

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

## Type 3246 Globe Valve



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

### Application

Globe valve for cryogenic applications

**Valve size** NPS ½ to 10 · DN 15 to 250  
**Pressure rating** Class 150 and 300 · PN 16 and 40  
**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).

### Version

**Standard version** with single PTFE packing, long insulating section and circulation inhibitor · Valve size NPS ½ to 10 (DN 15 to 250) · Class 150 and 300 (PN 16 and 40) · Flanges or welding ends

- **Type 3246-1** · With Type 3271 Actuator with 120 to 2800 cm<sup>2</sup> actuator area (see Data Sheets ▶ T 8310-1, ▶ T 8310-2 and ▶ T 8310-3)
- **Type 3246-7** (Fig. 1) · With Type 3277 Actuator with 120 to 750 cm<sup>2</sup> 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 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 with **soft seal** · On request

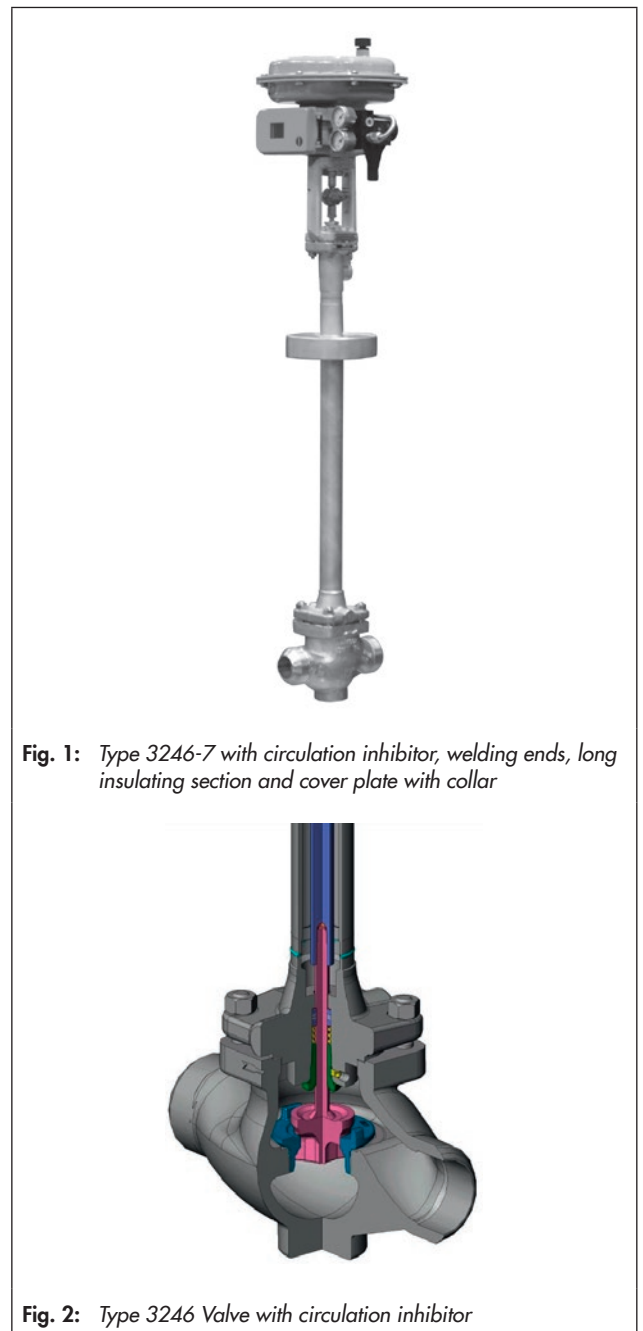


Fig. 1: Type 3246-7 with circulation inhibitor, welding ends, long insulating section and cover plate with collar

Fig. 2: Type 3246 Valve with circulation inhibitor

### 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

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		

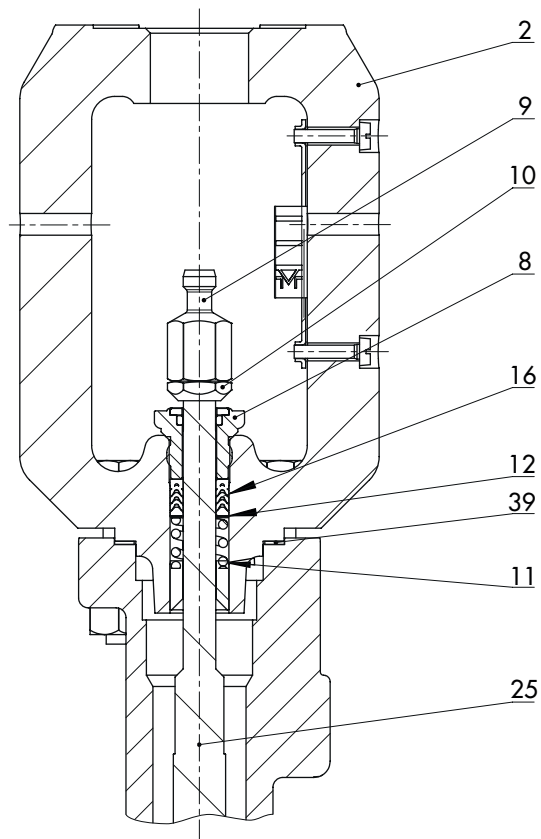


Fig. 3: Intermediate piece

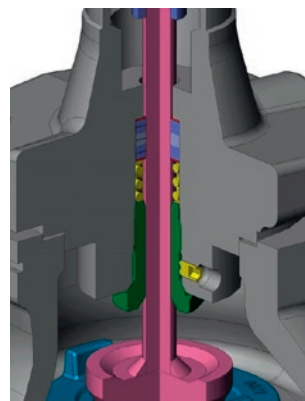


Fig. 4: Circulation inhibitor and hex socket grub screw

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

<b>Material</b>	<b>Cast stainless steel A351 CF8/1.4308</b>	
Valve size	NPS ½ to 10 · DN 15 to 250	
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 · Quick opening	
Rangeability	50:1 · 30:1 for NPS 3 (DN 80) and larger	
Compliance	<b>CE · EAC</b>	
<b>Temperature ranges</b> · 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
<b>Leakage class according to ANSI/FCI 70-2 or IEC 60534-4</b>		
Valve plug	Metal seal	IV
	High-performance metal seal	V

**Table 2:** Materials

<b>Standard version Body and flanges</b>	<b>Cast stainless steel A351 CF8/1.4308</b>	
Seat and plug <sup>1)</sup>	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 10 (DN 200 to 250)	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	

<sup>1)</sup> 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	70	75	95	120	190	300	420	735	1150
$K_{vs}$	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	63	80	100	160	260	360	630	1000
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		
	mm	3		6		12		24		31	38	48	63		80		100	130	150	200	250		
Rated travel	in	0.59														1.18	0.59	1.18		2.36		4.72	
	mm	15														30	15	30		60		120	

**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	70	75	95	120	190	300	420	735	1150	
$K_{vs}$	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	63	80	100	160	260	360	630	1000	
NPS	DN																							
½	15	•	•	•	•	•	•	•	•	•														
¾	20	•	•	•	•	•	•	•	•	•														
1	25	•	•	•	•	•	•	•	•	•	•													
1½	40				•	•	•	•	•	•	•	•	•											
2	50				•	•	•	•	•	•	•	•	•	•										
3	80												•	•	•		•							
4	100																•		•	•				
6	150																•		•	•	•			
8	200																					•	•	
10	250																					•	•	•

**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	1/2	3/4	1	1 1/2	2	3	4	6	8	10
	DN	15	20	25	40	50	80	100	150	200	250
Length L	in	8.00	8.25	8.25	9.88	11.25	13.25	15.50	20.0	24.00	29.62
	mm	203	206	210	251	286	337	394	508	610	752
H4	in	24.02				27.01			32.99		
	mm	610				686			838		
H5	in	28.66				31.10	33.27	38.90	43.86	43.86	
	mm	728				790	845	988	1091	1141	
≤ 750	in	6.3					9.06	9.06	-		
	mm	160					230	230	-		
H8 in/mm	1000	-					11.02		15.55 (SB ≤ 200 <sup>1)</sup> )		
	1400-60	-					280		395 (SB ≤ 200 <sup>1)</sup> )		
Class 150 and 300/ PN 16 and 40	1400-120	-					19.8			503	
	SB ≤ 200 <sup>1)</sup>	-					-			-	
1400-120	in	-					-			25.59	
	mm	-					-			650	
Class 150 and 300/ PN 16 and 40 with pneumatic actuator	2800	-					-			19.8	
	SB ≤ 200 <sup>1)</sup>	-					-			503	
2800	in	-					-			25.59	
	mm	-					-			650	
Cover plate	Ød	5.98				7.99			10.0		
	mm	152				203			254		
h	in	1.57									
	mm	40									

<sup>1)</sup> SB = Seat bore

**Table 4.2:** Types 3271 and 3277 Pneumatic Actuators

Actuator area	cm <sup>2</sup>	120	175	240	350	355	700	750	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 <sup>1)</sup>	in	2.71	3.07	2.44	3.23	4.76	7.83	9.29	15.87	11.3	19.29 <sup>3)</sup> / 22.83 <sup>4)</sup>	24.80 <sup>3)</sup> / 27.36 <sup>4)</sup>
	mm	69	78	62	82	121	199	236	403	287	490 <sup>3)</sup> / 580 <sup>4)</sup>	630 <sup>3)</sup> / 695 <sup>4)</sup>
H3 <sup>2)</sup>	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
Height of yoke (Type 3277 only)	in	3.46	3.98	3.98	3.98	3.98	3.98	3.98	-	-	-	-
	mm	88	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 1/8 (1/8 NPT)	G 1/4 (1/4 NPT)	G 1/4 (1/4 NPT)	G 3/8 (3/8 NPT)	G 3/8 (3/8 NPT)	G 3/8 (3/8 NPT)	G 3/8 (3/8 NPT)	G 3/4 (3/4 NPT)	G 3/4 (3/4 NPT)	G 1 (1 NPT)	G 1 (1 NPT)
α2	Type 3277	-	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	G 3/8	-	-	-	-

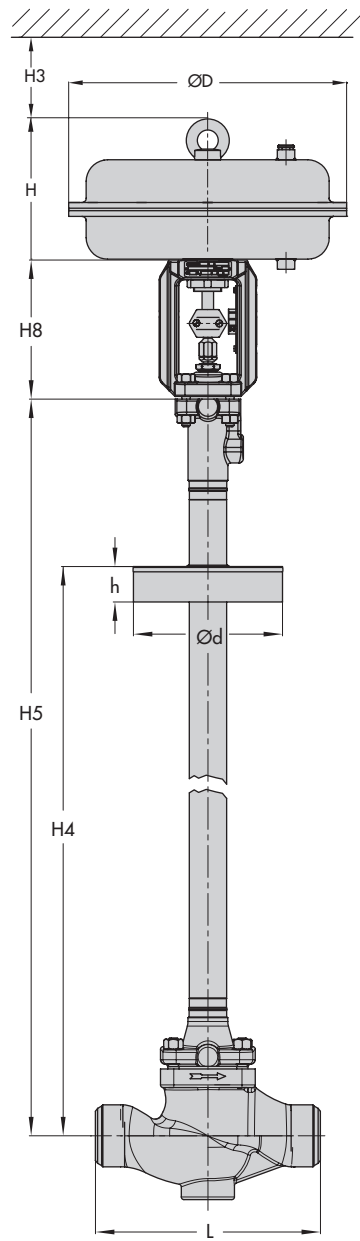
<sup>1)</sup> Height with welded-on lifting eyelet or height of eyebolt according to DIN 580. Height of the swivel lifting hook may differ. Actuators up to 355 cm<sup>2</sup> without lifting eyelet

<sup>2)</sup> Minimum clearance required to remove the actuator

<sup>3)</sup> Height for version with welded-on lifting eyelet (material EN-JS1030)

<sup>4)</sup> 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	1½	2	3	4	6	8	10
	DN	15	20	25	40	50	80	100	150	200	250
Weight, approx.	lbs	31			38	49	84	175	410	948	1202
	kg	14			17	22	38	79	186	430	545

**Table 5.2:** Type 3271 and Type 3277 Pneumatic Actuators

Actuator area		cm <sup>2</sup>	120	175	240	350	355	700	750	1000	1400-60	1400-120	2800
Weight	Type 3271	lbs	6	13	11	18	33	49	79	176	154	385.5	992
		kg	2.5	6	5	8	15	22	36	80	70	175	450
	Type 3277	lbs	7	22	20	26	42	57	88	-			
		kg	3.2	10	9	12	19	26	40	-			

**Table 6:** Valve/actuator assignment

Valve size		Stem diameter	Actuator
NPS	DN		
½ to 3	15 to 80	0.39 in (10 mm)	120 to 750 cm <sup>2</sup>
4 to 6	100 to 150	0.63 in (16 mm)	350 to 1400-60 cm <sup>2</sup>
8 to 10	200 to 250	1.58 in (40 mm)	1000 to 2800 cm <sup>2</sup>

### 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  $\Delta p$  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 150 or 300/PN 16 or 40
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 <sup>3</sup> or lb/ft <sup>3</sup>
Temperature	°C or °F
Flow rate	lbs/h or kg/h or cu.ft/min or m <sup>3</sup> /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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