	15.8	12.5	-	19	-	-	-

1) Not for actuators with an effective area of 120 cm²

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

For valve with fail-safe action "Actuator stem extends" · Valve closed at supply pressure 0 psi

Bench range (psi) 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...40 (39...50)	
		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	
Size in	C _v	Actuator cm ²	Δp with p ₂ = 0 psi									
1/2" to 1"	0.12 to 0.3	120	320	-	710	-	-	-	-	-	-	-
		240	710	725	-	-	-	-	-	-	-	-
1/2" 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	-	-
5	350	650	725	725	-	725	725	-	-	725	-	
	7.5	120	-	-	80	-	-	-	-	-	435	665
12		240	75	135	215	-	350	350	565	-	-	-
	350	145	350	350	-	550	550	725	-	725	725	
700		-	-	(725)	-	-	-	-	-	-	-	
	1 1/2" and 2"	20	120	-	-	44	-	-	-	-	-	260
240			36	75	115	-	200	200	335	-	-	-
350			75	195	195	-	435	320	680	-	725	725
700			-	-	(725)	-	-	(725)	-	-	-	-
1 1/2" 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"	40	240	-	-	43	-	72	72	130	-	-	-
		350	23	72	72	-	175	123	275	-	330	507
		700	-	-	(580)	-	-	(725)	-	-	-	-
2 1/2" 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	339	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	-	-	-

 1) Not for actuators with an effective area of 120 cm² (18.6")

Tables 4c and 4d · Permissible differential pressures Δp

For valve with fail-safe action "Actuator stem retracts" · Valve closed at required differential pressure

Bench range (bar/psi) for actuator (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			
Size in	C _v	Actuator cm ²	Δp with p ₂ = 0 bar			Δp with p ₂ = 0 psi					
1/2" to 1"	0.12 to 0.3	120	23	50	–	330	725	–			
		240	49	–	–	710	–	–			
1/2" to 2"	0.3 to 1.2	120	23	50	–	330	725	–			
		240	49	50	–	710	725	–			
	2	120	9	50	–	130	725	–			
		240	28	50	–	410	725	–			
5	350	45	50	–	650	725	–				
	3/4" 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	–			
1 1/2" 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	–			
1 1/2" 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"	40	240	0.5	15	34	10	220	490			
		350	1.6	23	50	25	330	725			
		700	5.0	46	50	75	665	725			
2 1/2" 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			
	420	1400	–	9.5	21.0	–	140	300			
		2800	2.3	19.5	42	35	280	610			
	735	1400	–	5.2	11.7	–	75	170			
		2800	–	10.9	23.9	–	160	350			

Table 5 · Differential pressure tables · Balanced plugs with metal sealing and PTFE ring

Values specified in the fields highlighted in gray correspond to the bench range, i.e. operation at rated travel · Differential pressures given in the white fields apply for maximally pretensioned springs

Fail-safe action "Actuator stem extends" · Valve closed at supply pressure 0 bar (0 psi)

Fail-safe action "Actuator stem retracts" · Valve closed at required supply pressure

Tables 5a and 5b · Permissible differential pressures Δp · Pressures given 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
Size in	C_v	Actuator cm^2	Δp with $p_2 = 0$ 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

Tables 5c and 5d · Permissible differential pressures Δp · Pressures given 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
Size in	C_v	Actuator cm^2	Δp with $p_2 = 0$ 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

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

Values specified in the fields highlighted in gray correspond to the bench range, i.e. operation at rated travel · Differential pressures given in the white fields apply for maximally pretensioned springs · Values given in parenthesis apply for 50 % of travel

Fail-safe action "Actuator stem extends" · Valve closed at supply pressure 0 bar (0 psi)

Fail-safe action "Actuator stem retracts" · Valve closed at required supply pressure

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

Table 6a · "Actuator stem extends"							Table 6b · "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
Size in	C_v	Actuator cm^2	Δp with $p_2 = 0$ 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 given in psi

Table 6c · "Actuator stem extends"							Table 6d · "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
Size in	C_v	Actuator cm^2	Δp with $p_2 = 0$ 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 for standard version of Type 241-1 and Type 241-7

Valve		in	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"
		mm	15	20	25	40	50	65	80	100	150	200	250
		NPT	1/2	3/4	1	1 1/2	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
		mm	184	184	184	222	254	276	298	352	451	543	673
	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
		mm	191	194	197	235	267	292	318	368	473	568	708
Length L1	Class 250	in	6	6	6	8	9.25	-					
		mm	152.4	152.4	152.4	203.2	235	-					
H1 for actuator	≤ 700 cm ²	in	8.66					10.24	13.78	15.34	-		
		mm	220					260	350	390	-		
	1400 cm ²	in	-					-				31.7	
		mm	-					-				805	
	2800 cm ²	in	-					-				41.73	
		mm	-					-				1060	
H2 (approx.)	in	1,77			2.84		3.86		4.45	6.89	9.25	10.24	
	mm	45			72		98		113	175	235	260	
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 (for 700 cm ² and larger incl. lifting ring)	in	2.72	2.56	3.35	7.87	11.30	19.53
	mm	69	65	85	200	287	620
H3 (Type 3271 and Type 3277 Actuator) ¹⁾	in	4.33			7.48	24.02	25.51
	mm	110			190	610	648
Thread	M 30 x 1.5					M 60 x 1.5	M 100 x 2
α (for Type 3271 Actuator)	G 1/8 (1/8 NPT)	G 1/4 (1/4 NPT)		G 3/8 (3/8 NPT)		G 3/4 (3/4 NPT)	G 1 (1 NPT)
α2 (for Type 3277 Actuator)	-		G 3/8 (3/8 NPT)			-	

¹⁾ Minimum clearance required to disassemble the actuator

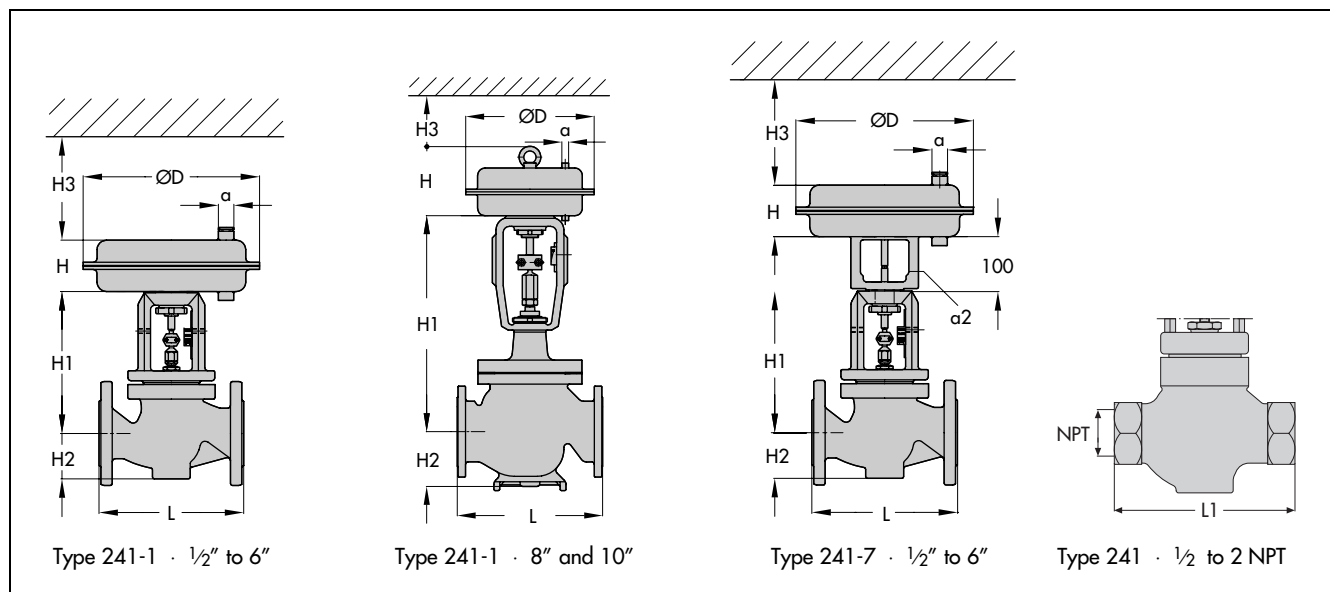


Table 8 · Weights for Type 241-1 and Type 241-7 Control Valves

Valve	in	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"
	mm	15	20	25	40	50	65	80	100	150	200	250
Weight without actuator	lbs	11	13	15	26	33	53	66	92	264	728	840
	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 Type 3271	lbs	6.6	11	18	48.5	154	772
	kg	3	5	8	22	70	450
Weight 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 metal bellows · (without actuator)

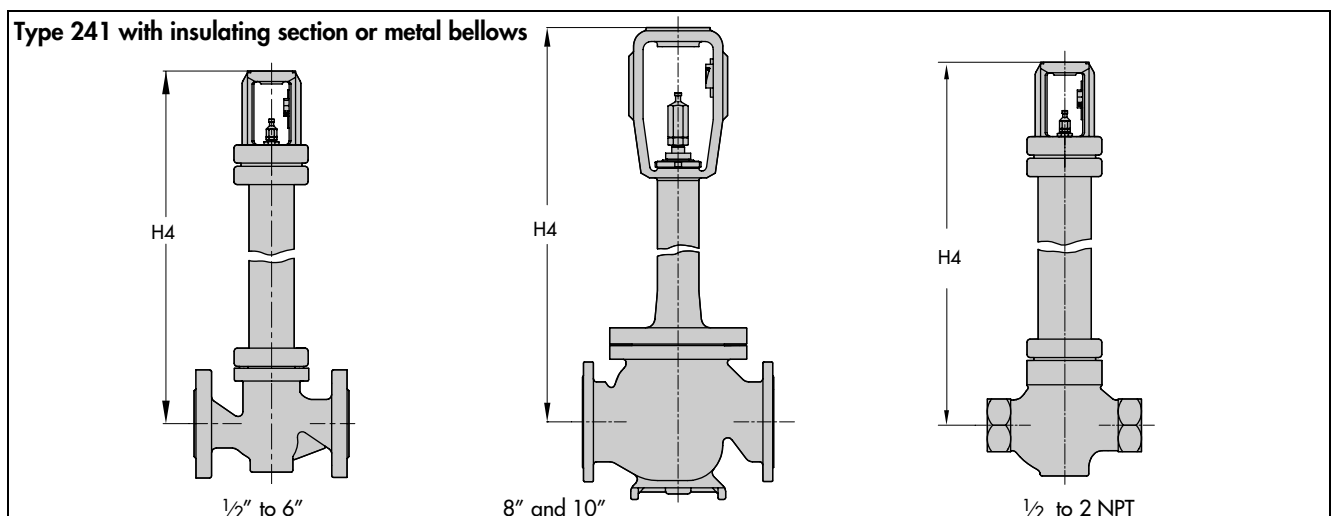
Table 9a · Nominal sizes 1/2" to 6" and NPT thread 1/2" to 2"

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 insul. sect./bellows	in	15.95			15.95		17.13		25	25.79
		mm	405			405		435		635	655
	Long insul. sect./bellows	in	27.95			27.56		29.13		34.45	38.78
		mm	710			700		740		875	985
Weight (approx.)	lbs	18	20	22	40	46	71	84	132	330	
	kg	8	9	10	18	21	32	38	60	150	

Table 9b · Nominal sizes 8" and 10"

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

Dimensions and weights for versions with heating jacket on request



Ordering text:

Nominal size	... "
Nominal pressure	ANSI Class ...
Body material	According to Table 2
Connection	Flanges (form FF or RF) or NPT thread
Plug	Standard, balanced, with metal sealing, soft sealing or lapped-in metal
Characteristic	Equal percentage or linear
Actuator	Type 3271 or Type 3277 as described in T 8310 EN or T 8311 EN
Fail-safe action	Valve CLOSED or valve OPEN
Process fluid	Density in lb/cu.ft or kg/m ³ and temperature in °F or °C
Flow rate	In lbs/h or kg/h or cu.ft/min or m ³ /h at standard or operating conditions
Pressure	p ₁ in bar (absolute pressure p _{abs}) p ₂ in bar (p _{abs}) at minimum, standard and maximum flow rate
Accessories	Positioner and/or limit switch

Specifications subject to change without notice.

