DATA SHEET

T 8012-2 EN

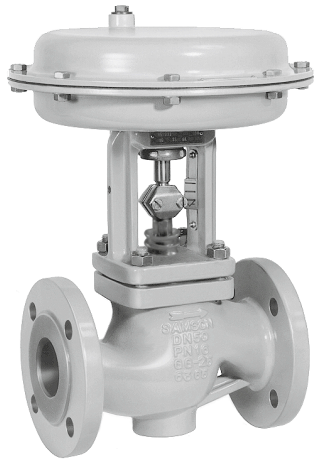
Series 240 · Type 3241-1 and Type 3241-7 Pneumatic Control Valves

Type 3241 Globe Valve · JIS version

Application

Control valve for process engineering and industrial applications

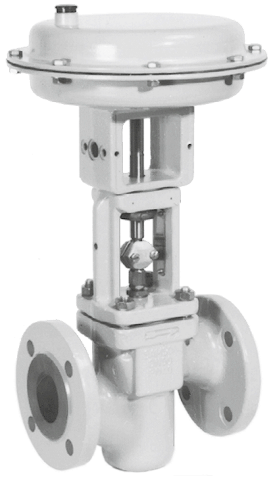
Nominal size	**DN 15A to 150A**
Pressure rating	**JIS 10K and 20K**
Temperatures	**-196 to +425 °C**



Type 3241-1
DN 15A to 150A



Type 3241-7
DN 15A to 150A



Type 3241-7 PSA
DN 15A to 150A
Forged steel

Special features

Type 3241 Globe Valve operated with

- Type 3271 Pneumatic Actuator (Type 3241-1 Control Valve)
- Type 3277 Pneumatic Actuator (Type 3241-7 Control Valve) for integral positioner attachment

Valve body made of

- Cast iron
- Cast steel
- Cast stainless steel
- Cold-resisting cast steel
- Forged steel
- Forged stainless steel
- Special materials

Undivided valve bonnet up to DN 150A

Valve plug

- Metal seal
- Soft seal
- High-performance metal seal

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.

SAMSON AKTIENGESELLSCHAFT
Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany
Phone: +49 69 4009-0 · samson@samsongroup.com · www.samsongroup.com

Edition July 2021

A safety manual containing the safety-related data is optionally available for use in safety-instrumented systems (SIL requirements).

Versions

Standard version for temperatures ranging from -10 to +220 °C

- **Type 3241-1** · DN 15A to 150A with Type 3271 Pneumatic Actuator (see Data Sheet ▶ T 8310-1)
- **Type 3241-7** · DN 15A to 150A with Type 3277 Pneumatic Actuator for integral positioner attachment (see Data Sheet ▶ T 8310-1)

Further versions

- **Adjustable packing** · See Information Sheet ▶ T 8000-6
- **Flow divider or AC-1 trim** for noise reduction · See Data Sheets ▶ T 8081 and ▶ T 8082
- **Valve plug with pressure balancing** · See Technical data
- **Version with insulating section or bellows seal** · See technical data
- **Heating jacket** · On request
- **Stainless steel actuator** · See Data Sheet ▶ T 8310-1
- **Additional handwheel** · See Data Sheet ▶ T 8310-1
- **Type 3241 PSA** · Version for pressure swing adsorption plants · See Data Sheets ▶ T 8015-1, ▶ T 8012-1
- **DIN version** · See Data Sheet ▶ T 8015
- **ANSI version** · See Data Sheet ▶ T 8012
- **Special version** in NPS ½B to 6B · On request
- Version with **Type 3271 Actuator with 1000 or 1400-60 cm² actuator area** (see Data Sheets ▶ T 8310-2 and ▶ T 8310-3) · On request

Design and principle of operation

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

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 (fail-close):**
  The valve is closed upon air supply failure.
- **Actuator stem retracts (fail-open):**
  The valve is opened upon air supply failure.

The following diagrams show configuration examples.

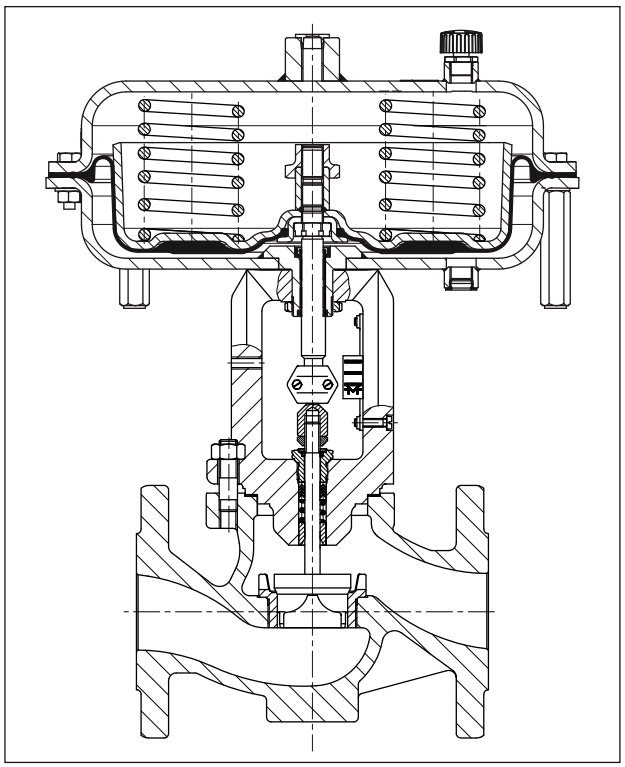


Fig. 1: *Type 3241-1 Control Valve · DN 15A to 150A*

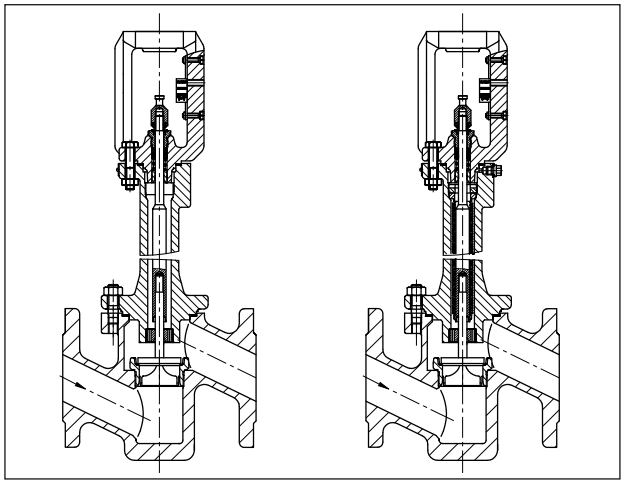


Fig. 2: *Type 3241 Valve · DN 15A to 80A · Forged steel version with insulating section (left) with bellows seal (right)*

Table 1: *Technical data for Type 3241*

Nominal size		**DN**	**15A to 150A**				**15A · 25A · 40A · 50A · 80A**[1]	
ASTM material			**Cast iron FC 250**	**Cast steel A216 WCC**	**Cast stainless steel A351 CF8M**	**Cast steel A352 LCC**	**Forged steel A105**	**Forged stainless steel A182 F316**
Pressure rating		JIS	10K	10K · 20K			20K	
Type of end connections		Flanges	FF	RF[2]			RF[2]	
Seat-plug seal			Metal seal · Soft seal · High-performance metal seal					
Characteristic			Equal percentage · Linear (according to Information Sheet ▶ T 8000-3)					
Rangeability			50:1 for DN 15A to 50A · 30:1 for DN 50A and larger					
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					
Temperature ranges in °C · Permissible operating pressures according to pressure-temperature diagram (see Information Sheet ▶ T 8000-2)								
Body with standard bonnet			-10 to +220					
Body with		Insulating section	-29 to +220	-29 to +425	-50 to +425	-29 to +425	-29 to +425	-50 to +425
		With long insulating section	–	–	-196 to +425	–	–	-196 to +425
		Bellows seal	-29 to +220	-29 to +425	-50 to +425	-29 to +425	-29 to +425	-50 to +425
		With long bellows seal	–	–	-196 to +425	–	–	-196 to +425
Valve plug	Standard	Metal seal	-196 to +425					
		Soft seal	-196 to +220					
	Balanced	With PTFE ring	-50 to +220 · Lower temperatures on request					
		With graphite ring	10 to 425					
Leakage class according to DIN EN 60534-4								
Valve plug	Standard	Metal seal	Standard: IV · High-performance metal seal: V					
		Soft seal	VI					
	Balanced	Metal seal	Standard: IV · With PTFE or graphite balancing ring Special version: V · High-performance metal seal (only with PTFE balancing ring) on request					

1) DN 80A only available in forged steel A105

2) Other versions on request

Table 2: *Materials*

Valve body[1]		**Cast iron FC 250**	**Cast steel A216 WCC**	**Cast stainless steel A351 CF8M**	**Cast steel A352 LCC**	**Forged steel A105**	**Forged stainless steel A182 F316**
Valve bonnet		A105/ FC 250	A105/ A216 WCC	A182 F316/ A351 CF8M/ A182 F316L	A350 LF2/ A352 LCC	A105	A182 F316/ A182 F316L
Seat[2]		Cr steel UNS S41000/1.4008		A182 F316L/ A351 CF3M	Cr steel UNS S41000/ 1.4008	Cr steel UNS S41000/1.4008	A182 F316L/ A351 CF3M
Plug[2]		Cr steel UNS S41000 (A182 F316L)/ 1.4008		A182 F316L/ A351 CF3M	Cr steel UNS S41000/ 1.4008	Cr steel UNS S41000 (A182 F316L)/ 1.4008	A182 F316L/ A351 CF3M
Plug seal		Seal ring for soft-seated plug: PTFE with glass fiber					
		Seal ring for balanced plug: PTFE with carbon or graphite ring				–	
Guide bushing		A582 430F		316L/ A182 F316L	316L/ A182 F316L	A582 430F	316L/ A182 F316L
Packing[3]		V-ring packing with carbon · Spring: A479 302					
Body gasket		Graphite on metal core					
Insulating section		A105		A182 F316/ A182 F316L	A350 LF2	A105	A182 F316/ A182 F316L
Bellows seal	Intermediate piece	A105		A182 F316/ A182 F316L	A350 LF2	A105	A182 F316/ A182 F316L
	Metal bellows	1.4571[4]				1.4571	
Heating jacket		–	A182 F316L				

1) Special materials for applications with seawater: N 08904, duplex A995 4A; nickel-based alloy: A494 LW-21M; other special materials on request

2) All seats and metal-seated plug also with Stellite® facing; for nominal sizes ≤DN 100A, 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

C_V and K_{VS} coefficients

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

Conversion of flow coefficients: C_V (US gallons/min) = 1.17 · K_{VS} (m^3/h) or K_{VS}/C_V = 0.865

Table 3: *Versions with flow divider ST 1 (C_V-1, K_{VS}-1), ST 2 (C_V-2, K_{VS}-2) or ST 3 (C_V-3, K_{VS}-3)*

C_V		**0.12**	**0.2**	**0.3**	**0.5**	**0.75**	**1.2**	**2**	**3**	**5**	**7.5**	**12**	**20**	**30**	**47**	**70**	**95**	**75**	**120**	**190**	**300**
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**	**80**	**63**	**100**	**160**	**260**
C_V-1		–	–	–	–	–	–	1.7	2.6	4.2	7	10.5	17	26	42	62	85	67	105	170	275
K_{VS}-1		–	–	–	–	–	–	1.45	2.2	3.6	5.7	9	14.5	22	36	54	72	57	90	144	234
C_V-2		–	–	–	–	–	–	–	–	–	–	9.5	15	23	37	56	–	60	95	145	245
K_{VS}-2		–	–	–	–	–	–	–	–	–	–	8	13	20	32	48	–	50	80	125	210
C_V-3		–	–	–	–	–	–	–	–	–	–	9	14	23	35	–	–	55	90	140	–
K_{VS}-3		–	–	–	–	–	–	–	–	–	–	7.5	12	20	30	–	–	47	75	120	–
Seat Ø	mm	3			6			12			24		31	38	48	63	80	63	80	100	130
Travel	mm	15																30			

Table 4: *Versions without flow divider*

C_V	**0.12**	**0.2**	**0.3**	**0.5**	**0.75**	**1.2**	**2**	**3**	**5**	**7.5**	**12**	**20**	**30**	**47**	**70**	**95**	**75**	**120**	**190**	**300**
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**	**80**	**63**	**100**	**160**	**260**
DN																				
15A	•	•	•	•	•	•	•	•	•											
20A	•	•	•	•	•	•	•	•	•	•										
25A	•	•	•	•	•	•	•	•	•	•	•									
40A				•	•	•	•	•	•	•	•	•	•							
50A				•	•	•	•	•	•	•	•	•	•	•						
65A													•	•	•					
80A													•	•	•	•[2]		•[1]		
100A																	•	•[2]	•[2]	
150A																	•	•[2]	•[2]	•[2]

[1] With 19 mm overtravel (not for version with bellows seal)

[2] Versions also with pressure balancing

Table 5: *Versions with flow divider ST 1 (C_V-1, K_{VS}-1)*

C_V-1	–						1.7	2.6	4.2	7	10.5	17	26	42	62	85	67	105	170	275
K_{VS}-1	–						1.45	2.2	3.6	5.7	9	14.5	22	36	54	72	57	90	144	234
DN																				
15A							•	•	•											
20A							•	•	•											
25A							•	•	•											
40A										•	•	•	•							
50A										•	•	•	•	•						
65A													•	•	•					
80A													•	•	•	•[1]				
100A																	•	•[1]	•[1]	
150A																	•	•[1]	•[1]	•[1]

[1] Versions also with pressure balancing

Table 6: *Versions with flow divider ST 2 (C_V-2, K_{VS}-2)*

C_V-2	–										9.5	15	23	37	56	–	60	95	145	245
K_{VS}-2	–										8	13	20	32	48	–	50	80	125	210
DN																				
15A																				
20A																				
25A																				
40A											•	•	•							
50A											•	•	•	•						
65A													•	•	•					
80A													•	•	•					
100A																	•	•[1]	•	
150A																	•	•[1]	•[1]	•

[1] Versions also with pressure balancing

Table 7: *Versions with flow divider ST 3 (C_V-3, K_{VS}-3)*

C_V-3	–										9	14	23	35	–	–	55	90	140	–
K_{VS}-3	–										7.5	12	20	30	–	–	47	75	120	–
DN																				
15A																				
20A																				
25A																				
40A																				
50A											•[1]									
65A												•	•	•						
80A												•	•	•						
100A																	•			
150A																	•	•[2]	•[2]	

[1] Not versions with bellows seal or insulating section

[2] Versions also with pressure balancing

Differential pressures: Permissible differential pressures are listed in Information Sheet ▶ T 8000-4.

Dimensions and weights

The tables below provide an overview of the dimensions and weights of the standard version of Type 3241 Valve.

Dimensions in mm · Weights in kg

Table 8: *Dimensions for Type 3241 Valve*

Valve		DN	15A	20A	25A	40A	50A	65A	80A	100A	150A
Length L	10K	mm	184	184	184	222	254	276	298	352	451
	20K	mm	190	194	197	235	267	292	318	368	473
H1 (actuator with ... cm²)	≤750v2	mm	222	222	222	223	223	262	262	354	390
H2[1] for	Cast steel	mm	44[2]	44[2]	44[2]	72[2]	72[2]	98	98[2]	118	175
	Forged steel	mm	53	–	70	94	100	–	132	–	

1) The H2 dimension is the distance from the middle of the flow channel to the bottom of the valve body.

2) The H2 dimension in this valve is not the lowest point of the valve. This valve's lowest point is the bottom of the connecting flanges. The flange dimensions comply with the corresponding flange standard.

Table 9: *Dimensions for Type 3241 Valve with insulating section or bellows seal*

Nominal size		DN	15A	20A	25A	40A	50A	65A	80A	100A	150A
		Insulating section or bellows seal									
H4 (actuator with ... cm²)	≤750	Short	409			410		451		636	672
		Long	713			714		755		877	913

Table 10: *Further dimensions[1] in combination with Type 3271 Pneumatic Actuator or Type 3277 Pneumatic Actuator*

Actuator area		cm²	120	175v2	350	350v2	355v2	750v2
Diaphragm ØD		mm	168	215	280	280	280	394
H[2]	Type 3271	mm	69	78	82	92	131	236
H[2]	Type 3277	mm	69	78	82	82	121	236
H3[3]		mm	110	110	110	110	110	190
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
a	Type 3271		G ⅛ (⅛ NPT)	G ¼ (¼ NPT)	G ⅜ (⅜ NPT)	G ⅜ (⅜ NPT)	G ⅜ (⅜ NPT)	G ⅜ (⅜ NPT)
a2	Type 3277		–	G ⅜[4]	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

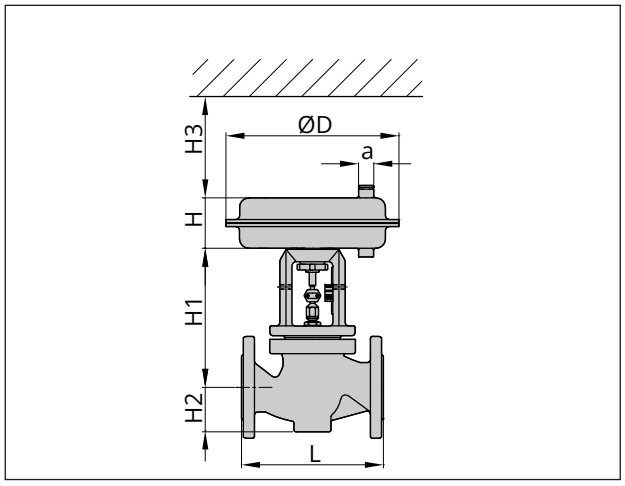


Fig. 3: *Type 3241-1 (Type 3271 Pneumatic Actuator) up to nominal size DN 150/NPS 6/DN 150A*

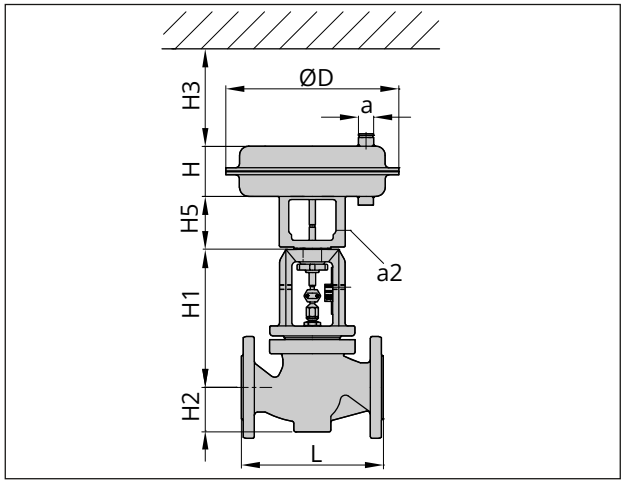


Fig. 4: *Type 3241-7 (Type 3277 Pneumatic Actuator) up to nominal size DN 150/NPS 6/DN 150A*

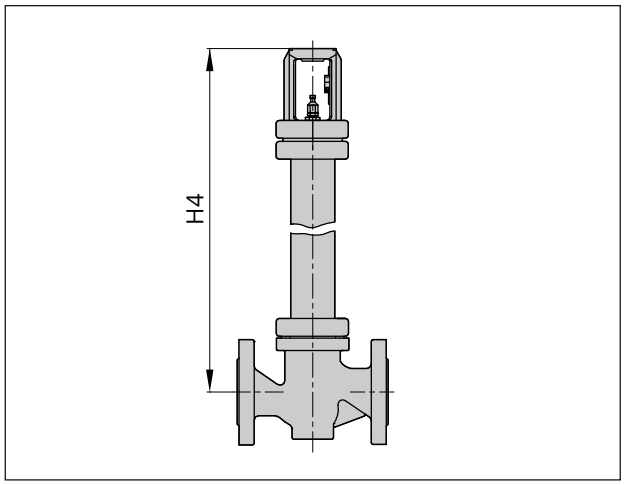


Fig. 5: *Type 3241 with insulating section or bellows seal, up to nominal size DN 150/NPS 6/DN 150A*

Table 11: *Weights for Type 3241 Valve*

Valve	DN	15A	20A	25A	40A	50A	65A	80A	100A	150A
Version with standard bonnet										
Weight[1] without actuator		7	8	9	16	20	32	37	62	130
Version with insulating section or bellows seal										
Weight[1] without actuator	Insulating section/bellows seal									
	Short	10	11	12	22	26	40	45	80	160
	Long	14	15	16	26	30	44	49	88	168

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

Type ... Actuator	Actuator area in cm²		120	175v2	350	350v2	355v2	750v2
3271	Without handwheel	kg	2.5	6	8	11.5	15	36
3271	With handwheel	kg	4	10	13	16.5	20	41
3277	Without handwheel	kg	3.2	10	12	15	19	40
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

Globe valve	Type 3241
Nominal size	DN ...A
Pressure rating	JIS ...K
Body material	See Table 2
Type of end connections	Flanges
Seat-plug seal	Soft seal, metal seal or high-performance metal seal
Characteristic	Equal percentage or linear
Pneumatic actuator	Type 3271 or Type 3277
Fail-safe action	Fail-close or fail-open
Process medium	Density in kg/m³ and temperature in °C
Flow rate	in kg/h or m³/h in standard or operating state
Pressure	p_1 and p_2 in bar (absolute pressure p_{abs}), with minimum, normal and maximum flow rate
RFID tag	Yes/No
Valve accessories	Positioner/limit switch

Associated Information Sheets	▶ T 8000-X
Associated Data Sheets for Types 3271/3277 Pneumatic Actuators	▶ T 8310-1
Associated Mounting and Operating Instructions	▶ EB 8012

2026-08-27 | English | 4000300951 | 1.5