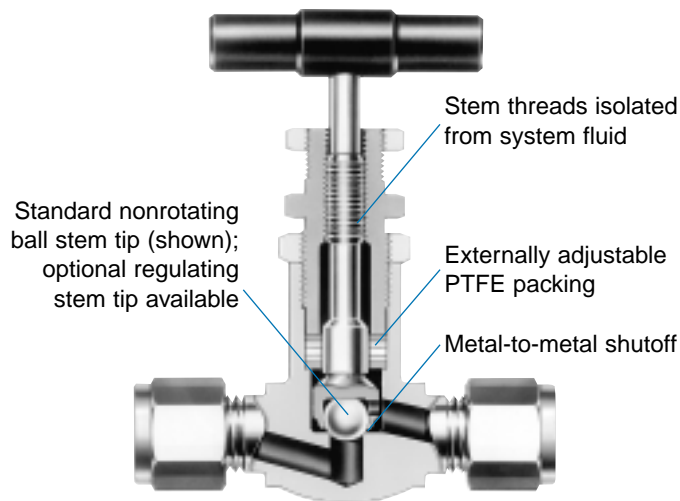


Screwed-Bonnet Needle Valves

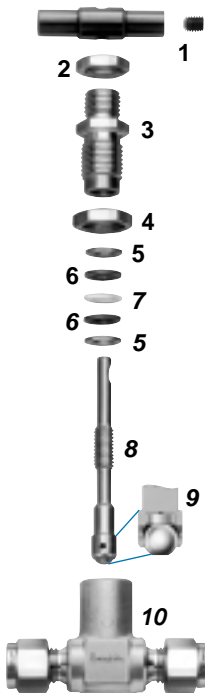
JB Series

Features



- Working pressures up to 3000 psig (206 bar)
- Temperatures up to 400°F (204°C) with standard PTFE packing; up to 600°F (315°C) with optional Grafoil® packing
- Straight and angle-pattern valves

Materials of Construction



| Component | Material Grade/ ASTM Specification |
|---------------------|---|
| 1 Handle | Anodized aluminum 2024-T4/B211 |
| Set screw | Alloy steel/ ANSI B18.3 |
| 2 Panel mount nut | 316 SS/A479 |
| 3 Bonnet | |
| 4 Lock nut | 316 SS |
| 5 Glands (2) | 316 SS/A240 |
| 6 Outer packing (2) | Reinforced PTFE |
| 7 Inner packing | Virgin PTFE |
| 8 Stem | 316 SS/A479 |
| 9 Disc | S17400/A564 |
| Ball insert | 316 SS/AMS 5648 |
| 10 Body | 316 SS/A182 |
| Lubricants | <i>Silicone based; molybdenum disulfide based</i> |

Wetted components listed in *italics*.



Pressure-Temperature Ratings

Ratings are based on PTFE packing. Optional packing materials will affect the temperature rating. See **Grafoil Stem Packing**, page 2.

| ASME Class | 1250 |
|------------------------|--------------------------------|
| Material Group | 2.2 |
| Material Name | 316 SS |
| Temperature °F (°C) | Working Pressure psig (bar) |
| -40 (-40) to 100 (37) | 3000 (206) |
| 200 (93) | 2580 (177) |
| 300 (148) | 2330 (160) |
| 400 (204) | 2140 (147) |

For more information about ASME classes, material groups, and ratings, see the *Swagelok Valve Pressure-Temperature Ratings* technical bulletin.

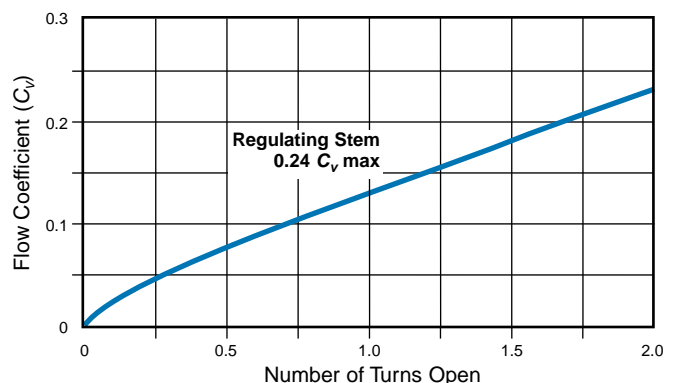
Flow Data at 70°F (20°C)

Standard Ball Stem Tip

The JB series ball stem is designed to be used in a fully open or fully closed position. See **Dimensions** for flow coefficients.

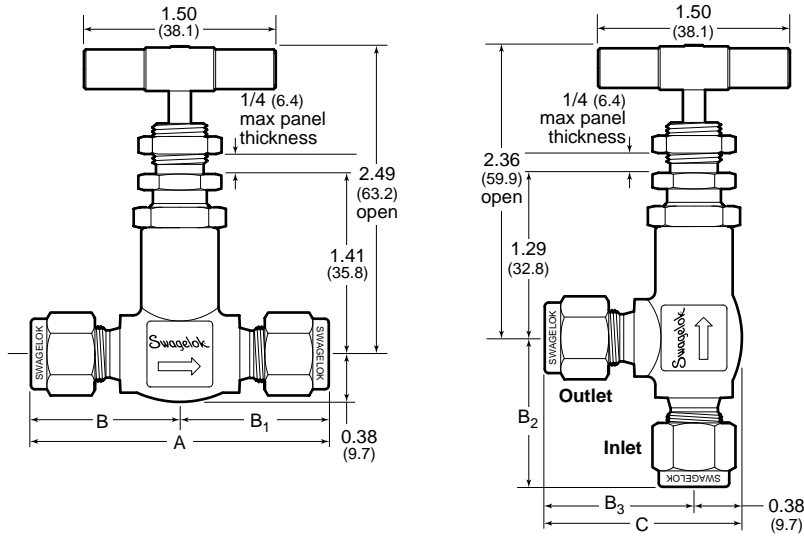
Optional Regulating Stem Tip

Flow Coefficient at Turns Open



Ordering Information / Dimensions

Select an ordering number. Dimensions, in inches (millimeters), are for reference only and are subject to change.



| End Connections | | Ordering Number | C _v | Dimensions, in. (mm) | | | | | | |
|-----------------------------------|---------|-----------------|-------------------------|--------------------------|-------------|-------------|----------------|----------------|----------------|---|
| Type | Size | | | Orifice | A | B | B ₁ | B ₂ | B ₃ | C |
| Swagelok tube fitting | 1/8 in. | SS-2JB | 0.09 | 0.082 (2.1) ^① | 2.26 (57.4) | 1.13 (28.7) | 1.06 (26.9) | 1.07 (27.2) | 1.44 (36.6) | |
| | 1/4 in. | SS-4JB | 0.39 (straight pattern) | 0.166 (4.2) | 2.33 (59.2) | 1.17 (29.7) | | | 1.54 (39.1) | |
| | 3/8 in. | SS-6JB | | | 2.46 (62.5) | 1.23 (31.2) | | | 1.60 (40.6) | |
| | 6 mm | SS-6JB-MM | | | 2.33 (59.2) | 1.17 (29.7) | | | 1.54 (39.1) | |
| | 8 mm | SS-8JB-MM | | | 2.47 (62.7) | 1.24 (31.5) | — | | | |
| Male NPT | 1/8 in. | SS-2JB2 | | | 0.156 (4.0) | 1.75 (44.5) | 0.88 (22.4) | — | | |
| Male NPT to Swagelok tube fitting | 1/4 in. | SS-4JB2 | 0.58 (angle pattern) | 0.166 (4.2) | 2.00 (50.8) | 1.00 (25.4) | | | 1.37 (34.8) | |
| | 1/4 in. | SS-4JB1 | | | 2.16 (54.9) | 1.00 (25.4) | 1.16 (29.5) | — | | |
| Male NPT to male ISO ^② | 1/4 in. | SS-4JB2-RT | 0.58 (angle pattern) | 0.166 (4.2) | 2.00 (50.8) | 1.00 (25.4) | | | 1.37 (34.8) | |
| Female NPT | 1/8 in. | SS-2JB4 | | | 2.00 (50.8) | 1.00 (25.4) | 0.88 (22.4) | | 1.25 (31.8) | |

Dimensions shown with Swagelok nuts finger-tight.

① Angle-pattern valve orifice is 0.094 in. (2.4 mm).

② See specifications ISO 7/1, BS21, DIN-2999, and JIS B0203.

⚠ Packing adjustment may be required during the valve's service life.

⚠ Valves that have not been cycled for a period of time may have a higher initial actuation torque.

Safe Product Selection

When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

Caution: Do not mix or interchange parts with those of other manufacturers.

Testing

Every JB series needle valve is factory tested for bubble-tight shutoff at 100 psi (6.8 bar) differential pressure.

Shell testing is performed on a sampling basis at 3000 psig (206 bar) to a requirement of no detectable leakage.

Cleaning and Packaging

Every JB series needle valve is cleaned and packaged in accordance with Swagelok Specification SC-10.

Options and Accessories

Angle-Pattern Valves

Insert **A** after **JB** in an ordering number with B₂, B₃, and C dimensions listed.

Example: SS-2JBA

Ball Stem Tip Material

Add **-CC** for 440C SS or **-ST** for cobalt-based alloy to the ordering number.

Example: SS-2JB-CC

Regulating Stems

Valves with 316 SS regulating stems have a maximum flow coefficient (C_v) of 0.24 (0.09 with 1/8 in. tube fitting end connections). Insert **R** in the ordering number.

Examples: SS-2JBR; SS-2JBAR2

Grafoil Stem Packing

One-piece Grafoil packing extends temperature ratings to 600°F (315°C) at 1880 psig (129 bar). Add **-HT** to the ordering number.

Example: SS-2JB-HT

Stem Packing Kits

| Stem Packing | Ordering Number |
|-------------------|-----------------|
| Three-piece PTFE | T-4JB-K1 |
| One-piece Grafoil | G-4JB-K1 |

Stainless Steel Bar Handles

Add **-BG** to the ordering number.

Example: SS-2JB-BG

Handle Kits

| Handle | Ordering Number |
|--------------------------------------|-----------------|
| Standard green anodized aluminum bar | A-4JB-K7-GR |
| 316 SS bar | SS-4JB-K7 |

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