DATA SHEET

T 8046-1 EN

Type 3246 Globe Valve

Type 3246-1 and Type 3246-7 Pneumatic Control Valves

With long insulating section and circulation inhibitor
Class 150 and 300/PN 16 and 40

Application

Globe valve for cryogenic applications

Nominal size	**NPS ½ to 12**	**DN 15 to 300**
Pressure rating	**Class 150 and 300**	**PN 16 and 40**
Temperatures	**-325 to +149 °F**	**-196 to +65 °C**



Fig. 1: *Type 3246-7 with circulation inhibitor, welding ends, long insulating section and cover plate with collar*

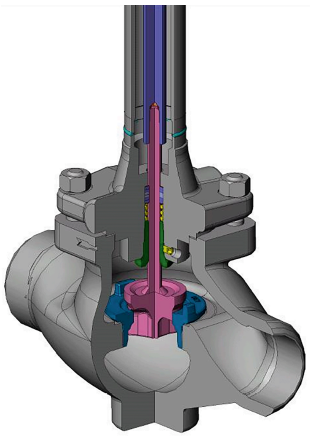


Fig. 2: *Type 3246 Valve with circulation inhibitor*

Special features

Type 3246 Globe Valve with:

- Type 3271 Pneumatic Actuator (Type 3246-1 Control Valve)
- Type 3277 Pneumatic Actuator (Type 3246-7 Control Valve) for integral positioner attachment

Valve body made of

- Cast stainless steel

Low-noise valve plug

- Metal 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.

Versions

Standard version with single PTFE packing, long insulating section and circulation inhibitor · Nomi-

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nal size NPS ½ to 12 (DN 15 to 300) · Class 150 and 300 (PN 16 and 40) · Flanges or welding ends

- **Type 3246-1** · With Type 3271 Pneumatic Actuator with 120 to 2800 cm² actuator area (see Data Sheets ▶ T 8310-1, ▶ T 8310-2 and ▶ T 8310-3)
- **Type 3246-7** · With Type 3277 Pneumatic Actuator with 120 to 750v2 cm² actuator area for integral positioner attachment (see Data Sheet ▶ T 8310-1)

Further versions

- **Type 3246-1 or Type 3246-7 Globe Valve** · With long insulating section and circulation inhibitor, NPS ½ to 8 (DN 15 to 200), Class 600 and 900 (PN 100 and 160) · See Data Sheet ▶ T 8046-2
- **Type 3246-1 or Type 3246-7 Three-way Valve** · With long insulating section and circulation inhibitor, NPS ½ to 6 (DN 15 to 150), Class 150 and 300 (PN 16 and 40) · See Data Sheet ▶ T 8046-3
- **Perforated plug** · See Data Sheet ▶ T 8086
- Version for **soft seal** (on request)

Principle of operation

The medium flows in the flow-to-open direction through the valve. The valve plug determines the cross-sectional area of flow. The circulation inhibitor at the bottom minimizes the effects of the medium flow in the insulating section.

Fail-safe positions

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

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

Differential pressures

See Information Sheet ▶ T 8000-4 for permissible differential pressures.

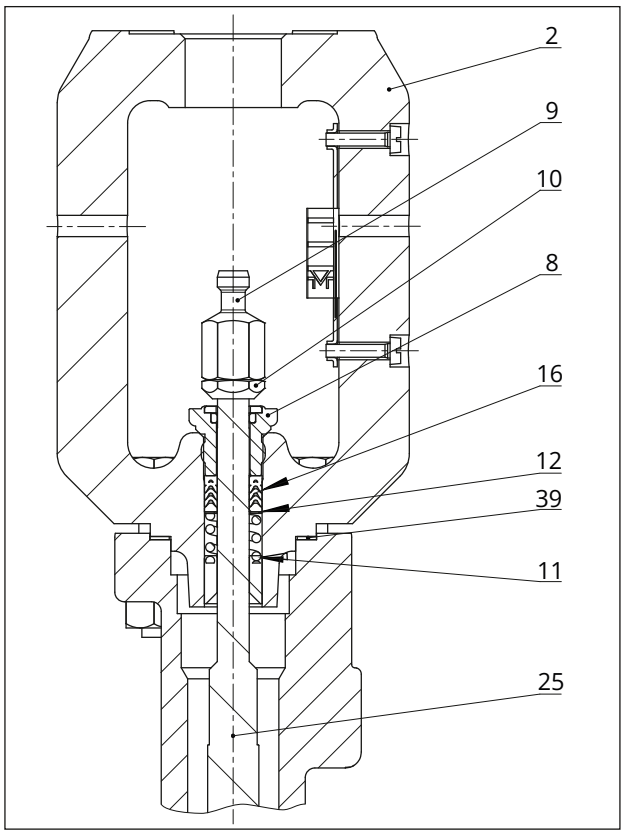


Fig. 3: *Intermediate piece*

2	Intermediate piece	12	Washer
8	Threaded bushing	16	Packing
9	Stem connector nut	25	Plug stem extension
10	Lock nut	39	Seal for intermediate piece
11	Spring		

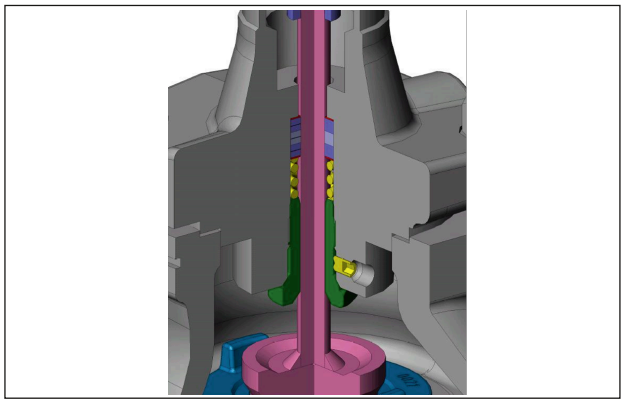


Fig. 4: *Circulation inhibitor and set screw*

Table 1: *Technical data for Type 3246 Globe Valve with long insulating section and circulation inhibitor · Pressure rating Class 150 or 300/PN 16 or 40*

Material		**Cast stainless steel A351 CF8/1.4308**
Nominal size		NPS ½ to 12 · DN 15 to 300
Pressure rating		Class 150 or 300 · PN 16 or 40
Type of end connections	ANSI	Flanges with raised face · Welding ends
	DIN	Flanges form B1 · Welding ends
Seat-plug seal		Metal seal · High-performance metal seal · Stellite®
Characteristic		Equal percentage · Linear · On/off
Rangeability		50:1 · 30:1 for NPS 3 (DN 80) 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 The permissible range for temperatures at the RFID tag is between -40 and +85 °C (-40 and +185 °F).
Conformity		CE
Temperature ranges in °C (°F) · Permissible operating pressures according to pressure-temperature diagrams (see Information Sheet ▶ T 8000-2)		
Valve with PTFE packing		-196 to +65 °C (-325 to +149 °F)
Leakage class according to ANSI FCI 70-2 or DIN EN 60534-4		
Valve plug	Metal seal	IV
	High-performance metal seal	V

Table 2: *Materials for Type 3246 Globe Valve with long insulating section and circulation inhibitor · Pressure rating Class 150 or 300/PN 16 or 40*

Standard version Body and flanges		**Cast stainless steel A351 CF8/1.4308**
Seat and plug[1)]	Metal seal	CrNiMo steel
Guide bushings		CrNiMo steel
Packing	Self-adjusting	V-ring packing: PTFE with carbon, spring: 1.4310
Circulation inhibitor	NPS ½ to 6 (DN 15 to 150)	PTFE with silk cord, spring-loaded, bushing 2.4360 (Monel®)
	NPS 8 to 12 (DN 200 to 300)	PTFE with silk cord, spring-loaded, bushing 2.0402 (CuZn40Pb2)
Body gasket		Graphite on metal core
Insulating section		A182 F316/1.4401 A182 F316L/1.4404

1) Seats and metal-seated plug also with Stellite® facing or plug made of solid Stellite® available.

C_V and K_{VS} coefficients for Type 3246 Globe Valve with pressure rating Class 150 or 300/PN 16 or 40

Table 3: *Overview*

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	300	420	735	1150	1730
K_{VS}		0.1	0.16	0.25	0.4	0.63	1	1.6	2.5	4	6.3	10	16	25	40	60	63	80	100	160	260	360	630	1000	1500
Seat Ø	in	0.12			0.24			0.47			0.945		1.22	1.5	1.9	2.48		3.15		3.94	5.12	5.91	7.87	9.84	11.8
	mm	3			6			12			24		31	38	48	63		80		100	130	150	200	250	300
Travel	in	0.59															1.18	0.59	1.18			2.36		4.72	
	mm	15															30	15	30			60		120	

Table 4: *Nominal sizes and associated C_V/K_{VS} coefficients*

	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	300	420	735	1150	1730
	K_{VS}	0.1	0.16	0.25	0.4	0.63	1	1.6	2.5	4	6.3	10	16	25	40	60	63	80	100	160	260	360	630	1000	1500
NPS	DN																								
½	15	•	•	•	•	•	•	•	•	•															
¾	20	•	•	•	•	•	•	•	•	•	•														
1	25	•	•	•	•	•	•	•	•	•	•	•													
1½	40				•	•	•	•	•	•	•	•	•	•											
2	50				•	•	•	•	•	•	•	•	•	•	•										
3	80													•	•	•		•							
4	100																•		•	•					
6	150																•		•	•	•				
8	200																					•	•		
10	250																					•	•	•	
12	300																					•	•	•	•

Dimensions

Table 5: *Dimensions in inches and mm for Type 3246 Globe Valve with long insulating section and circulation inhibitor · Pressure rating Class 150 or 300/PN 16 or 40*

Valve		NPS	½	¾	1	1½	2	3	4	6	8	10	12
		DN	15	20	25	40	50	80	100	150	200	250	300
Length L	Class 150 and 300 PN 16 and 40	in	8	8.25	8.25	9.88	11.25	13.25	15.5	20	24	29.62	32.35
		mm	203	206	210	251	286	337	394	508	610	752	822
H4		in	24.02					27.01		32.99			
		mm	610					686		838			
H5		in	28.66					31.1	33.27	38.9	43.86	43.86	
		mm	728					790	845	988	1091	1141	
H8 for actuator	≤750v2 cm²	in	6.3						9.06		–		
		mm	160						230		–		
	1000 cm² 1400-60 cm²	in	–							11.02	15.55 (SB ≤200[1])		
		mm	–							280	395 (SB ≤200[1])		
	1400-120 cm² SB ≤200[1]	in	–								19.8		
		mm	–								503		
	1400-120 cm² SB ≤250[1]	in	–									25.59	
		mm	–									650	
	2800 cm² SB ≤200[1]	in	–								19.8		
		mm	–								503		
	2800 cm² Seat bore 250[1]	in	–									25.59	
		mm	–									650	

Valve		NPS	½	¾	1	1½	2	3	4	6	8	10	12
		DN	15	20	25	40	50	80	100	150	200	250	300
Cover plate	Ød	in	5.98					7.99		10			
		mm	152					203		254			
	h	in	1.57										
		mm	40										

1) SB = Seat bore

Table 6: *Further dimensions[1] in combination with Type 3271 Pneumatic Actuator or Type 3277 Pneumatic Actuator*

Actuator area		cm²	120	175v2	350	350v2	355v2	750v2	1000	1400-60	1400-120	2800
Diaphragm ØD		in	6.61	8.46	11.02	11.02	11.02	15.51	18.19	20.87	21.02	30.32
Diaphragm ØD		mm	168	215	280	280	280	394	462	530	534	770
H[2]	Type 3271	in	2.71	3.07	3.23	3.62	5.16	9.29	15.87	13.27	23.54	28.07
H[2]	Type 3271	mm	69	78	82	92	131	236	403	337	598	713
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	24.02	24.02	25.59	25.59
H3[3]		mm	110	110	110	110	110	190	610	610	650	650
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	M60x1.5	M60x1.5	M100x2	M100x2
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)	G ¾ (¾ NPT)	G ¾ (¾ NPT)	G 1 (1 NPT)	G 1 (1 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

Weights

Table 7: *Weights in lbs and kg for Type 3246 Globe Valve with long insulating section and circulation inhibitor · Pressure rating Class 150 or 300/PN 16 or 40*

Valve	NPS	½	¾	1	1½	2	3	4	6	8	10	12
	DN	15	20	25	40	50	80	100	150	200	250	300
Weight[1], approx.	lbs	31			38	49	84	175	410	948	1202	1929
	kg	14			17	22	38	79	186	430	545	875

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

Type ... Actuator	Actuator area in cm²		120	175v2	350	350v2	355v2	750v2	1000	1400-60	1400-120	2800
3271	Without handwheel	lbs	6	13	18	26	33	79	176	154	386	992
3271	Without handwheel	kg	2.5	6	8	11.5	15	36	80	70	175	450
3271	With handwheel	lbs	9	22	29	37	44	90	397	386	661[2]/ 937[3]	1268[2]/ 1544[3]
3271	With handwheel	kg	4	10	13	16.5	20	41	180	175	300[2]/ 425[3]	575[2]/ 700[3]
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.).

2) Side-mounted handwheel up to 80 mm travel

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

Dimensional drawing

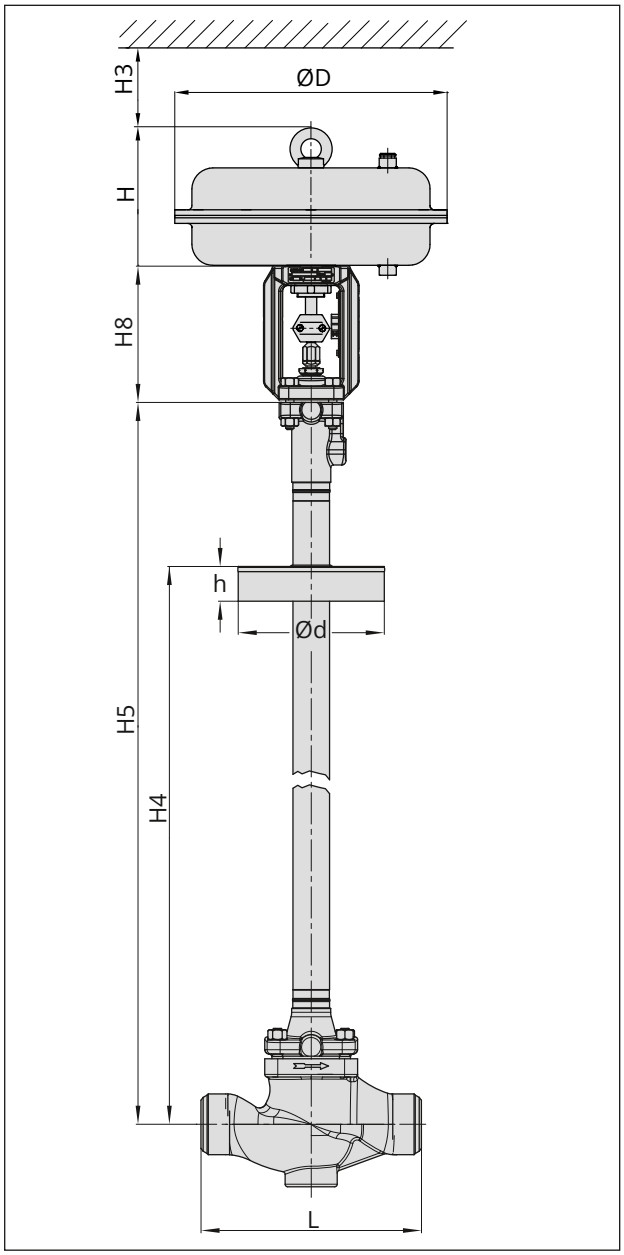


Fig. 5: *Type 3246-1 · Version with welding ends*

Valve/actuator assignment

Table 9: *Type 3246 Globe Valve with circulation inhibitor · Pressure rating Class 150 or 300/PN 16 or 40*

Nominal valve size	Stem diameter	Actuator area
NPS ½ to 3 DN 15 to 80	0.39 inch 10 mm	120 to 750v2 cm²
NPS 4 to 6 DN 100 to 150	0.63 inch 16 mm	350 to 1400-60 cm²
NPS 8 to 12 DN 200 to 300	1.58 inch 40 mm	1000 to 2800 cm²

Selection and sizing of the valve

1. Calculate C_V or K_{VS} coefficient according to DIN EN 60534-1.
2. Select nominal size NPS or DN and C_V or K_{VS} coefficient from Table 3 and Table 4.
3. Determine the permissible differential pressure Δp from the pressure-temperature diagrams in Information Sheet ▶ T 8000-4.
4. Select the trim material from Table 2
5. Select the type of end connection, seat/plug seal and characteristic from Table 1

Ordering text

The following specifications are required on ordering:

Type 3246 Valve	Globe valve
Nominal size	DN … NPS …
Pressure rating	PN … Class …
Characteristic	Equal percentage, linear or on/off
Type of end connections	Flanges or welding ends
Plug	Metal seal or high-performance metal seal
Actuator	Type 3271 or Type 3277 (see Data Sheets ▶ T 8310-1, ▶ T 8310-2 and ▶ T 8310-3)
Fail-safe action	Actuator stem extends/retracts
Process medium	…
Density	kg/m³ or lb/cu.ft
Temperature	°C or °F
Flow rate	lbs/h or kg/h or cu.ft/min or m³/h in standard or operating state
Pressure	p_1 and p_2 in bar or psi (absolute pressure p_{abs}), with minimum, normal and maximum flow rate
RFID tag	Yes/No
Valve accessories	Positioner and/or limit switch

Associated Information Sheets ▶ T 8000-X
Associated Mounting and Operating Instructions ▶ EB 8046

Note: The temperature limits for DIN and ANSI versions are not directly converted temperatures.

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