DATA SHEET

T 8046-2 EN

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

With long insulating section and circulation inhibitor
Class 600 and 900/PN 100 and 160

CE

Application

Globe valve for cryogenic applications

Valve size	**NPS ½ to 8 · DN 15 to 200**
Pressure rating	**Class 600 and 900 · PN 100 and 160**
Temperatures	**–325 to +149 °F · –196 to +65 °C**

Special features

Type 3246 Globe Valve operated 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:
Positioners, limit switches, solenoid valves and other accessories according to IEC 60534-6 [1] and NAMUR recommendation (see Information Sheet ▶ T 8350 for more details).

Version

Standard version with double PTFE packing, long insulating section and circulation inhibitor · Valve size NPS ½ to 8 (DN 15 to 200) · Class 600 and 900 (PN 100 and 160) · Flanges or welding ends

– **Type 3246-1** (Fig. 1) · With Type 3271 Actuator with 350 to 2800 cm² actuator area (see Data Sheets ▶ T 8310-1, ▶ T 8310-2 and ▶ T 8310-3)
– **Type 3246-7** · With Type 3277 Actuator with 175v2 to 750v2 cm² actuator area (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 10 (DN 15 to 250), Class 150 and 300 (PN 16 and 40) · See Data Sheet ▶ T 8046-1

[1] Accessories required. See associated actuator documentation.

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

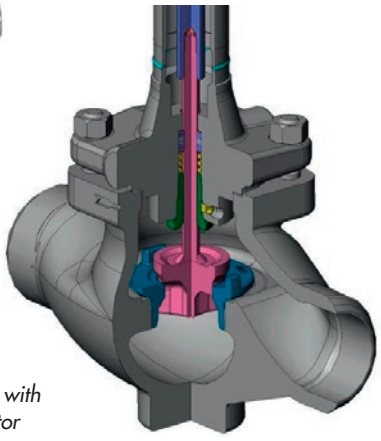


Fig. 2: *Type 3246 Valve with circulation inhibitor*

– **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 ▶ T 8086

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 position

Depending on how the springs are arranged in the 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 closes when the supply air fails.
- **Actuator stem retracts (fail-open):** The valve opens when the supply air fails.

Differential pressures

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

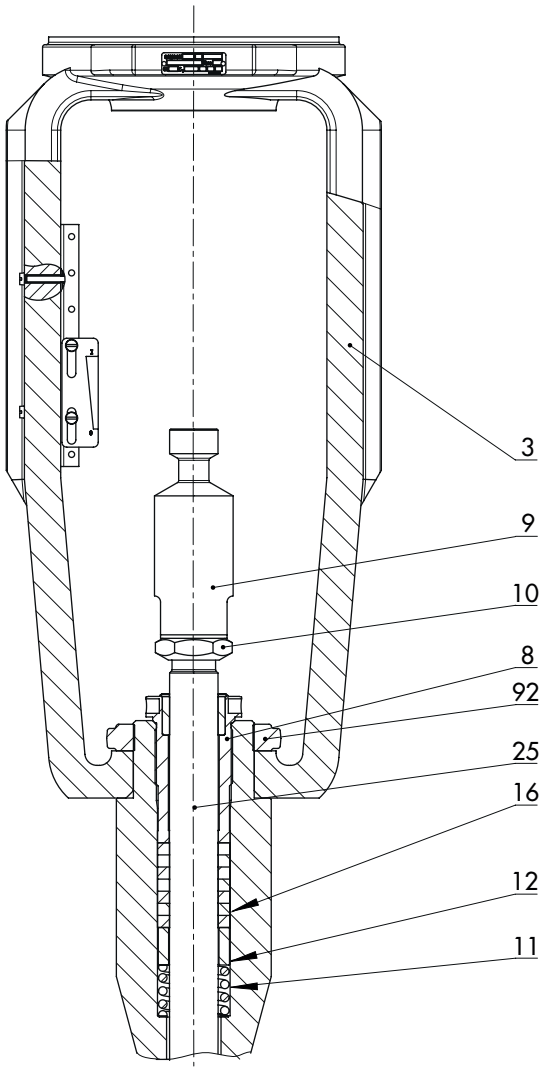


Fig. 3: *Yoke on insulating section*

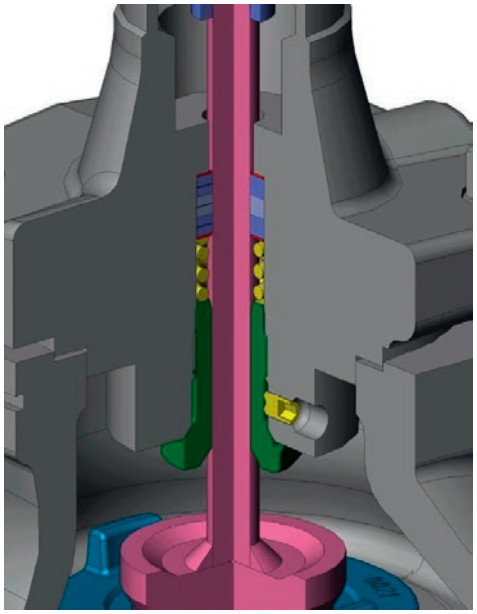


Fig. 4: *Circulation inhibitor and hex socket grub screw*

Legend for Fig. 3

3	Yoke		
8	Threaded bushing		
9	Stem connector nut		
10	Lock nut		
11	Spring		
12	Washer	25	Plug stem extension
16	Packing	92	Castellated nut

Table 1: *Technical data for Type 3246 Globe Valve with circulation inhibitor*

Material		**Cast stainless steel A351 CF8/1.4308**
Valve size		NPS ½ to 8 · DN 15 to 200
Pressure rating		Class 600 and 900 · PN 100 and 160
Type of connection	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
RFID tag (optional)		Application range acc. to the technical specifications and explosion protection certificates. Documents ▶ *www.samsongroup.com > Service & Support > Electronic nameplate*
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)
RFID tag (optional)		Max. permissible operating temperature: 85 °C (185 °F)
Leakage class according to ANSI/FCI 70-2 or IEC 60534-4		
Valve plug	Metal seal	IV
	High-performance metal seal	V

Table 2: *Materials*

Standard version Body and flanges		**Cast stainless steel A351 CF8/1.4308**
Seat and plug [1]	Metal seal	CrNi steel
Guide bushings		CrNi 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 (DN 200)	PTFE with silk cord, spring-loaded · Bushing 2.0402 (CuZn40Pb2)
Body gasket		Serrated gasket with graphite facing
Insulating section		A351 CF8/A182 F304 1.4308/1.4301

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

Table 3: *C_V and K_{VS} coefficients*

Table 3.1: *Overview*

C_V		0.12	0.2	0.3	0.5	0.75	1.2	2	3	5	7.5	12	20	30	47	75	120	190	290	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	40	63	100	160	250	360	630
Seat ØD	mm	6						12		24			31	38	50	63	80	100	125	150	200
Rated travel	mm	15													30				60		
	in	0.5													1.18				2.36		

Table 3.2: *Versions*

C_V		0.12	0.2	0.3	0.5	0.75	1.2	2	3	5	7.5	12	20	30	47	75	120	190	290	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	40	63	100	160	250	360	630
NPS	DN																				
½	15	•	•	•	•	•	•	•	•	•											
¾	20	•	•	•	•	•	•	•	•	•	•										
1	25	•	•	•	•	•	•	•	•	•	•	•									
1½	40	•	•	•	•	•	•	•	•	•	•	•	•	•							
2	50									•	•	•	•	•	•						
3	80									•	•	•	•	•	•	•	•				
4	100													•	•	•	•	•			
6	150															•	•	•	•	•	
8	200																	•	•	•	•

Table 4: *Dimensions for Type 3246-1 and Type 3246-7 Control Valves with long insulating section and circulation inhibitor*

Table 4.1: *Type 3246 with welding ends and cover plate with collar*

Valve		NPS	½	¾	1	1½	2	3	4	6	8
		DN	15	20	25	40	50	80	100	150	200
Length L	Class 600/ PN 100	in	8.00	8.25	8.25	9.88	11.25	13.25	15.50	20.00	24.00
		mm	203	206	210	251	286	337	394	508	610
	Class 900/ PN 160	in	8.50	9.00	10.00	12.00	14.50	15.00	18.00	24.00	29.00
		mm	216	229	254	305	368	381	457	610	737
H4	Class 600 and 900/ PN 100 and 160	in	24					27		33	
		mm	610					686		838	
H5	Class 600 and 900/ PN 100 and 160	in	31.89				31.93	34.92	35.16	44.92	44.92
		mm	810				811	887	893	1141	1141
H8 [1] (actuator area)	Class 600 and 900/ PN 100 and 160	in	9.45				16.46	16.46		19.80	
		mm	240 (175v2 to 750v2 cm²)				418 (1000 to 1400-60 cm²)			503 (1400-120 to 2800 cm²)	
Cover plate	Ød	in	5.98						7.99	10.00	
		mm	152						203	254	
	h	in	1.57								
		mm	40								

[1] Type 3246-7: H8 + 100 mm

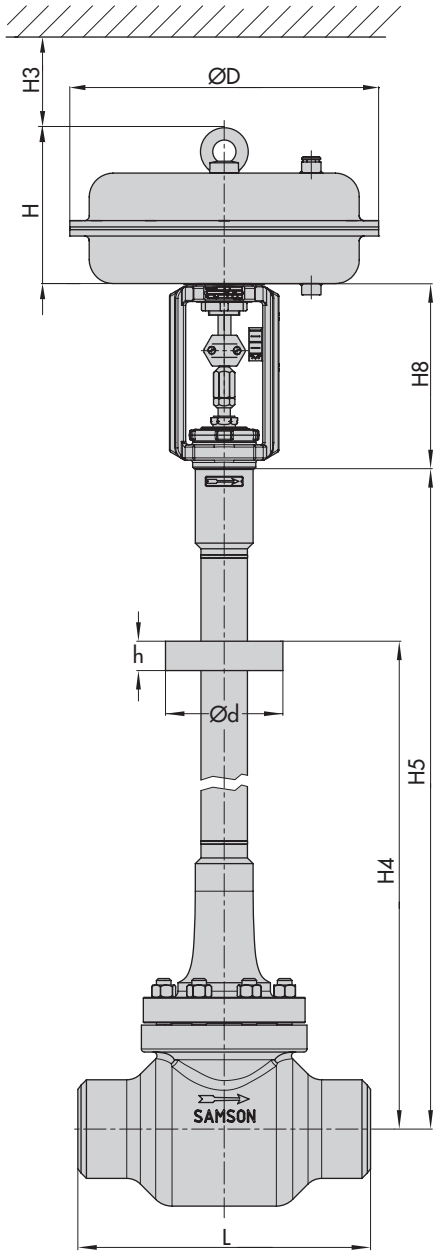
Table 4.2: *Types 3271 and 3277 Pneumatic Actuators*

Actuator area		cm²	120	175v2	240	350	355v2	700	750v2	1000	1400-60	1400-120	2800
Diaphragm ØD		in	6.61	8.46	9.45	11.02	11.02	15.35	15.51	18.19	20.87	21.02	30.32
		mm	168	215	240	280	280	390	394	462	530	534	770
H [1]		in	2.71	3.07	2.44	3.23	4.76	7.83	9.29	15.87	13.27	23.54	28.07
		mm	69	78	62	82	121	199	236	403	337	598	713
H3 [2]		in	4.33	4.33	4.33	4.33	4.33	7.48	7.48	24.02	24.02	25.59	25.59
		mm	110	110	110	110	110	190	190	610	610	650	650
H5	Type 3277	in	3.46	3.98	3.98	3.98	3.98	3.98	3.98	–	–	–	–
	Type 3277	mm	88	101	101	101	101	101	101	–	–	–	–
Thread	Type 3271		M30x1.5 M60x1.5									M100x2	
	Type 3277		M30x1.5							–	–	–	–
a	Type 3271		G ⅛ (⅛ NPT)	G ¼ (¼ 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	G ⅜	G ⅜	G ⅜	G ⅜	G ⅜	–	–	–	–

[1] 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

[2] Minimum clearance required to remove the actuator

Dimensional drawing



Version with welding ends

Table 5: *Weights for Type 3246-1 and Type 3246-7 Control Valves with long insulating section and circulation inhibitor*

Table 5.1: *Type 3246 Valve*

Valve		NPS	½	¾	1	1 ½	2	3	4	6	8
		DN	15	20	25	40	50	80	100	150	200
Weight, approx.	Class 600/ PN 100	lbs	55	57	60	66	170	234	313	624	1102
		kg	25	26	27	30	77	106	142	283	500
	Class 900/ PN 160	lbs	71	75	77	93	212	284	351	730	On request
		kg	32	34	35	42	96	129	159	331	

Table 5.2: *Types 3271 and 3277 Pneumatic Actuators*

Actuator area		cm²	175v2	240	350	355v2	700	750v2	1000	1400-60	1400-120	2800
Weight	Type 3271	lbs	13	11	18	33	49	79	176	154	385.5	992
		kg	6	5	8	15	22	36	80	70	175	450
	Type 3277	lbs	22	20	26	42	57	88	–			
		kg	10	9	12	19	26	40	–			

Table 6: *Valve/actuator assignment*

Valve size		Stem diameter	Actuator
NPS	DN		
½ to 1½	15 to 40	0.63 in (16 mm)	175v2 to 750v2 cm²
2 to 4	50 to 100	0.98 in (25 mm)	350 to 2800 cm²
6	150	1.58 in (40 mm)	700 to 2800 cm²
8	200	1.58 in (40 mm)	1000 to 2800 cm²

Selection and sizing of the control valve

1. Calculate the C_V (K_V) coefficient according to IEC 60534.
2. Select the valve size and C_V (K_{VS}) coefficient from Table 3.
3. Determine the permissible differential pressure Δp from the 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

Order specifications:

Valve size	NPS …/DN …
Pressure rating	Class 600 or 900/PN 100 or 160
Type of connection	Flanges or welding ends
Plug	Metal seal or high-performance metal seal
Characteristic	Equal percentage, linear or on/off
Actuator	Type 3271 or Type 3277 (▶ T 8310-1, ▶ T 8310-2 or ▶ T 8310-3)
Fail-safe position	Fail-close or fail-open
Process medium	…
Density	kg/m³ or lb/ft³
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 (psi) (absolute pressure p_{abs}) (with minimum, normal and maximum flow rate
RFID tag	Yes/No
Valve accessories	Positioner and/or limit switch

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