

T 8059 EN**Series 250 · Type 3259-1 and Type 3259-7 Pneumatic Control Valves****Type 3259 Angle Valve****Application**

Control valve for industrial high-pressure plants according to IG standard

Nominal size	DN 10 to 90
Pressure rating	PN 325
Temperatures	-10 to +450 °C



Fig. 1: Type 3259-1 Pneumatic Control Valve: Type 3259 Valve with Type 3271 Pneumatic Actuator

Special features

Type 3259 Angle Valve with

- Type 3271 Pneumatic Actuator (Type 3259-1 Control Valve)
- Type 3277 Pneumatic Actuator (Type 3259-7 Control Valve) for integral positioner attachment

The valve body is made of forged stainless steel. The end connections are designed as screwed flanges with lens ring gaskets.

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 60534-6-1¹⁾ and NAMUR Recommendation (see Information Sheet ► T 8350).

¹⁾ Accessories required. See associated actuator documentation.

Versions

Operating temperature (medium temperature) with spring-loaded double packing for temperatures from -10 to +220 °C; nominal sizes DN 10, 16, 24, 30, 45, 58, 70 and 90 · Pressure rating PN 325

Body made of 1.4571 (RA4) with intermediate flanges made of 1.7218 (K2), end connections as screwed flanges with lens ring gaskets

- **Type 3259-1** (Fig. 1) • Type 3259 Valve and Type 3271 Actuator with 350 to 2800 cm² actuator area (see Data Sheets ▶ T 8310-1, ▶ T 8310-2 and ▶ T 8310-3)
- **Type 3259-7** • Type 3259 Valve and Type 3277 Actuator with 350 to 750v2 cm² actuator area for integral positioner attachment (see Data Sheet ▶ T 8310-1)

Further versions

- **Adjustable high-temperature packing** · For temperatures between -10 and +350 °C
- **Version with insulating section** · For temperatures from -10 to +450 °C (see Fig. 2 for pressures and temperatures)
- **Heating jacket** · On request
- **Version with bellows seal** · Material 2.4819 with additional back-up packing and test connection
- **Nominal sizes DN 6, DN 10 and DN 16** are also available as Type 3510 **Micro-flow Valve**.

Principle of operation

The medium normally flows through the valve in the flow-to-open direction. The valve plug position determines the free area between the valve seat and the plug. The plug stem is sealed by a spring-loaded double PTFE packing.

A metal bellows seal (Fig. 4) can be used to meet stricter emission requirements.

A test connection is available for both valve versions.

The actuators can be designed for pressure applied from either side on request.

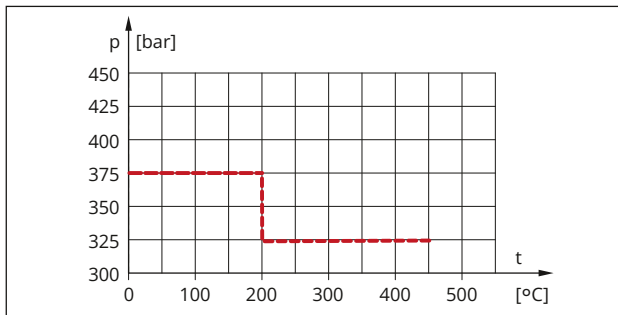


Fig. 2: Pressure-temperature diagram for material 1.4571 (RA4)

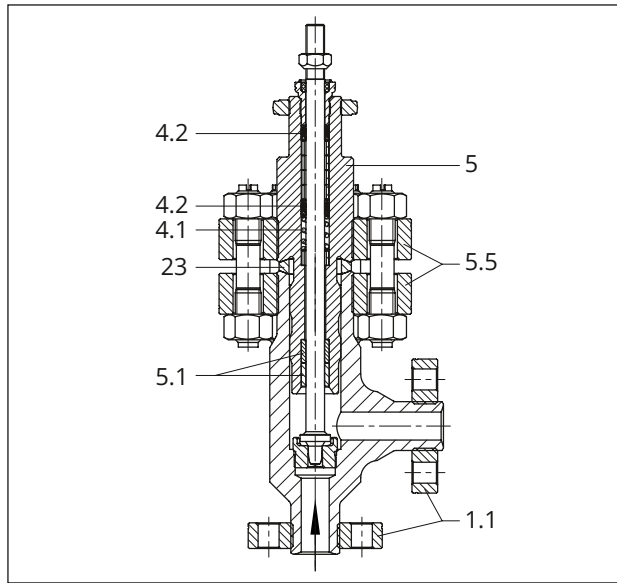


Fig. 3: Standard version of Type 3259 Valve

- | | | | |
|-----|------------------------------|-----|----------------------|
| 1.1 | Connecting flanges | 5.1 | Guide bushing |
| 4.1 | Spring | 5.5 | Intermediate flanges |
| 4.2 | PTFE V-ring packing (2 pcs.) | 23 | Lens ring gasket |
| 5 | Bonnet | | |

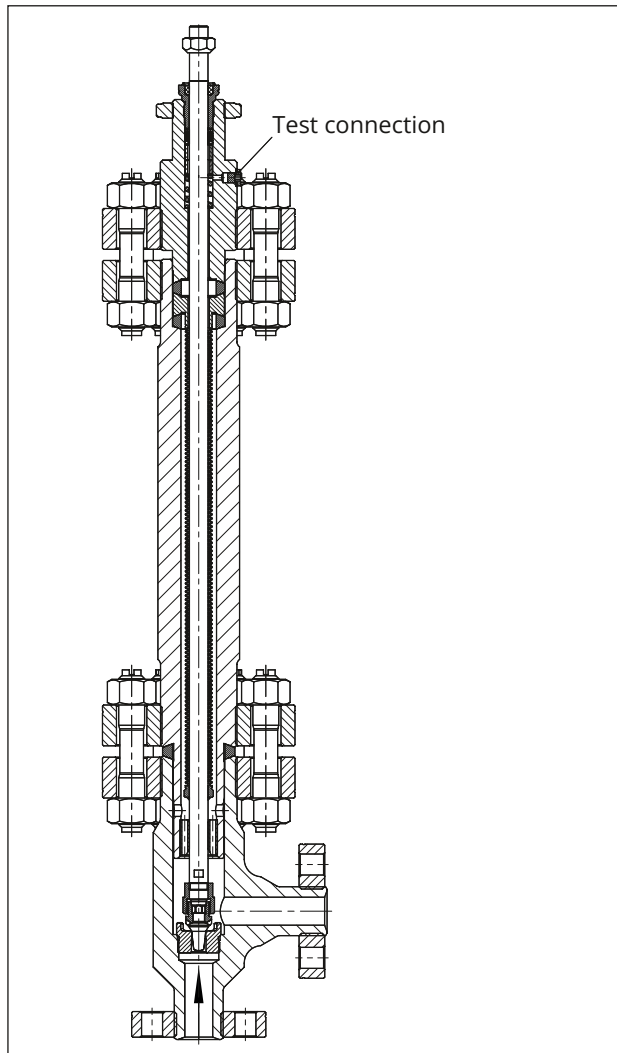


Fig. 4: Type 3259 Valve with bellows seal and test connection

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.

Table 1: Technical data for Type 3259

Nominal size	DN	10 · 16 · 24 · 30 · 45 · 58 · 70 · 90
Pressure rating	PN	325
Type of end connections	Threaded flanges with lens ring gaskets according to the IG standard	
Seat-plug seal	Metal seal or high-performance metal seal	
Characteristic	Equal percentage or linear	
Rangeability	50:1 for $K_{VS} \geq 1$ or 30:1 for $K_{VS} < 1$	
Conformity	CE	
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 maximum permissible temperature at the RFID tag is 85 °C.	
Temperature ranges in °C · Permissible operating pressures according to pressure-temperature diagram		
Body without insulating section with	PTFE packing	-10 to +220 °C
	High-temperature packing	-10 to +350 °C
Body with	Insulating section	-10 to +450 °C
	Bellows seal	-10 to +450 °C
Leakage class according to DIN EN 60534-4		
Valve plug	Metal seal	IV · High performance metal seal: V

Table 2: Materials for Type 3259

Standard version		
Body	1.4404/1.0460 (S2)/1.4571 (RA4)	
Flanges	1.7218 (K2)	
Screws	1.7218 (K2)	
Seat and plug	1.4404 Seat: 1.4404 Stellite®-faced · Plug: Stellite® 6 Hardened 1.4112	
Guide bushing	2.4610/1.4112	
Packing	V-ring packing, PTFE-carbon compound	
Body gasket	Lens ring gaskets 1.4571/1.0460	
Insulating section	1.4404/1.0460 (S2)	
Bellows seal		
Intermediate piece	1.4404/1.0460 (S2)	
Metal bellows	2.4819	

Table 3: Available K_{vs} coefficients

K_{vs}	0.1 · 0.16 0.25 · 0.4	0.63	1.0	1.6	2.5	4	6.3	10	16	25	40	63	100
Seat Ø in mm	6		12			24			31	38	50	63	80
Rated travel in mm	15										30		
DN													
10	•	•	•	•	•								
16	•	•	•	•	•	•							
24	•	•	•	•	•	•	•	•					
30	•	•	•	•	•	•	•	•					
45				•	•	•	•	•	•	•			
58						•	•	•	•	•			
70									•	•	•	•	
90									•	•	•	•	•

Dimensions

Table 4: Dimensions for Type 3259 Angle Valve

Valve	DN	10	16	24	30	45	58	70	90
Length L		85	95	110	120	150	170	200	235
Standard bonnet									
H1 for actuator	350 cm ²	470	470	470	470	560	560	-	-
	350v2 cm ²	470	470	470	470	560	560	-	-
	355v2 cm ²	470	470	470	470	560	560	-	-
	750v2 cm ²	470	470	470	470	560	560	820	820
	1000 cm ²	525	525	525	525	615	615	820	820
	1400-60 cm ²	525	525	525	525	615	615	820	820
	1400-120 cm ²	-	-	-	-	800	800	905	905
	2800 cm ²	-	-	-	-	800	800	905	905
2 x 2800 cm ²	-	-	-	-	-	-	905	905	
With insulating section									
H4 for actuator	350 cm ²	735	735	735	735	810	810	-	-
	350v2 cm ²	735	735	735	735	810	810	-	-
	355v2 cm ²	735	735	735	735	810	810	-	-
	750v2 cm ²	735	735	735	735	810	810	1175	1175
	1000 cm ²	790	790	790	790	865	865	1175	1175
	1400-60 cm ²	790	790	790	790	865	865	1175	1175
	1400-120 cm ²	-	-	-	-	1050	1050	1260	1260
	2800 cm ²	-	-	-	-	1050	1050	1260	1260
	2 x 2800 cm ²	-	-	-	-	-	-	1260	1260
With bellows seal									
H4 for actuator	350 cm ²	885	885	885	885	875	875	-	-
	350v2 cm ²	885	885	885	885	875	875	-	-
	355v2 cm ²	885	885	885	885	875	875	-	-
	750v2 cm ²	885	885	885	885	875	875	1485	1485
	1000 cm ²	940	940	940	940	930	930	1485	1485
	1400-60 cm ²	940	940	940	940	930	930	1485	1485
	1400-120 cm ²	-	-	-	-	1115	1115	1570	1570
	2800 cm ²	-	-	-	-	1115	1115	1570	1570
	2 x 2800 cm ²	-	-	-	-	-	-	1570	1570

Table 5: Further dimensions¹⁾ in combination with Type 3271 Pneumatic Actuator or Type 3277 Pneumatic Actuator

Actuator area		cm ²	350v2	355v2	750v2	1000	1400-60	1400-120	2800	2x 2800
Diaphragm ØD		mm	280	280	394	462	530	534	770	770
H ²⁾	Type 3271	mm	92	131	236	403	337	598	713	1213
H ²⁾	Type 3277	mm	82	121	236	-	-	-	-	-
H3 ³⁾		mm	110	110	190	610	610	650	650	650
H5	Type 3277	mm	101	101	101	-	-	-	-	-
Thread	Type 3271		M30x1.5	M30x1.5	M30x1.5	M60x1.5	M60x1.5	M100x2	M100x2	M100x2
Thread	Type 3277		M30x1.5	M30x1.5	M30x1.5	-	-	-	-	-
a	Type 3271		G ¾ (¾ NPT)	G ¾ (¾ NPT)	G ¾ (¾ NPT)	G ¾ (¾ NPT)	G ¾ (¾ NPT)	G 1 (1 NPT)	G 1 (1 NPT)	G 1 (1 NPT)
a2	Type 3277		G ¾	G ¾	G ¾	-	-	-	-	-

- 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

Dimensional drawings

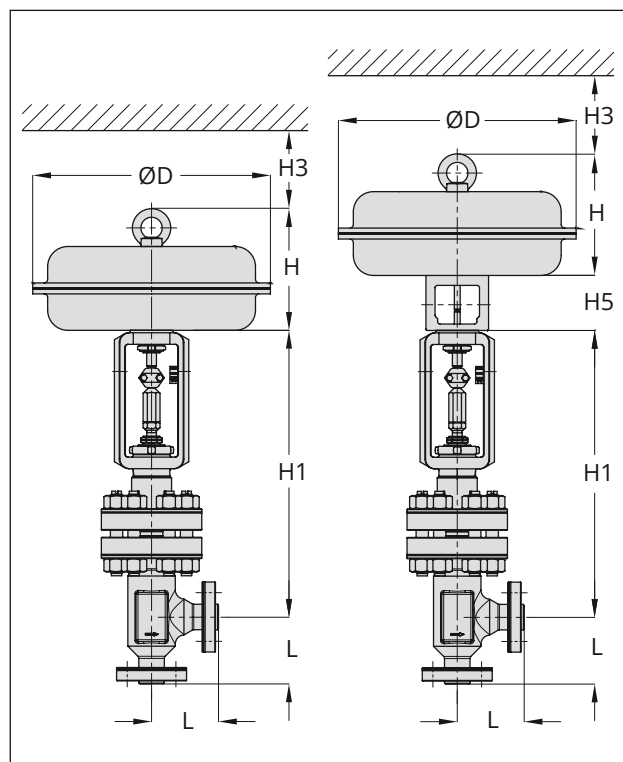


Fig. 5: Type 3259-1 (left) · Type 3259-7 (right)

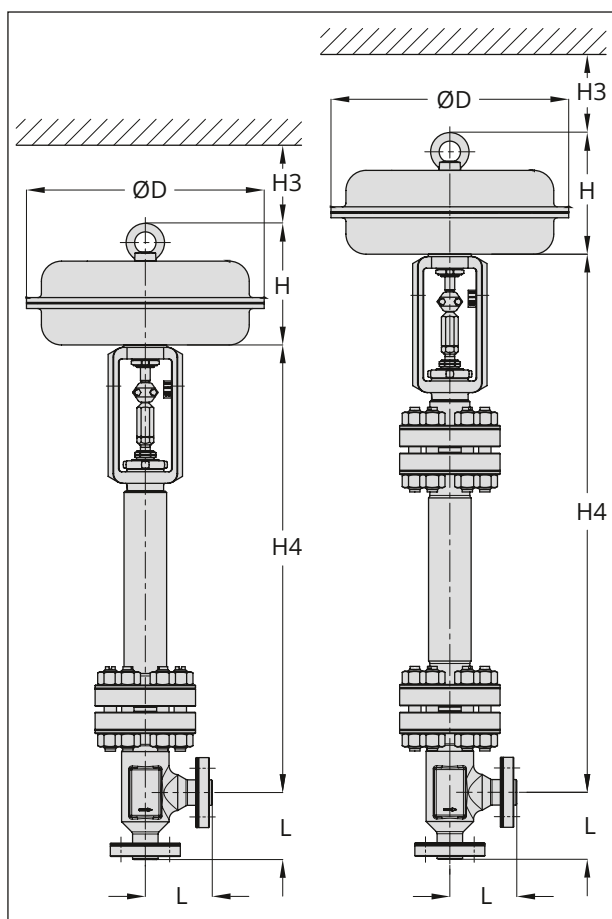


Fig. 6: Type 3259-1 · With insulating section (left) · With bellows seal (right)

Weights

Table 6: Weight (approx.) in kg for Type 3259 Angle Valve

Valve	DN	10	16	24	30	45	58	70	90
Weight ¹⁾ without actuator		33	35	40	45	85 ²⁾	90 ²⁾	220 ²⁾	230 ²⁾
With insulating section									
Weight ¹⁾ without actuator		43	45	48	53	100 ²⁾	105 ²⁾	295 ²⁾	305 ²⁾
With bellows seal									
Weight ¹⁾ without actuator		On req.	On req.	On req.	On req.	On req.	On req.	On req.	On req.

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.).

²⁾ The weight of the valve with a 2800 cm² or 2 x 2800 cm² actuator increases by 30 kg.

Table 7: Weights¹⁾ for Type 3271 and Type 3277 Pneumatic Actuators

Type ... Actuator	Actuator area in cm ²	350v2	355v2	750v2	1000	1400-60	1400-120	2800	2x 2800	
3271	Without handwheel	kg	11.5	15	36	80	70	175	450	950
3271	With handwheel	kg	16.5	20	41	180	175	300 ^{2)/} 425 ³⁾	575 ^{2)/} 700 ³⁾	On req.
3277	Without handwheel	kg	15	19	40	-	-	-	-	-
3277	With handwheel	kg	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

Selection and sizing of the valve

1. Calculate K_{VS} coefficient according to DIN EN 60534-1.
2. Select nominal size DN and K_{VS} coefficient from Table 3.
3. Actuator sizing and calculation of permissible differential pressure Δp on request
4. Select accessories from Table 1 and Table 2.

Ordering text

The following specifications are required on ordering:

Nominal size	DN ...
Direction of flow	Flow-to-open or flow-to-close design
Plug	Metal seal or high-performance metal seal
Characteristic	Equal percentage or linear
Bonnet	Standard bonnet, insulating section or bellows 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 in kg/m^3 and temperature in $^{\circ}\text{C}$
Flow rate	in kg/h or m^3/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 and/or limit switch

Associated Information Sheet	► T 8000-X
Associated Data Sheets for pneumatic actuators	► T 8310-1 to ► T 8310-3
Associated Mounting and Operating Instructions	► EB 8059