

T 8111 EN

Series V2001 Valves · Type 3321 Globe Valves with electropneumatic, pneumatic or electric actuators

DIN version



Application

Control valves designed for mechanical and plant engineering. Suitable for liquids, gases and steam

| | |
|--------------------------|-----------------------|
| Valve size | DN 15 to 100 |
| Pressure rating | PN 16 to 40 |
| Temperature range | -10 to +300 °C |

Type 3321 Globe Valves can be equipped with either electro-pneumatic, pneumatic or electric actuators:

- Electropneumatic actuators with integrated or mounted i/p positioner (Type 3321-IP Control Valve)
- Pneumatic actuators (Type 3321-PP Control Valve)
- Electric actuators (Type 3321-E1 or Type 3321-E3 Control Valve)

Valve body materials

- Cast iron for PN 16
- Spheroidal graphite iron for PN 25
- Cast steel for PN 40 (up to DN 50) and PN 16 and 40 (DN 65 and larger)
- Stainless steel for PN 40 (up to DN 50) and PN 16 (DN 65 and larger)

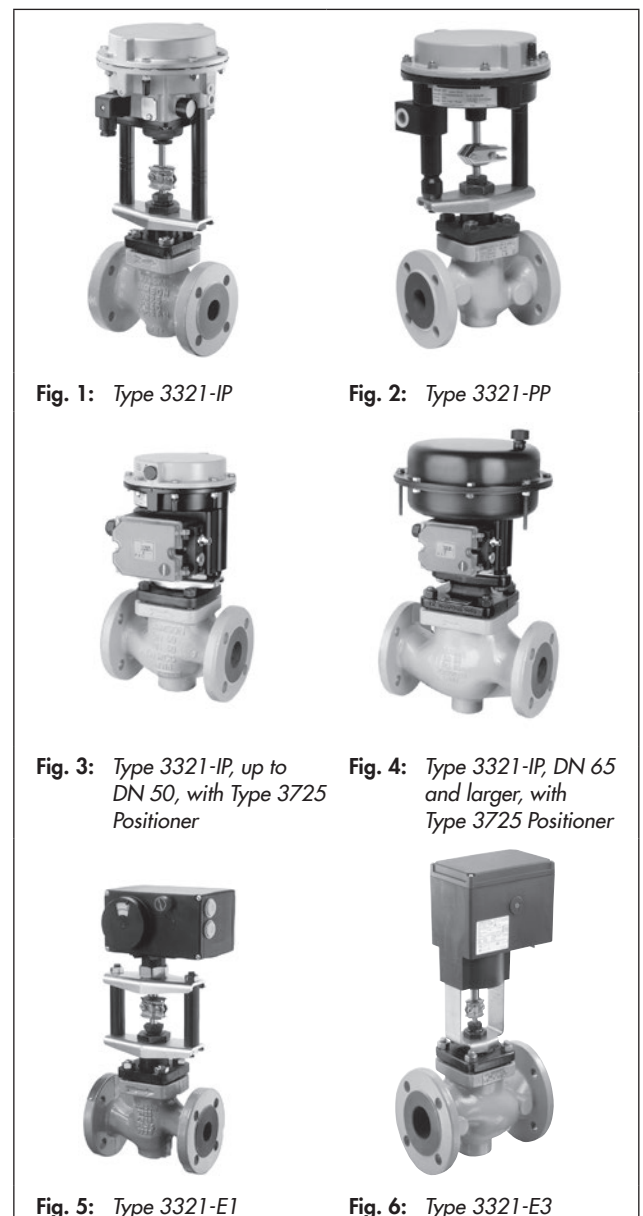
Valve sizes DN 15 to 100 each with two K_{VS} coefficients

Metal or soft-seated valve plug

The control valves can be optionally equipped with positioners, limit switches or contacts and resistance transmitters.

Versions

- **Type 3321-IP Electropneumatic Globe Valve** · With Type 3372 Electropneumatic Actuator, optionally with integrated positioner (120 cm² only, with plug connector, see Fig. 1) or Type 3725 Positioner (Fig. 3, Fig. 4), tight-closing function for completely venting or filling the actuator with air, reference variable 4 to 20 mA, max. 6 bar supply air, fail-safe position fail-close or fail-open, optionally with limit switch
- **Type 3321-PP Pneumatic Globe Valve** (Fig. 2) · With Type 3371 Pneumatic Actuator with 120 cm² (DN 15 to 50) or Type 3371 with 350 cm² (DN 65 to 100), fail-safe position fail-close or fail-open, optionally with limit switch
- **Type 3321-E1 Electric Globe Valve** (Fig. 5) · Valve size DN 15 to 50, with Type 5824-30 Electric Actuator for 230 V/50 Hz or 24 V/50 Hz, optionally with limit contacts, resistance transmitters, positioner



- **Type 3321-E3 Electric Globe Valve** (Fig. 6) · With Type 3374 Electric Actuator for 230 V/50 Hz, 230 V/60 Hz, 24 V/50 Hz or 24 V/60 Hz, optionally with fail-safe action (tested according to DIN EN 14597 with actuator stem extends), limit contacts, resistance transmitters, positioner

Further versions

- **Explosion-protected** version with electric actuators · On request
- **Type 3321 according to ANSI standards** · See Data Sheet ▶ T 8112
- **Insulating section** on request
- **Flow divider ST 1** for noise reduction on request

Principle of operation

The process medium flows through the valve in the direction indicated by the arrow in the flow-to-open direction (Fig. 7, Fig. 8). The valve plug position determines the cross-sectional area between the seat and plug. The plug stem is connected to the actuator stem by the stem connector and sealed with a self-adjusting packing.

Fail-safe position

The control valve has two different fail-safe positions that become effective when the supply air fails:

- **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.

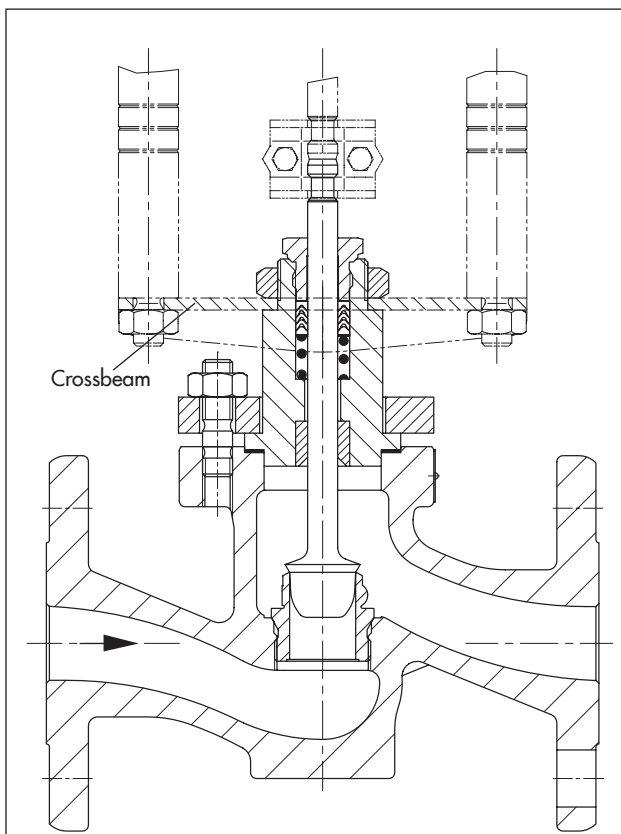


Fig. 7: Type 3321 Globe Valve in valve size DN 15 to 50

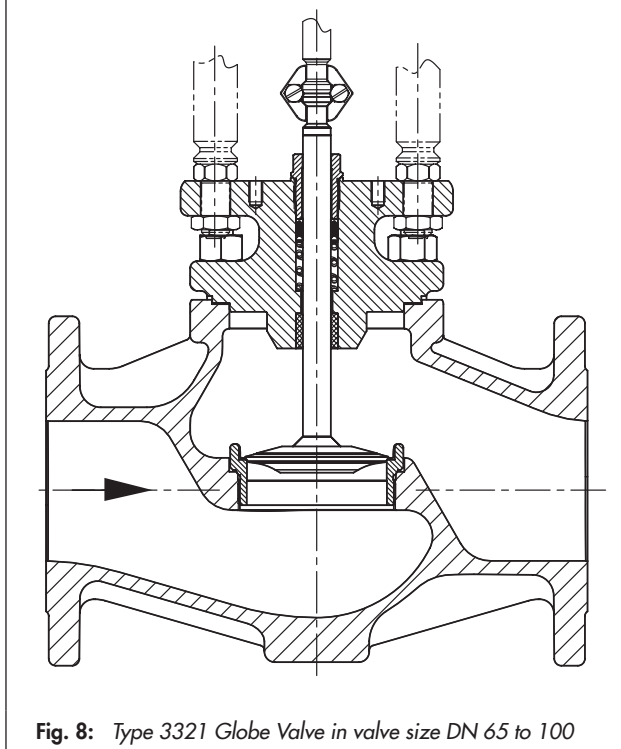


Fig. 8: Type 3321 Globe Valve in valve size DN 65 to 100

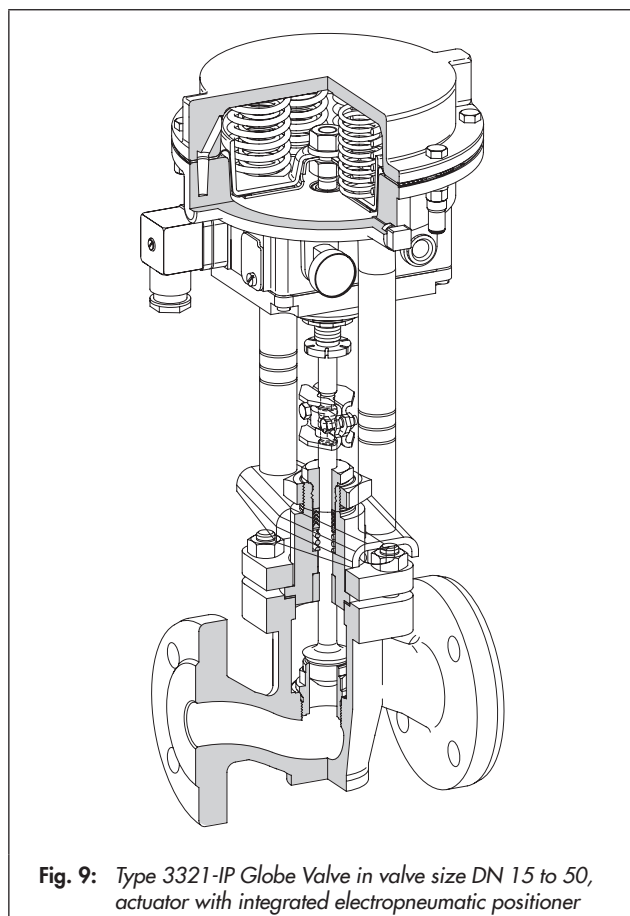


Fig. 9: Type 3321-IP Globe Valve in valve size DN 15 to 50, actuator with integrated electropneumatic positioner

Associated documentation

Valve and actuator are delivered separately. Instructions on how to mount the valve on the actuator can be found in the mounting and operating instructions delivered with the product:

- ▶ EB 8111 Type 3321 Globe Valve
- ▶ EB 8313-1 and Actuator for Type 3321-IP
- ▶ EB 8313-3

- ▶ EB 8317 Actuator for Type 3321-PP
- ▶ EB 5824-1 Actuator for Type 3321-E1
- ▶ EB 5824-2
- ▶ EB 8331-1 Actuator for Type 3321-E3
- ▶ EB 8331-4

Table 1: Type 3321 Globe Valve

Table 1.1: Technical data

| Material | | Cast iron EN-GJL-250 | Sph. graphite iron EN-GJS-400-18-LT | Cast steel · 1.0619 | | Stainless steel · 1.4408 | |
|--|---------|---|--|----------------------------|-----------|----------------------------|-----------|
| Connection | Flanges | DIN EN 1092-2 | DIN EN 1092-2 | According to DIN EN 1092-1 | | According to DIN EN 1092-1 | |
| Valve size | DN | 15 to 100 | 15 to 100 | 15 to 50 | 65 to 100 | 15 to 50 | 65 to 100 |
| Nom. pressure | PN | 16 | 25 | 40 | 16 · 40 | 40 | 16 |
| Seat-plug seal | | Metal or soft sealing | | | | | |
| Characteristic | | Inherent characteristic according to ▶ T 8000-3 | | | | | |
| Rangeability | | 50:1 for DN 15 to 50 30:1 for DN 65 to 100 | | | | | |
| Medium temperature range | | -10 to +220 °C | | | | | |
| With insulating section ¹⁾ | | -10 to +300 °C | | | | | |
| Leakage class according to IEC 60534-4 | | Metal seal: IV Soft seal: VI | | | | | |
| Compliance | | CE · EAC | | | | | |

¹⁾ Not for stainless steel with DN 65 to 100

Table 1.2: Materials (previous material designation written in parentheses)

| Valve size | DN | 15 · 20 · 25 · 32 · 40 · 50 · 65 · 80 · 100 | | | |
|----------------------------|------|--|--|--|---|
| Valve body | | Cast iron · EN-GJL-250 (0.6025) | Spheroidal graphite iron EN-GJS-400-18-LT | Cast steel · 1.0619 | Stainless steel · 1.4408 |
| Valve bonnet | | Up to DN 50: 1.0460 DN 65 and larger: EN-GJL-250 | Up to DN 50: 1.0460 DN 65 and larger: EN-GJL-250 | Up to DN 50: 1.0460 DN 65 and larger: 1.0619 | Up to DN 50: 1.4401 DN 65 and larger: 1.4408 |
| Valve flange ¹⁾ | | 1.0460 | | | |
| Seat and plug | Seat | DN 15 to 50: 1.4104 DN 65 and larger: 1.4006 | | | DN 15 to 50: 1.4401 · 1.4104 ²⁾ DN 65 and larger: in the valve body |
| | Plug | 1.4401 · 1.4104 ²⁾ | | | |
| Seal for soft-seated plug | | PTFE | | | |
| Guide bushing | | 1.4104 | | | 1.4404 |
| Packing | | V-ring packing: PTFE with carbon; spring: 1.4310 | | | |
| Body gasket | | Graphite on metal core | | | |

¹⁾ No contact with process medium; only up to DN 50. For DN 65 and larger: one-pieced (see valve bonnet for material)

²⁾ Double stamping of material

Table 1.3: Valve sizes, K_{VS} coefficients and seat diameters

| Valve size | DN | 15 | | 20 | | 25 | | 32 | | 40 | | 50 | | 65 | | 80 | | 100 | | | |
|-------------------------|----|------|------|------|-----|-----|-----|-----|----|-----|------|----|----|------|----|----|-----|-----|-----|----|-----|
| K_{VS} | | 0.25 | 0.63 | 1.6 | 4 | 2.5 | 6.3 | 4 | 10 | 6.3 | 16 | 10 | 25 | 16 | 35 | 40 | 100 | 40 | 100 | 40 | 160 |
| K_{VS1} ¹⁾ | | - | | 1.45 | 3.6 | 2.2 | 5.7 | 3.6 | 9 | 5.7 | 14.5 | 9 | 22 | 14.5 | 31 | 36 | 90 | 36 | 90 | 36 | 144 |
| Seat Ø | mm | 3 | 6 | 12 | | 12 | 24 | 12 | 24 | 24 | 32 | 24 | 38 | 32 | 48 | 48 | 80 | 48 | 80 | 48 | 80 |
| Rated travel | mm | 15 | | | | | | | | | | | | | | | | | | | 30 |

¹⁾ With flow divider ST 1

Table 2: Pneumatic actuators**Table 2.1: Technical data**

| Valve/actuator | Type 3321-IP/Type 3372 | | | Type 3321-PP/Type 3371 | | | |
|---------------------------------|--|--|--|--------------------------|--|--|--------------------------|
| Actuator area | 120 cm ² | 350 cm ² for K _{VS} 160 | 350 cm ² for K _{VS} 40 and 100 | 120 cm ² | 350 cm ² for K _{VS} 160 | 350 cm ² for K _{VS} 40 and 100 | |
| Fail-safe position | Fail-close or fail-open | | | | | | |
| Reference variable | 4 to 20 mA | | | - | | | |
| Bench range/ rated travel | Fail-close | 2.1 to 3.3 bar/ 15 mm | 2.2 to 3.8 bar/ 30 mm | 2.1 to 2.7 bar/ 15 mm | 2.1 to 3.3 bar/ 15 mm | 2.2 to 3.8 bar/ 30 mm | 2.1 to 2.7 bar/ 15 mm |
| | Fail-open | 0.4 to 1.4 bar/ 15 mm | 1.5 to 2.7 bar/ 30 mm | 1.5 to 2.1 bar/ 15 mm | 0.4 to 1.4 bar/ 15 mm | 1.5 to 2.7 bar/ 30 mm | 1.5 to 2.1 bar/ 15 mm |
| Hysteresis | ≤1 % | | | - | | | |
| Variable position | ≤7 % | | | - | | | |
| Degree of protection | IP 54 with integrated positioner (only for 120 cm ²) IP 66 with Type 3725 | | | - | | | |
| Permissible ambient temperature | Standard: -20 to +80 °C With metal cable gland: -30 to +80 °C | | | -35 to +90 °C | | | |
| Actuator data | ▶ T 8313 | | | ▶ T 8317 | | | |

Table 2.2: Materials

| Actuator | Type 3372 | | Type 3371 | |
|-----------------------------------|-----------------------|---------------------|---------------------|---------------------|
| Actuator area | 120 cm ² | 350 cm ² | 120 cm ² | 350 cm ² |
| Actuator housing | GD-ALSi12 | 1.0330 | GD-ALSi12 | 1.0330 |
| Diaphragm | NBR | | NBR | |
| Actuator stem | 1.4305 | 1.4571 | 1.4305 | 1.4571 |
| Positioner housing | | | | |
| Integrated version | POM-GF | - | - | |
| Type 3725 | Polyphthalamide (PPA) | | - | |
| Yoke | | | | |
| Stem | 9SMn28K | 1.0715+C | 9SMn28K | 1.0715+C |
| Bracket | 1.4301 | - | 1.4301 | - |
| Mounting bracket for Type 3725 | Aluminum | | - | |

Table 2.3: Permissible differential pressures for metal-seated plug · · Fail-close · All pressures in bar

| Actuator area | cm ² | 120 | 350 | |
|-------------------------------|-----------------|--------------------------------|------------|------------|
| Bench range | bar | 2.1 to 3.3 | 2.1 to 2.7 | 2.2 to 3.8 |
| Valve travel | mm | 15 | 15 | 30 |
| Supply pressure | bar | 3.7 to 6.0 | 4.3 to 6.0 | |
| K _{VS} coefficients | | Δp when p ₂ = 0 bar | | |
| 0.25 · 0.63 · 1.6 · 2.5 · 4.0 | | 40 | - | - |
| 6.3 · 10 | | 40 | - | - |
| 16 | | 25 | - | - |
| 25 | | 17 | - | - |
| 35 | | 11 | - | - |
| 40 | | 10 ¹⁾ | 34 | - |
| 100 | | 3 ¹⁾ | 10 | - |
| 160 | | - | - | 10 |

¹⁾ Mounting without crossbeam on actuator (form C attachment), see ▶ EB 8313-3 and ▶ EB 8317

Table 2.4: Permissible differential pressures for metal-seated plug · Fail-open · All pressures in bar

| Actuator area | cm ² | 120 | | | 350 | | | |
|-------------------------------|-----------------|--------------------------------|-----------------|-------------------|------------|------------|------------|------------|
| | | 0.4 to 1.4 | | | 1.5 to 2.1 | 1.5 to 2.7 | 1.5 to 2.1 | 1.5 to 2.7 |
| Bench range | bar | 0.4 to 1.4 | | | 1.5 to 2.1 | 1.5 to 2.7 | 1.5 to 2.1 | 1.5 to 2.7 |
| Valve travel | mm | 15 | | | 15 | 30 | 15 | 30 |
| Supply pressure | bar | 2.5 | 3.5 | 4.4 | 4.0 | | 6.0 | |
| K _{VS} coefficients | | Δp when p ₂ = 0 bar | | | | | | |
| 0.25 · 0.63 · 1.6 · 2.5 · 4.0 | | 40 | 40 | 40 | – | – | – | – |
| 6.3 · 10 | | 22 | 40 | 40 | – | – | – | – |
| 16 | | 11 | 25 | 34 | – | – | – | – |
| 25 | | 8 | 17 | 24 | – | – | – | – |
| 35 | | 4.5 | 10 | 15 | – | – | – | – |
| 40 | | 4 ¹⁾ | 9 ¹⁾ | 15 ¹⁾ | 27 | – | 40 | – |
| 100 | | – | 3 ¹⁾ | 4.5 ¹⁾ | 9.5 | – | 22 | – |
| 160 | | – | – | – | – | 9.5 | – | 22 |

¹⁾ Mounting without crossbeam on actuator (form C attachment), see ► EB 8313-3 and ► EB 8317

Table 2.5: Permissible differential pressures for soft-seated plug · Fail-close · All pressures in bar

| Actuator area | cm ² | 120 | | 350 | |
|-------------------------------|-----------------|--------------------------------|--|------------|------------|
| | | 2.1 to 3.3 | | 2.1 to 2.7 | 2.2 to 3.8 |
| Bench range | bar | 2.1 to 3.3 | | 2.1 to 2.7 | 2.2 to 3.8 |
| Valve travel | mm | 15 | | 15 | 30 |
| Supply pressure | bar | 3.7 to 6.0 | | 4.3 to 6.0 | |
| K _{VS} coefficients | | Δp when p ₂ = 0 bar | | | |
| 0.25 · 0.63 · 1.6 · 2.5 · 4.0 | | 40 | | – | – |
| 6.3 · 10 | | 40 | | – | – |
| 16 | | 27 | | – | – |
| 25 | | 19 | | – | – |
| 35 | | 12 | | – | – |
| 40 | | 10 ¹⁾ | | 36 | – |
| 100 | | 3 ¹⁾ | | 10 | – |
| 160 | | – | | – | 10 |

¹⁾ Mounting without crossbeam on actuator (form C attachment), see ► EB 8313-3 and ► EB 8317

Table 2.6: Permissible differential pressures for soft-seated plug · Fail-open · All pressures in bar

| Actuator area | cm ² | 120 | | | 350 | | | |
|-------------------------------|-----------------|--------------------------------|------------------|-------------------|------------|------------|------------|------------|
| | | 0.4 to 1.4 | | | 1.5 to 2.1 | 1.5 to 2.7 | 1.5 to 2.1 | 1.5 to 2.7 |
| Bench range | bar | 0.4 to 1.4 | | | 1.5 to 2.1 | 1.5 to 2.7 | 1.5 to 2.1 | 1.5 to 2.7 |
| Valve travel | mm | 15 | | | 15 | 30 | 15 | 30 |
| Supply pressure | bar | 2.5 | 3.5 | 4.4 | 4.0 | | 6.0 | |
| K _{VS} coefficients | | Δp when p ₂ = 0 bar | | | | | | |
| 0.25 · 0.63 · 1.6 · 2.5 · 4.0 | | 40 | 40 | 40 | – | – | – | – |
| 6.3 · 10 | | 25 | 40 | 40 | – | – | – | – |
| 16 | | 14 | 27 | 36 | – | – | – | – |
| 25 | | 9.5 | 19 | 26 | – | – | – | – |
| 35 | | 6 | 12 | 16 | – | – | – | – |
| 40 | | 4.5 ¹⁾ | 10 ¹⁾ | 15 ¹⁾ | 29 | – | 40 | – |
| 100 | | – | 3 ¹⁾ | 5.5 ¹⁾ | 10 | – | 23 | – |
| 160 | | – | – | – | – | 10 | – | 23 |

¹⁾ Mounting without crossbeam on actuator (form C attachment), see ► EB 8313-3 and ► EB 8317

Table 3: Electric actuators

Table 3.1: Permissible differential pressures for metal-seated plug · All pressures in bar

| Globe valve | Type | 3321-E1 | 3321-E3 | | |
|-------------------------------|----------------|--------------------------------|-------------|---|-----------------|
| With actuator | Type | 5824-30 | 3374-10/-11 | 3374-21/-31 | 3374-10/-11 |
| Thrust | | 0.7 kN | 1.25 kN | Stem extends: 2.0 kN Stem retracts: 0.5 kN | 2.5 kN |
| K _{VS} coefficients | | Δp when p ₂ = 0 bar | | | |
| 0.25 · 0.63 · 1.6 · 2.5 · 4.0 | | 40 | 40 | 40 | 40 |
| 6.3 · 10 | | 9 | 18 | 32 | 40 |
| 16 | | 4.5 | 9 | 17 | 25 |
| 25 | | 3 | 6 | 12 | 17 |
| 35 | | 1.5 | 3 | 7 | 10 |
| 40 | | – | 3 | 7.5 | 10 |
| 100 | | – | – | 2 | 3 |
| 160 ¹⁾ | | – | – | – | 3 ²⁾ |
| Actuator data | See Data Sheet | ▶ T 5824 | ▶ T 8331 | | |

1) With 30 mm travel

2) Only with Type 3374-10

Table 3.2: Permissible differential pressures for soft-seated plug · All pressures in bar

| Globe valve | Type | 3321-E1 | 3321-E3 | | |
|-------------------------------|----------------|--------------------------------|-------------|---|-----------------|
| With actuator | Type | 5824-30 | 3374-10/-11 | 3374-21/-31 | 3374-10/-11 |
| Thrust | | 0.7 kN | 1.25 kN | Stem extends: 2.0 kN Stem retracts: 0.5 kN | 2.5 kN |
| K _{VS} coefficients | | Δp when p ₂ = 0 bar | | | |
| 0.25 · 0.63 · 1.6 · 2.5 · 4.0 | | 40 | 40 | 40 | 40 |
| 6.3 · 10 | | 12 | 16 | 32 | 40 |
| 16 | | 6.5 | 9 | 17 | 27 |
| 25 | | 4.5 | 6 | 12 | 19 |
| 35 | | 3 | 4 | 7 | 12 |
| 40 | | – | 3 | 9 | 10 |
| 100 | | – | – | 3 | 4 |
| 160 ¹⁾ | | – | – | – | 4 ²⁾ |
| Actuator data | See Data Sheet | ▶ T 5824 | ▶ T 8331 | | |

1) With 30 mm travel

2) Only with Type 3374-10

Table 4: Type of attachment and required adapter

| Type 3321 Valve | | DN 15 to 50 | DN 65 to 100 |
|---|----|----------------------------------|-------------------------------------|
| Type 3372 Actuator with connector (Fig. 1) | IP | Mounting with crossbeam (form B) | – |
| Type 3372 Actuator with Type 3725 Positioner (Fig. 3, Fig. 4) | IP | Mounting with crossbeam (form B) | Mounting without crossbeam (form C) |
| Type 5824-30 Actuator (Fig. 5) | E1 | With adapter (1400-7414) | – |
| Type 3374-11/-21/-31 Actuator (Fig. 6) | E3 | Mounting with crossbeam (form B) | With adapter (1400-9515) |
| Type 3374-10 Actuator | E3 | – | With adapter (1400-9515) |
| Type 3371 Actuator (Fig. 2) | PP | Mounting with crossbeam (form B) | Mounting without crossbeam (form C) |

Table 5: Dimensions and weights for Type 3321 Valve

| Valve | DN | 15 | 20 | 25 | 32 | 40 | 50 | 65 | 80 | 100 |
|----------------------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| L | mm | 130 | 150 | 160 | 180 | 200 | 230 | 290 | 310 | 350 |
| H1 | mm | 110 | 110 | 110 | 115 | 115 | 115 | 178 | 178 | 201 |
| H2 | mm | 40 | 40 | 40 | 72 | 72 | 72 | 98 | 98 | 118 |
| H4 (with insulating section) | mm | 261 | 261 | 261 | 265 | 265 | 265 | 325 | 325 | 325 |
| Weight | kg | 5 | 6 | 7 | 11 | 12 | 15 | 24 | 30 | 42 |
| Weight (with insulating section) | kg | 8 | 9 | 10 | 17 | 18 | 21 | 32 | 38 | 60 |

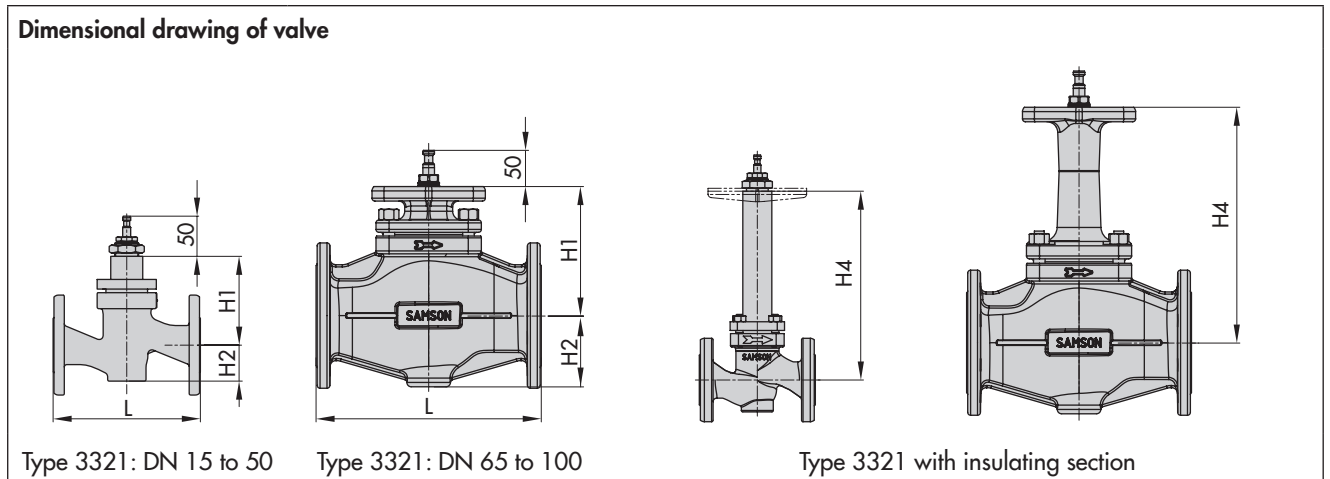
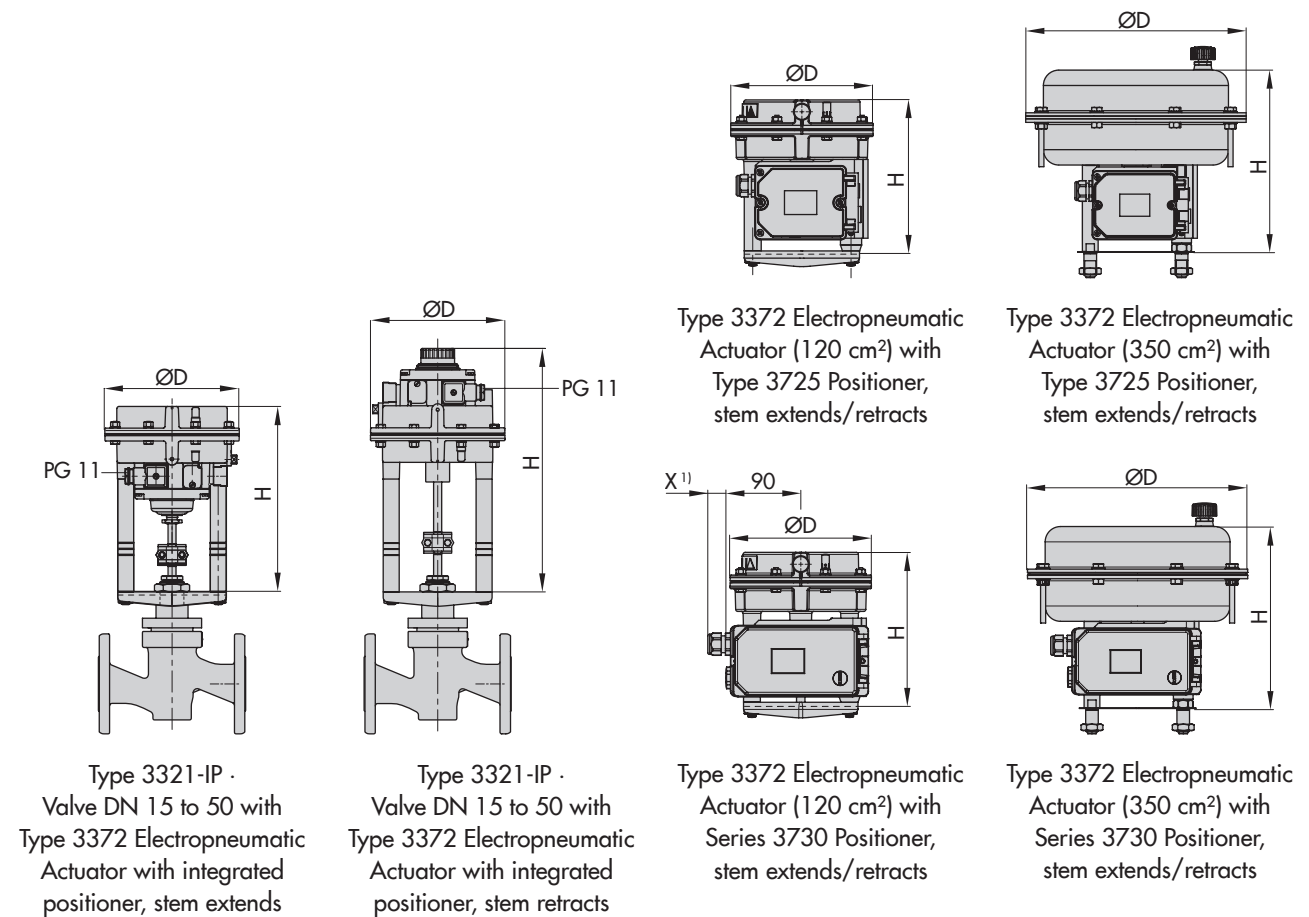


Table 6: Dimensions and weights for Type 3372 Electropneumatic Actuator

| Positioner | | Integrated | | Type 3725 | |
|----------------------------------|-----------------|--------------|---------------|-----------------------|-----|
| Actuator area | cm ² | 120 | 120 | 120 | 350 |
| Fail-safe position ¹⁾ | | Stem extends | Stem retracts | Stem extends/retracts | |
| Height H | mm | 236 | 309 | 182 | 231 |
| ØD | mm | 168 | 168 | 168 | 280 |
| Weight (without positioner) | kg | 3.7 | 3.7 | 3.3 | 15 |

Dimension diagrams for electropneumatic control valves

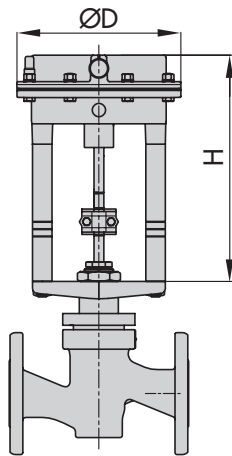


¹⁾ The dimension X depends on the cable gland used.

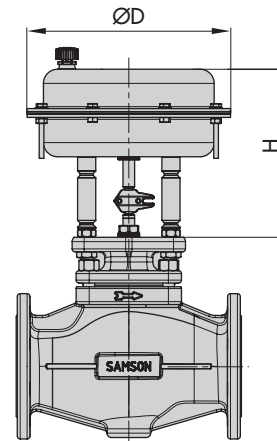
Table 7: Dimensions and weights for Type 3371 Pneumatic Actuator

| Actuator area | cm ² | 120 | 350 |
|--------------------|-----------------|-----------------------|-----------------------|
| Fail-safe position | | Stem extends/retracts | Stem extends/retracts |
| Height H | mm | 182 | 231 |
| ØD | mm | 168 | 280 |
| Weight | kg | 3.3 | 15 |

Dimension diagrams for pneumatic control valves



Type 3321-PP ·
Valve DN 15 to 50 with Type 3371 Pneumatic Actuator
(120 cm²), stem extends/retracts

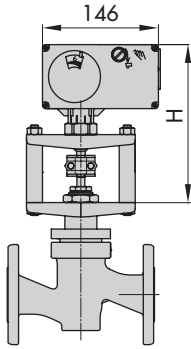


Type 3321-PP ·
Valve DN 65 to 100 with Type 3371 Pneumatic Actuator
(350 cm²), stem extends/retracts

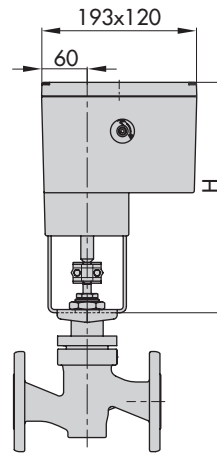
Table 8: Dimensions and weights for Type 5824 and Type 3374 Electric Actuators

| Type | | 5824 | 3374 |
|---------------|----|------|------|
| Height H | mm | 203 | 294 |
| Weight (max.) | kg | 1.25 | 4 |

Dimension diagrams for electric control valves



Type 3321-E1 ·
Valve with Type 5824 Electric Actuator



Type 3321-E3 ·
Valve with Type 3374 Electric Actuator

Ordering text

The following specifications are required on ordering:

Type 3321 Globe Valve

| | |
|------------------|--|
| Valve size | DN ... |
| Flow coefficient | K_{VS} ... |
| Pressure rating | PN ... |
| Body material | Cast iron, spheroidal graphite iron, cast steel or stainless steel |
| Seat-plug seal | – Metal seal – Soft seal |
| Options | – Flow divider 1 – Insulating section |

Actuators

for **Type 3321-IP**: Type 3372 Electropneumatic Actuator

120 cm² actuator area:

- with integrated positioner, 4 to 20 mA
- with Type 3725 or Series 3730 Positioner

350 cm² actuator area:

- with Type 3725 or Series 3730 Positioner

Optional Intrinsicly safe Ex ia

Additional equipment 1 or 2 limit switches

for **Type 3321-PP**: Type 3371 Pneumatic Actuator

Fail-safe position Fail-close or fail-open

Bench range 1.4 to 2.3 bar

Additional equipment 1 or 2 limit switches

For **Type 3321-E1**: Type 5824-30 Electric Actuator

Supply voltage – 230 V/50 Hz
– 24 V/50 Hz

Additional equipment – Two limit contacts
– Resistance transmitter 0 to 1000 Ω
– Digital positioner:
– Input: 0/4 to 20 mA or 0/2 to 10 V
– Output: 0/2 to 10 V

For **Type 3321-E3**: Type 3374 Electric Actuator

Fail-safe action Actuator stem extends or retracts

Thrust

With fail-safe action 2 kN (actuator stem extends)
500 N (actuator stem retracts)

Without fail-safe action 1.25 kN; 2.5 kN

Supply voltage – 230 V/50 Hz
– 230 V/60 Hz
– 24 V/50 Hz
– 24 V/60 Hz

Additional equipment – Two limit contacts
– Resistance transmitter 0 to 1000 Ω
– Digital positioner with input and output 0/4 to 20 mA or 0/2 to 10 V

