DATA SHEET

T 8060 EN

Series 250 · Type 3254-1 and Type 3254-7 Pneumatic Control Valves

Type 3254 Globe Valve

DIN version

Application

Control valve for process engineering applications with high industrial requirements, particularly for high pressures and temperatures

Nominal size	**DN 80 to 500**
Pressure rating	**PN 16 to 400**
Temperatures	**-196 to +550 °C**



Fig. 1: *Type 3254-1 Pneumatic Control Valve with Type 3271 Actuator*

Special features

Type 3254 Globe Valve operated with

- Type 3271 Pneumatic Actuator (Type 3254-1 Control Valve)
- Type 3277 Pneumatic Actuator (Type 3254-7 Control Valve) for integral positioner attachment

Valve body made of

- Cast steel
- Cast stainless steel, high-temperature cast steel or cast cold-resisting steel
- Special materials

Low-noise valve plug

- Metal seal
- Soft seal up to PN 40
- High-performance metal seal
- Balanced to handle high differential pressures
- Additional plug stem guide in the bottom body flange

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.

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Versions

Operating temperature (medium temperature) with PTFE packing for temperatures from -10 to +220 °C or with adjustable high-temperature packing from -10 to +350 °C, nominal sizes DN 80 to 500, PN 16 to 400

- **Type 3254-1** (Fig. 1) · Type 3254 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 3254-7** · Type 3254 Valve and Type 3277 Actuator with 350 to 750v2 cm² actuator area for integral positioner attachment (see Data Sheet ▶ T 8310-1)

Further versions

- **Welding or welding-neck ends** · according to DIN EN 12627
- **Flow divider** or **AC-1/AC-2/AC-3** Trim for noise reduction · See Data Sheets ▶ T 8081, ▶ T 8082 and ▶ T 8083
- **Valve plug with pressure balancing** · See Table 4 to Table 7
- **Perforated plug** · See Data Sheet ▶ T 8086
- **Version with insulating section**
- **Version with bellows seal**
- **Heating jacket** · Details on request
- **Additional handwheel** · See Data Sheet ▶ T 8310-1
- **ANSI version** · Nominal sizes NPS 3 to 20, pressure rating Class 150 to 2500 · See Data Sheet ▶ T 8061
- **Type 3254 Valve with Type 3273 Hand-operated Actuator** · For valves with max. 30 mm rated travel and side-mounted handwheel for travel >30 mm (see Data Sheet ▶ T 8312)
- **Type 3254-2 Electric Control Valve** · Details on request

Principle of operation

The medium flows through the valve in the direction indicated by the arrow. A rise in signal pressure causes the force acting on the diaphragm in the actuator to increase. The springs are compressed. Depending on the selected direction of action, the actuator stem retracts or extends. As a result, the position of the plug in the seat changes and determines the flow rate through the valve and the pressure p_2 with it.

An additional stem guide is located in the bottom body flange.

The version with bellows seal is fitted with a test connection to monitor the corrosion-resistant bellows.

Trims with flow dividers can be used to reduce noise emission (▶ T 8081).

Pressure balancing can optionally be used when high pressures or differential pressures act on the plug.

The following diagrams show configuration examples.

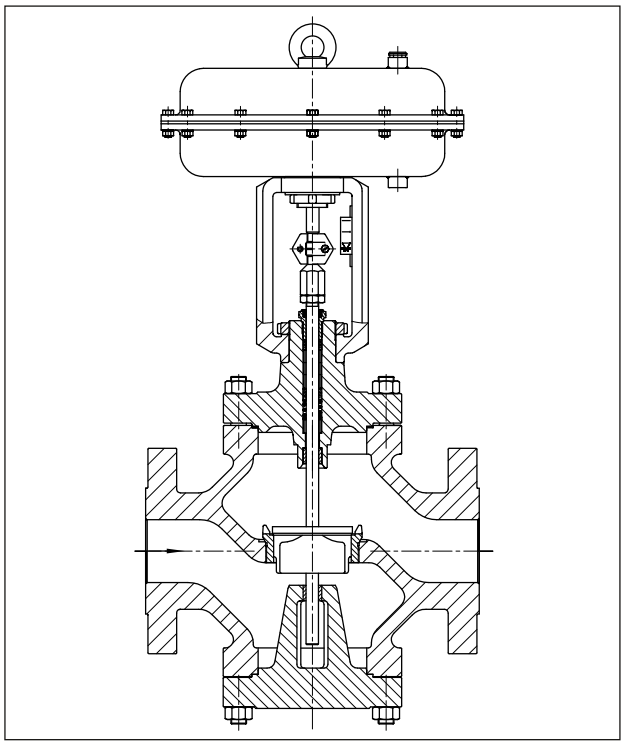


Fig. 2: *Type 3254-1 Control Valve with Type 3271 Pneumatic Actuator*

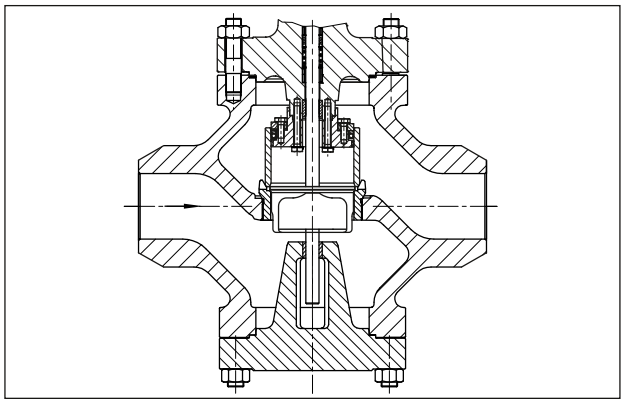


Fig. 3: *Type 3254 Valve with welding ends and balanced plug*

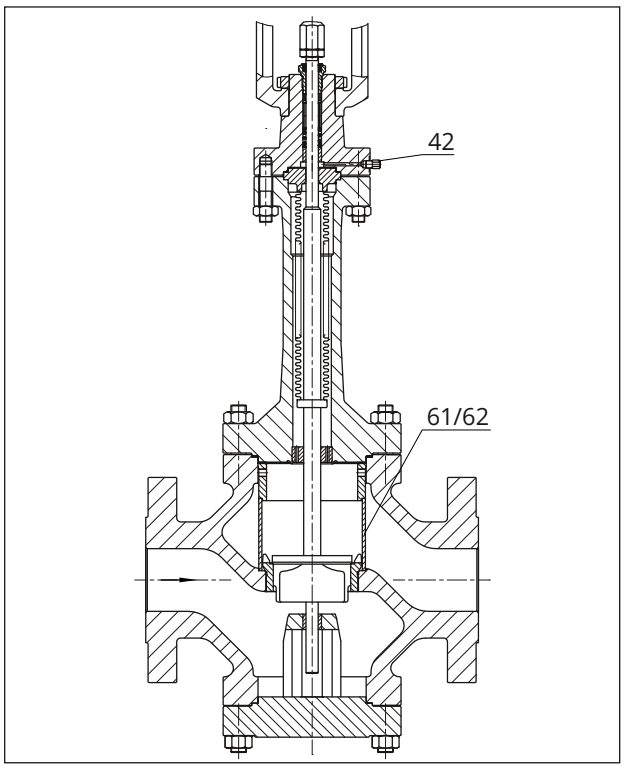


Fig. 4: *Type 3254 Valve with flow divider ST 1 and additional bellows seal with test connection*

42 Test connection with screw plug

61/ 62 Flow divider

Differential pressures

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

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 3254 · DIN version*

Material			**Cast steel 1.0619**		**Cast steel 1.7357**		**Cast stainless steel 1.4408**	
Nominal size[1]	DN		80 to 150	200 to 300	80 to 150	200 to 300	80 to 150	200 to 300
Pressure rating[1]	PN		16 to 400	16 to 160	16 to 400	16 to 160	16 to 400	16 to 160
Type of end connections	Flanges		All DIN EN versions					
	Welding ends		According to DIN EN 12627					
Seat-plug seal			Metal seal · Soft seal · High-performance metal seal					
Characteristic			Equal percentage · Linear · On/off (see Information Sheet ▶ T 8000-3)					
Rangeability			50:1					
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 permissible range for temperatures at the RFID tag is between -40 and +85 °C.					
Temperature ranges in °C · Permissible operating pressures acc. to pressure-temperature diagrams (see Information Sheet ▶ T 8000-2)								
Body without insulating section			-10 to +220 · Up to +350 with high-temperature packing					
Body with	Insulating section		-10 to +400[3]		-10 to +500		-196 to +550	
	Bellows seal		-10 to +400[3]		-10 to +500		-196 to +550	
Valve plug[2]	Standard	Metal seal	-196 to +550					
		Soft seal	-196 to +220					
	Balanced with PTFE ring		-50 to +220[3]					
	Balanced with graphite ring		220 to 500[4]					
Leakage class according to DIN EN 60534-4								
Valve plug	Standard	Metal seal	Standard: IV · High-performance metal seal: V					
		Soft seal	VI					
	Balanced, metal seal		With PTFE ring (standard): IV · High-performance metal seal: V · With graphite ring: IV					

1) DN 400: PN 16 to 40 · DN 500: PN 16 to 40

2) Only in combination with suitable body materials

3) Lower temperatures on request

4) Higher temperatures on request

Table 2: *Materials for Type 3254 · DIN version*

Standard version **Body**[1]		**Cast steel** **1.0619**	**Cast steel** **1.7357**	**Cast stainless steel** **1.4408**
Valve bonnet		1.0460/1.0619	1.7335/1.7357	1.4408/1.4401
Seat and plug[2] Seal ring for	Metal seal	1.4006/1.4008		1.4404/1.4409
	Soft seal	PTFE with 15 % glass fiber		
	Pressure balancing	PTFE with carbon · Graphite		
Guide bushings		1.4112		2.4610
Packing[3]		V-ring packing: PTFE with carbon; spring: 1.4310 or high-temperature packing		
Body gasket		Graphite seal on metal core		
Insulating section		1.0460/1.0619	1.7335/1.7357	1.4408/1.4401
Bellows seal[5]				
Intermediate piece		1.0460/1.0619	1.7335/1.7357	1.4408/1.4401
Metal bellows		1.4571[4]		
Heating jacket		1.4404		

1) Other materials (e.g. for high-temperatures or low temperatures) as well as special materials for applications with seawater · 1.4538, duplex 1.4470, nickel-based alloy 9.4610 · See pressure-temperature diagrams in Information Sheet ▶ T 8000-2

2) Seats and metal-seated plug also with Stellite® facing or plug made of solid Stellite® available (up to max. K_{VS} 630)

3) Other packings on request (▶ T 8000-6)

4) Other bellows material on request

5) Bellows with both >DN 200 and >PN 100 on request

K_{VS} coefficients

Terms for control valve sizing according to DIN IEC 60534-2-1 and DIN IEC 60534-2-2: F_L = 0.95, x_T = 0.75

Table 3: *Overview with flow divider ST 1 (K_{VS}-1), ST 2 (K_{VS}-2) or ST 3 (K_{VS}-3)*

K_{VS}	63	100	160	250	360	630	1000	1500	2000	2500	3600
K_{VS}-1	57	90	144	225	320	560	900	1350	1800	2250	3200
K_{VS}-2	50	80	125	200	290	500	800	1200	1600	2000	–
K_{VS}-3	47	75	120	190	270	480	750	1100	1500	1900	–
Seat Ø in mm	63	80	100	125	150	200	250	300	350	400	500
Travel in mm	30			60			120				

Table 4: *Versions without flow divider · PN 16 to 400*

K_{VS}	63	100	160	250	360	630	1000	1500	2000	2500	3600
DN											
80	•	•[1]									
100	•	•[1]	•[1]								
150	•	•	•[1]	•[1]	•[1]						
200		•	•	•[1][2]	•[1]	•[1]					
250		•	•	•[1][2]	•[1]	•[1]	•[1]				
300			•	•[1][2]	•[1]	•[1]	•[1]	•[1]			
400					•[1]	•[1]	•[1]	•[1]	•[1]	•[1]	
500							•[1]	•[1]	•[1]	•[1]	•[1]

[1] Version also available with balanced plug

[2] Pressure balancing only for ≥ PN 63

Table 5: *Versions with flow divider ST 1 (K_{VS}-1) · PN 16 to 160*[3]

K_{VS}-1	57	90	144	225	320	560	900	1350	1800	2250	3200
DN											
80	•	•[1]									
100	•	•[1]	•[1]								
150	•	•	•[1]	•[1]	•[1]						
200		•	•	•[1][2]	•[1]	•[1]					
250		•	•	•[1][2]	•[1]	•[1]	•[1]				
300			•	•[1][2]	•[1]	•[1]	•[1]	•[1]			
400					•[1]	•[1]	•[1]	•[1]	•[1]	•[1]	
500							•[1]	•[1]	•[1]	•[1]	•[1]

[1] Version also available with balanced plug

[2] Pressure balancing only for ≥ PN 63

[3] PN 250 to 400 with flow divider ST 1 and pressure balancing on request

Table 6: *Versions with flow divider ST 2 (K_{VS}-2) · PN 16 to 160*[3)]

K_{VS}-2	50	80	125	200	290	500	800	1200	1600	2000	–
DN											
80	•	•[1)]									
100	•	•[1)]	•[1)]								
150	•	•	•[1)]	•[1)]	•[1)]						
200		•	•	•[1)2)]	•[1)]	•[1)]					
250		•	•	•[1)2)]	•[1)]	•[1)]					
300			•	•[1)2)]	•[1)]	•[1)]	•[1)]				
400					•[1)]	•[1)]	•[1)]	•[1)]	•[1)]	•[1)]	
500							•[1)]	•[1)]	•[1)]	•[1)]	

1) Version also available with balanced plug

2) Pressure balancing only for ≥ PN 63

3) PN 250 to 400 with flow divider ST 2 and pressure balancing on request

Table 7: *Versions with flow divider ST 3 (K_{VS}-3) · PN 16 to 160*[3)]

K_{VS}-3	47	75	120	190	270	480	750	1100	1500	1900	–
DN											
100	•										
150	•	•	•[1)]	•[1)]							
200		•	•	•[1)2)]	•[1)]						
250		•	•	•[1)2)]	•[1)]	•[1)]					
300			•	•[1)2)]	•[1)]	•[1)]	•[1)]				
400					•[1)]	•[1)]	•[1)]	•[1)]	•[1)]		
500							•[1)]	•[1)]	•[1)]	•[1)]	

1) Version also available with balanced plug

2) Pressure balancing only for ≥ PN 63

3) PN 250 to 400 with flow divider ST 3 and pressure balancing on request

Dimensions

Specifications in mm

Table 8: *Type 3254 Valve · DIN version*

Valve	DN	80	100	150	200	250	300	400	500
Length L (flanges and welding ends)	PN 10 to 40	310	350	480	600	730	850	1100	1250
	PN 63 to 160	380	430	550	650	775	900	1150[3)]	–
	PN 250	450	520	700	–	–	–	–	–
	PN 320	450	520	700	–	–	–	–	–
	PN 400	570[1)]	666[1)]	908[1)]	–	–	–	–	–
H8 for actuator	350 cm²	240	240	–	–	–	–	–	–
	350v2 cm²	240	240	–	–	–	–	–	–
	355v2 cm²	240	240	418	–	–	–	–	–
	750v2 cm²	240	240	418	418	418	–	–	–
	1000 cm²	295	295	418	418	418	*)	*)	*)
	1400-60 cm²	295	295	418	418	418	*)	*)	*)
	1400-120 cm²	480	480	503	503	503[2)]	650	650	650
	2800 cm²	480	480	503	503	503[2)]	650	650	650
	2 x 2800 cm²	480	480	503	503	503[2)]	650	650	650
H2	PN 10 to 40	175	207	288	390	410	480	560	630
	PN 63 to 160	222	249	338	390	410	480	650	735
	PN 250	280	311	442	–	–	–	–	–
	PN 320	280	311	442	–	–	–	–	–
	PN 400	280	333	450	–	–	–	–	–
With standard bonnet									
H4	PN 10 to 40	222	242	314	387	442	655	640	760
	PN 63 to 160	222	242	314	387	519	655	640[3)]	*)[4)]
	PN 250 to 400	288	348	443	–	–	–	–	–
With insulating section									
H4	PN 10 to 160	492	512	665	947	1067	1151	1109[5)]	*)[6)]
	PN 250 to 400	546	598	790	–	–	–	–	–
With bellows seal									
	Travel								
H4	15 to 120	PN 10 to 40	613	613	709	1024	1479	1514	1516	1590
	120	PN 63 to 160	–	–	–	–	2381	2307	*)[5)]	–
	15 to 60	PN 63 to 160	613	613	842	*)	1569	1635	*)[5)]	–
		PN 250 to 320	855	663	*)	–	–	–	–	–
		PN 400	1020	*)	*)	–	–	–	–	–

*) On request

1) Face-to-face dimensions acc. to SAMSON standard

2) H8 = 650 mm with 250 mm seat bore

3) PN 63 and 100

4) PN 63

5) Up to PN 100

6) Up to PN 40

Table 9: *Further dimensions[1] in combination with Type 3271 Pneumatic Actuator or Type 3277 Pneumatic Actuator*

Actuator area		cm²	350	350v2	355v2	750v2	1000	1400-60	1400-120	2800	2x 2800
Diaphragm ØD		mm	280	280	280	394	462	530	534	770	770
H[2]	Type 3271	mm	82	92	131	236	403	337	598	713	1213
H[2]	Type 3277	mm	82	82	121	236	–	–	–	–	–
H3[3]		mm	110	110	110	190	610	610	650	650	650
H5	Type 3277	mm	101	101	101	101	–	–	–	–	–
Thread	Type 3271		M30x1.5	M30x1.5	M30x1.5	M30x1.5	M60x1.5	M60x1.5	M100x2	M100x2	M100x2
Thread	Type 3277		M30x1.5	M30x1.5	M30x1.5	M30x1.5	–	–	–	–	–
a	Type 3271		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)	G 1 (1 NPT)
a2	Type 3277		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

Dimensional drawings

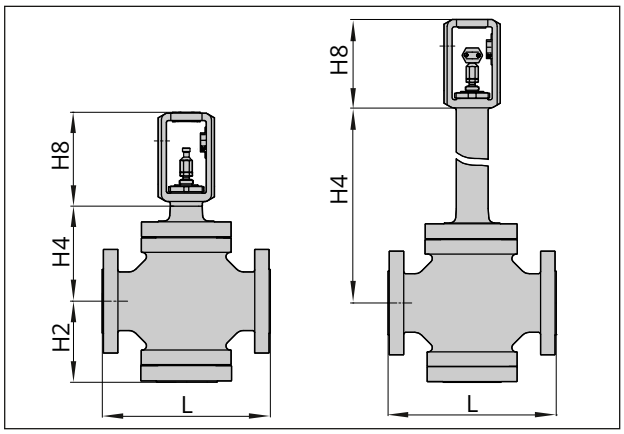


Fig. 5: *Type 3254*
Left: With standard bonnet
Right: With insulating section or bellows seal

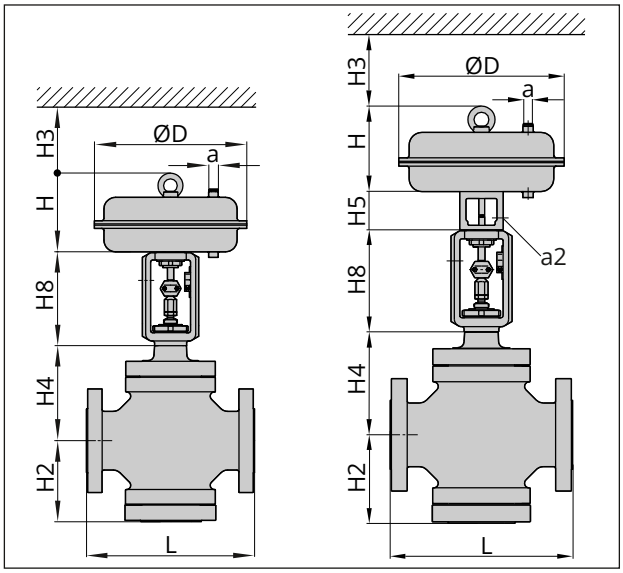


Fig. 6: *Left: Type 3254-1 Control Valve*
Right: Type 3254-7 Control Valve

Weights

Specifications in kg

Table 10: *Type 3254 Valve · DIN version*

Valve	DN		80	100	150	200	250	300	400	500
With standard bonnet										
Weight[1] without actuator	PN 16 to 40	Approx.	70	104	245	480	970	1081	1930	3200
	PN 63 to 160	Approx.	121	158	375	*)	1345	*)	*)	*)
	PN 250 to 400	Approx.	*)	*)	*)	*)	*)	*)	*)	*)
With insulating section										
Weight[1] without actuator	PN 16 to 40	Approx.	77	120	281	524	1050	*)	*)	*)
	PN 63 to 160	Approx.	128	175	411	*)	1405	*)	*)	*)
	PN 250 to 400	Approx.	*)	*)	*)	*)	–	–	–	–

Valve		DN	80	100	150	200	250	300	400	500
With bellows seal										
Weight[1] without actuator	PN 10 to 40	Approx.	85	128	300	570	1100	*)	*)	*)
	PN 63 to 160	Approx.	136	183	430	860	1460	*)	*)3)	–
	PN 250 to 400	Approx.	*)	*)	*)	*)	–	–	–	–

*) On request

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) PN 63

3) PN 100

Table 11: *Weights[1] for Type 3271 and Type 3277 Pneumatic Actuators*

Type ... Actuator	Actuator area in cm²		350	350v2	355v2	750v2	1000	1400-60	1400-120	2800	2x 2800
3271	Without handwheel	kg	8	11.5	15	36	80	70	175	450	950
3271	With handwheel	kg	13	16.5	20	41	180	175	300[2]/ 425[3]	575[2]/ 700[3]	*)
3277	Without handwheel	kg	12	15	19	40	–	–	–	–	–
3277	With handwheel	kg	17	20	24	45	–	–	–	–	–

*) On request

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 and from Table 4 to Table 7.
3. Determine the permissible differential pressure Δp from the pressure-temperature diagrams in Information Sheet ▶ T 8000-4.
4. Select the valve body material from Table 1 and Table 2 as well as from the pressure-temperature diagrams (see Information Sheet ▶ T 8000-2).
5. Select accessories from Table 1 and Table 2.

Ordering text

The following specifications are required on ordering:

Nominal size	DN …
Pressure rating	PN …
Body material	See Table 2
Bonnet	Standard bonnet, insulating section or bellows seal
Type of end connections	Flanges or welding ends
Plug	Standard or balanced Soft seal, metal seal or high-performance metal seal
Characteristic	Equal percentage, linear or on/off
Actuator	Type 3271 or Type 3277 (see Data Sheets ▶ T 8310-1, ▶ T 8310-2 and ▶ T 8310-3)
Fail-safe position	Actuator stem extends/retracts
Process medium	Density in kg/m³ and temperature in °C
Flow rate	in kg/h or m³/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 8060