

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

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



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

The control valves, designed according to the modular assembly principle, 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 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 175 to 750 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
- **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

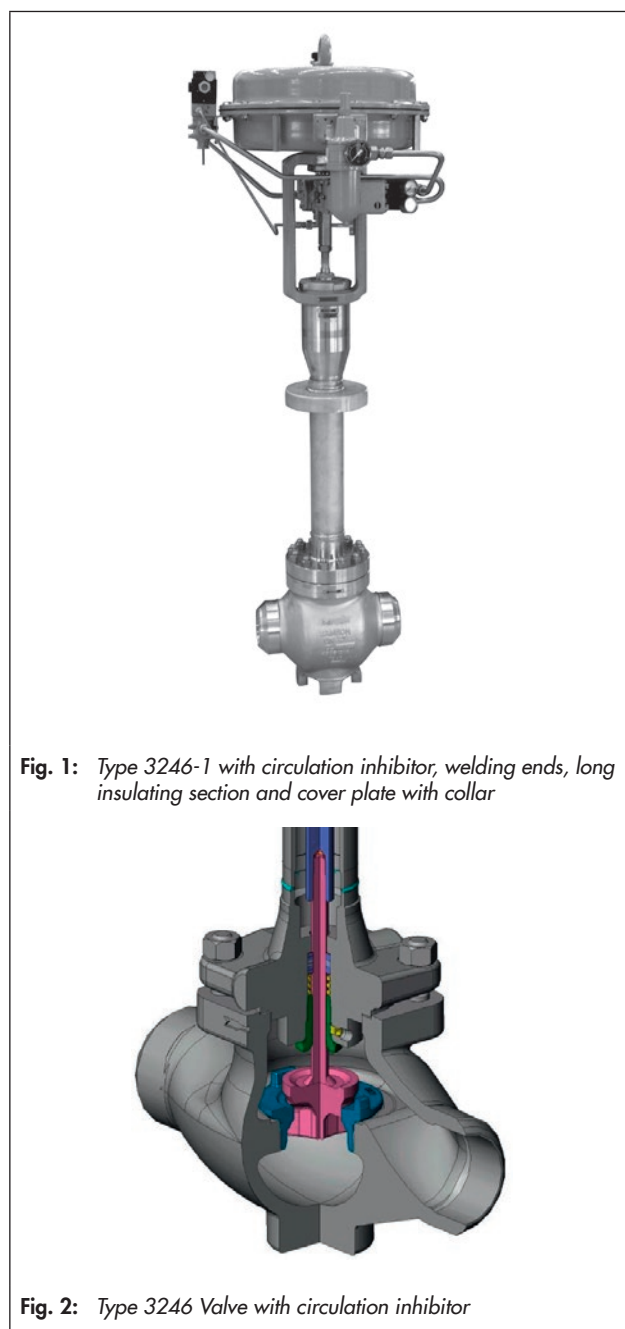


Fig. 1: Type 3246-1 with circulation inhibitor, welding ends, long insulating section and cover plate with collar

Fig. 2: Type 3246 Valve with circulation inhibitor

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.

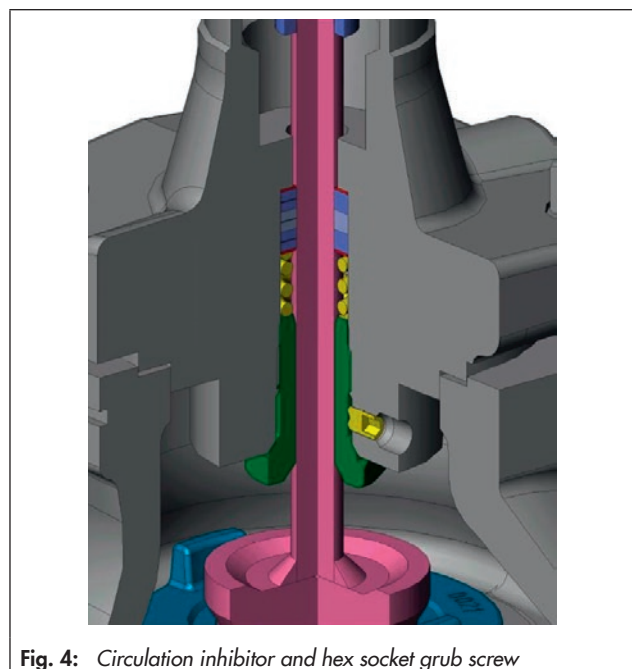
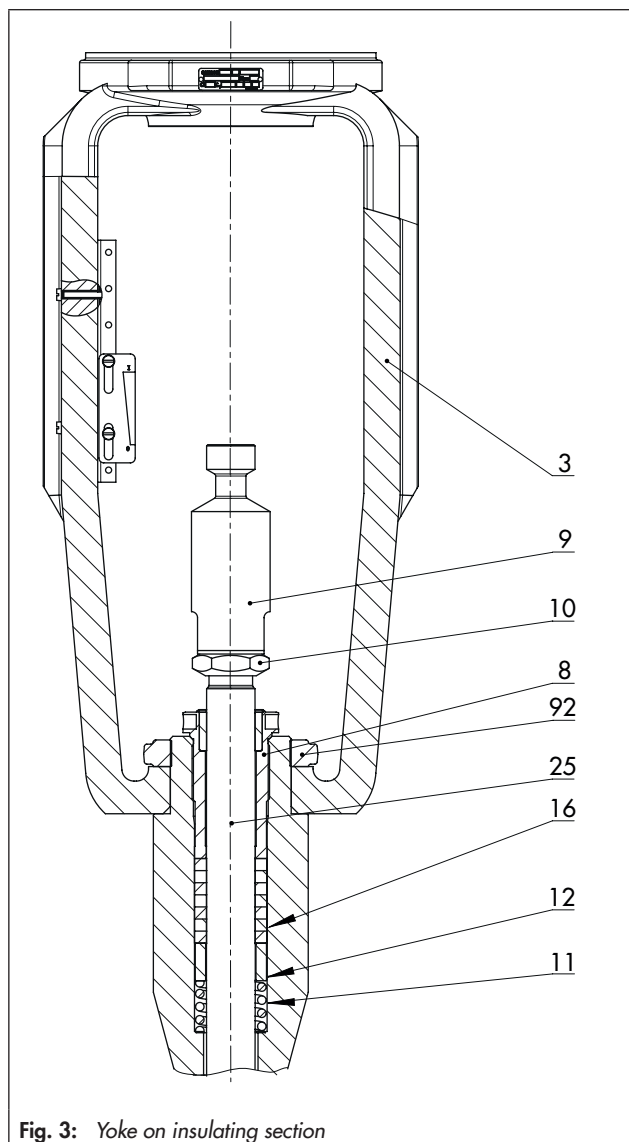
Fail-safe position

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 effective upon air supply failure.

- **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



Legend for Fig. 3

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

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 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 · Quick opening	
Rangeability	50:1	
Compliance	CE · EAC	
Temperature ranges · Permissible operating pressures according to pressure-temperature diagrams (see Information Sheet ▶ T 8000-2)		
Valve with	PTFE packing	-325 to +149 °F · -196 to +65 °C
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		Corrugated 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 Ø 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 and weights for Type 3246 Globe Valve 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	7.99	8.11	8.27	9.88	11.26	13.27	15.51	20.00	24.02
		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 (175 to 750 cm ²)			418 (1000 to 1400-60 cm ²)		503 (1400-120 to 2800 cm ²)			
Cover plate	Ød	in	5.98					7.99	10.0		
		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	cm ²	175	240	350	355	700	750	1000	1400-60	1400-120	2800
Diaphragm ØD	in	8.46	9.45	11.02	11.02	15.35	15.51	18.19	20.87	21.02	30.32
	mm	215	240	280	280	390	394	462	530	534	770
H ¹⁾	in	3.07	2.44	3.23	4.76	7.83	9.29	15.87	11.3	19.29 ³⁾ / 22.83 ⁴⁾	24.80 ³⁾ / 27.36 ⁴⁾
	mm	78	62	82	121	199	236	403	287	490 ³⁾ / 580 ⁴⁾	630 ³⁾ / 695 ⁴⁾
H3 ²⁾	in	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	190	190	610	610	650	650
Height of yoke	in	3.98	3.98	3.98	3.98	3.98	3.98	-	-	-	-
	mm	101	101	101	101	101	101	-	-	-	-
Thread	Type 3271	M30 x 1.5						M60 x 1.5		M100 x 2	
	Type 3277	M30 x 1.5						-	-	-	-
α	Type 3271	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)
α2	Type 3277	G ⅜	G ⅜	G ⅜	G ⅜	G ⅜	G ⅜	-	-	-	-

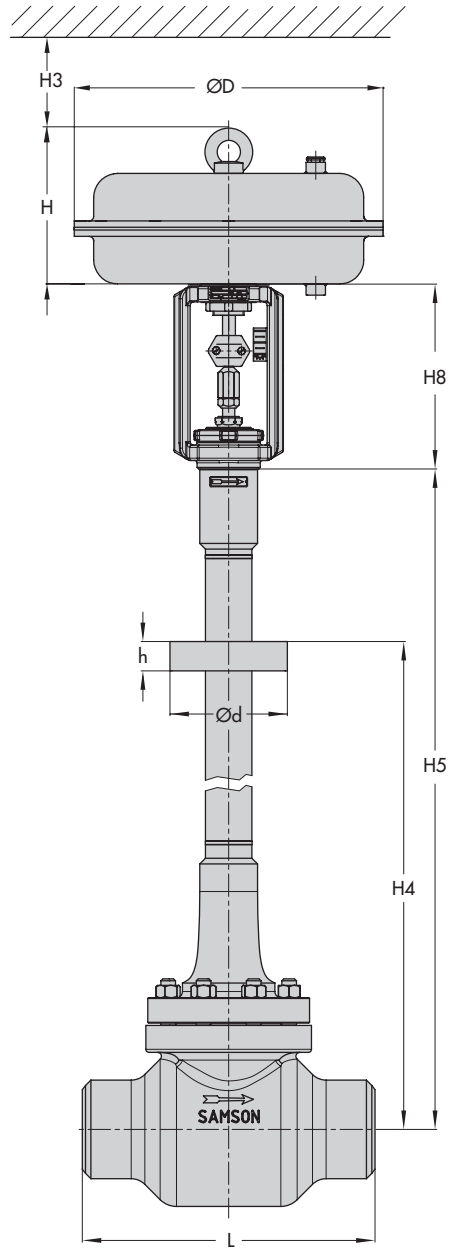
¹⁾ Height with welded-on lifting eyelet or height of eyebolt according to DIN 580. Height of the swivel lifting hook may differ. Actuators up to 355 cm² without lifting eyelet

²⁾ Minimum clearance required to remove the actuator

³⁾ Height for version with welded-on lifting eyelet (material EN-JS1030)

⁴⁾ Height for version with female thread (material 1.5638/A352 LC3)

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: Type 3271 and Type 3277 Pneumatic Actuators

Actuator area		cm ²	175	240	350	355	700	750	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)	175 to 750 cm ²
2 to 4	50 to 100	0.98 in (25 mm)	350 to 2800 cm ²
6	150	1.58 in (40 mm)	700 to 2800 cm ²
8	200	1.58 in (40 mm)	1000 to 2800 cm ²

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 end connections	Flanges or welding ends
Plug	Metal seal or high-performance metal seal
Characteristic	Equal percentage, linear or quick opening
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/m ³ or lb/ft ³
Temperature	°C or °F
Flow rate	lbs/h or kg/h or cu.ft/min or m ³ /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)
Valve accessories	Positioner and/or limit switch

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

Specifications subject to change without notice



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