

Series 240

Types 3241-1 PSA, -7 PSA, -9 PSA Pneumatic Control Valves Type 3241 PSA Globe Valve



ANSI version

Application

Control valves for PSA plants (Pressure Swing Adsorption)

| | |
|------------------------|---------------------------------------|
| Valve sizes | NPS ½ to 6 |
| Pressure rating | Class 150 to 300 |
| Temperatures | -20 to 430 °F (-29 to +220 °C) |
| Standards | ANSI, ASME and ASTM |



Type 3241 Globe Valve operated with

- Type 3271 Pneumatic Actuator (Type 3241-1 Control Valve)
- Type 3277 Pneumatic Actuator (Type 3241-7 Control Valve) for integral positioner attachment
- Type 3275 Pneumatic Piston Actuator (Type 3241-9 Control Valve)

Valve body made of

- Cast stainless steel according to ASTM specifications
- Forged steel or forged stainless steel
- Cast stainless steel

Undivided valve bonnet

Valve plug

- Soft seal or
- High-performance metal seal

The control valves, designed according to the modular assembly principle, can be equipped with various accessories:

Positioners, solenoid valves and other accessories according to IEC 60534-6-1 and NAMUR recommendation. Refer to Information Sheet ▶ T 8350 EN for more details.

Versions

Standard version for temperatures ranging from -20 to 430 °F (-29 to 220 °C)

- **Type 3241-1 PSA** (Fig. 1) · NPS ½ to 3 with Type 3271 Actuator (see Data Sheet ▶ T 8310-1 EN)
- **Type 3241-7 PSA** (Fig. 2 and Fig. 4) · NPS ½ to 3, valve in forged steel up to NPS 3, with Type 3277 Actuator for integral positioner attachment (▶ T 8310-1 EN)
- **Type 3241-9 PSA** (Fig. 3) · NPS ½ to 6, with Type 3275 Piston Actuator (▶ T 8314 EN), for integral attachment of a positioner and/or limit switch

Further versions

- **Flow divider** for noise reduction in both directions of flow
- **DIN version** · See Data Sheet ▶ T 8015-1 EN
- **Versions with dimensions according to Japanese Industry Standard (JIS)** · Details on request

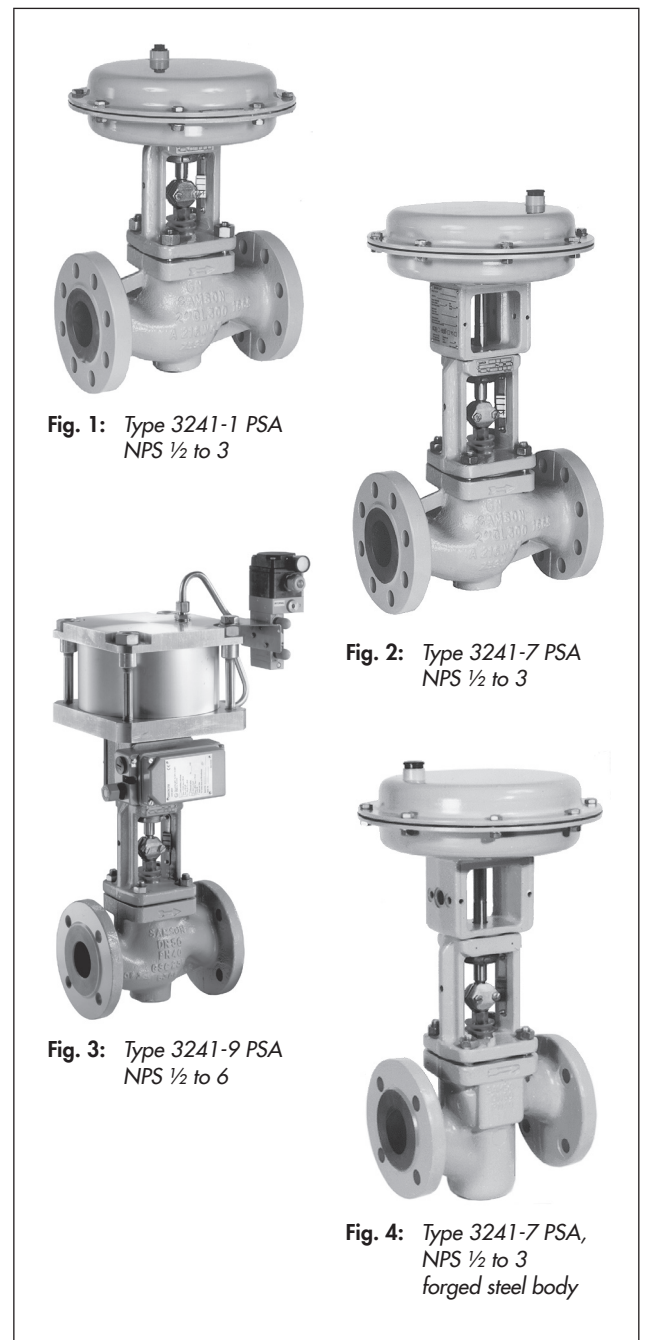


Fig. 1: Type 3241-1 PSA
NPS ½ to 3

Fig. 2: Type 3241-7 PSA
NPS ½ to 3

Fig. 3: Type 3241-9 PSA
NPS ½ to 6

Fig. 4: Type 3241-7 PSA,
NPS ½ to 3
forged steel body

Principle of operation

The process medium flows through the valve in both directions. 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 Type 3271 or Type 3277 Actuator (► T 8310-1 EN), 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.

The double-acting Type 3275 Piston Actuator does not have a fail-safe action (see ► T 8314 EN).

Notes on the differential pressure tables

The differential pressure tables have been prepared under the following conditions:

- The maximum permissible supply pressure is 4 bar (60 psi) for valves in sizes NPS ½ to 2 and actuators with an effective diaphragm area of 700 cm²
- Process medium in flow-to-open direction
- Version with PTFE packing
- The leakage rates specified in Table 1 are not exceeded with the maximum differential pressures specified.
- The specified differential pressure may be restricted by the pressure-temperature diagram.

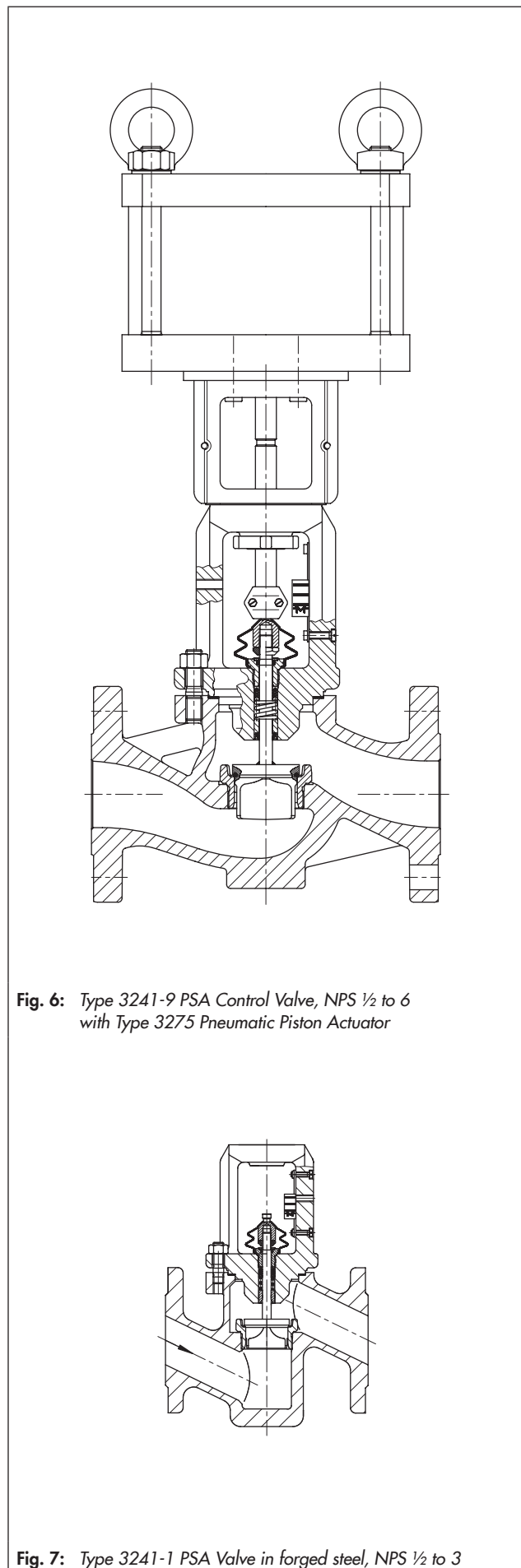
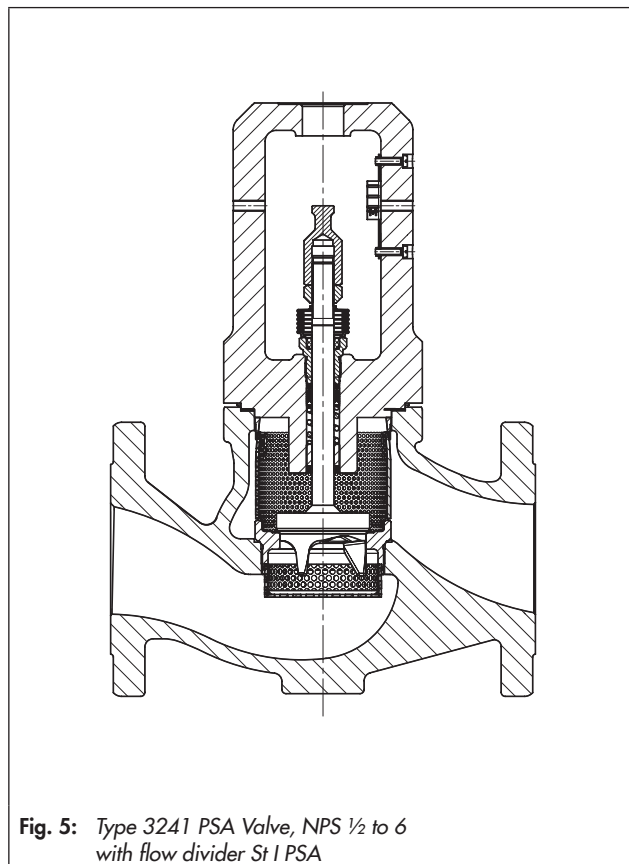


Table 1: Technical data for Type 3241 PSA Valve

| Valve size | NPS | ½ to 6 | ½, 1, 1½, 2, 3 | ½ to 6 | ½, 1, 1½, 2, 3 |
|---|--|------------------|------------------|------------------|------------------|
| ASTM material | | A216 WCC | A105 | A351 CF8M | A182 F316 |
| Type of end connections | | Flange | Flange | Flange | Flange |
| Flange type | | RF ¹⁾ | RF ¹⁾ | RF ¹⁾ | RF ¹⁾ |
| Pressure rating (ANSI Class) | | 150/300 | 300 | 150/300 | 300 |
| Seat/plug seal | Soft seal or high-performance metal seal | | | | |
| Characteristic | Equal percentage or linear | | | | |
| Rangeability | 50:1 for NPS ½ to 2 · 30:1 for NPS 2½ to 6 | | | | |
| Temperature ranges in °C (°F) · Permissible operating pressures acc. to pressure-temperature diagram (see Information Sheet T 8000-2 EN) | | | | | |
| Valve | -29 to 220 °C (-20 to 430 °F) | | | | |
| Leakage class according to ANSI/FCI 70-2 | | | | | |
| Valve plug | Soft seal | | | | VI |
| | High-performance metal seal | | | | V |

¹⁾ Other versions on request

Table 2: Materials

| Standard version | | | | |
|--------------------------|--|----------------------|-----------------------------------|-------------------------------------|
| Valve body ¹⁾ | Cast steel A216 WCC | Forged steel A105 | Cast stainless steel A351 CF8M | Forged stainless steel A182 F316 |
| Valve bonnet | A105 | A105 | A182 F316 | A182 F316 |
| Seat and plug | 1.4006 | 1.4006 | 1.4404 | 1.4404 |
| | Seal ring for soft-seated plug: PTFE with glass fiber | | | |
| Guide bushings | 1.4104 | 1.4104 | 1.4404 | 1.4404 |
| Packing | V-ring packing: PTFE with carbon · Spring: 1.4310 · Stem protective ring | | | |
| Body gasket | Graphite on metal core | | | |

¹⁾ Refer to pressure-temperature diagram, other materials available on request

Table 3: C_V and K_{VS} coefficients

Table 3.1: Overview (with flow divider St I PSA ($C_V I$, $K_{VS} I$))

| C_V | | 2 | 3 | 5 | 7.5 | 12 | 20 | 30 | 47 | 70 | 75 | 95 | 120 | 190 | 300 |
|------------|----|------|------|------|-------|-------|------|------|------|------|------|------|------|------|------|
| K_{VS} | | 1.6 | 2.5 | 4.0 | 6.3 | 10 | 16 | 25 | 40 | 60 | 63 | 80 | 100 | 160 | 260 |
| $C_V I$ | | 1.5 | 2.3 | 3.7 | 6 | 9.5 | 15 | 23 | 37 | 56 | 60 | 75 | 95 | 145 | 245 |
| $K_{VS} I$ | | 1.3 | 2 | 3.2 | 5 | 8 | 13 | 20 | 32 | 48 | 50 | 63 | 80 | 125 | 210 |
| Seat ØD | in | 0.47 | 0.47 | 0.47 | 0.945 | 0.945 | 1.22 | 1.5 | 1.9 | 2.48 | 2.48 | 3.15 | 3.15 | 3.94 | 5.12 |
| | mm | 12 | 12 | 12 | 24 | 24 | 31 | 38 | 48 | 63 | 63 | 80 | 80 | 100 | 130 |
| Travel | in | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 0.59 | 1.18 | 0.59 | 1.18 | 1.18 | 1.18 |
| | mm | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 30 | 15 | 30 | 30 | 30 |

Table 3.2: Versions without flow divider

| C_V | | 2 | 3 | 5 | 7.5 | 12 | 20 | 30 | 47 | 70 | 75 | 95 | 120 | 190 | 300 |
|----------------------|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|-----|-----|-----|
| K_{VS} | | 1.6 | 2.5 | 4.0 | 6.3 | 10 | 16 | 25 | 40 | 60 | 63 | 80 | 100 | 160 | 260 |
| Valve size NPS/DN | | | | | | | | | | | | | | | |
| ½ | 15 | • | • | • | | | | | | | | | | | |
| ¾ | 20 | | • | • | • | | | | | | | | | | |
| 1 | 25 | | | • | • | • | | | | | | | | | |
| 1½ | 40 | | | | | • | • | • | | | | | | | |
| 2 | 50 | | | | | | • | • | • | | | | | | |
| 2½ | 65 | | | | | | | • | • | • | | | | | |
| 3 | 80 | | | | | | | | • | • | | • | | | |
| 4 | 100 | | | | | | | | | | • | | • | • | |
| 6 | 150 | | | | | | | | | | | | • | • | • |

Table 3.3: Versions with flow divider St I PSA ($C_V I$, $K_{VS} I$) · Versions with cast bodies only

| $C_V I$ | | 1.5 | 2.3 | 3.7 | 6 | 9.5 | 15 | 23 | 37 | 56 | 60 | 75 | 95 | 145 | 245 |
|----------------------|-----|-----|-----|-----|---|-----|----|----|----|----|----|----|----|-----|-----|
| $K_{VS} I$ | | 1.3 | 2 | 3.2 | 5 | 8 | 13 | 20 | 32 | 48 | 50 | 63 | 80 | 125 | 210 |
| Valve size NPS/DN | | | | | | | | | | | | | | | |
| ½ | 15 | • | • | • | | | | | | | | | | | |
| ¾ | 20 | • | • | • | | | | | | | | | | | |
| 1 | 25 | • | • | • | • | | | | | | | | | | |
| 1½ | 40 | | | | • | • | • | • | | | | | | | |
| 2 | 50 | | | | | | • | • | • | | | | | | |
| 2½ | 65 | | | | | | | • | • | • | | | | | |
| 3 | 80 | | | | | | | | • | • | | • | | | |
| 4 | 100 | | | | | | | | | | • | | • | • | |
| 6 | 150 | | | | | | | | | | | | • | • | • |

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.) = K_V (m³/h)/0.865

Table 4: Differential pressure tables for Type 3271 and Type 3277 Actuators with Type 3241 PSA Valve

Permissible differential pressures Δp for unbalanced plug with high-performance metal seal when $p_2 = 0$

- Values specified in the gray-shaded columns correspond to the standard application cases, i.e. operation with rated travel
- Differential pressures specified in the white columns apply to maximum pretensioned springs
- Values in parentheses are valid for 50 % travel.

Table 4.1: Fail-close valve · Pressures in bar

| Bench range (bar) with actuator | | | 240 cm ² | 0.3 to 1.1 | 0.4 to 2.0 (1.2 to 2.0) | 0.6 to 2.2 | 0.6 to 3.0 ¹⁾ (1.8 to 3.0) | 0.9 to 3.3 | – | – |
|------------------------------------|----------------|-----------------------------|-------------------------------|------------|----------------------------|------------|--|------------|------------|-----------------------------|
| | | | 120 cm ² | | | 0.2 to 1.0 | | 0.8 to 2.4 | 1.2 to 3.6 | 1.4 to 2.3 (1.85 to 2.3) |
| Required supply pressure (bar) | | | 1.2 | 1.4 | 2.2 | 2.6 | 3.2 | 3.8 | 2.5 | 3.5 |
| Valve size NPS | C _v | Actuator cm ² | Δp when $p_2 = 0$ bar | | | | | | | |
| ½ to 1 | 2 | 120 | – | – | 28 | – | – | – | 50 | – |
| | 3 | 240 | 28 | 47 | 50 | 50 | 50 | 50 | – | – |
| | 5 | 350 | 45 | 50 | 50 | 50 | 50 | – | 50 | – |
| ¾ to 1½ | 7.5 | 120 | – | – | – | – | – | – | 30 | 46 |
| | | 240 | – | – | 14.8 | 24 | 24 | 39 | – | – |
| | 12 | 350 | – | – | 24 | 38 | 38 | 50 | 50 | 50 |
| | | 700 | – | – | (50) | – | – | – | – | – |
| 1 and 2 | 20 | 240 | – | – | – | 14 | 14 | 23 | – | – |
| | | 350 | – | 13.5 | 13.5 | 30 | 22 | 47 | 50 | 50 |
| | | 700 | – | – | (50) | – | (50) | – | – | – |
| 1½ to 2½ | 30 | 350 | – | – | – | 20 | 14 | 31 | 37 | 50 |
| | | 700 | – | – | (50) | – | (50) | – | – | – |
| 2 to 3 | 47 | 350 | – | – | – | 12 | 8.5 | 19 | 23 | 35 |
| | | 700 | – | – | (50) | – | (50) | – | – | – |
| 2½ and 3 | 70 | 700 | – | – | (23) | – | (35) | – | (36) | (50) |
| 3 | 95 | 700 | – | – | 1.4 | – | (21) | – | (22) | (33) |

¹⁾ Not for actuator with 120 cm² (18.6 in²) diaphragm area

Table 4.2: Fail-close valve · Pressures in psi

| Bench range (psi) with actuator | | 240 cm ² | 3 to 15 | 4 to 17 | 6 to 30 (18 to 30) | 9 to 32 | 9 to 44 ¹⁾ (26 to 44) | 13 to 48 | – | – |
|------------------------------------|----------------|---|--------------------------------|---------|-----------------------|----------|-------------------------------------|----------|------------------------|------------------------|
| | | 120 cm ² 350 cm ² 700 cm ² | | 6 to 18 | | 12 to 35 | | 18 to 52 | 20 to 34 (26 to 34) | 30 to 40 (39 to 50) |
| Required supply pressure (psi) | | | 18 | 21 | 33 | 38 | 47 | 55 | 38 | 55 |
| Valve size NPS | C _v | Actuator cm ² | Δp when p ₂ = 0 psi | | | | | | | |
| 1½ to 1 | 2 | 120 | – | – | 405 | – | – | – | 725 | – |
| | 3 | 240 | 406 | 680 | 725 | 725 | 725 | 725 | – | – |
| | 5 | 350 | 650 | 725 | 725 | 725 | 725 | – | 725 | – |
| ¾ to 1½ | 7.5 | 120 | – | – | 80 | – | – | – | 435 | 667 |
| | | 240 | – | – | 215 | 350 | 350 | 565 | – | – |
| | 12 | 350 | – | – | 350 | 550 | 550 | 725 | 725 | 725 |
| | | 700 | – | – | (725) | – | – | – | – | – |
| 1½ and 2 | 20 | 240 | – | – | – | 200 | 200 | 335 | – | – |
| | | 350 | – | 195 | 195 | 435 | 320 | 680 | 725 | 725 |
| | | 700 | – | – | (725) | – | (725) | – | – | – |
| 1½ to 3 | 30 | 350 | – | – | – | 290 | 200 | 450 | 535 | 725 |
| | | 700 | – | – | (725) | – | (725) | – | – | – |
| 2 to 2½ | 47 | 350 | – | – | – | 175 | 123 | 275 | 330 | 507 |
| | | 700 | – | – | (725) | – | (725) | – | – | – |
| 2½ and 3 | 70 | 700 | – | – | (333) | – | (507) | – | (520) | (725) |
| 3 | 95 | 700 | – | – | 20 | – | (305) | – | (320) | (475) |

¹⁾ Not for actuator with 120 cm² (18.6 in²) diaphragm area

Table 4.3: Fail-open valve · Pressures in bar

Table 4.4: Fail-open valve · Pressures in psi

Valve closed with required signal pressure

| Bench range (bar/psi) with actuator (cm ²) | | | Table 4.3 · Pressures in bar | | | Table 4.4 · Pressures in psi | | |
|--|----------------|--------------------------|--------------------------------|-----|----|--------------------------------|-----|-----|
| | | | 0.2 to 1.0 | | | 3 to 15 | | |
| Required supply pressure (bar/psi) | | | 1.2 | 2.4 | 4 | 18 | 36 | 58 |
| Valve size NPS | C _v | Actuator cm ² | Δp when p ₂ = 0 bar | | | Δp when p ₂ = 0 psi | | |
| ½ to 1 | 2 | 120 | – | 50 | – | – | 725 | – |
| | 3 | 240 | 28 | 50 | – | 410 | 725 | – |
| | 5 | 350 | 46 | 50 | – | 667 | 725 | – |
| ¾ to 1½ | 7.5 | 120 | – | 31 | 50 | 10 | 450 | 725 |
| | | 240 | – | 50 | 50 | – | 725 | 725 |
| | 12 | 350 | – | 50 | 50 | – | 725 | 725 |
| | | 700 | 24 | 50 | – | 350 | 725 | – |
| 1½ and 2 | 20 | 120 | – | 18 | 40 | – | 260 | 580 |
| | | 240 | – | 37 | 50 | – | 540 | 725 |
| | | 350 | – | 50 | 50 | – | 725 | 725 |
| | | 700 | – | 50 | – | – | 725 | – |
| 1½ to 3 | 30 | 120 | – | – | 28 | – | – | 410 |
| | | 240 | – | 24 | 50 | – | 350 | 725 |
| | | 350 | – | 37 | 50 | – | 540 | 725 |
| | | 700 | – | 50 | 50 | – | 725 | 725 |
| 2 to 2½ | 47 | 240 | – | 15 | 34 | – | 220 | 490 |
| | | 350 | – | 23 | 50 | – | 330 | 725 |
| | | 700 | – | 47 | 50 | – | 680 | 725 |
| 2½ and 3 | 70 | 240 | – | – | 20 | – | – | 290 |
| | | 350 | – | 13 | 29 | – | 190 | 420 |
| | | 700 | – | 27 | 50 | – | 390 | 725 |
| 3 | 95 | 240 | – | – | 12 | – | – | 170 |
| | | 350 | – | – | 18 | – | – | 260 |
| | | 700 | – | 16 | 37 | – | 230 | 540 |

Table 5: Permissible differential pressures for Type 3275 Piston Actuator with Type 3241 PSA Valve

Table 5.1: Type 3241-9 PSA Valve, plug with high-performance metal seal · Pressures in bar

| Valve size NPS | Flow coefficient C _v | Actuator cm ² | Supply pressure [bar] | | | | | | | |
|-------------------|---------------------------------------|-----------------------------|-----------------------|------|------|------|------|------|------|------|
| | | | 1.4 | 2 | 2.5 | 3 | 3.5 | 4 | 5 | 6 |
| ¾ to 1½ | 7.5 to 12 | 314 | 50 | – | – | – | – | – | – | – |
| 1½ to 2 | 20 | 314 | 26.5 | 47.3 | 50 | – | – | – | – | – |
| | | 490 | 50 | – | – | – | – | – | – | – |
| 1½ to 2 | 30 | 314 | 14.4 | 28.2 | 39.8 | 50 | – | – | – | – |
| | | 490 | 32.5 | 50 | – | – | – | – | – | – |
| 2 | 47 | 314 | 6.1 | 14.8 | 22.0 | 29.3 | 36.5 | 43.7 | 50 | – |
| | | 490 | 17.5 | 31.0 | 42.3 | 50 | – | – | – | – |
| 3 | 47 | 314 | 6.0 | 14.7 | 21.9 | 29.1 | 36.4 | 43.6 | 50 | – |
| | | 490 | 17.3 | 30.9 | 42.2 | 50 | – | – | – | – |
| 3 | 70 | 314 | 1.0 | 6.0 | 10.2 | 14.4 | 18.6 | 22.8 | 31.2 | 39.6 |
| | | 490 | 7.5 | 15.4 | 22.0 | 28.5 | 35.1 | 41.6 | 50 | – |
| 3 | 95 | 314 | – | 1.9 | 4.5 | 7.2 | 9.8 | 12.4 | 17.6 | 22.8 |
| | | 490 | 2.9 | 7.8 | 11.8 | 15.9 | 20.0 | 24.0 | 32.2 | 40.3 |
| 4 | 75 | 314 | 1.0 | 6.0 | 10.2 | 14.4 | 18.6 | 22.8 | 31.2 | 39.6 |
| | | 490 | 7.5 | 15.4 | 22.0 | 28.5 | 35.1 | 41.6 | 50 | – |
| | | 804 | 19.3 | 32.2 | 42.9 | 50 | – | – | – | – |
| 4 | 120 | 314 | – | 1.9 | 4.5 | 7.2 | 9.8 | 12.4 | 17.6 | 22.8 |
| | | 490 | 2.9 | 7.8 | 11.8 | 15.9 | 20.0 | 24.0 | 32.2 | 40.3 |
| | | 804 | 10.2 | 18.2 | 24.9 | 31.5 | 38.2 | 44.9 | 50 | – |
| 4 to 6 | 190 | 314 | – | – | 1.6 | 3.2 | 4.9 | 6.6 | 9.9 | 13.2 |
| | | 490 | 0.5 | 3.6 | 6.2 | 8.8 | 11.4 | 14.0 | 19.2 | 24.4 |
| | | 804 | 5.2 | 10.3 | 14.6 | 18.8 | 23.1 | 27.4 | 35.9 | 44.4 |
| 6 | 300 | 314 | – | – | – | 0.7 | 1.7 | 2.7 | 4.7 | 6.6 |
| | | 490 | – | 1.0 | 2.5 | 4.1 | 5.6 | 7.1 | 10.2 | 13.3 |
| | | 804 | 1.9 | 4.9 | 7.4 | 10.0 | 12.5 | 15.0 | 20.1 | 25.1 |

Table 5.2: Type 3241-9 PSA Valve, plug with high-performance metal seal · Pressures in psi

| Valve size NPS | Flow coefficient C _v | Actuator cm ² | Supply pressure [psi] | | | | | | | |
|-------------------|---------------------------------------|-----------------------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|
| | | | 20 | 30 | 38 | 44 | 55 | 60 | 75 | 90 |
| ¾ to 1½ | 7.5 to 12 | 314 | 725 | – | – | – | – | – | – | – |
| 1½ to 2 | 20 | 314 | 384.0 | 685.7 | 725 | – | – | – | – | – |
| | | 490 | 725 | – | – | – | – | – | – | – |
| 1½ to 2 | 30 | 314 | 208.7 | 409.5 | 576.8 | 725 | – | – | – | – |
| | | 490 | 471.3 | 725 | – | – | – | – | – | – |
| 2 | 47 | 314 | 88.8 | 214.7 | 319.5 | 424.4 | 529.3 | 634.1 | 725 | – |
| | | 490 | 253.4 | 449.8 | 613.4 | 725 | – | – | – | – |
| 3 | 47 | 314 | 88.8 | 214.7 | 319.5 | 424.4 | 529.3 | 634.1 | 725 | – |
| | | 490 | 253.4 | 449.8 | 613.4 | 725 | – | – | – | – |
| 3 | 70 | 314 | 15.0 | 88.1 | 148.9 | 209.8 | 270.7 | 331.6 | 453.3 | 575.1 |
| | | 490 | 110.6 | 224.5 | 319.5 | 414.5 | 509.5 | 604.5 | 725 | – |
| 3 | 95 | 314 | – | 28.9 | 66.7 | 104.4 | 142.2 | 179.9 | 255.4 | 330.9 |
| | | 490 | 42.9 | 113.6 | 172.5 | 231.4 | 290.3 | 349.2 | 467.0 | 584.9 |
| 4 | 75 | 314 | 15.0 | 88.1 | 148.9 | 209.8 | 270.7 | 331.6 | 453.3 | 575.1 |
| | | 490 | 110.6 | 224.5 | 319.5 | 414.5 | 509.5 | 604.5 | 725 | – |
| | | 804 | 281.0 | 468.0 | 623.9 | 725 | – | – | – | – |
| 4 | 120 | 314 | – | 28.9 | 66.7 | 104.4 | 142.2 | 179.9 | 255.4 | 330.9 |
| | | 490 | 42.9 | 113.6 | 172.5 | 231.4 | 290.3 | 349.2 | 467.0 | 584.9 |
| | | 804 | 148.6 | 264.6 | 361.2 | 457.9 | 554.6 | 651.2 | 725 | – |
| 4 to 6 | 190 | 314 | – | – | 23.3 | 47.5 | 71.7 | 95.8 | 144.1 | 192.5 |
| | | 490 | 8.1 | 53.3 | 91.0 | 128.8 | 166.5 | 204.2 | 279.6 | 355.0 |
| | | 804 | 75.8 | 150.0 | 211.9 | 273.7 | 335.6 | 397.4 | 521.2 | 644.9 |
| 6 | 300 | 314 | – | – | – | 10.9 | 25.2 | 39.5 | 68.1 | 96.7 |
| | | 490 | – | 14.4 | 36.7 | 59.0 | 81.3 | 103.6 | 148.3 | 192.9 |
| | | 804 | 27.7 | 71.6 | 108.2 | 144.8 | 181.4 | 218.0 | 291.2 | 364.4 |

Table 6: Permissible differential pressures for Type 3241-9 PSA Control Valve

Table 6.1: Type 3241-9 PSA Valve with soft-seated plug · Pressures in bar

| Valve size NPS | Flow coefficient C _v | Actuator cm ² | Supply pressure [bar] | | | | | | | |
|-------------------|---------------------------------------|-----------------------------|-----------------------|------|------|------|------|------|------|------|
| | | | 1.4 | 2 | 2.5 | 3 | 3.5 | 4 | 5 | 6 |
| ¾ to 1½ | 7.5 to 12 | 314 | 50 | – | – | – | – | – | – | – |
| 1½ to 2 | 20 | 314 | 47.8 | 50 | – | – | – | – | – | – |
| 1½ to 2 | 30 | 314 | 31.8 | 45.6 | 50 | – | – | – | – | – |
| | | 490 | 50 | – | – | – | – | – | – | – |
| 2 | 47 | 314 | 19.9 | 28.6 | 35.8 | 43.0 | 50 | – | – | – |
| | | 490 | 31.2 | 44.8 | 50 | – | – | – | – | – |
| 3 | 47 | 314 | 19.7 | 28.4 | 35.6 | 42.9 | 50 | – | – | – |
| | | 490 | 31.1 | 44.6 | 50 | – | – | – | – | – |
| 3 | 70 | 314 | 11.4 | 16.5 | 20.7 | 24.9 | 29.1 | 33.3 | 41.6 | 50 |
| | | 490 | 18.0 | 25.9 | 32.4 | 39.0 | 45.5 | 50 | – | – |
| 3 | 95 | 314 | 7.1 | 10.2 | 12.8 | 15.4 | 18.0 | 20.6 | 25.8 | 31.0 |
| | | 490 | 11.2 | 16.0 | 20.1 | 24.2 | 28.2 | 32.3 | 40.4 | 48.5 |
| 4 | 75 | 314 | 11.4 | 16.5 | 20.7 | 24.9 | 29.1 | 33.3 | 41.6 | 50 |
| | | 490 | 18.0 | 25.9 | 32.4 | 39.0 | 45.5 | 50 | – | – |
| | | 804 | 29.8 | 42.7 | 50 | – | – | – | – | – |
| 4 | 120 | 314 | 7.1 | 10.2 | 12.8 | 15.4 | 18.0 | 20.6 | 25.8 | 31.0 |
| | | 490 | 11.2 | 16.0 | 20.1 | 24.2 | 28.2 | 32.3 | 40.4 | 48.5 |
| | | 804 | 18.4 | 26.4 | 33.1 | 39.8 | 46.4 | 50 | – | – |
| 4 to 6 | 190 | 314 | 4.5 | 6.5 | 8.2 | 9.8 | 11.5 | 13.2 | 16.5 | 19.8 |
| | | 490 | 7.1 | 10.2 | 12.8 | 15.4 | 18.0 | 20.6 | 25.8 | 31.0 |
| | | 804 | 11.8 | 16.9 | 21.2 | 25.4 | 29.7 | 34.0 | 42.5 | 50 |
| 6 | 300 | 314 | 2.7 | 3.8 | 4.8 | 5.8 | 6.8 | 7.8 | 9.8 | 11.7 |
| | | 490 | 4.2 | 6.1 | 7.6 | 9.1 | 10.7 | 12.2 | 15.3 | 18.4 |
| | | 804 | 7.0 | 10.0 | 12.5 | 15.0 | 17.6 | 20.1 | 25.1 | 30.2 |

Table 6.2: Type 3241-9 PSA Valve with soft-seated plug · Pressures in psi

| Valve size NPS | Flow coefficient C _v | Actuator cm ² | Supply pressure [psi] | | | | | | | |
|-------------------|---------------------------------------|-----------------------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|
| | | | 20 | 30 | 38 | 44 | 55 | 60 | 75 | 90 |
| ¾ to 1½ | 7.5 to 12 | 314 | 725 | – | – | – | – | – | – | – |
| 1½ to 2 | 20 | 314 | 692.8 | 725 | – | – | – | – | – | – |
| 1½ to 2 | 30 | 314 | 460.6 | 661.4 | 725 | – | – | – | – | – |
| | | 490 | 725 | – | – | – | – | – | – | – |
| 2 | 47 | 314 | 288.2 | 414.1 | 518.9 | 623.8 | 725 | – | – | – |
| | | 490 | 452.8 | 649.2 | 725 | – | – | – | – | – |
| 3 | 47 | 314 | 288.2 | 414.1 | 518.9 | 623.8 | 725 | – | – | – |
| | | 490 | 452.8 | 649.2 | 725 | – | – | – | – | – |
| 3 | 70 | 314 | 167.0 | 240.0 | 300.9 | 361.8 | 422.6 | 483.5 | 605.3 | 725 |
| | | 490 | 262.5 | 376.5 | 471.5 | 566.5 | 661.5 | 725 | – | – |
| 3 | 95 | 314 | 103.3 | 148.6 | 186.3 | 224.1 | 261.8 | 299.6 | 375.1 | 450.6 |
| | | 490 | 162.5 | 233.2 | 292.1 | 351.0 | 410.0 | 468.9 | 586.7 | 704.5 |
| 4 | 75 | 314 | 167.0 | 240.0 | 300.9 | 361.8 | 422.6 | 483.5 | 605.3 | 725 |
| | | 490 | 262.5 | 376.5 | 471.5 | 566.5 | 661.5 | 725 | – | – |
| | | 804 | 432.9 | 620.0 | 725 | – | – | – | – | – |
| 4 | 120 | 314 | 103.3 | 148.6 | 186.3 | 224.1 | 261.8 | 299.6 | 375.1 | 450.6 |
| | | 490 | 162.5 | 233.2 | 292.1 | 351.0 | 410.0 | 468.9 | 586.7 | 704.5 |
| | | 804 | 268.2 | 384.2 | 480.9 | 577.6 | 674.2 | 725 | – | – |
| 4 to 6 | 190 | 314 | 65.9 | 94.9 | 119.1 | 143.2 | 167.4 | 191.5 | 239.9 | 288.2 |
| | | 490 | 103.8 | 149.1 | 186.8 | 224.5 | 262.2 | 299.9 | 375.3 | 450.7 |
| | | 804 | 171.5 | 245.7 | 307.6 | 369.4 | 431.3 | 493.2 | 616.9 | 725 |
| 6 | 300 | 314 | 38.8 | 56.0 | 70.3 | 84.6 | 98.9 | 113.2 | 141.8 | 170.4 |
| | | 490 | 61.3 | 88.0 | 110.3 | 132.7 | 155.0 | 177.3 | 221.9 | 266.5 |
| | | 804 | 101.3 | 145.2 | 181.8 | 218.4 | 255.0 | 291.6 | 364.9 | 438.1 |

Table 7: Dimensions for Type 3241-1 PSA, Type 3241-7 PSA and Type 3241-9 PSA in standard version

| Valve | NPS | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 2 1/2 | 3 | 4 | 6 | |
|---|--|-----|------|------|-------|------|-------|-------------------|-------------------|-------------------|-------------------|
| | DN | 15 | 20 | 25 | 40 | 50 | 65 | 80 | 100 | 150 | |
| Length L | Class 150 RF | in | 7.25 | 7.25 | 7.25 | 8.75 | 10.0 | 10.87 | 11.75 | 13.87 | 17.75 |
| | | mm | 184 | 184 | 184 | 222 | 254 | 276 | 298 | 352 | 451 |
| | Class 300 RF | in | 7.50 | 7.62 | 7.75 | 9.25 | 10.50 | 11.50 | 12.50 | 14.50 | 18.62 |
| | | mm | 191 | 194 | 197 | 235 | 267 | 292 | 318 | 368 | 473 |
| H1 | ≤ 700 cm ² and Type 3275 | in | 8.66 | 8.66 | 8.66 | 8.66 | 8.66 | 10.24 | 10.24 | 13.78 | 15.34 |
| | | mm | 220 | 220 | 220 | 220 | 220 | 260 ¹⁾ | 260 ¹⁾ | 350 ¹⁾ | 390 ¹⁾ |
| H2 (approx.) | | in | 1.77 | 1.77 | 1.77 | 2.84 | 2.84 | 3.86 | 3.86 | 4.45 | 6.89 |
| | | mm | 45 | 45 | 45 | 72 | 72 | 98 | 98 | 113 | 175 |
| H2 Forged steel version (approx.) | | in | 2.1 | - | 2.75 | 3.6 | 3.85 | - | 5.05 | - | - |
| | | mm | 53 | - | 70 | 92 | 98 | - | 128 | - | - |

| Actuator | Type 3271/3277 | | | Type 3275 | | | |
|------------------------------------|----------------|-----------------|-----------------|-----------------|---------|---------|---------|
| | Effective area | cm ² | 120 | 350 | 700 | 314 | 490 |
| in ² | | 18.6 | 54.25 | 108.5 | 48.6 | 75.95 | 124.6 |
| Diaphragm ØD/□D | in | 6.6 | 11.02 | 15.35 | 8.66 | 10.63 | 13.78 |
| | mm | 168 | 280 | 390 | 220 | 270 | 350 |
| H | in | 2.72 | 3.35 | 5.27 | 7.91 | 8.66 | 11.26 |
| | mm | 69 | 85 | 134 | 201 | 220 | 286 |
| H3 ²⁾ | in | 4.33 | 4.33 | 7.48 | 4.33 | 4.33 | 7.48 |
| | mm | 110 | 110 | 190 | 110 | 110 | 190 |
| H5 | in | 3.46 | 3.98 | 3.98 | 3.98 | 3.98 | - |
| | mm | 88 | 101 | 101 | 101 | 101 | - |
| Thread | | M30x1.5 | M30x1.5 | M30x1.5 | M30x1.5 | M30x1.5 | M60x1.5 |
| a (for Type 3271/3275 Actuator) | | G 1/8 (1/8 NPT) | G 3/8 (3/8 NPT) | G 3/8 (3/8 NPT) | G 3/8 | G 1/2 | G 1/2 |
| a2 (for Type 3277 Actuator) | | - | G 3/8 (3/8 NPT) | G 3/8 (3/8 NPT) | - | - | - |

¹⁾ Add 65 mm to H1 when a Type 3275 Actuator with 804 cm² actuator area is mounted.

²⁾ Minimum clearance to remove the actuator

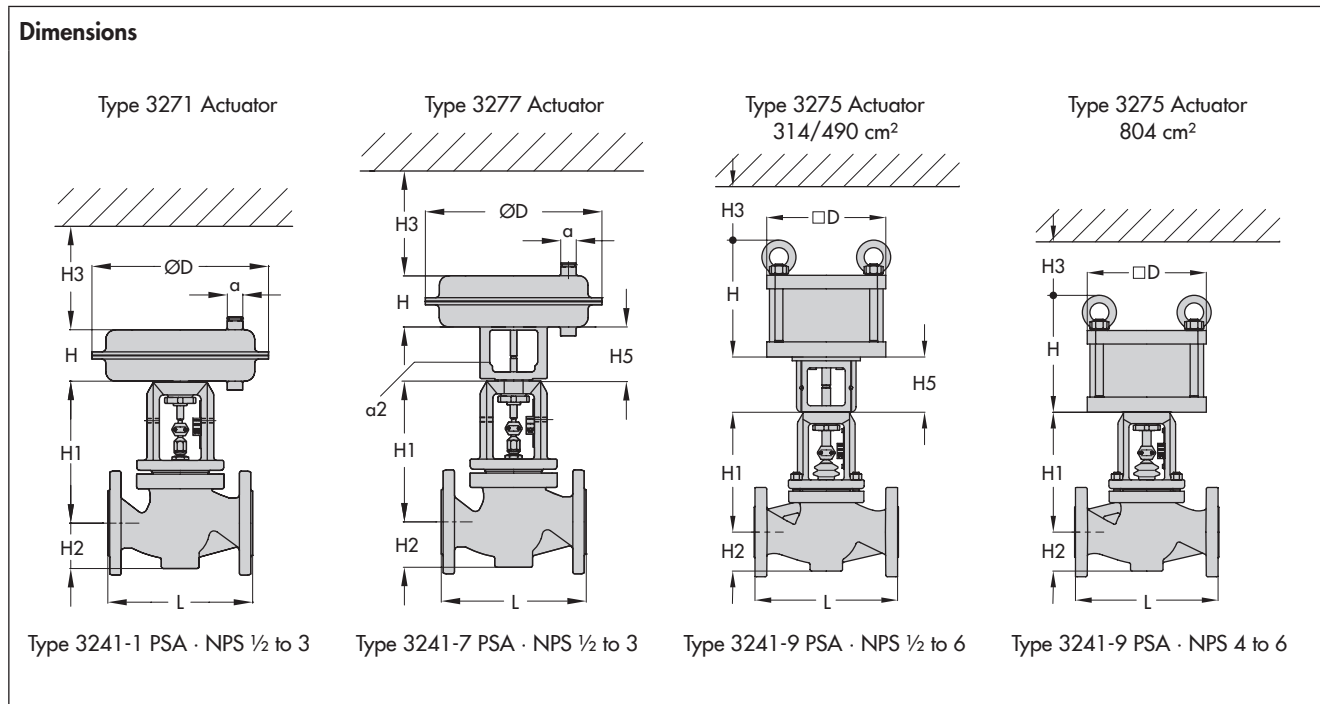


Table 8: Weights for Type 3241-1 PSA, Type 3241-7 PSA and Type 3241-9 PSA

| Valve | NPS | ½ | ¾ | 1 | 1½ | 2 | 2½ | 3 | 4 | 6 |
|-------------------------|-----|----|----|----|----|----|----|----|-----|-----|
| | DN | 15 | 20 | 25 | 40 | 50 | 65 | 80 | 100 | 150 |
| Weight without actuator | lbs | 11 | 13 | 15 | 26 | 33 | 53 | 66 | 92 | 264 |
| | kg | 5 | 6 | 7 | 12 | 15 | 24 | 30 | 42 | 120 |

| Actuator | | Type 3271 | | | Type 3277 | | | Type 3275 | | |
|-----------------|-----------------|-----------|-------|-------|-----------|-------|-------|-----------|-------|-------|
| Effective area | cm ² | 120 | 350 | 700 | 120 | 350 | 700 | 314 | 490 | 804 |
| | in ² | 18.6 | 54.25 | 108.5 | 18.6 | 54.25 | 108.5 | 48.6 | 75.95 | 124.5 |
| Weight, approx. | lbs | 6.6 | 18 | 48.5 | 7.7 | 26.5 | 57.5 | 22 | 37.5 | 46.5 |
| | kg | 3 | 8 | 22 | 3.5 | 12 | 26 | 10 | 17 | 21 |

Ordering text

| | |
|-------------------------|---|
| Globe valve | Type 3241 PSA |
| Valve size | NPS ... |
| Class | ... |
| Body material | According to Table 2 |
| Type of end connections | Flanges (RF or FF) or NPT thread |
| Seat and plug | Soft seal or high-performance metal seal |
| Characteristic | Equal percentage or linear |
| Pneumatic actuator | Type 3271, Type 3277 or Type 3275 |
| Fail-safe position | Fail-close or fail-open |
| Process medium | Density in lb/cu.ft or kg/m ³ and temperature in °F or °C |
| Flow rate | lbs/h or kg/h or cu.ft/min or m ³ /h in standard or operating state |
| Pressure | p ₁ or p ₂ in bar or psi (absolute pressure) with minimum, normal and maximum flow rate |
| Valve accessories | Positioner and/or limit switch |

Specifications subject to change without notice



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