



T 8012 EN

Series 240 · Type 3241-1 and Type 3241-7 Pneumatic Control Valves

Type 3241 Globe Valve · ANSI version



Application

Control valve for process engineering and industrial applications

| | |
|-----------------|-----------------------------------|
| Valve size | NPS ½ to 12 |
| Pressure rating | Class 125 to 300 |
| Temperatures | -325 to +842 °F (-196 to +450 °C) |

Type 3241 Globe Valve operated with

- Type 3271 Pneumatic Actuator (Type 3241-1 Control Valve)
- Type 3277 Pneumatic Actuator (Type 3241-7 Control Valve)

Valve body made of

- Cast iron
- Cast steel, cast stainless steel or cast cold-resisting steel
- Forged steel or forged stainless steel
- Special materials

Undivided valve bonnet up to NPS 6

Valve plug

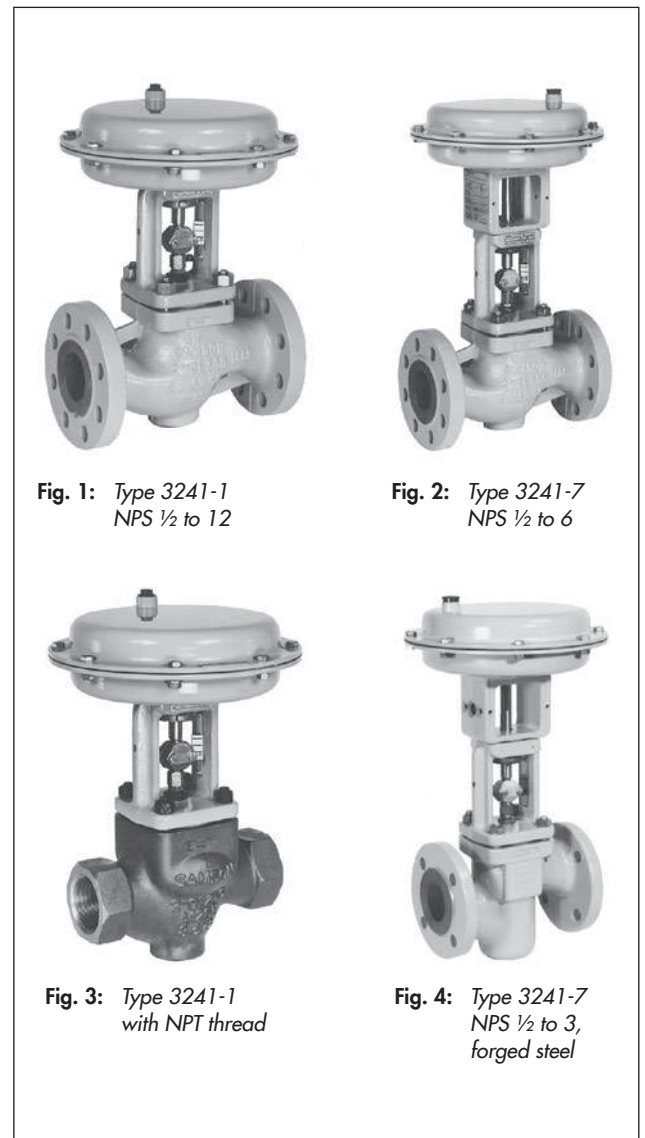
- Metal seal
- Soft seal
- High-performance metal seal

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 60534-6-1¹⁾ and NAMUR recommendation. Refer to Information Sheet ▶ T 8350 for more details.

Versions

Standard version for temperatures ranging from -15 to 430 °F (-10 to +220 °C)

- **Type 3241-1** (Fig. 1, Fig. 3) · NPS ½ to 12 · With Type 3271 Pneumatic Actuator (see Data Sheets ▶ T 8310-1, ▶ T 8310-2, and ▶ T 8310-3)
- **Type 3241-7** (Fig. 2, Fig. 4) · NPS ½ to 6 · With Type 3277 Pneumatic Actuator for integral positioner attachment (see Data Sheet ▶ T 8310-1)



¹⁾ Accessories required. See associated actuator documentation.

Further versions

- **NPT threaded connections** (Fig. 3) · NPS ½ to 2, Class 250
- **Adjustable packing** · See Information Sheet ▶ T 8000-1
- **Flow divider or AC-1/AC-2 Trim** for noise reduction · See Data Sheets ▶ T 8081 and ▶ T 8082
- **Valve plug with pressure balancing** · See Technical data
- **Insulating section or bellows seal** · See Technical data
- **Heating jacket** · On request
- **Stainless steel actuator** · See Data Sheet ▶ T 8310-1
- **Additional handwheel** · See Data Sheets ▶ T 8310-1, ▶ T 8310-2, and ▶ T 8310-3
- **Type 3241 PSA** · Version for pressure swing adsorption plants · See Data Sheets ▶ T 8012-1 and ▶ T 8015-1
- **Version with testing according to DIN EN 14597** · For heating generators (see ▶ T 8016)
- **Version with DIN/DVGW testing according to DIN EN 161 (2013-04)** for gases (see ▶ T 8020-2)
- **DIN version** (▶ T 8015)
- **JIS version** with dimensions according to Japanese Industry Standard (JIS) (▶ T 8012-2)
- **NACE version for sour gas applications** · On request

Principle of operation

The medium flows through the valve in the direction indicated by the arrow. The valve plug position determines the cross-sectional area between the seat and plug.

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.

Fig. 5 to Fig. 8 show configuration examples.

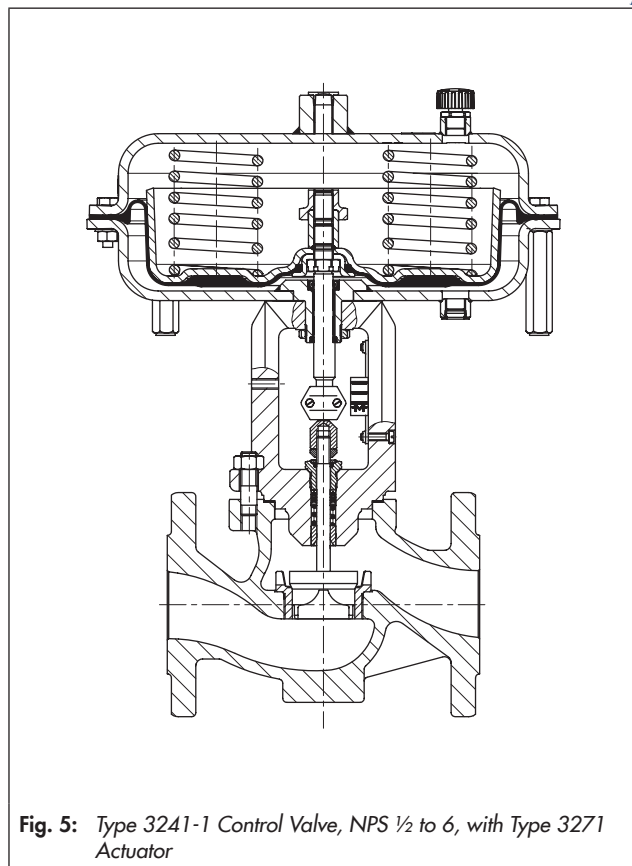


Fig. 5: Type 3241-1 Control Valve, NPS ½ to 6, with Type 3271 Actuator

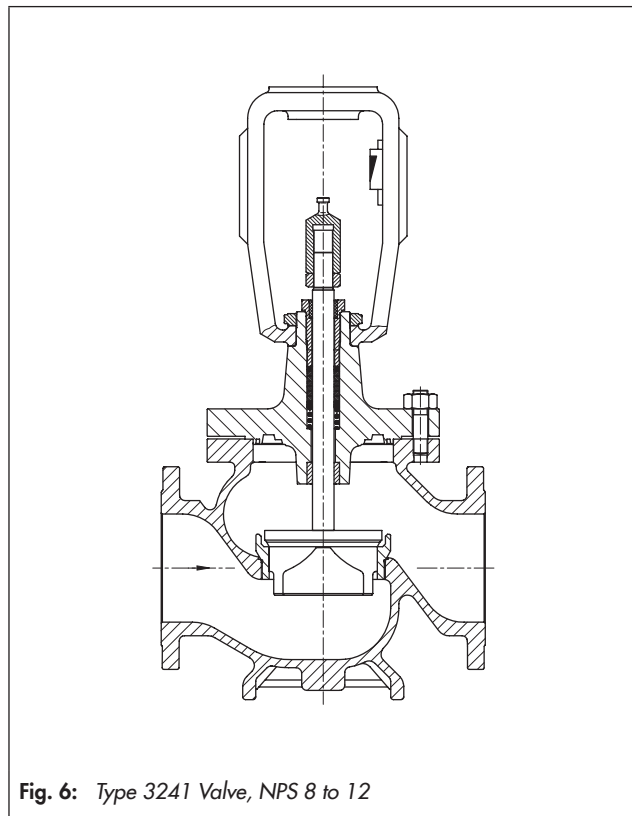


Fig. 6: Type 3241 Valve, NPS 8 to 12

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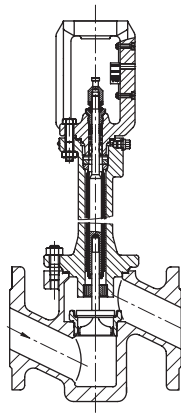


Fig. 7: Type 3241 Valve, forged steel version, NPS 1/2 to 3, with bellows seal

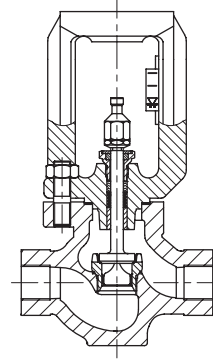


Fig. 8: Type 3241 Valve, NPS 1/2 to 2 with NPT thread

Table 1: Technical data

| Valve size | NPS | 1 to 6 | 1/2 to 2 | 1/2 to 12 | | | 1/2, 1, 1 1/2, 2, 3 ²⁾ | |
|---|------------------------------------|---|---|---|--------------------------------|--|-----------------------------------|---|
| ASTM material | | Cast iron A 126 B | | Cast steel A216 WCC | Cast stainless steel A351 CF8M | Cast steel A352 LCC | Cast stainless steel A351 CF8 | Forged steel A105 Forged stainless steel A182 F316 |
| Pressure rating | Class | 125 | 250 | 150/300 | | | 300 | |
| | Flanges | FF | - | RF ¹⁾ | | | RF ¹⁾ | |
| Type of connection | Welding ends | - | - | DIN EN 12627 Fig. 2 Only for NPS 1, 1 1/2, 2, 3, 4, 6, 8, 10, 12 | | | - | |
| | Thread | - | NPT | - | | | - | |
| Seat-plug seal | | Metal seal · Soft seal · High-performance metal seal | | | | | | |
| Characteristic | | Equal percentage · Linear (according to Information Sheet ▶ T 8000-3) | | | | | | |
| Rangeability | | 50:1 for NPS 1/2 to 2 · 30:1 for NPS 2 1/2 to 6 · 50:1 for NPS 8 and larger | | | | | | |
| Heating jacket | | Class 150 | | | | | | |
| Compliance | | CE · EAC | | | | | | |
| Temperature ranges in °C (°F) · Permissible operating pressures acc. to pressure-temperature diagram (see Information Sheet ▶ T 8000-2) | | | | | | | | |
| Body without insulating section | | -10 to +220 °C (15 to 430 °F) | | | | | | |
| Body with | Insulating section in °C (°F) | -29 to +232 (-20 to +449) | -29 to +427 (-20 to +800) | -50 to +450 ²⁾ (-58 to +842) | -46 to +343 (-50 to +650) | -50 to +300 ²⁾ (-58 to +572) | -29 to +427 (-20 to +800) | -50 to +450 (-58 to +842) |
| | Long insulating section in °C (°F) | - | - | -196 to +450 (-325 to +842) | - | -196 to +300 (-325 to +572) | - | -196 to +450 (-325 to +842) |
| | Bellows seal in °C (°F) | -29 to +232 (-20 to +449) | -29 to +427 (-20 to +800) | -50 to +427 ²⁾ (-58 to +800) | -46 to +343 (-50 to +650) | -50 to +300 ²⁾ (-58 to +572) | -29 to +427 (-20 to +800) | -50 to +450 (-58 to +842) |
| | Long bellows seal in °C (°F) | - | - | -196 to +427 (-325 to +800) | - | -196 to +300 (-325 to +572) | - | -196 to +450 (-325 to +842) |
| Valve plug | Standard | Metal seal | -196 to +450 °C (-325 to +842 °F) | | | | | |
| | | Soft seal | -196 to +220 °C (-325 to +428 °F) | | | | | |
| | Balanced | With PTFE ring | -50 to +220 °C (-58 to +428 °F) · Lower temperatures on request | | | | | |
| | | With graphite ring | 220 to 450 °C (428 to 842 °F) | | | | | |
| Leakage class according to ANSI/FCI 70-2 | | | | | | | | |
| Valve plug | Standard | Metal seal | Standard: IV · High-performance metal seal: V ⁴⁾ | | | | | |
| | | Soft seal | VI | | | | | |
| | Balanced | Metal seal | Standard IV · With PTFE or graphite balancing ring Special version V · For high-performance (only with PTFE balancing ring) on request | | | | | |

¹⁾ Other versions on request

²⁾ NPS 3 only in A 105

³⁾ DN 200 and larger up to 196 °C (-325 °F)

⁴⁾ Leakage class V for temperatures below -50 °C (-58 °F) on request

Table 2: Materials

| Valve body ¹⁾ | Cast iron A 126 B | Cast steel A216 WCC | Cast stainless steel A351 CF8M | Cast steel A352 LCC | Cast stainless steel A351 CF8 | Forged steel A105 | Forged stainless steel A182 F316 |
|--------------------------|--|------------------------|--------------------------------------|--|-------------------------------------|--|--|
| Valve bonnet | A105/ A 126 B | A105/ A216 WCC | A182 F316 A351 CF8M | A350 LF2 A352 LCC | A182 F304 A351 CF8 | A105 | A182 F316/ A182 F316L |
| Seat ²⁾ | Cr steel UNS S41000/1.4008 | | A 182 F316L/ A 351 CF3M | Cr steel UNS S41000/ 1.4008 | A182 F304/ A 351 CF8 | Cr steel UNS S41000/ 1.4008 | A182 F316L/ A351 CF3M |
| Plug ²⁾ | Cr steel UNS S41000 (A182 F316L)/1.4008 | | A 182 F316L/ A 351 CF3M | Cr steel UNS S41000 (A182 F316L)/ 1.4008 | A182 F304/ A351 CF8 | Cr steel UNS S41000 (A182 F316L)/ 1.4008 | A182 F316L/ A351 CF3M |
| Plug seal | Seal ring for soft-seated plug: PTFE with glass fiber | | | | | | |
| | Seal ring for balanced plug: PTFE with carbon or graphite ring | | | | | - | |
| Guide bushings | A 582 430 F | | 316L/ A182 F316L | 316L/ A182 F316L | A182 F304 | A 582 430F | 316L/ A182 F316L |
| Packing ³⁾ | V-ring packing: PTFE with carbon · Spring: A479 302 | | | | | | |
| Body gasket | Graphite on metal core | | | | | | |
| Insulating section | A105 | A105 | A182 F316/ A182 F316L | A350 LF2 | A182 F304 | A105 | A182 F316/ A182 F316L |
| Bellows seal | | | | | | | |
| Intermediate piece | A105 | A105 | A182 F316/ A182 F316L | A350 LF2 | A182 F304 | A105 | A182 F316/ A182 F316L |
| Metal bellows | 1.4571 ⁴⁾ | | | | A182 F321 | 1.4571 | |
| Heating jacket | - | | A182 F316L | | | | |

¹⁾ Special materials for applications with sea water: N 08904, duplex A 995 4 A; nickel-based alloy: A 494 LW-21M; other special materials on request

²⁾ Seats and metal-seated plug also with Stellite® facing; for ≤ NPS 4 plug up to seat bore 38 made of solid Stellite® available.

³⁾ Other packings on request (► T 8000-1)

⁴⁾ Other materials on request

شرکت فنی مهندسی کنترل تک فعال در زمینه ی فروش ، مشاوره فنی رایگان و آموزش ابزار دقیق

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Table 3: C_V and K_{VS} coefficients

Terms for control valve sizing according to IEC 60534, Parts 2-1 and 2-2: $F_L = 0.95$, $X_T = 0.75$

Conversion of flow coefficients: C_V (US gallons/min.) = $1.17 \times K_{VS}$ (m³/h) or $K_{VS}/C_V = 0.865$

Table 3.1: Overview with flow divider ST 1 (C_{V1}/K_{VS1}), ST 2 (C_{V2}/K_{VS2}) and ST 3 (C_{V3}/K_{VS3})

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------|------|------|------|------|------|-----|------|-----|-----|-------|------|------|------|------|-----|------|------|------|------|------|------|------|------|------|------|------|
| C_V | 0.12 | 0.2 | 0.3 | 0.5 | 0.75 | 1.2 | 2 | 3 | 5 | 7.5 | 12 | 20 | 30 | 47 | 70 | 95 | 75 | 120 | 190 | 300 | 290 | 420 | 735 | 1150 | 1730 | |
| 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 | 80 | 63 | 100 | 160 | 260 | 250 | 360 | 630 | 1000 | 1500 | |
| C_{V1} | - | - | - | - | - | - | 1.7 | 2.6 | 4.2 | 7 | 10.5 | 17 | 26 | 42 | 62 | 85 | 67 | 105 | 170 | 275 | 265 | 375 | 650 | 1040 | 1560 | |
| K_{VS1} | - | - | - | - | - | - | 1.45 | 2.2 | 3.6 | 5.7 | 9 | 14.5 | 22 | 36 | 54 | 72 | 57 | 90 | 144 | 234 | 225 | 320 | 560 | 900 | 1350 | |
| C_{V2} | - | - | - | - | - | - | - | - | - | - | 9.5 | 15 | 23 | 37 | 56 | - | 60 | 95 | 145 | 245 | 235 | 335 | 580 | 950 | 1400 | |
| K_{VS2} | - | - | - | - | - | - | - | - | - | - | 8 | 13 | 20 | 32 | 48 | - | 50 | 80 | 125 | 210 | 200 | 290 | 500 | 800 | 1200 | |
| C_{V3} | - | - | - | - | - | - | - | - | - | - | 9 | 14 | 23 | 35 | - | - | 55 | 90 | 140 | - | 220 | 315 | 560 | 880 | 1280 | |
| K_{VS3} | - | - | - | - | - | - | - | - | - | - | 7.5 | 12 | 20 | 30 | - | - | 47 | 75 | 120 | - | 190 | 270 | 480 | 750 | 1100 | |
| Seat (ØD) | in | 0.12 | | 0.24 | | | 0.47 | | | 0.945 | | | 1.22 | 1.5 | 1.9 | 2.48 | 3.15 | 2.48 | 3.15 | 3.94 | 5.12 | 4.92 | 5.91 | 7.87 | 9.84 | 11.8 |
| | mm | 3 | | 6 | | | 12 | | | 24 | | | 31 | 38 | 48 | 63 | 80 | 63 | 80 | 100 | 130 | 125 | 150 | 200 | 250 | 300 |
| Travel | in | 0.59 | | | | | | | | | | | | 1.18 | | | 2.36 | | | 4.72 | | | | | | |
| | mm | 15 | | | | | | | | | | | | 30 | | | 60 | | | 120 | | | | | | |

Table 3.2: Versions without flow divider (C_V/K_{VS}) · Areas highlighted in gray indicate versions also with pressure balancing

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|------|------|------|-----|------|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|-----------------|-----|-----|-----|-----|-----|------|------|---|--|
| C_V | 0.12 | 0.2 | 0.3 | 0.5 | 0.75 | 1.2 | 2 | 3 | 5 | 7.5 | 12 | 20 | 30 | 47 | 70 | 95 | 75 | 120 | 190 | 300 | 290 | 420 | 735 | 1150 | 1730 | | |
| 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 | 80 | 63 | 100 | 160 | 260 | 250 | 360 | 630 | 1000 | 1500 | | |
| NPS | DN | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/2 | 15 | • | • | • | • | • | • | • | • | • | | | | | | | | | | | | | | | | | |
| 3/4 | 20 | • | • | • | • | • | • | • | • | • | | | | | | | | | | | | | | | | | |
| 1 | 25 | • | • | • | • | • | • | • | • | • | • | | | | | | | | | | | | | | | | |
| 1 1/2 | 40 | | | | • | • | • | • | • | • | • | • | • | | | | | | | | | | | | | | |
| 2 | 50 | | | | • | • | • | • | • | • | • | • | • | • | | | | | | | | | | | | | |
| 2 1/2 | 65 | | | | | | | | | | | | • | • | • | | | | | | | | | | | | |
| 3 | 80 | | | | | | | | | | | | • | • | • | • | | • ¹⁾ | | | | | | | | | |
| 4 | 100 | | | | | | | | | | | | | | | | • | • | • | • | | | | | | | |
| 6 | 150 | | | | | | | | | | | | | | | | • | • | • | • | • | | | | | | |
| 8 | 200 | | | | | | | | | | | | | | | | | • | • | | • | • | • | | | | |
| 10 | 250 | | | | | | | | | | | | | | | | | | • | • | | • | • | • | • | | |
| 12 | 300 | | | | | | | | | | | | | | | | | | | • | | • | • | • | • | • | |

¹⁾ With 19 mm overtravel (not with bellows seal)

Table 3.3: Versions with flow divider ST 1 (C_{V1}/K_{VS1}) · Areas highlighted in gray indicate versions also with pressure balancing

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------|-----|--|--|--|--|--|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| C_{V1} | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| K_{VS1} | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NPS | DN | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/2 | 15 | | | | | | | • | • | • | | | | | | | | | | | | | | | | | |
| 3/4 | 20 | | | | | | | • | • | • | | | | | | | | | | | | | | | | | |
| 1 | 25 | | | | | | | • | • | • | | | | | | | | | | | | | | | | | |
| 1 1/2 | 40 | | | | | | | | | • | • | • | • | | | | | | | | | | | | | | |
| 2 | 50 | | | | | | | | | • | • | • | • | • | | | | | | | | | | | | | |
| 2 1/2 | 65 | | | | | | | | | | | | • | • | • | | | | | | | | | | | | |
| 3 | 80 | | | | | | | | | | | | | • | • | • | • | | | | | | | | | | |
| 4 | 100 | | | | | | | | | | | | | | | | • | • | • | • | | | | | | | |
| 6 | 150 | | | | | | | | | | | | | | | | • | • | • | • | • | | | | | | |
| 8 | 200 | | | | | | | | | | | | | | | | | • | • | | • | • | • | | | | |
| 10 | 250 | | | | | | | | | | | | | | | | | | • | • | | • | • | • | • | | |
| 12 | 300 | | | | | | | | | | | | | | | | | | | • | | • | • | • | • | • | |

Table 3.1: Overview with flow divider ST 1 (C_v1/K_{vs1}), ST 2 (C_v2/K_{vs2}) and ST 3 (C_v3/K_{vs3})

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|------|------|------|-----|------|-----|------|------|-----|-----|-------|------|----|------|-----|-----|------|------|------|------|------|------|------|------|------|------|------|
| C_v | 0.12 | 0.2 | 0.3 | 0.5 | 0.75 | 1.2 | 2 | 3 | 5 | 7.5 | 12 | 20 | 30 | 47 | 70 | 95 | 75 | 120 | 190 | 300 | 290 | 420 | 735 | 1150 | 1730 | | |
| 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 | 80 | 63 | 100 | 160 | 260 | 250 | 360 | 630 | 1000 | 1500 | | |
| C_v1 | - | - | - | - | - | - | 1.7 | 2.6 | 4.2 | 7 | 10.5 | 17 | 26 | 42 | 62 | 85 | 67 | 105 | 170 | 275 | 265 | 375 | 650 | 1040 | 1560 | | |
| K_{vs1} | - | - | - | - | - | - | 1.45 | 2.2 | 3.6 | 5.7 | 9 | 14.5 | 22 | 36 | 54 | 72 | 57 | 90 | 144 | 234 | 225 | 320 | 560 | 900 | 1350 | | |
| C_v2 | - | - | - | - | - | - | - | - | - | - | 9.5 | 15 | 23 | 37 | 56 | - | 60 | 95 | 145 | 245 | 235 | 335 | 580 | 950 | 1400 | | |
| K_{vs2} | - | - | - | - | - | - | - | - | - | - | 8 | 13 | 20 | 32 | 48 | - | 50 | 80 | 125 | 210 | 200 | 290 | 500 | 800 | 1200 | | |
| C_v3 | - | - | - | - | - | - | - | - | - | - | 9 | 14 | 23 | 35 | - | - | 55 | 90 | 140 | - | 220 | 315 | 560 | 880 | 1280 | | |
| K_{vs3} | - | - | - | - | - | - | - | - | - | - | 7.5 | 12 | 20 | 30 | - | - | 47 | 75 | 120 | - | 190 | 270 | 480 | 750 | 1100 | | |
| Seat (\varnothing) | in | 0.12 | | | 0.24 | | | 0.47 | | | 0.945 | | | 1.22 | 1.5 | 1.9 | 2.48 | 3.15 | 2.48 | 3.15 | 3.94 | 5.12 | 4.92 | 5.91 | 7.87 | 9.84 | 11.8 |
| | mm | 3 | | | 6 | | | 12 | | | 24 | | | 31 | 38 | 48 | 63 | 80 | 63 | 80 | 100 | 130 | 125 | 150 | 200 | 250 | 300 |
| Travel | in | 0.59 | | | | | | | | | | | | 1.18 | | | | | 2.36 | | | 4.72 | | | | | |
| | mm | 15 | | | | | | | | | | | | 30 | | | | | 60 | | | 120 | | | | | |

Table 3.4: Versions with flow divider ST 2 (C_v2/K_{vs2}) · Areas highlighted in gray indicate versions also with pressure balancing

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------|-----|--|--|--|--|--|--|--|--|--|-----|----|----|----|----|---|----|----|-----|-----|-----|-----|-----|-----|------|--|--|
| C_v2 | - | | | | | | | | | | 9.5 | 15 | 23 | 37 | 56 | - | 60 | 95 | 145 | 245 | 235 | 335 | 580 | 950 | 1400 | | |
| K_{vs2} | - | | | | | | | | | | 8 | 13 | 20 | 32 | 48 | - | 50 | 80 | 125 | 210 | 200 | 290 | 500 | 800 | 1200 | | |
| NPS | DN | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/2 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3/4 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 25 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 1/2 | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 1/2 | 65 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 150 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 200 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 250 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 300 | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 3.5: Versions with flow divider ST 3 (C_v3/K_{vs3}) · Areas highlighted in gray indicate versions also with pressure balancing

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------|-----|--|--|--|--|--|--|--|--|--|-----|----|----|----|---|---|----|----|-----|---|-----|-----|-----|-----|------|--|--|
| C_v3 | - | | | | | | | | | | 9 | 14 | 23 | 35 | - | - | 55 | 90 | 140 | - | 220 | 315 | 560 | 880 | 1280 | | |
| K_{vs3} | - | | | | | | | | | | 7.5 | 12 | 20 | 30 | - | - | 47 | 75 | 120 | - | 190 | 270 | 480 | 750 | 1100 | | |
| NPS | DN | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/2 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3/4 | 20 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 25 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 1/2 | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 1/2 | 65 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 150 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | 200 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 250 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | 300 | | | | | | | | | | | | | | | | | | | | | | | | | | |

¹⁾ Not with bellows seal or insulating section

Differential pressures: permissible differential pressures are listed in Information Sheet ► T 8000-4.

Table 4: Dimensions and weights for standard version of Type 3241-1 and Type 3241-7 Valves with flanges or welding ends

Table 4.1: Dimensions for Type 3241 Valve, up to NPS 6 · Without actuator · Dimensions in inch and mm

| Valve | NPS | ½ | ¾ | 1 | 1½ | 2 | 2½ | 3 | 4 | 6 | |
|------------------------|--|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | DN | 15 | 20 | 25 | 40 | 50 | 65 | 80 | 100 | 150 | |
| | NPT | ½ | ¾ | 1 | 1½ | 2 | - | - | - | - | |
| Length L ¹⁾ | Class 125 and 150 | in | 7.25 | 7.25 | 7.25 | 8.75 | 10.0 | 10.88 | 11.75 | 13.88 | 17.75 |
| | | mm | 184 | 184 | 184 | 222 | 254 | 276 | 298 | 352 | 451 |
| | Class 300 | in | 7.50 | 7.62 | 7.75 | 9.25 | 10.50 | 11.50 | 12.50 | 14.50 | 18.62 |
| | | mm | 190 | 194 | 197 | 235 | 267 | 292 | 318 | 368 | 473 |
| Length L1 | Class 250 | in | 6 | 6 | 6 | 8 | 9.25 | - | - | - | - |
| | | mm | 152.4 | 152.4 | 152.4 | 203.2 | 235 | - | - | - | - |
| H1 for actuator | ≤750v2 cm ² | in | 8.74 | | | 8.78 | | 10.31 | | 13.94 | 15.35 |
| | | mm | 222 | | | 223 | | 262 | | 354 | 390 |
| | 1000 cm ² 1400-60 cm ² | in | - | | | | | | | 16.26 | 17.72 |
| | | mm | - | | | | | | | 413 | 450 |
| | 1400-120 cm ² 2800 cm ² | in | - | | | | | | | | |
| | | mm | - | | | | | | | | |
| H2 for version | Cast steel | in | 1.73 | 1.73 | 1.73 | 2.83 | 2.83 | 3.86 | 3.86 | 4.65 | 6.89 |
| | | mm | 44 | 44 | 44 | 72 | 72 | 98 | 98 | 118 | 175 |
| | Forged steel | in | 2.1 | - | 2.76 | 3.62 | 3.86 | - | 5.05 | - | - |
| | | mm | 53 | - | 70 | 92 | 98 | - | 128 | - | - |

¹⁾ Face-to-face dimensions according to ANSI/ISA 75.08.01

Table 4.2: Dimensions for Type 3241 Valve, NPS 8 and larger · Without actuator · Dimensions in inch and mm

| Valve | NPS | 8 | 10 | 10 | 10 | 12 | |
|-------------------------------|--|-------|---------------|------------------------|---------------------------------|-------|-------|
| | DN | 200 | 250/cast iron | up to 200 mm seat bore | 250 seat bore 250 mm and larger | 300 | |
| Length L ¹⁾ | Class 125 and 150 | in | 21.38 | 26.50 | 26.50 | 26.50 | 29.00 |
| | | mm | 543 | 673 | 673 | 673 | 737 |
| | Class 300 | in | 22.38 | 27.88 | 27.88 | 27.88 | 30.50 |
| | | mm | 568 | 708 | 708 | 708 | 775 |
| H4 | in | 15.35 | 15.35 | 17.76 | 17.76 | 25.67 | |
| | mm | 390 | 390 | 451 | 451 | 652 | |
| H8 ²⁾ for actuator | 1000 cm ² 1400-60 cm ² | in | 16.46 | 16.46 | 16.46 | 19.80 | 19.80 |
| | | mm | 418 | 418 | 418 | 503 | 503 |
| | 1400-120 cm ² 2800 cm ² | in | 19.80 | 19.80 | 19.80 | 25.59 | 25.59 |
| | | mm | 503 | 503 | 503 | 650 | 650 |
| H2 | in | 9.65 | 10.63 | 12.20 | 12.20 | 14.57 | |
| | mm | 245 | 270 | 310 | 310 | 370 | |

¹⁾ Face-to-face dimensions according to ANSI/ISA 75.08.01

²⁾ H8 increases by 170 mm for valves with K_{V5} 250, 360 or 630 and 60 mm rated travel operating with overtravel.

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Table 4.3: Dimensions for Type 3271 and Type 3277 Pneumatic Actuators · Dimensions in inch and mm

| Actuator area | cm ² | 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 | | | | | | - | - | - | - | - |
| 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 | - | - | - | - |

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 355v2 cm² without lifting eyelet

²⁾ Minimum clearance required to remove the actuator

Table 4.4: Weights for Type 3241-1 and Type 3241-7 · Weights in lbs and kg

| Valve | NPS | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 2 1/2 | 3 | 4 | 6 | 8 | 10 | 12 |
|-------------------------|-----|-----|-----|----|-------|----|-------|----|-----|-----|------|------|------|
| | mm | 15 | 20 | 25 | 40 | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 |
| Weight without actuator | lbs | 15 | 18 | 20 | 35 | 44 | 71 | 82 | 137 | 287 | 1096 | 1892 | 2535 |
| | kg | 7 | 8 | 9 | 16 | 20 | 32 | 37 | 62 | 130 | 497 | 858 | 1150 |

| Actuator | cm ² | 120 | 175v2 | 240 | 350 | 355v2 | 700 | 750v2 | 1000 | 1400-60 | 1400-120 | 2800 | | |
|-----------|-------------------|----------------|-------|-----|-----|-------|-----|-------|------|---------|----------|------|-----|------|
| Type 3271 | Without handwheel | lbs | 6 | 13 | 11 | 18 | 33 | 49 | 79 | 176 | 154 | 386 | 992 | |
| | | kg | 2.5 | 6 | 5 | 8 | 15 | 22 | 36 | 80 | 70 | 175 | 450 | |
| | With handwheel | Travel ≤80 mm | lbs | 9 | 22 | 20 | 29 | 51 | 60 | 90 | 397 | 386 | 661 | 1268 |
| | | | kg | 4 | 10 | 9 | 13 | 23 | 27 | 41 | 180 | 175 | 300 | 575 |
| | | Travel ≤160 mm | lbs | - | - | - | - | - | - | - | - | - | 937 | 1543 |
| | | | kg | - | - | - | - | - | - | - | - | - | 425 | 700 |
| Type 3277 | Without handwheel | lbs | 7 | 22 | 20 | 26 | 42 | 57 | 88 | - | - | - | - | |
| | | kg | 3.2 | 10 | 9 | 12 | 19 | 26 | 40 | - | - | - | - | |
| | With handwheel | lbs | 10 | 31 | 29 | 37 | 53 | 68 | 99 | - | - | - | - | |
| | | kg | 4.5 | 14 | 13 | 17 | 24 | 31 | 45 | - | - | - | - | |

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Table 5: Dimensions and weights for Type 3241 Valve with insulating section or bellows seal

Table 5.1: Dimensions in mm and weights Type 3241 Valve, NPS ½ to 6 and ½ to 2 NPT thread · Without actuator · Dimensions in inch and mm · Weights in lbs and kg

| Valve size | | NPS | ½ | ¾ | 1 | 1½ | 2 | 2½ | 3 | 4 | 6 | |
|-----------------------------------|--|------------------------------------|----|-------|----|----|-------|----|-------|-----|-------|-------|
| | | DN | 15 | 20 | 25 | 40 | 50 | 65 | 80 | 100 | 150 | |
| H4 for actuator | ≤750v2 cm ² | Insulating section or bellows seal | in | 16.10 | | | 16.14 | | 17.76 | | 25.04 | 26.46 |
| | | | mm | 409 | | | 410 | | 451 | | 636 | 672 |
| | | Long | in | 28.07 | | | 28.11 | | 29.72 | | 34.53 | 35.94 |
| | | | mm | 713 | | | 714 | | 755 | | 877 | 913 |
| | 1000 cm ² / 1400-60 cm ² | Insulating section or bellows seal | in | - | | | | | | | 27.36 | 28.82 |
| | | | mm | - | | | | | | | 695 | 732 |
| | | Long | in | - | | | | | | | 36.85 | 38.31 |
| | | | mm | - | | | | | | | 936 | 973 |
| | 1400-120 cm ² / 2800 cm ² | Insulating section or bellows seal | in | - | | | | | | | | |
| | | | mm | - | | | | | | | | |
| | | Long | in | - | | | | | | | | |
| | | | mm | - | | | | | | | | |
| Weight without actuator (approx.) | Insulating section or bellows seal | lbs | 22 | 24 | 26 | 49 | 57 | 88 | 99 | 176 | 353 | |
| | | kg | 10 | 11 | 12 | 22 | 26 | 40 | 45 | 80 | 160 | |
| | Long insulating section/ bellows seal | lbs | 31 | 33 | 35 | 57 | 66 | 97 | 108 | 194 | 370 | |
| | | kg | 14 | 15 | 16 | 26 | 30 | 44 | 49 | 88 | 168 | |

Table 5.2: Dimensions in mm and weights Type 3241 Valve, NPS 8 to 12 · Without actuator · Dimensions in inch and mm · Weights in lbs and kg

| Version with | | Insulating section | | | | Bellows seal | | | | |
|-----------------------------------|--|--------------------|-------------------------------------|-------------------------|------|--------------|-------------------------------------|-------------------------|------|------|
| Valve size | NPS | 8 | 10 Up to 200 mm seat bore | 10 Seat bore 250 | 12 | 8 | 10 Up to 200 mm seat bore | 10 Seat bore 250 | 12 | |
| | DN | 200 | 250 Up to 200 mm seat bore | 250 Seat bore 250 | 300 | 200 | 250 Up to 200 mm seat bore | 250 Seat bore 250 | 300 | |
| H4 for actuator | 1000 cm ² / 1400-60 cm ² | in | 32.7 | 41.9 | - | 45.3 | 40.8 | 58.7 | - | 59.8 |
| | | mm | 830 | 1065 | - | 1150 | 1036 | 1492 | - | 1520 |
| | 1400-120 cm ² / 2800 cm ² | in | 32.7 | 41.9 | 41.9 | 45.3 | 40.8 | 58.7 | 58.7 | 59.8 |
| | | mm | 830 | 1065 | 1065 | 1150 | 1036 | 1492 | 1492 | 1520 |
| H8 for actuator | 1000 cm ² / 1400-60 cm ² | in | 16.5 | 16.5 | 19.8 | 19.8 | 16.5 | 16.5 | 19.8 | 19.8 |
| | | mm | 418 | 418 | 503 | 503 | 418 | 418 | 503 | 503 |
| | 1400-120 cm ² / 2800 cm ² | in | 19.8 | 19.8 | 25.6 | 25.6 | 19.8 | 19.8 | 25.6 | 25.6 |
| | | mm | 503 | 503 | 650 | 650 | 503 | 503 | 650 | 650 |
| Weight without actuator (approx.) | lbs | 1191 | 2220 | 2220 | 2690 | 1312 | 2407 | 2407 | 2793 | |
| | kg | 540 | 1007 | 1007 | 1220 | 595 | 1092 | 1092 | 1267 | |

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Table 6: Dimensions for Type 3241 Valve with heating jacket · Not for valves with body material A 126 B · Dimensions in inch and mm

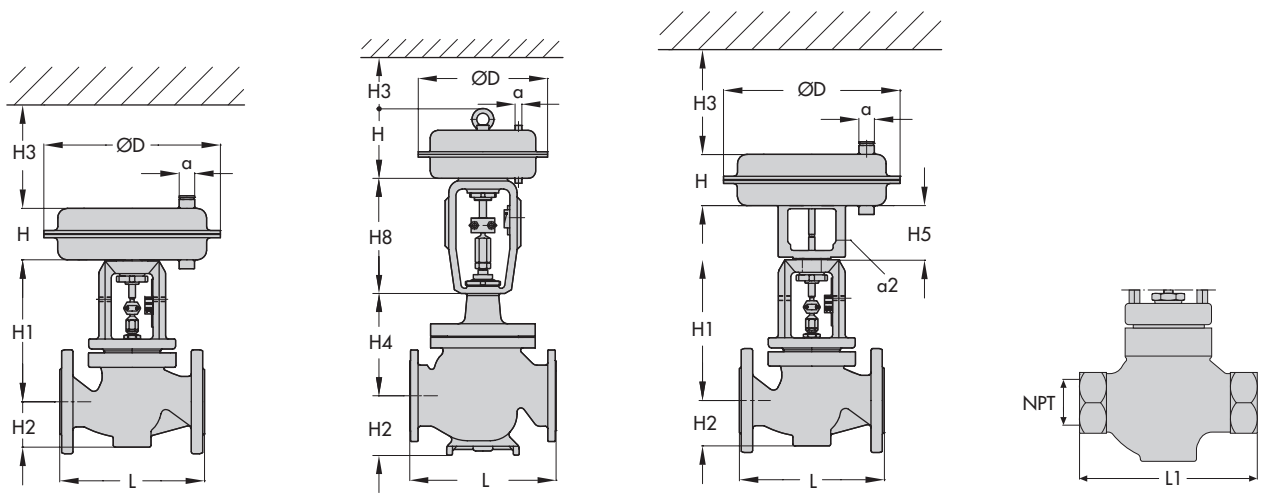
| Valve size | NPS | 1 | 1½ · 2 | 3 | 4 | 6 | 8 to 12 |
|------------|-----|-----|---------|-----|------|------|------------|
| | DN | 25 | 40 · 50 | 80 | 100 | 150 | 200 to 300 |
| a | in | 4.3 | 5.5 | 7.1 | 7.9 | 10.4 | On request |
| | mm | 110 | 140 | 180 | 200 | 265 | |
| b | in | 0.6 | 0.8 | 1.4 | 2 | 3.2 | |
| | mm | 15 | 20 | 35 | 50 | 80 | |
| c | in | 5.5 | 6.7 | 8.5 | 10 | 5.1 | |
| | mm | 140 | 170 | 215 | 255 | 130 | |
| d | in | 7.5 | 7.5 | 9.1 | 12.6 | 14 | |
| | mm | 190 | 190 | 230 | 320 | 355 | |

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Dimensional drawings



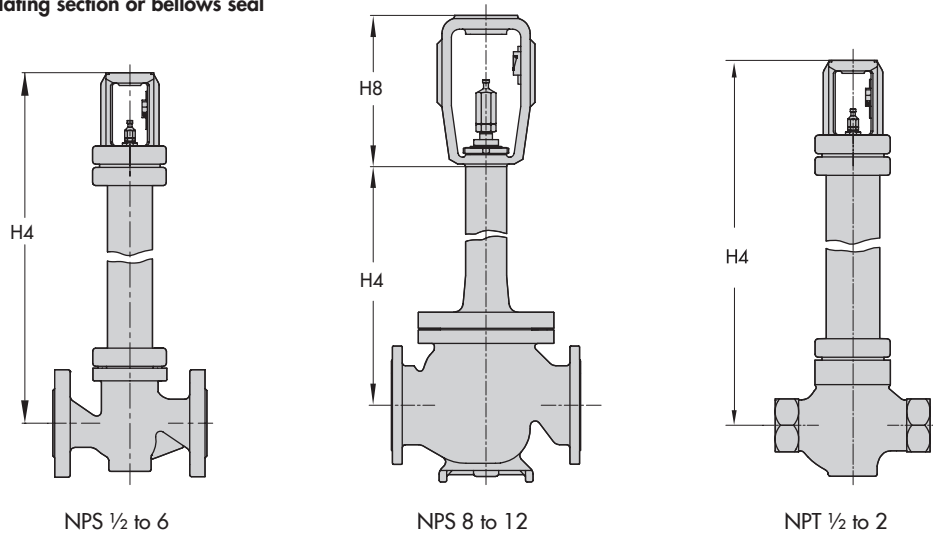
Type 3241-1 · NPS ½ to 6

Type 3241-1 · NPS 8 to 12

Type 3241-7 · NPS ½ to 6

Type 3241 · NPT ½ to 2

Versions with insulating section or bellows seal

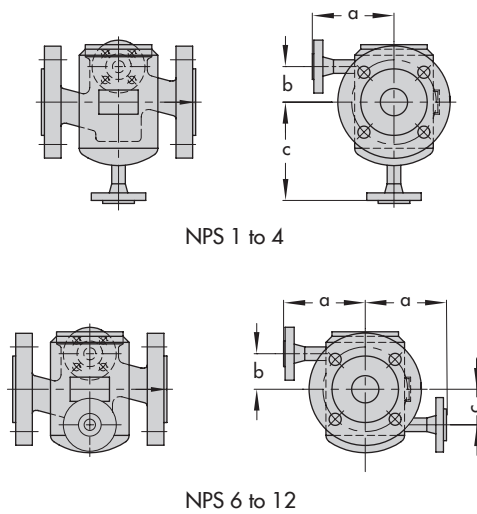


NPS ½ to 6

NPS 8 to 12

NPT ½ to 2

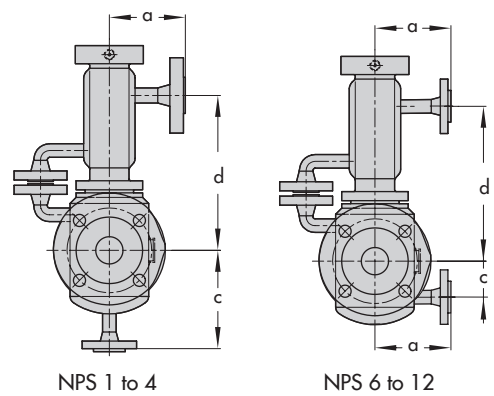
Versions with heating jacket



NPS 1 to 4

NPS 6 to 12

Versions with insulating section or bellows seal



NPS 1 to 4

NPS 6 to 12

Ordering text

| | |
|--------------------|---|
| Globe valve | Type 3241 |
| Valve size | NPS ... |
| Pressure rating | Class ... |
| Body material | According to Table 2 |
| Type of connection | Flanges (RF or FF), welding ends or NPT thread |
| Seat-plug seal | Soft seal, metal seal or high-performance metal seal |
| Characteristic | Equal percentage or linear |
| Pneumatic actuator | Type 3271 or Type 3277 |
| Fail-safe position | Fail-close or fail-open |
| Process medium | Density and temperature |
| Max. flow rate | in kg/h or m ³ /h |
| Pressure | p ₁ and p ₂ in bar or psi (absolute pressure) |
| Valve accessories | Positioner and/or limit switch |

Associated Information Sheet ▶ T 8000-x

Associated Data Sheets for pneumatic actuators ▶ T 8310-1 to -3

Associated Mounting and Operating Instructions ▶ EB 8012

Associated Safety Manual ▶ SH 8012

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