

Needle, Toggle & Metering Valves

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Catalogue No. S-LOK Oct.2020

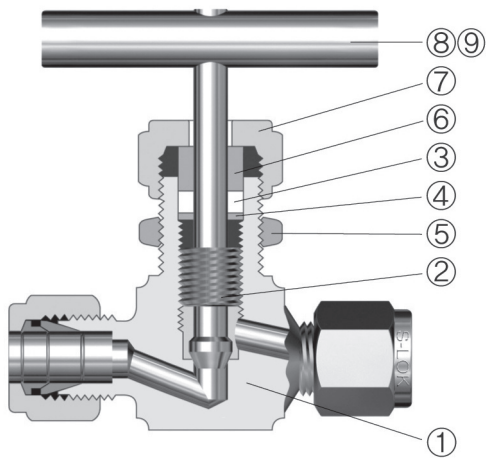
SNV50 Series Integral Bonnet Needle Valves

Features

- Pressure rating up to 5000psig (344bar) at 21°C (70°F).
- Temperature rating from -54°C (-65°F) to 232°C (450°F) with standard PTFE packing and up to 315°C (600°F) with optional PEEK packing.
- Choice of material : Standard SS316 and available in Alloy 400 & Brass.
- Available Sour Gas service per NACE MR0175.
- Applications : General Purpose Gas, Water and Oil
- Variety stem tips include Vee, Regulating and Soft-Seat with PCTFE (KEL-F).
- Forged body with straight and angle patterns.
- Stem threads are hard chrome-plated for maximum service life.
- Packing nut enables easy external adjustments to ensure leak-free stem seal.
- Variety of end connections include reliable S-LOK tube fittings, male/female NPT & ISO threads.






Materials of Construction



| No | Component | Material | | | |
|----|--------------|--------------------------------|---|-------------------------|-----------------------|
| | | Stainless Steel | Brass | Alloy 400 | |
| 1 | Body | SS316/ A182 | Brass / B124 | Alloy 400 / B564 | |
| 2 | Stem | Vee | Chrome Plate SS316 / A479 or A276 | SS316 / A479 or A276 | |
| | | Soft Seat | | | Alloy R-405 / B164 |
| | | Regulating | | | |
| 2a | Stem Tip | PCTFE (KEL-F) | | | |
| 3 | Packing | PTFE (Optional PEEK) | | | |
| 4 | Packing Ring | SS316 / A479 or A276 | Brass / B16 | Alloy R-405 / B164 | |
| 5 | Panel Nut | | | | |
| 6 | Gland | | | | |
| 7 | Packing Nut | SS316 / A276 | | | |
| 8 | Knob Handle | Black Phenolic Knob (Standard) | | | |
| | Bar Handle | SS316 / A276 | | | |
| 9 | Set Screw | Stainless Steel | | | |

Technical Data

Choice of Stem Tip's Available

| Vee Stem | Regulating Stem | Soft Seat Stem |
|---|---|---|
| For pressure tightness even at elevated temperatures | For flow rate control | For repetitive shut-off |
|  |  |  |

Pressure-Temperature Rating with Packing and Body Material

| Valve Material | Stem | PTFE Packing (Standard) | | PEEK Packing (Optional) | |
|---------------------|------------------------------------|---------------------------------|------------------------------|---------------------------------|-----------------------------|
| | | Temperature Range °C (°F) | Pressure Rating @38°C(100°F) | Temperature Range °C (°F) | Pressure Rating @Max. Temp. |
| Stainless Steel 316 | Vee & Regulating Stem (Metal Seat) | -54°C to 232°C (-65°F to 450°F) | 5000psig (344 bar) | -54°C to 315°C (-65°F to 600°F) | 3130psig (215 bar) |
| | Soft Stem (PCTFE Seat) | -54°C to 93°C (-65°F to 200°F) | | -54°C to 93°C (-65°F to 200°F) | 4295psig (295 bar) |
| Brass | Vee & Regulating Stem (Metal Seat) | -54°C to 204°C (-65°F to 400°F) | 3000psig (206 bar) | -54°C to 204°C (-65°F to 400°F) | 390psig (26 bar) |
| | Soft Stem (PCTFE Seat) | -54°C to 93°C (-65°F to 200°F) | | -54°C to 93°C (-65°F to 200°F) | 2350psig (161 bar) |
| Alloy 400 | Vee & Regulating Stem (Metal Seat) | -54°C to 232°C (-65°F to 450°F) | 3000psig (206 bar) | -54°C to 260°C (-65°F to 500°F) | 2375psig (163 bar) |
| | Soft Stem (PCTFE Seat) | -54°C to 93°C (-65°F to 200°F) | | -54°C to 93°C (-65°F to 200°F) | 2460psig (181 bar) |

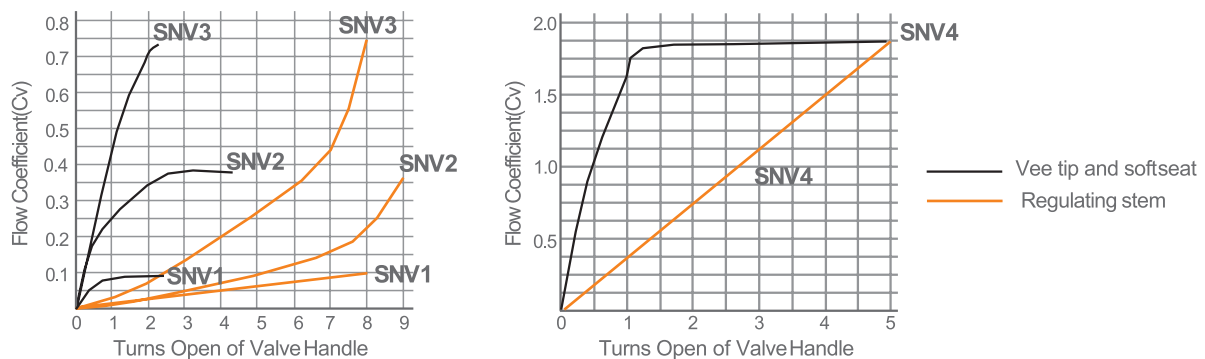
Temperature-Working Pressure

- The class rating and rated working pressure are the way that ASME standards simplify the design process.
- The pressure rating is governed by the allowable stress for each different material group, class rating and service temperature.

| ASME Material Group | Table 2-2.2 | N/A | Table 2-3.4 |
|-------------------------------|------------------------------|------------|-------------|
| ASME Class Rating | 2080 | N/A | 1500 |
| Material Name | Stainless Steel 316 | Brass | Alloy 400 |
| Temperature, °C (°F) | Working Pressure, psig (bar) | | |
| -54°C (-65°F) to 38°C (100°F) | 5000 (344) | 3000 (206) | 3000 (206) |
| 93°C (200°F) | 4295 (295) | 2350 (161) | 2630 (181) |
| 148°C (300°F) | 3875 (266) | 2050 (141) | 2450 (168) |
| 204°C (400°F) | 3560 (245) | 390 (26) | 2365 (163) |
| 260°C (500°F) | 3310 (228) | - | 2365 (163) |
| 315°C (600°F) | 3130 (215) | - | - |

- Pressure ratings of valves with S-LOK end connections are determined by the tubing material and wall thickness.
- Pressure rating of valve is sometimes limited to the working pressure of pipe ends and the tubing connected.

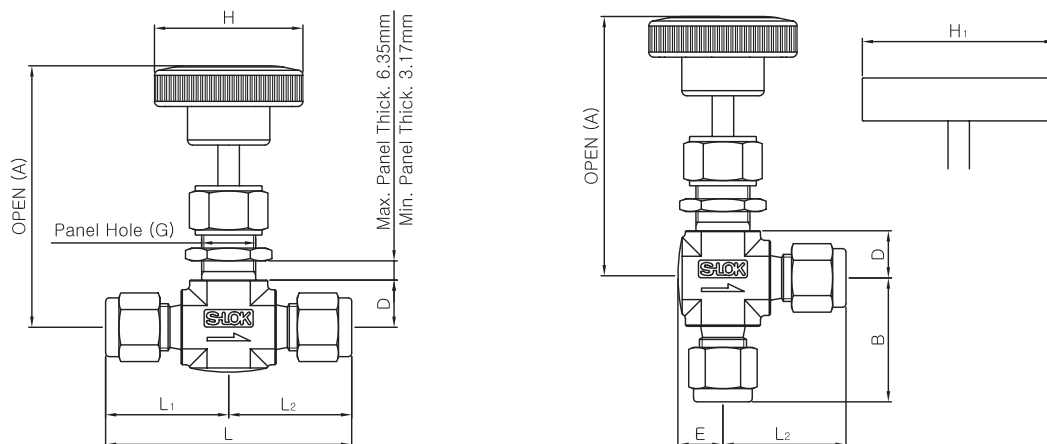
Flow Coefficient (Cv) with Number of Handle Turns



Testing

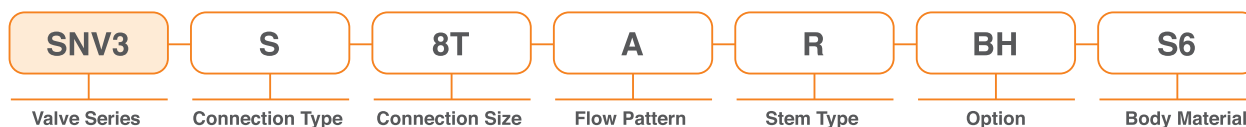
- Every valve is factory tested with Nitrogen @ 1000psig (69bar)
- Seats have a maximum allowable leak of 0.1 (SSCM).
- Hydrostatic shell tests is performed optional with water at 1.5 times the working pressure.

Ordering Information & Dimensions



| Ordering Number | Orifice (mm) | Cv | End Connections | | Dimensions (mm) | | | | | | | | | | |
|-----------------|--------------|-----|-----------------|------------------------|-----------------|------|------|----------------|----------------|---|------|------|----------------|------|------|
| | | | Inlet | Outlet | A | B | L | L ₁ | L ₂ | E | D | H | H ₁ | G | |
| SNV1 | F-2N | 2.0 | 0.09 | 1/8" Female NPT | | 61.0 | 21.0 | 42.0 | 21.0 | | 9.5 | 11.0 | 35.0 | 32.0 | 13.5 |
| | M-2N | | | 1/8" Male NPT | | | | | | | | | | | |
| | MS-2N2T | | | 1/8" Male NPT | 1/8" S-LOK | | | | | | | | | | |
| | S-2T | | | 1/8" S-LOK | | | | | | | | | | | |
| | S-3M | | | 3mm S-LOK | | | | | | | | | | | |
| SNV2 | F-2N | 4.4 | 0.37 | 1/8" Female NPT | | 61.0 | 21.0 | 42.0 | 21.0 | | 9.5 | 11.0 | 35.0 | 45.0 | 13.5 |
| | M-2N | | | 1/8" Male NPT | | | | | | | | | | | |
| | M-4N | | | 1/4" Male NPT | | | | | | | | | | | |
| | MS-4N4T | | | 1/4" Male NPT | 1/4" S-LOK | | | | | | | | | | |
| | S-6M | | | 6mm S-LOK | | | | | | | | | | | |
| | S-4T | | | 1/4" S-LOK | | | | | | | | | | | |
| | S-8M | | | 8mm S-LOK | | | | | | | | | | | |
| SNV3 | F-4N | 6.4 | 0.73 | 1/4" Female NPT | | 77.0 | 28.0 | 56.0 | 28.0 | | 13.0 | 13.5 | 47.0 | 64.0 | 19.8 |
| | F-4R | | | 1/4" Female ISO Thread | | | | | | | | | | | |
| | MF-4N | | | 1/4" Male NPT | 1/4" Female NPT | | | | | | | | | | |
| | MS-4N6T | | | 1/4" S-LOK | 3/8" S-LOK | | | | | | | | | | |
| | M-6N | | | 3/8" Male NPT | | | | | | | | | | | |
| | MS-6N6T | | | 3/8" Male NPT | 3/8" S-LOK | | | | | | | | | | |
| | MS-6N8T | | | 3/8" Male NPT | 1/2" S-LOK | | | | | | | | | | |
| | S-10M | | | 10mm S-LOK | | | | | | | | | | | |
| | S-6T | | | 3/8" S-LOK | | | | | | | | | | | |
| | S-12M | | | 12mm S-LOK | | | | | | | | | | | |
| | S-8T | | | 1/2" S-LOK | | | | | | | | | | | |
| SNV4 | F-6N | 9.5 | 1.80 | 3/8" Female NPT | | 92.0 | 38.0 | 76.0 | 38.0 | | 19.0 | 19.0 | 63.0 | 76.0 | 26.0 |
| | F-6R | | | 3/8" Female PT | | | | | | | | | | | |
| | F-8N | | | 1/2" Female NPT | | | | | | | | | | | |
| | F-8R | | | 1/2" Female ISO Thread | | | | | | | | | | | |
| | M-8N | | | 1/2" Male NPT | | | | | | | | | | | |
| | MF-8N | | | 1/2" Male NPT | 1/2" Female NPT | | | | | | | | | | |
| | S-8T | | | 1/2" S-LOK | | | | | | | | | | | |
| | S-12T | | | 3/4" S-LOK | | | | | | | | | | | |

* Dimensions are for reference only and are subject to change.



- Nil : Straight
- Nil : Vee Stem
- Nil : Standard
- S6 : 316 Stainless Steel
- A : Angle Pattern
- R : Regulating Stem
- BH : Bar Handle
- BS : Brass
- K : Soft Seat Stem
- PK : PEEK Packing
- A400 : Alloy 400
- SG : Sour Gas Service

SBNV60 Series

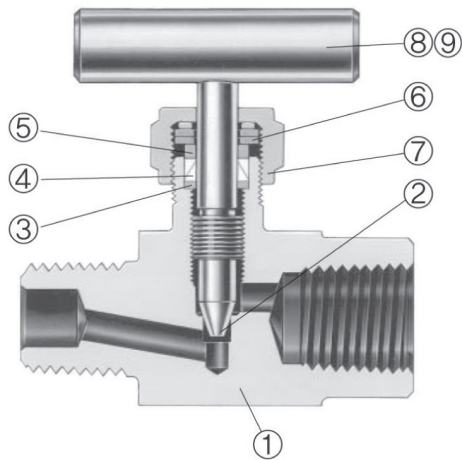
Integral Bonnet Bar Stock Needle Valves

Features

- Pressure rating up to 6000psig (413bar) at 21°C (70°F).
- Temperature rating from -54°C (-65°F) to 232°C (450°F) with standard PTFE packing and up to 315°C (600°F) with optional PEEK packing.
- Choice of material : Standard SS316 and available in Alloy 400 & Brass.
- Available Sour Gas service per NACE MR0175
- Applications : General Purpose Gas, Water and Oil
- Variety stem tips include Vee, Regulating and Soft-Seat with PCTFE (KEL-F).
- Bar stock body with straight and angle patterns.
- Stem threads are hard chrome-plated for maximum service life.
- Packing nut enables easy external adjustments to ensure leak-free stem seal.
- Variety of end connections include reliable S-LOK tube fittings, male/female NPT & ISO threads.



Materials of Construction



| No | Component | Material | |
|----|----------------|-------------------------|----------------------|
| | | Stainless Steel | Alloy 400 |
| 1 | Body | SS316 / A479 or A276 | Alloy 400 / B564 |
| 2 | Stem | Vee | Chrome Plate |
| | | Soft Seat | SS316 / A479 or A276 |
| 2a | Stem Tip | PCTFE (KEL-F) | |
| 3 | Packing | PTFE (Optional PEEK) | |
| 4 | Packing Ring | SS316 / A479 or A276 | Alloy R-405 / B164 |
| 5 | Panel Nut | SS316 / A479 or A276 | Alloy R-405 / B164 |
| 6 | Packing Spring | 17-7PH | |
| 7 | Packing Nut | SS316 / A276 | |
| 8 | Bar Handle | SS316 / A276 (Standard) | |
| 9 | Set Screw | Stainless Steel | |

Technical Data

Pressure-Temperature Rating with Packing and Body Material

| Valve Material | Stem | PTFE Packing (Standard) | | PEEK Packing (Optional) | |
|---------------------|------------------------|---------------------------------|------------------------------|---------------------------------|-----------------------------|
| | | Temperature Range °C (°F) | Pressure Rating @38°C(100°F) | Temperature Range °C (°F) | Pressure Rating @Max. Temp. |
| Stainless Steel 316 | Vee Stem (Metal Seat) | -54°C to 232°C (-65°F to 450°F) | 6000psig (413 bar) | -54°C to 315°C (-65°F to 600°F) | 3760psig (259 bar) |
| | Soft Stem (PCTFE Seat) | -54°C to 93°C (-65°F to 200°F) | | -54°C to 93°C (-65°F to 200°F) | 5160psig (355bar) |
| Alloy 400 | Vee Stem (Metal Seat) | -54°C to 232°C (-65°F to 450°F) | 5000psig (344 bar) | -54°C to 260°C (-65°F to 500°F) | 3940psig (271 bar) |
| | Soft Stem (PCTFE Seat) | -54°C to 93°C (-65°F to 200°F) | | -54°C to 93°C (-65°F to 200°F) | 4380psig (301bar) |

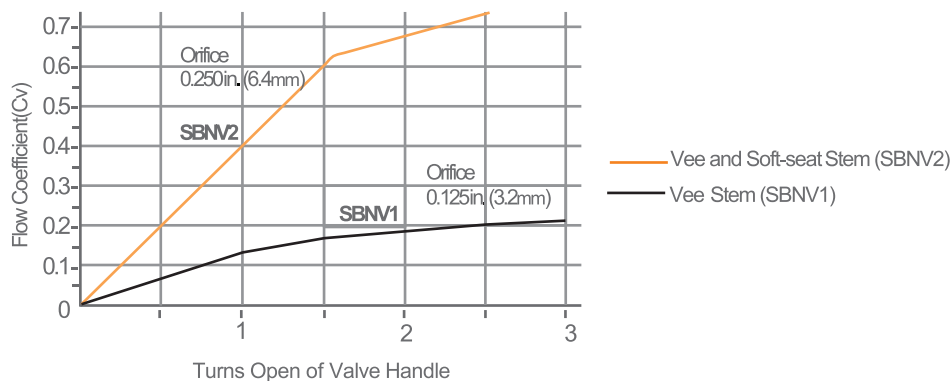
* Not applicable over 260°C(500°F) PEEK is not recommended for service with aromatic heat transfer fluids or concentrated sulfuric and nitric acids. Other limitations may apply.

Temperature-Working Pressure

| ASME Material Group | Table 2-2.2 | Table 2-3.4 |
|-------------------------------|------------------------------|-------------|
| ASME Class Rating | 2500 | |
| Material Name | Stainless Steel 316 | Alloy 400 |
| Temperature, °C (°F) | Working Pressure, psig (bar) | |
| -54°C (-65°F) to 38°C (100°F) | 6000 (413) | 5000 (344) |
| 93°C (200°F) | 5160 (355) | 4380 (301) |
| 148°C (300°F) | 4660 (321) | 4080 (281) |
| 204°C (400°F) | 4280 (295) | 3940 (271) |
| 260°C (500°F) | 3980 (274) | 3940 (271) |
| 315°C (600°F) | 3760 (259) | 3940 (271) |




- Pressure ratings of valves with S-LOK end connections are determined by the tubing material and wall thickness.
- For more information about pressure ratings of valves with tube fitting end connections.
- Pressure rating of valve is sometimes limited to the working pressure of pipe ends and the tubing connected.

Flow Coefficient (Cv) with Number of Handle Turns



Choice of Stem Tip's & Handle Available

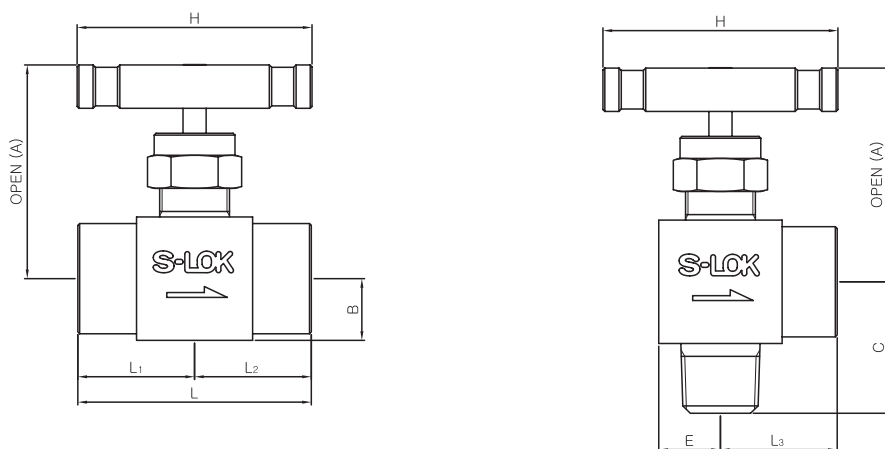
- Stainless steel bar handle is standard all valves.
- Black phenolic knob is standard for soft seat stem valves

| Vee Stem | Regulating Stem | Soft Seat Stem |
|---|---|---|
| For pressure tightness even at elevated temperatures | For flow rate control | For repetitive shut-off |
|  |  |  |

Testing

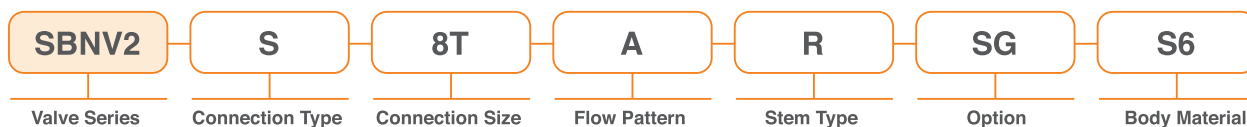
- Every valve is factory tested with Nitrogen @ 1000psig (69bar)
- Seats have a maximum allowable leak of 0.1 (SSCM).
- Hydrostatic shell tests is performed optional with water at 1.5 times the working pressure.

Ordering Information & Dimensions



| Ordering Number | Orifice (mm) | Cv | End Connections | | Dimensions (mm) | | | | | | | | | |
|-----------------|--------------|-----|-----------------|------------------------|-----------------|------|------|------|----------------|----------------|----------------|------|------|------|
| | | | Inlet | Outlet | A | B | C | L | L ₁ | L ₂ | L ₃ | E | H | |
| SBNV1 | F-4N | 3.2 | 0.21 | 1/4" Female NPT | | 42.2 | 11.2 | 25.4 | 47.8 | 23.9 | | 25.4 | 11.2 | 44.5 |
| | F-4R | | | 1/4" Female ISO Thread | | | | | | | | | | |
| | M-4N | | | 1/4" Male NPT | | | | 26.2 | 48.5 | 24.6 | 23.9 | 26.2 | | |
| | MF-4N | | | 1/4" Male NPT | 1/4" Female NPT | | | | | | | | | |
| | MS-4N4T | | | 1/4" Male NPT | 1/4" S-LOK | | | 29.5 | 62.5 | 31.2 | | 29.5 | | |
| | S-4T | | | 1/4" S-LOK | | | | | | | | | | |
| SBNV2 | F-6N | 6.4 | 0.73 | 3/8" Female NPT | | 58.7 | 16.8 | 31.8 | 63.5 | 31.8 | | 31.8 | 16.8 | 64.0 |
| | F-8N | | | 1/2" Female NPT | | | | | | | | | | |
| | F-8R | | | 1/2" Female ISO Thread | | | | 31.0 | 64.8 | 33.0 | 31.8 | 31.8 | | |
| | MF-6N | | | 3/8" Male NPT | 3/8" Female NPT | | | | | | | | | |
| | MF-8N | | | 1/2" Male NPT | 1/2" Female NPT | | | - | 63.5 | 31.8 | | - | | |
| | MF-12N8N | | | 3/4" Male NPT | 1/2" Female NPT | | | | | | | | | |
| | S-6T | | | 3/8" S-LOK | | | | - | 78.2 | 39.1 | | - | | |
| | S-8T | | | 1/2" S-LOK | | | | | | - | 83.8 | | | |

* Dimensions are for reference only and are subject to change.

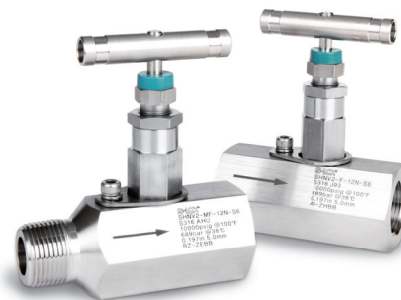


- Nil : Straight
- Nil : Vee Stem
- Nil : Standard
- S6 : 316 Stainless Steel
- A : Angle Pattern
- R : Regulating Stem
- PK : PEEK Packing
- A400 : Alloy 400
- K : Soft Seat Stem
- SG : Sour Gas Service

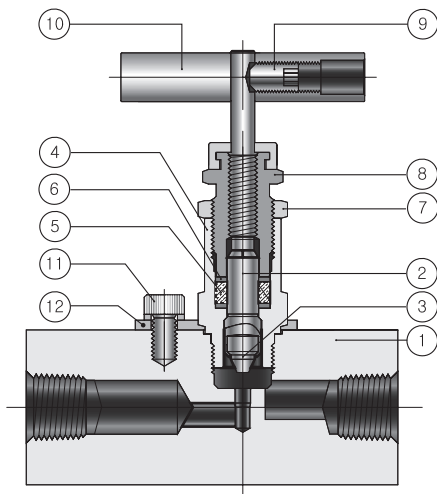
SHNV100 Series High Pressure Needle Valves

Features

- Pressure rating up to 10000psig (689bar) at 21 °C (70 °F).
- Temperature rating from -54 °C (-65 °F) to 232 °C (450 °F) with standard PTFE packing and up to 648 °C (1200 °F) with optional Graphite packing.
- Chevron PTFE packing design provides highly qualified sealing maintain ability.
- Packing Bolt allows external packing adjustment.
- Packing under the stem threads is to isolate threads from system fluid and lubricant washout.
- Non-rotating stem tip at closure is used for long-life and leak-tight shutoff.
- Lock plate ensures the valve to be fastened to the body.
- Available Sour Gas service per NACE MR0175.



Materials of Construction



| No | Component | Material | |
|----|--------------|------------------------------|--------------|
| | | Stainless Steel | Carbon Steel |
| 1 | Body | SS316 / A479 or A276 | JIS G4051 |
| 2 | Stem | SS316 / A479 or A276 | |
| 3 | Stem Tip | SS630 / A564 (17-4PH) | |
| 4 | Bonnet | SS316 / A479 or A276 | JIS G4051 |
| 5 | Packing | Chevron PTFE (Optional PEEK) | |
| 6 | Packing Ring | Reinforced PTFE | |
| 7 | Lock Nut | SS316 / A276 | |
| 8 | Packing Bolt | SS316 / A479 or A276 | JIS G4051 |
| 9 | Set Screw | Stainless Steel | |
| 10 | Bar Handle | Stainless Steel | |
| 11 | Lock Bolt | Stainless Steel | |
| 12 | Lock Plate | Stainless Steel | |

* Carbon Steel finished White zinc galvanized.

Technical Data

Pressure-Temperature Rating with Packing and Body Material

| Valve Material | Packing Material | Temperature Range °C (°F) | Pressure Rating @38 °C(100 °F) | Pressure Rating @Max. Temp. |
|---------------------|------------------|--------------------------------------|--------------------------------|-----------------------------|
| Stainless Steel 316 | PTFE | -54 °C to 232 °C (-65 °F to 450 °F) | 10000psig (689 bar) | 4130psig (285 bar) |
| | Graphite | -54 °C to 648 °C (-65 °F to 1200 °F) | | 1715psig (118bar) |
| Carbon Steel | PTFE | -29 °C to 176 °C (-20 °F to 350 °F) | 10000psig (689 bar) | 5230psig (360 bar) |
| | Graphite | -29 °C to 176 °C (-20 °F to 350 °F) | | |

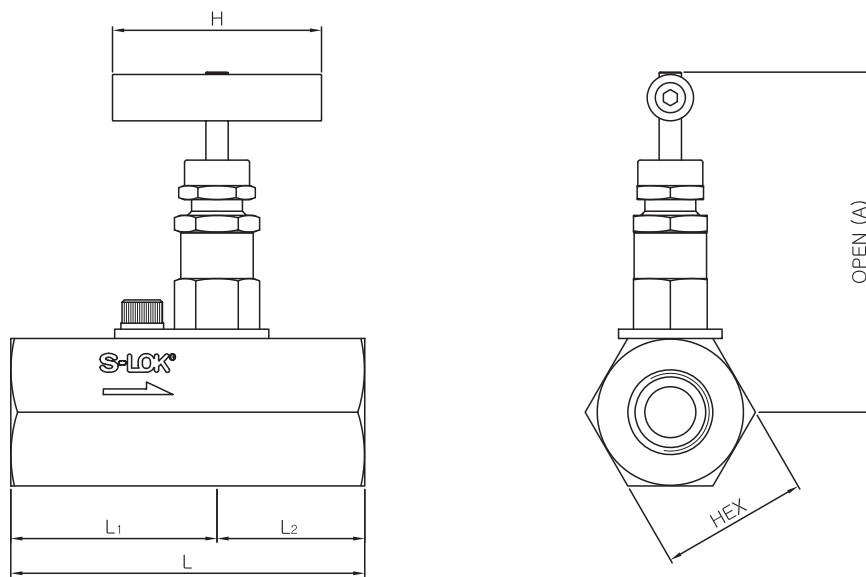
Packing Adjustment and Actuation Torque

- Extreme or rapid temperature cycle while valve in service may require packing adjustment.
- Valves that have not been actuated for a period of time may have a higher initial actuation torque.

Testing

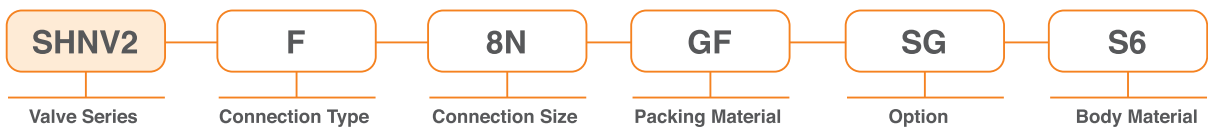
- Every valve is factory tested with Nitrogen @ 1000psig (69bar)
- Seats have a maximum allowable leak of 0.1 (SSCM).
- Stem packing is tested for the detection of no leakage.

Ordering Information & Dimensions



| Ordering Number | Orifice (mm) | End Connections | | Dimensions (mm) | | | | | | |
|-----------------|--------------|-----------------|-----------------|-----------------|------|----------------|----------------|------|------|------|
| | | Inlet | Outlet | A | L | L ₁ | L ₂ | HEX | H | |
| SHNV1 | F-4N | 3.2 | 1/4" Female NPT | | 72.7 | 76.2 | 44.4 | 31.8 | 31.8 | 45.0 |
| | F-6N | | 3/8" Female NPT | | | | | | | |
| SHNV2 | F-8N | 5.0 | 1/2" Female NPT | | 94.8 | 76.2 | 38.1 | 38.1 | 38.1 | 64.0 |
| | MF-8N | | 1/2" Male NPT | 1/2" Female NPT | | | | | | |
| | MF-12N | | 3/4" Male NPT | 3/4" Female NPT | 98.2 | 95.2 | 57.1 | 44.5 | | |

* Dimensions are for reference only and are subject to change.



- Nil : PTFE (Standard)
- GF : Graphite Packing
- Nil : Standard
- SG : Sour Gas Service
- S6 : 316 Stainless Steel
- CS : Carbon Steel

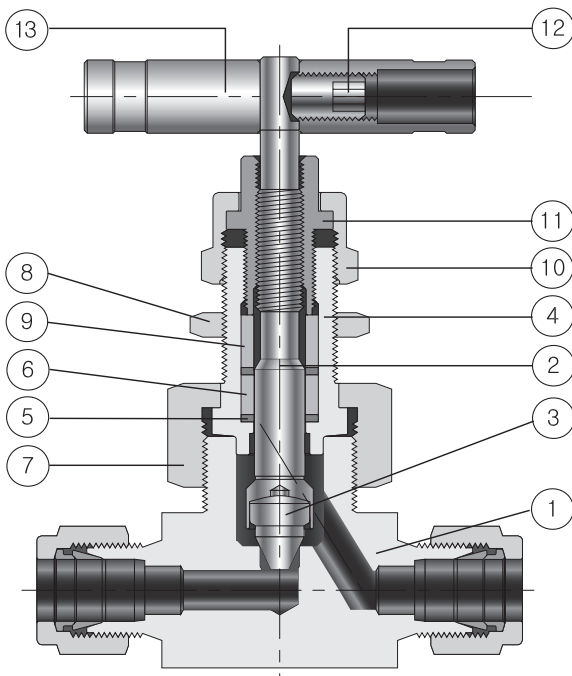
SUNV60 Series Union Bonnet Needle Valves

Features

- Pressure rating up to 6000psig (413bar) at 21°C (70°F).
- Temperature rating from -54°C (-65°F) to 232°C (450°F) with standard PTFE packing and up to 648°C (1200°F) with optional Graphite packing.
- Standard 316 Stainless Steel, optional Alloy 20 and Alloy C276 construction.
- Valve stem back seating against the bevelled edge of bonnet in fully open position prevents maximum leakage through bonnet when packing fails.
- Standard non-rotating stem tip and stem packing below the threads design.
- Available Sour Gas service per NACE MR0175.
- **Handle** standard 316 Stainless Steel bar handle.
- **External Packing Bolt** allow packing adjustment without disassembling the valve.
- **Roll threaded and hard chrome plated stem** is for extended valve's lifespan.
- **Panel Mounting Nut** is standard and permits the access of the valve panel or actuator.
- **Union Nut** prevents accidental disassembly of the valve in its service.
- **Stem packing below the threads** prevents media contamination and thread lubricant washout.
- **Non rotating stem tip at closure** is to maximize the lifespan of the metal seat and complete sealing.



Material of Construction



Note: *marked are wetted parts

| No | Component | Material | |
|----|-----------------|---|-------------|
| | | Stainless Steel | Alloy C-276 |
| 1 | Body | SS316 / A479 or A276 | Alloy C-276 |
| 2 | Stem | SS316 / A479 or A276 | Alloy C-276 |
| 3 | *Stem Tip | SS630 / A564 (17-4PH) | Alloy C-276 |
| 4 | Bonnet | SS316 / A479 or A276 | Alloy C-276 |
| 5 | Packing | PTFE (Optional PEEK, Graphite) | |
| 6 | Packing Support | Reinforced PTFE | |
| 7 | Union Nut | SS316 / A479 or A276 | |
| 8 | Panel Nut | SS316 / A479 or A276 | |
| 9 | Gland | SS316 / A479 or A276 | Alloy C-276 |
| 10 | Cap Nut | SS316 / A479 or A276 | |
| 11 | Packing Bolt | SS316 / A479 or A276 | |
| 12 | Set Screw | Stainless Steel | |
| 13 | Bar Handle | SS316 / A276 (Optional anodized Aluminum) | |

* Standard Vee tip, optional Ball and Regulating tip.

Technical Data

Pressure-Temperature Rating with Packing and Body Material

| Valve Material | Packing Material | Temperature Range °C (°F) | Pressure Rating @38°C(100°F) | Pressure Rating @Max. Temp. |
|---------------------|------------------|----------------------------------|------------------------------|-----------------------------|
| Stainless Steel 316 | PTFE | -54°C to 232°C (-65°F to 450°F) | 6000psig (413 bar) | 4130psig (284 bar) |
| | PEEK | -54°C to 315°C (-65°F to 600°F) | | 3760psig (259 bar) |
| | Graphite | -54°C to 648°C (-65°F to 1200°F) | | 1715psig (118 bar) |
| Alloy C-276 | PTFE | -54°C to 232°C (-65°F to 450°F) | 6000psig (413 bar) | 5710psig (393 bar) |
| | PEEK | -54°C to 260°C (-65°F to 500°F) | | 5540psig (381 bar) |
| | Graphite | -54°C to 648°C (-65°F to 1200°F) | | 1545psig (106 bar) |

* Not applicable over 260°C(500°F) PEEK is not recommended for service with aromatic heat transfer fluids or concentrated sulfuric and nitric acids. Other limitations may apply.

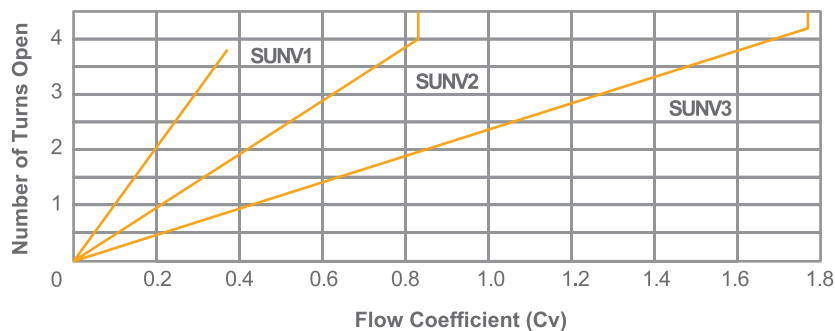
Temperature-Working Pressure

| ASME Material Group | Table 2-2.2 | N/A |
|-------------------------------|------------------------------|-------------|
| ASME Class Rating | 2500 | N/A |
| Material Name | Stainless Steel 316 | Alloy C-276 |
| Temperature, °C (°F) | Working Pressure, psig (bar) | |
| -54°C (-65°F) to 38°C (100°F) | 6000 (413) | 6000 (413) |
| 93°C (200°F) | 5160 (355) | 6000 (413) |
| 148°C (300°F) | 4660 (321) | 6000 (413) |
| 204°C (400°F) | 4280 (295) | 5820 (401) |
| 232°C (450°F) | 4130 (284) | 5710 (393) |
| 260°C (500°F) | 3980 (274) | 5540 (381) |
| 315°C (600°F) | 3760 (259) | 5040 (347) |
| 426°C (800°F) | 3460 (238) | 4230 (291) |
| 537°C (1000°F) | 3030 (208) | 3030 (208) |
| 648°C (1200°F) | 1715 (118) | 1545 (106) |

- Pressure ratings of valves with S-LOK end connections are determined by the tubing material and wall thickness.

- Pressure rating of valve is sometimes limited to the working pressure of pipe ends and the tubing connected.

Flow Data @ 100 F (38°C) for Valves with Regulating Stem tip



- Valve with standard Vee & Ball tip is designed to be used in a fully open or fully closed position.

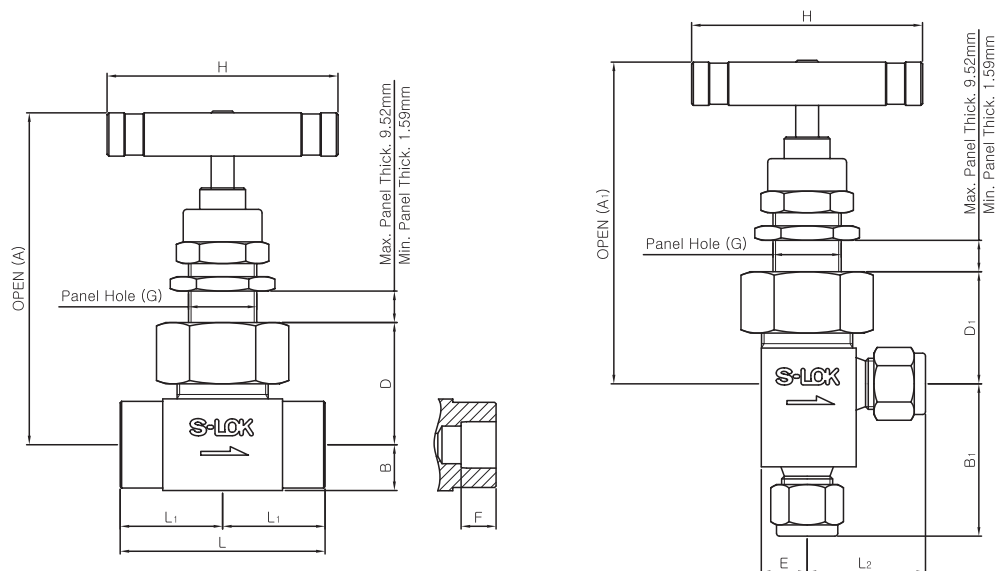
Handle

- Stainless steel bar handle is standard all valves. Optionally, anodized black aluminum bar handle is available.
- To order handle for field assembly select desired handle ordering number from the table.

Testing

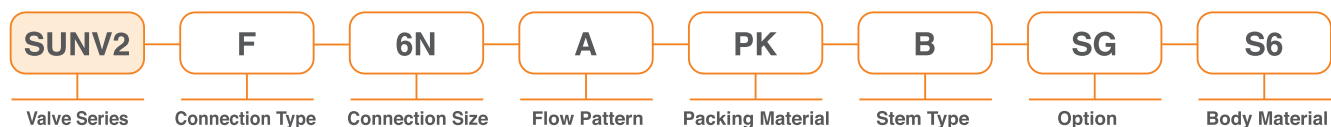
- Every valve is factory tested with Nitrogen @ 1000psig (69bar)
- Seats have a maximum allowable leak of 0.1 (SSCM).

Ordering Information & Dimensions



| Ordering Number | Orifice (mm) | Cv | End Connections | | Dimensions (mm) | | | | | | | | | | | | | |
|-----------------|-----------------------|-----------------------|-----------------|-----------------------|-----------------|----------------|-------|----------------|------|----------------|-------|------|----------------|----------------|------|------|------|---|
| | | | Inlet | Outlet | A | A ₁ | B | B ₁ | D | D ₁ | E | L | L ₁ | L ₂ | H | G | F | |
| SUNV1 | F-2N | 4.0 | 0.35 | 1/8" Female NPT | | 77.3 | 82.0 | 9.7 | 25.4 | 27.7 | 32.5 | 9.7 | 50.8 | 25.4 | 22.6 | 45.0 | 15.1 | - |
| | F-4N | | | 82.0 | 9.9 | | 52.4 | 26.2 | | | | | | | | | | |
| | M-4N | | | 1/4" Male NPT | | | 77.5 | 9.7 | 27.7 | | | | 50.8 | 25.4 | 25.4 | | | |
| | MF-4N | | | 1/4" Male NPT | 1/4" Female NPT | | 82.0 | 9.9 | 32.5 | | | | 52.4 | 26.2 | 22.6 | | | |
| | S-6M | | | 6mm S-LOK | | | 77.5 | 9.7 | 37.6 | | | | 61.0 | 30.5 | 29.5 | | | |
| | S-4T | | | 1/4" S-LOK | | | - | 9.7 | - | | | | - | - | - | | | |
| | S-8M | | | 8mm S-LOK | | | - | - | - | | | | - | - | - | | | |
| | SW-4T | | | 1/4" Tube Socket Weld | | | 77.5 | - | 30.2 | | | | 46.2 | 23.1 | 22.4 | | | |
| SUNV2 | F-4N | 6.4 | 0.86 | 1/4" Female NPT | | 92.5 | 97.0 | - | 28.4 | 34.0 | 37.3 | 12.7 | 57.2 | 28.6 | 25.4 | 64.0 | 19.8 | - |
| | F-6N | | | 3/8" Female NPT | | | 97.0 | - | | | | | 42.2 | 71.9 | | | | |
| | S-6T | | | 3/8" S-LOK | | | 90.7 | - | 45.7 | | | | 72.4 | 36.1 | 33.0 | | | |
| | S-10M | | | 10mm S-LOK | | | 94.0 | 12.7 | 48.3 | | | | 77.2 | 38.6 | 35.6 | | | |
| | S-12M | | | 12mm S-LOK | | | 97.0 | - | 28.4 | | | | 57.2 | 28.6 | 25.4 | | | |
| | S-8T | | | 1/2" S-LOK | | | 94.0 | - | 31.8 | | | | - | - | - | | | |
| | SW-4P | | | 1/4" Pipe Socket Weld | | | 97.0 | - | 28.4 | | | | - | - | - | | | |
| | SW-6T | | | 3/8" Tube Socket Weld | | | 94.0 | - | 31.8 | | | | - | - | - | | | |
| SW-8T | 1/2" Tube Socket Weld | | 95.5 | - | 25.4 | - | - | - | | | | | | | | | | |
| SUNV3 | F-8N | 2.4 | - | 1/2" Female NPT | | 121.0 | 126.0 | 15.7 | 39.6 | 46.2 | 50.8 | 17.5 | 79.2 | 39.6 | 33.3 | 88.9 | 26.2 | - |
| | F-12N | | | 3/4" Female NPT | | 124.0 | - | 19.8 | - | 49.5 | - | - | 82.2 | 41.1 | - | | | |
| | F-16N | | | 1" Female NPT | | 129.0 | - | 25.4 | - | 54.1 | - | - | 92.0 | 46.0 | - | | | |
| | MF-8N | 1.9 | - | 1/2" Male NPT | 1/2" Female NPT | 121.0 | 126.0 | 15.7 | 39.6 | 46.2 | 50.8 | 17.5 | 79.2 | 39.6 | 33.3 | 88.9 | 26.2 | - |
| | MF-12N | | | 3/4" Male NPT | 3/4" Female NPT | 124.0 | - | 19.8 | - | 49.5 | - | - | 82.2 | 41.1 | - | | | |
| | MF-16N | | | 1" Male NPT | 1" Female NPT | 129.0 | - | 25.4 | - | 54.1 | - | - | 92.0 | 46.0 | - | | | |
| | S-12M | 12mm S-LOK | | 121.0 | - | - | - | - | - | - | - | - | - | - | 88.9 | 26.2 | - | |
| | S-8T | 1/2" S-LOK | | 121.0 | 123.0 | 15.7 | 52.8 | 46.2 | 47.8 | 17.5 | 99.6 | 49.8 | 42.7 | | | | | |
| | S-12T | 3/4" S-LOK | | - | - | - | - | - | - | - | 104.0 | 52.0 | - | | | | | |
| | S-16T | 1" S-LOK | | - | - | - | - | - | - | - | - | - | - | - | 88.9 | 26.2 | - | |
| | SW-8P | 1/2" Pipe Socket Weld | | 123.0 | 126.0 | 17.5 | 39.6 | 47.8 | 50.8 | 17.5 | 79.2 | 39.6 | 33.3 | | | | | |
| | SW-8T | 1/2" Tube Socket Weld | | 121.0 | 123.0 | 15.7 | 42.9 | 46.2 | 47.8 | - | 79.2 | 39.6 | 33.3 | | | | | |
| SW-12T | 3/4" Tube Socket Weld | | 121.0 | - | - | - | 46.2 | - | - | - | - | - | - | 11.2 | | | | |

* Dimensions are for reference only and are subject to change.



- Nil : Straight
- A : Angle Pattern
- Nil : PTFE
- PK : PEEK
- GF : Graphite
- Nil : Vee
- R : Regulating
- B : Ball
- Nil : Standard
- SG : Sour Gas Service
- S6 : 316 Stainless Steel
- C276 : Alloy C-276

SQNV Series Square Bar Stock Needle Valves

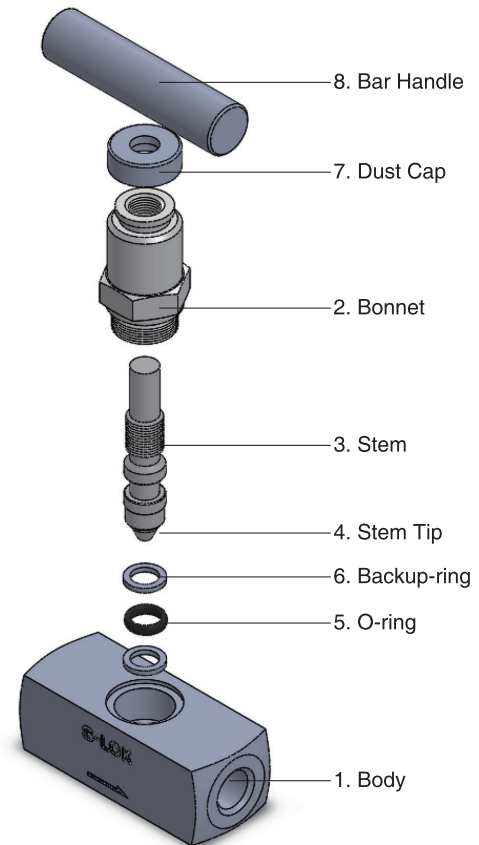
Features

- Pressure rating up to 6000psig (413bar) at 21 °C (70 °F).
- Temperature rating from -28 °C (-20 °F) to 204 °C (400 °F) with standard FKM O-ring.
- Compact design & low operating torque.
- Available panel mounting.
- Non-rotating stem tip provide positive seal and prevents galling.
- Sealed below the stem threads to prevents lubricant washout.
- Safety back seating seals in fully open position.
- Bonnet lock pin prevents accidental valve disassembly.



Material of Construction

| No | Component | Material | |
|----|-------------|----------------------|--------------------|
| | | Stainless Steel | Alloy 400 |
| 1 | Body | SS316 / A479 or A276 | Alloy 400 / B164 |
| 2 | Bonnet | | |
| 3 | Stem | | |
| 4 | Stem Tip | SS630 / A564 | Alloy R-405 / B164 |
| 5 | O-ring | FKM | |
| 6 | Backup-ring | PTFE | |
| 7 | Dust Cap | NBR | |
| 8 | Bar Handle | SS316 / A276 | |
| 9 | Set Screw | Stainless Steel | |



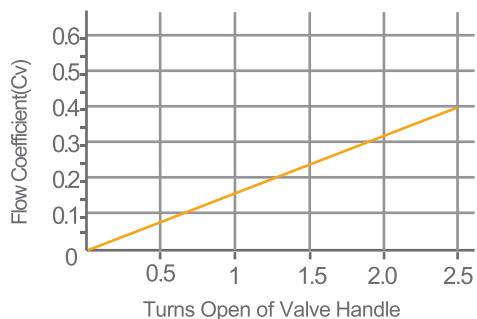
Pressure - Temperature Ratings

| ASME Material Group | Table 2-2.2 | Table 2-3.4 |
|-----------------------------------|------------------------------|-------------|
| ASME Class Rating | 2500 | |
| Material Name | Stainless Steel 316 | Alloy 400 |
| Temperature, °C (°F) | Working Pressure, psig (bar) | |
| -28 °C (-20 °F) to 38 °C (100 °F) | 6000 (413) | 5000 (344) |
| 93 °C (200 °F) | 5160 (355) | 4380 (301) |
| 148 °C (300 °F) | 4660 (321) | 4080 (281) |
| 204 °C (400 °F) | 4280 (295) | 3940 (271) |

| O-ring Material | Temperature, °C (°F) |
|-----------------|-----------------------------------|
| FKM | -28 °C ~ 204 °C (-20 °F ~ 400 °F) |
| NBR | -20 °C ~ 105 °C (-4 °F ~ 221 °F) |
| EPDM | -28 °C ~ 148 °C (-20 °F ~ 300 °F) |

- Pressure ratings of valves with S-LOK end connections are determined by the tubing material and wall thickness.

Flow Coefficient (Cv) with Number of Handle Turns Testing

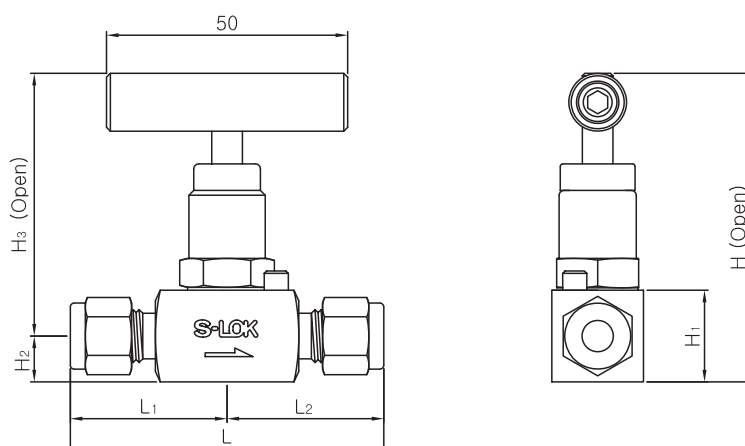


- Every valve is factory tested with Nitrogen @ 1000psig (69bar)
- Seats have a maximum allowable leak of 0.1 (SSCM).
- Hydrostatic shell test is performed optional with water at 1.5 times the working pressure.

Sour Gas Service

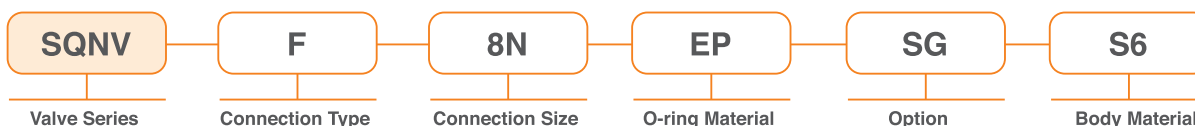
- Sour gas service provided to accordance with NACE MR0175.

Ordering Information & Dimensions



| Ordering Number | Orifice (mm) | End Connections | | Dimensions (mm) | | | | | | |
|-----------------|--------------|-----------------|-----------------|-----------------|----------------|----------------|------|----------------|----------------|----------------|
| | | Inlet | Outlet | L | L ₁ | L ₂ | H | H ₁ | H ₂ | H ₃ |
| SQNV | F-2N | 1/8" Female NPT | | 57.0 | 28.5 | 64.0 | 19.0 | 9.5 | 9.5 | |
| | F-4N | 1/4" Female NPT | | | | | | | | |
| | MF-2N | 1/8" Male NPT | 1/8" Female NPT | | | | | | | |
| | MF-4N | 1/4" Male NPT | 1/4" Female NPT | | | | | | | |
| | S-2T | 1/8" S-LOK | | 63.6 | 31.8 | | | | | |
| | S-6M | 6mm S-LOK | | 65.0 | 32.5 | | | | | |
| | S-4T | 1/4" S-LOK | | | | | | | | |
| | S-6T | 3/8" S-LOK | | | | | | | | |
| | S-12M | 12mm S-LOK | | 73.2 | 36.6 | 70.5 | 25.4 | 12.7 | 12.7 | |
| | S-8T | 1/2" S-LOK | | | | | | | | |
| | F-6N | 3/8" Female NPT | | 62.0 | 31.0 | | | | | |
| | MF-6N | 3/8" Male NPT | 3/8" Female NPT | 65.0 | 34.0 | | | | | 31.0 |
| | F-8N | 1/2" Female NPT | | 70.0 | 35.0 | 73.5 | 28.5 | 14.3 | 14.3 | |
| | MF-8N | 1/2" Male NPT | 1/2" Female NPT | 74.0 | 39.0 | | | | | 35.0 |

* Dimensions are for reference only and are subject to change.



- VT : FKM
- NBR : NBR
- EP : EPDM
- Nil : Standard
- SG : Sour Gas Service
- PN : Panel Mounting
- S6 : 316 Stainless Steel
- A400 : Alloy 400

SDNV30 Series Non-rotating Stem Needle Valves

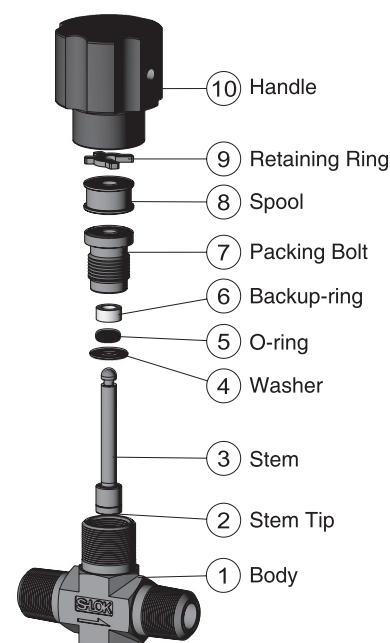
Features

- Pressure rating up to 3000psig (206bar) at 21°C (70°F).
- Temperature rating from -28°C (-20°F) to 93°C (204°F) with standard FKM O-ring and PCTFE stem tip.
- One-piece forge body is available in straight and angle flow patterns.
- Non-rotating stem tip provide positive seal and repetitive shutoff.
- Safety back seating seals in fully open position.
- Thread of handle isolated from system fluid.
- Handle to prevent external contaminants from entering the valve.
- Available Sour Gas service per NACE MR0175.



Materials of Construction

| No | Component | Material | | |
|----|----------------|---------------------------|--------------|--------------------|
| | | Stainless Steel | Brass | Alloy 400 |
| 1 | Body | SS316 / A182 | Brass / B124 | Alloy 400 / B564 |
| 2 | Stem Tip | PCTFE (Optional PEEK) | | |
| 3 | Stem | SS316 / A479 or A276 | | Alloy R-405 / B164 |
| 4 | Washer | SS316 / A276 | Aluminum | |
| 5 | O-ring | FKM (Optional NBR, EPDM) | | |
| 6 | Backup-ring | PTFE | | |
| 7 | Packing Bolt | SS316 / A276 | Brass / B16 | Alloy R-405 / B164 |
| 8 | Spool | Aluminum | | |
| 9 | Retaining Ring | Stainless Steel | | |
| 10 | Handle | Aluminum (Black anodized) | | |



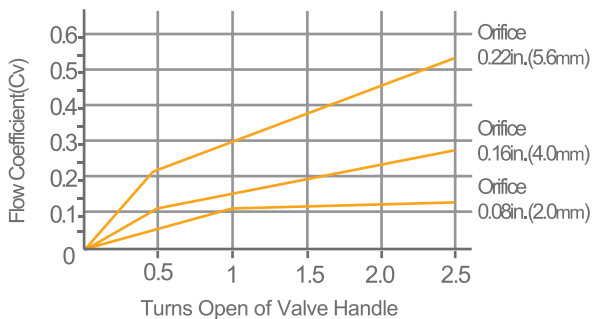
Temperature-Working Pressure

| ASME Material Group | Table 2-2.2 | N/A | Table 2-3.4 |
|-------------------------------|------------------------------|------------|-------------|
| ASME Class Rating | 2500 | N/A | 1500 |
| Material Name | Stainless Steel 316 | Brass | Alloy 400 |
| Temperature, °C (°F) | Working Pressure, psig (bar) | | |
| -28°C (-20°F) to 38°C (100°F) | 3000 (206) | 3000 (206) | 3000 (206) |
| 93°C (200°F) | 2580 (177) | 2350 (161) | 2630 (181) |
| 148°C (300°F) | 2330 (160) | 2050 (141) | 2450 (168) |
| 204°C (400°F) | 2140 (147) | 390 (26) | 2365 (163) |

- Pressure ratings of valves with S-LOK end connections are determined by the tubing material and wall thickness.

| O-ring Material | Temperature, °C (°F) |
|-------------------|-------------------------------|
| FKM | -28°C ~ 204°C (-20°F ~ 400°F) |
| NBR | -20°C ~ 105°C (-4°F ~ 221°F) |
| EPDM | -28°C ~ 148°C (-20°F ~ 300°F) |
| Stem Tip Material | Temperature, °C (°F) |
| PCTFE | -28°C ~ 93°C (-20°F ~ 200°F) |
| PEEK | -28°C ~ 232°C (-20°F ~ 450°F) |

Flow Coefficient (Cv) with Number of Handle Turns Testing

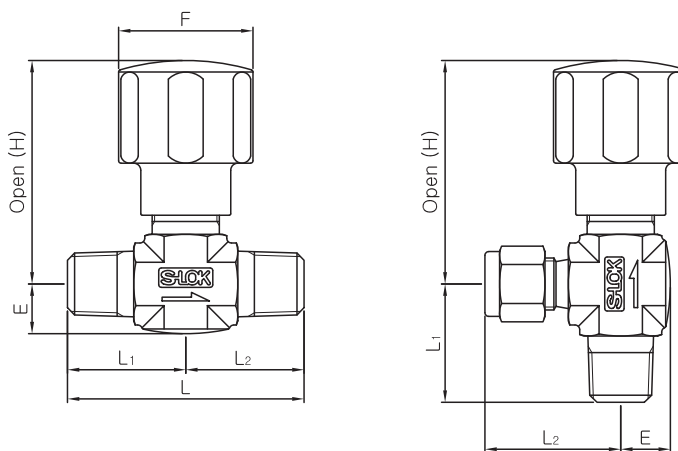


- Every valve is factory tested with Nitrogen @ 1000psig (69bar)
- Seats have a maximum allowable leak of 0.1 (SSCM).

Sour Gas Service

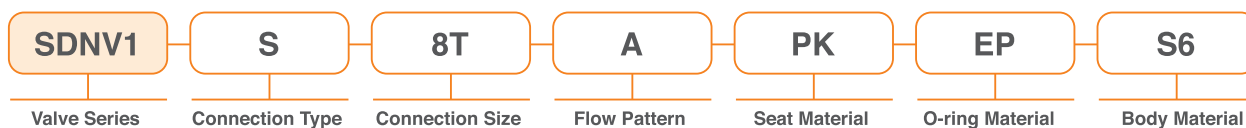
- Sour gas service provided to accordance with NACE MR0175.

Ordering Information & Dimensions



| Ordering Number | Orifice (mm) | Cv | End Connections | | Dimensions (mm) | | | | | | |
|-----------------|--------------|---------------|-----------------|-----------------|-----------------|----------------|----------------|------|------|------|------|
| | | | Inlet | Outlet | L | L ₁ | L ₂ | E | F | H | |
| SDNV1 | MF-2N | 2.4 | 0.12 | 1/8" Male NPT | 1/8" Female NPT | 45.4 | 21.4 | 24.0 | 9.7 | 28.4 | 47.2 |
| | MS-2N4T | | | 1/8" Male NPT | 1/4" S-LOK | 50.1 | 21.4 | 28.7 | | | |
| | S-2T | 1/8" S-LOK | | 55.8 | 27.9 | | | | | | |
| | M-4N | 1/4" Male NPT | | 50.0 | 25.0 | | | | | | |
| | MS-4N4T | 1/4" Male NPT | 1/4" S-LOK | 53.7 | 25.0 | 28.7 | | | | | |
| | MS-4N6M | 1/4" Male NPT | 6mm S-LOK | | | | | | | | |
| | S-6M | 6mm S-LOK | | 57.4 | 28.7 | | | | | | |
| S-4T | 1/4" S-LOK | | | | | | | | | | |
| SDNV2 | F-4N | 5.6 | 0.53 | 1/4" Female NPT | | 54.0 | 27.0 | | 14.2 | 31.8 | 51.3 |
| | M-4N | | | 1/4" Male NPT | | 57.4 | 28.7 | | | | |
| | M-6N | | | 3/8" Male NPT | | | | | | | |
| | MF-4N | | | 1/4" Male NPT | 1/4" Female NPT | 55.6 | 28.4 | 26.9 | | | |
| | MS-4N6T | | | 1/4" Male NPT | 3/8" S-LOK | 60.7 | 28.7 | 32.0 | | | |
| | MF-8N4N | | | 1/2" Male NPT | 1/4" Female NPT | 63.5 | 31.8 | 31.8 | | | |
| | S-6T | | | 3/8" S-LOK | | 65.6 | 32.8 | | | | |

* Dimensions are for reference only and are subject to change.



- Nil : Straight
- A : Angle Pattern
- Nil : PCTFE
- PK : PEEK
- Nil : FKM
- NBR : NBR
- EP : EPDM
- S6 : 316 Stainless Steel
- BS : Brass
- A400 : Alloy 400

STV50 Series 3-Way Test Cock Valves

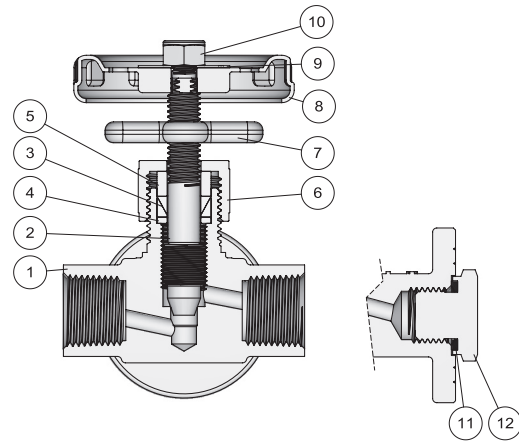
Features

- Pressure rating up to 5000psig (344bar) at 21°C (70°F).
- Temperature rating from -54°C (-65°F) to 232°C (450°F) with standard PTFE packing and up to 315°C (600°F) with PEEK packing.
- One-piece forged 3-way test cock valve.
- Added one more port to needle valve for testing.
- Variety of end connections include reliable tube fittings, male/female NPT & ISO threads.
- Available Sour Gas service per NACE MR0175.



Materials of Construction

| No | Component | Material | |
|----|--------------|----------------------|--------------|
| | | Stainless Steel | Brass |
| 1 | Body | SS316 / A182 | Brass / B124 |
| 2 | Stem | SS316 / A479 or A276 | |
| 3 | Packing Ring | SS316 / A479 or A276 | Brass / B16 |
| 4 | Packing | PTFE (Optional PEEK) | |
| 5 | Gland | SS316 / A276 | Brass / B16 |
| 6 | Packing Nut | SS316 / A276 | Brass / B16 |
| 7 | Lock Nut | Stainless Steel | |
| 8 | Round Handle | Stainless Steel | |
| 9 | Name Plate | Aluminum | |
| 10 | Hex Nut | Stainless Steel | |
| 11 | ED-ring | NBR (Optional FKM) | |
| 12 | Plug | SS316 / A479 or A276 | Brass / B16 |



Technical Data

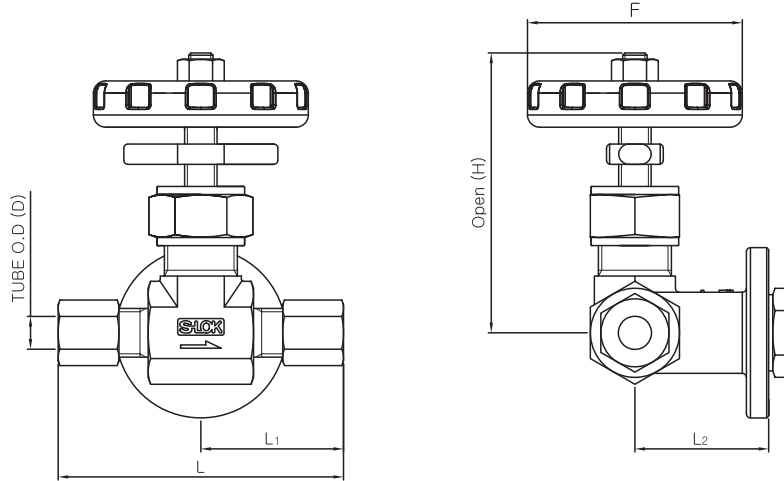
Pressure-Temperature Rating with Packing and Body Material

| Valve Material | Stem | PTFE Packing (Standard) | | PEEK Packing (Optional) | |
|---------------------|-----------------------|---------------------------------|------------------------------|---------------------------------|-----------------------------|
| | | Temperature Range °C (°F) | Pressure Rating @38°C(100°F) | Temperature Range °C (°F) | Pressure Rating @Max. Temp. |
| Stainless Steel 316 | Vee Stem (Metal Seat) | -54°C to 232°C (-65°F to 450°F) | 5000psig (344 bar) | -54°C to 315°C (-65°F to 600°F) | 3130psig (215 bar) |
| Brass | Vee Stem (Metal Seat) | -54°C to 204°C (-65°F to 400°F) | 3000psig (206 bar) | -54°C to 204°C (-65°F to 400°F) | 390psig (26 bar) |

Testing

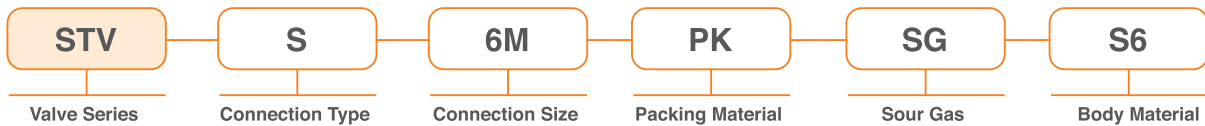
- Every valve is factory tested with Nitrogen @ 1000psig (69bar) for leak at the seats have a maximum allowable leak of 0.1 (SSCM).

Ordering Information & Dimensions



| Ordering Number | Orifice (mm) | End Connections | | Dimensions (mm) | | | | | |
|-----------------|--------------|------------------------|--------|-----------------|------|----------------|----------------|------|------|
| | | Inlet | Outlet | D | L | L ₁ | L ₂ | F | H |
| STV | 4.0 | 1/8" Female ISO Thread | | - | 50.0 | 25.0 | 33.0 | 53.0 | 69.0 |
| | | 3/8" Female ISO Thread | | - | 64.0 | 32.0 | | | |
| | | 1/8" Male ISO Thread | | - | 56.0 | 28.0 | | | |
| | | 3/8" Male ISO Thread | | - | 58.0 | 29.0 | | | |
| | | 6mm JIS 2351 Bite | | 6.0 | 65.6 | 32.8 | | | |
| | | 8mm JIS 2351 Bite | | 8.0 | 71.6 | 35.8 | | | |
| | | 10mm JIS 2351 Bite | | 10.0 | 73.6 | 36.8 | | | |
| | | 12mm JIS 2351 Bite | | 12.0 | 75.6 | 37.8 | | | |
| | | 1/8" S-LOK | | 3.17 | 58.4 | 29.2 | | | |
| | | 1/4" S-LOK | | 6.35 | 63.4 | 31.7 | | | |
| | | 3/8" S-LOK | | 9.52 | 66.4 | 33.2 | | | |
| | | 1/2" S-LOK | | 12.7 | 72.0 | 36.0 | | | |
| | | 6mm S-LOK | | 6.0 | 63.4 | 31.7 | | | |
| | | 8mm S-LOK | | 8.0 | 65.2 | 32.6 | | | |
| | | 10mm S-LOK | | 10.0 | 67.0 | 33.5 | | | |
| | | 12mm S-LOK | | 12.0 | 72.0 | 36.0 | | | |

* Dimensions are for reference only and are subject to change.



- Nil : PTFE
- Nil : Standard
- S6 : 316 Stainless Steel
- PK : PEEK
- SG : Sour Gas Service
- BS : Brass

STGV Series Toggle Valves

Features

- Working Pressure up to 300 psi (20.6 bar)
- Temperatures up to 200°F (93°C)
- Compact, rugged design
- Panel mountable
- Soft seat shutoff
- Quick opening and closing
- O-ring stem seals do not need adjustment
- Stainless steel and brass construction
- Straight and angle patterns available
- Every valve is 100% factory tested

Testing

- Every valve is factory tested for bubble-tight leakage at both seat and stem packing with nitrogen at 300psi (13.7bar).

Operation

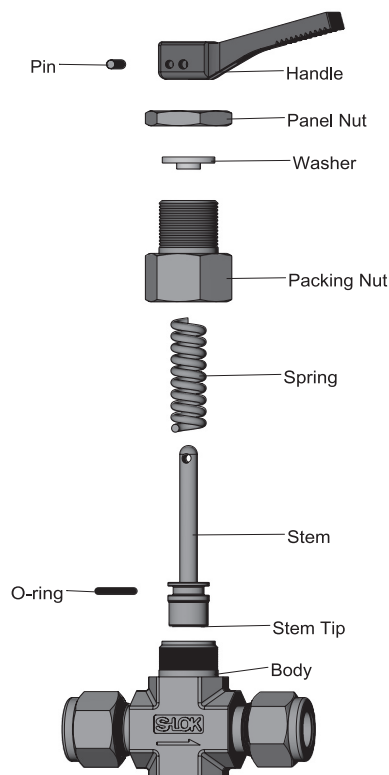
- Lift the handle to fully open the valve.
- The handle stops firmly in the open position.
- Lower the handle, shutoff the valve by spring return.
- The soft seat provides positive seal.

Pressure – Temperature Ratings

| Valve Series | Orifice mm (inch) | Working Pressure psi (bar) | Temperature °F (°C) |
|--------------|-------------------------|-------------------------------|---------------------------|
| STGV1 | 2.0 (0.080) | 300 (20.6) | -20 to 200 (-28 to 93) |
| | 3.2 (0.125) | | |
| STGV2 | 6.4 (0.250) | 200 (13.7) | |

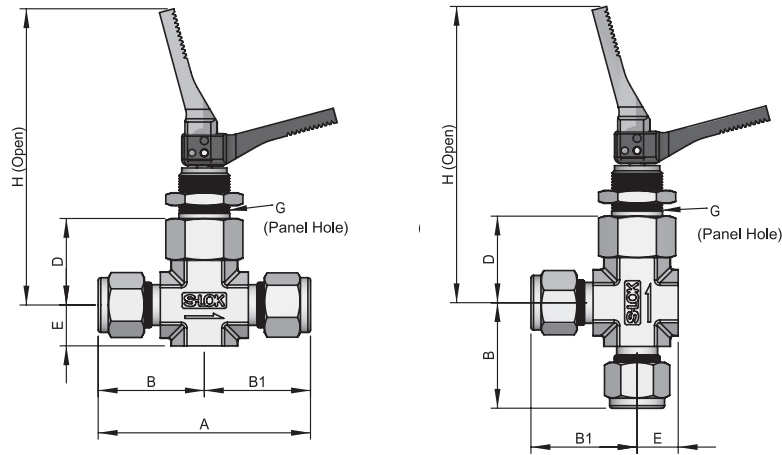


Materials of Construction



| Component | Material | |
|-------------|-----------------|--------------|
| | SS 316 | Brass |
| Body | SS 316 / A182 | Brass / B283 |
| Packing Nut | SS 316 / A276 | Brass / B16 |
| Stem | SS 316 / A276 | |
| Spring | SS 304 | |
| Stem Tip | PTFE | |
| Washer | Nylon | |
| Handle | Nylon | |
| Panel Nut | SS 316 / A276 | Brass / B16 |
| O-ring | FKM | |
| Pin | Stainless Steel | |

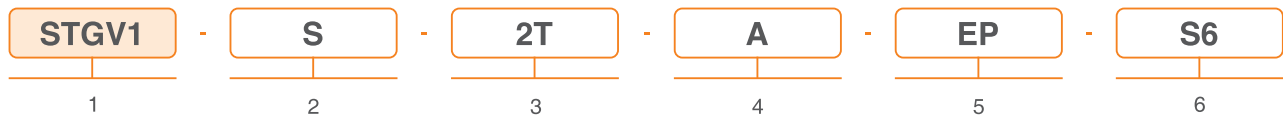
Table of Dimension



| Ordering Number | End Connections | | Cv | Orifice mm (inch) | Dimensions, mm (inch) | | | | | | | |
|-----------------|-----------------|-------------------|------|-------------------|-----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Inlet / Outlet | Size | | | A | B | B1 | D | E | G | H | |
| STGV1 | S-2T | S-LOK | 1/8" | 0.11 | 2.0 (0.08) | 49.8 (1.96) | 24.9 (0.98) | | 23.4 (0.92) | 7.9 (0.31) | 13.5 (0.53) | 73 (2.87) |
| | S-4T | S-LOK | 1/4" | 0.2 | 3.2 (0.125) | 57.4 (2.26) | 28.7 (1.13) | | 23.4 (0.92) | 7.9 (0.31) | 13.5 (0.53) | 73 (2.87) |
| | S-3M | S-LOK | 3mm | 0.11 | 2.0 (0.08) | 49.8 (1.96) | 24.8 (0.98) | | 23.4 (0.92) | 7.9 (0.31) | 13.5 (0.53) | 73 (2.87) |
| | S-6M | S-LOK | 6mm | 0.2 | 3.2 (0.125) | 57.4 (2.26) | 28.7 (1.13) | | 23.4 (0.92) | 7.9 (0.31) | 13.5 (0.53) | 73 (2.87) |
| | S-8M | S-LOK | 8mm | 0.2 | 3.2 (0.125) | 56.4 (2.22) | 28.2 (1.11) | | 23.4 (0.92) | 7.9 (0.31) | 13.5 (0.53) | 73 (2.87) |
| | F-2N | Female NPT | 1/8" | 0.2 | 3.2 (0.125) | 41.4 (1.63) | 20.7 (0.81) | | 23.4 (0.92) | 7.9 (0.31) | 13.5 (0.53) | 73 (2.87) |
| | M-2N | Male NPT | 1/8" | 0.2 | 3.2 (0.125) | 38.0 (1.5) | 19.0 (0.75) | | 23.4 (0.92) | 7.9 (0.31) | 13.5 (0.53) | 73 (2.87) |
| | M-4N | Male NPT | 1/4" | 0.2 | 3.2 (0.125) | 46.0 (1.81) | 23.0 (0.91) | | 23.4 (0.92) | 7.9 (0.31) | 13.5 (0.53) | 73 (2.87) |
| | MS-2N2T | Male NPT / S-LOK | 1/8" | 0.11 | 2.0 (0.08) | 43.9 (1.73) | 19.0 (0.75) | 24.9 (0.98) | 23.4 (0.92) | 7.9 (0.31) | 13.5 (0.53) | 73 (2.87) |
| | MS-4N4T | Male NPT / S-LOK | 1/4" | 0.2 | 3.2 (0.125) | 51.7 (2.04) | 23.0 (0.91) | 28.7 (1.13) | 23.4 (0.92) | 7.9 (0.31) | 13.5 (0.53) | 73 (2.87) |
| | MF-2N | Male / Female NPT | 1/8" | 0.2 | 3.2 (0.125) | 41.4 (1.63) | 20.7 (0.81) | | 23.4 (0.92) | 7.9 (0.31) | 13.5 (0.53) | 73 (2.87) |
| STGV2 | S-6T | S-LOK | 3/8" | 0.7 | 6.4 (0.25) | 65.5 (2.58) | 32.8 (1.29) | | 26.9 (1.06) | 12.7 (0.50) | 16.8 (0.66) | 90.6 (3.56) |
| | S-8T | S-LOK | 1/2" | 0.7 | 6.4 (0.25) | 71.1 (2.8) | 35.6 (1.4) | | 26.9 (1.06) | 12.7 (0.50) | 16.8 (0.66) | 90.6 (3.56) |
| | S-10M | S-LOK | 10mm | 0.7 | 6.4 (0.25) | 69.1 (2.72) | 34.5 (1.36) | | 26.9 (1.06) | 12.7 (0.50) | 16.8 (0.66) | 90.6 (3.56) |
| | S-12M | S-LOK | 12mm | 0.7 | 6.4 (0.25) | 74.4 (2.93) | 37.2 (1.46) | | 26.9 (1.06) | 12.7 (0.50) | 16.8 (0.66) | 90.6 (3.56) |
| | F-4N | Female NPT | 1/4" | 0.7 | 6.4 (0.25) | 53.8 (2.12) | 26.9 (1.06) | | 26.9 (1.06) | 12.7 (0.50) | 16.8 (0.66) | 90.6 (3.56) |
| | M-6N | Male NPT | 3/8" | 0.7 | 6.4 (0.25) | 57.2 (2.25) | 28.6 (1.12) | | 26.9 (1.06) | 12.7 (0.50) | 16.8 (0.66) | 90.6 (3.56) |

Dimensions are for reference only and are subject to change. Dimensions shown with S-LOK nuts finger-tight position.

Ordering Information



1. Valve Series

- STGV1
- STGV2

2. End Connection

- **S** : S-LOK
- **M** : Male Pipe Thread
- **F** : Female Pipe Thread
- **MS** : S-LOK x Male Pipe Thread
- **MF** : Male x Female Pipe Thread

3. Size Designator

- **2T** : 1/8"
- **4T** : 1/4"
- **6T** : 3/8"
- **8T** : 1/2"
- **3M** : 3mm
- **6M** : 6mm
- **8M** : 8mm
- **10M** : 10mm
- **12M** : 12mm
- **2N** : 1/8" NPT
- **4N** : 1/4" NPT
- **6N** : 3/8" NPT

4. Flow Pattern

- **Nil** : Straight
- **A** : Angle

5. O-ring Material

- **Nil** : FKM
- **NBR** : NBR
- **EP** : EPDM

6. Body Material

- **S6** : 316 Stainless Steel
- **BS** : Brass

SMTV Series

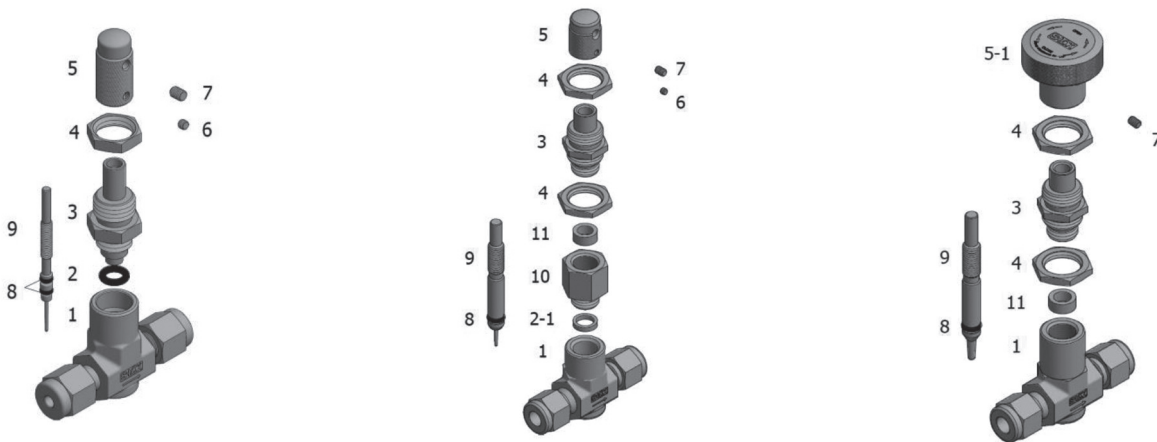
Low Pressure Metering Valves

Features

- Forged body SS316 or brass material.
- Straight and angle patterns.
- Variety of end connections include S-LOK, NPT & ISO threads Male/Female.
- Variety of handle options : knurled, round, vernier, slotted, and adjustable torque handles.
- Flow setting lock system : knurled and slotted handles.
- Handle stop design : Prevent damage to stem and orifice.
- Panel mounting is standard for all valves.
- Tapered stem tip : Provide a wide flow range with ultrafine metering control.



Material of Construction



| Item | Component | Material | |
|------|-----------------|----------------------|---------------|
| | | Stainless Steel | Brass |
| 1 | Body | SS316 / A182 | Brass / B124 |
| 2 | Body O-ring | FKM | NBR |
| 2-1 | Body Seal | Stainless Steel | |
| 3 | Bonnet | SS316 / A479 or A276 | * Brass / B16 |
| 4 | Lock Nut | SS316 / A479 or A276 | * Brass / B16 |
| 5 | Handle | Stainless Steel | * Brass / B16 |
| 5-1 | Round Handle | Aluminum 6061 | |
| 6 | Lock Screw | Stainless Steel | |
| 7 | Set Screw | Stainless Steel | |
| 8 | Stem O-ring | FKM | NBR |
| 9 | Stem | SS316 / A479 or A276 | |
| 10 | Body Extension | SS316 / A479 or A276 | * Brass / B16 |
| 11 | Stem Guide Ring | PTFE | |

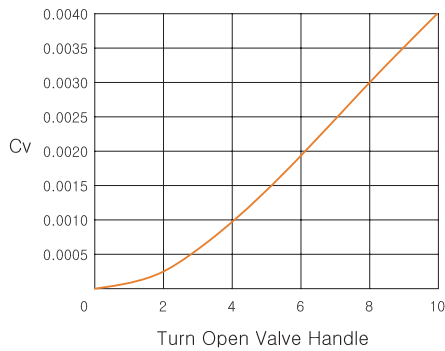
* Chrome Plated

Technical Data

Pressure and Temperature Ratings

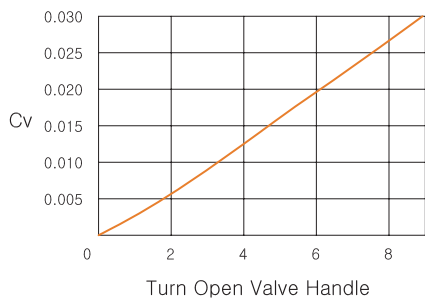
| Valve Series | Temperature Ratings with O-ring Material | | | Pressure Rating @38°C(100°F) | Stem Taper | Flow Shut off |
|--------------|--|------------------------------------|----------------------------------|------------------------------|------------|---------------|
| | FKM (Viton) | NBR | FFKM (Kalrez) | | | |
| SMTV1 | | | | 2000psig (137 bar) | 1° | No |
| SMTV2 | -23°C to 204°C (-10°F to 400°F) | -23°C to 148°C (-10°F to 300°F) | -17°C to 148°C (0°F to 300°F) | 1000psig (68.9 bar) | 3° | No |
| SMTV3 | | | | 1000psig (68.9 bar) | 6° | Yes |

Flow Data with Number of Handle Turns



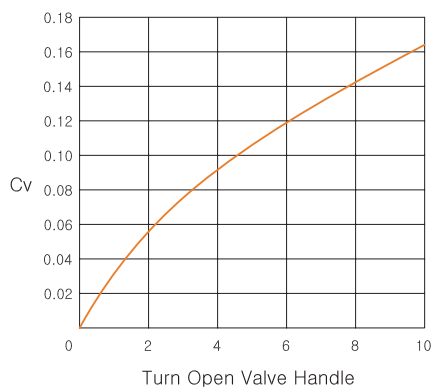
SMTV1 Series

| Pressure Drop@ Atmosphere psi (bar) | Air Flow Std. ft ³ /min. (Std. L/min.) | Water Flow U.S. gal/min. (L/min.) |
|--|---|---|
| 10 (0.68) | 0.04 (1.1) | 0.01 (0.03) |
| 50 (3.4) | 0.1 (2.8) | 0.02 (0.07) |
| 100 (6.8) | 0.2 (5.6) | 0.04 (0.15) |



SMTV2 Series

| Pressure Drop@ Atmosphere psi (bar) | Air Flow Std. ft ³ /min. (Std. L/min.) | Water Flow U.S. gal/min. (L/min.) |
|--|---|---|
| 10 (0.68) | 0.33 (9.3) | 0.09 (0.34) |
| 50 (3.4) | 0.9 (25.4) | 0.21 (0.79) |
| 100 (6.8) | 1.5 (42.4) | 0. (1.1) |



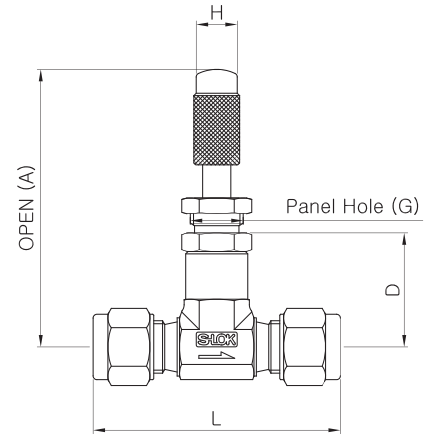
SMTV3 Series

| Pressure Drop@ Atmosphere psi (bar) | Air Flow Std. ft ³ /min. (Std. L/min.) | Water Flow U.S. gal/min. (L/min.) |
|--|---|---|
| 10 (0.68) | 2.0 (56.6) | 0.51 (1.9) |
| 50 (3.4) | 6.4 (181.0) | 1.2 (4.5) |
| 100 (6.8) | 11.4 (323.0) | 1.7 (6.4) |

Dimensions

Straight Pattern

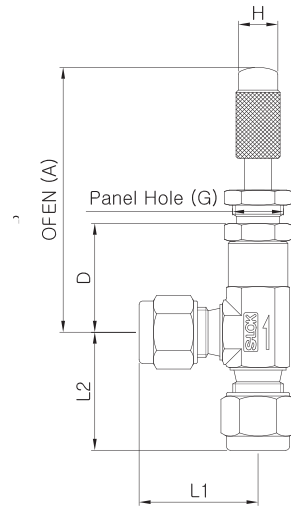
| Ordering Number | Orifice (mm) | Cv | End Connections | | Dimensions (mm) | | | |
|-----------------|--------------|------|-----------------|-----------------|-----------------|------|------|------|
| | | | Inlet | Outlet | L | A | D | H |
| SMTV1 | S-1T | 0.81 | 0.004 | 1/16" S-LOK | 39.6 | 58.0 | 23.9 | 9.6 |
| | S-2T | | | 1/8" S-LOK | 48.2 | | | |
| | S-3M | | | 3mm S-LOK | 51.8 | | | |
| | S-4T | | | 1/4" S-LOK | | | | |
| | S-6M | | | 6mm S-LOK | | | | |
| SMTV2 | S-2T | 1.42 | 0.03 | 1/8" S-LOK | 51.3 | 72.0 | 42.2 | 12.7 |
| | S-3M | | | 3mm S-LOK | | | | |
| | S-4T | | | 1/4" S-LOK | | | | |
| | S-6M | | | 6mm S-LOK | 55.8 | | | |
| | M-2N | | | 1/8" Male NPT | 38.1 | | | |
| | M-4N | | | 1/4" Male NPT | 49.8 | | | |
| | F-2N | | | 1/8" Female NPT | 49.3 | | | |
| SMTV3 | S-4T | 3.25 | 0.16 | 1/4" S-LOK | 59.4 | 73.0 | 34.4 | 28.7 |
| | S-6M | | | 6mm S-LOK | | | | |
| | S-6T | | | 3/8" S-LOK | 62.5 | | | |
| | M-4N | | | 1/4" Male NPT | 50.8 | | | |



| Series | Panel Hole (G) | Panel MaxThickness |
|--------|----------------|--------------------|
| SMTV1 | 11.4 | 4.1 |
| SMTV2 | 14.7 | 3.3 |
| SMTV3 | 14.7 | 3.3 |

Angle Pattern

| Ordering Number | Orifice (mm) | Cv | End Connections | | Dimensions (mm) | | | | |
|-----------------|--------------|------|-----------------|-----------------|-----------------|------|------|------|-----|
| | | | Inlet | Outlet | L1 | L2 | A | D | H |
| SMTV1 | S-1T | 0.81 | 0.004 | 1/16" S-LOK | 20.6 | 22.4 | 80.4 | 23.9 | 9.6 |
| | S-2T | | | 1/8" S-LOK | 24.1 | 82.1 | | | |
| | S-3M | | | 3mm S-LOK | 24.9 | 25.1 | 83.9 | | |
| | S-4T | | | 1/4" S-LOK | 25.9 | 83.1 | | | |
| SMTV2 | S-2T | 1.42 | 0.03 | 1/8" S-LOK | 25.6 | 84.6 | 29.2 | 12.7 | |
| | S-3M | | | 3mm S-LOK | | | | | |
| | S-4T | | | 1/4" S-LOK | | | | | |
| | S-6M | | | 6mm S-LOK | 27.9 | 86.9 | | | |
| | M-2N | | | 1/8" Male NPT | 19.5 | 78.5 | | | |
| | M-4N | | | 1/4" Male NPT | 24.9 | 83.9 | | | |
| | F-2N | | | 1/8" Female NPT | 24.2 | 83.2 | | | |
| SMTV3 | S-4T | 3.25 | 0.16 | 1/4" S-LOK | 28.7 | 97.1 | 28.8 | 28.7 | |
| | S-6M | | | 6mm S-LOK | | | | | |



| Series | Panel Hole (G) | Panel MaxThickness |
|--------|----------------|--------------------|
| SMTV1 | 11.4 | 4.1 |
| SMTV2 | 14.7 | 3.3 |
| SMTV3 | 14.7 | 3.3 |

Ordering Information

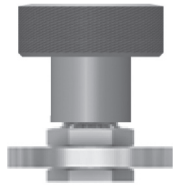
| SMTV1 | S | 2T | A | KA | VH | S6 |
|--------------|---|-----------------|---|--|--------|--|
| Valve Series | Connection Type | Connection Size | Flow Pattern | O-ring Material | Handle | Body Material |
| | <ul style="list-style-type: none"> · S : S-LOK Tube Fitting · M: Male Thread · F : Female Threa | | <ul style="list-style-type: none"> · Nil : Straight · A : Angle Pattern | <ul style="list-style-type: none"> · Nil : FKM for SS316 NBR for Brass · NB : NBR · VT : FKM · KA : FFKM | | <ul style="list-style-type: none"> · S6 : 316 Stainless Steel · BS : BRASS |

Handle Option

- **Nil** : SMTV1, 2 Series Standard for Locking Screw Handle
SMTV3 Series Standard for Round Handle
- **SH** : SMTV1, 2 Series
- **AH** : SMTV1 Series
- **VH** : SMTV1, 2, 3 Series



SMTV1, 2 Standard
Locking Screw
Handle



SMTV3 Standard
Round Handle



SH
Slotted Handle



AH
Adjustable Torque
Handle



VH
Vernier Handle

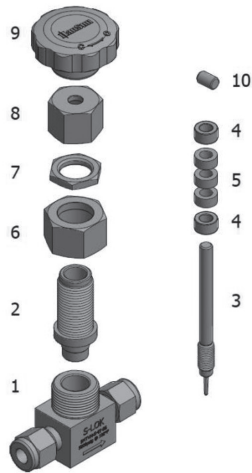
SMTVH Series High Pressure Metering Valves

Features

- SS316 bar stock body with straight and angle patterns.
- Variety of end connections include S-LOK, NPT & ISO threads Male/Female.
- Phenolic knob round handle.
- Panel mounting is standard for all valves.
- Union nut-prevents accidental disassembly of the valve in its service.
- Metal to metal low shut off.
- 2° Tapered stem tip : Provide a wide low range with ultrafine metering control.



Material of Construction



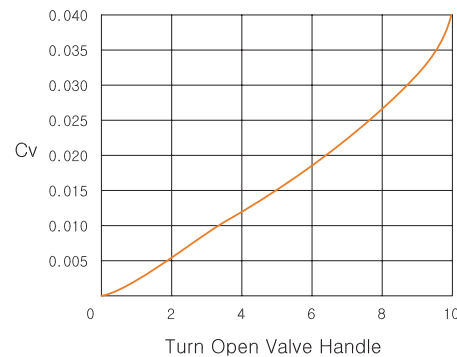
| Item | Component | Material |
|------|-------------|-------------------------|
| 1 | Body | SS316 / A479 or A276 |
| 2 | Bonnet | SS316 / A479 or A276 |
| 3 | Stem | SS630 / A564 (17-4PH) |
| 4 | Gland | SS316 / A479 or A276 |
| 5 | Packing | PTFE |
| 6 | Union Nut | SS316 / A479 or A276 |
| 7 | Panel Nut | SS316 / A479 or A276 |
| 8 | Packing Nut | SS316 / A479 or A276 |
| 9 | Handle | Nylon with Brass Insert |
| 10 | Set Screw | Stainless Steel |

Technical Data

Pressure and Temperature Ratings

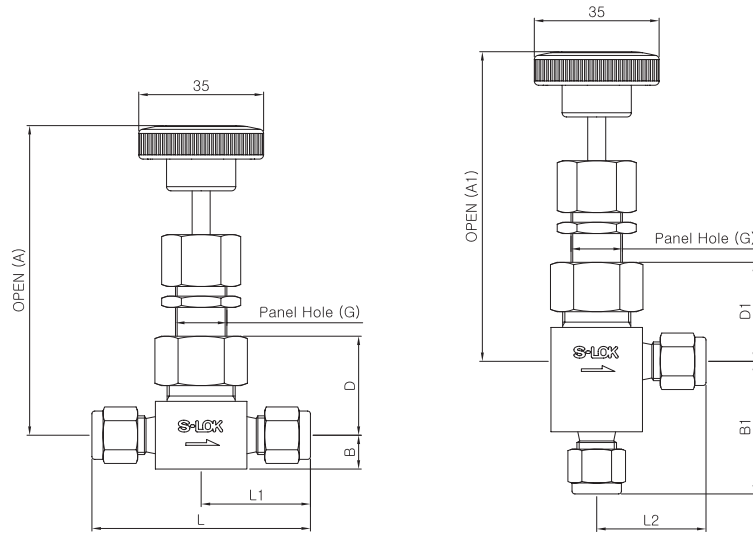
| ASME Material Group | Table 2-2.2 |
|------------------------------|-------------|
| ASME Class Rating | 2080 |
| Temperature @ Pressure | psig (bar) |
| -54°C (-65°F) ~ 38°C (100°F) | 5000 (344) |
| 93°C (200°F) | 4295 (295) |
| 148°C (300°F) | 3875 (266) |
| 204°C (400°F) | 3560 (245) |
| 232°C (450°F) | 3435 (236) |
| 260°C (500°F) | 3310 (228) |
| 315°C (600°F) | 3130 (215) |
| 343°C (650°F) | 3080 (212) |
| 371°C (700°F) | 3000 (206) |
| 398°C (750°F) | 2930 (201) |
| 426°C (800°F) | 2880 (198) |
| 454°C (850°F) | 2815 (193) |

Flow Data with Number of Handle Turns



| Pressure Drop @ Atmosphere psi (bar) | Air Flow Std. ft ³ /min. (Std. L/min.) | Water Flow U.S. gal/min. (L/min.) |
|---|---|---|
| 10 (0.68) | 0.04 (1.1) | 0.01 (0.03) |
| 50 (3.4) | 0.1 (2.8) | 0.02 (0.07) |
| 100 (6.8) | 0.2 (5.6) | 0.04 (0.15) |

Dimension



| Panel Hole (G) | Panel Max Thickness |
|----------------|---------------------|
| 15.0 | 9.6 |

| Ordering Number | Orifice (mm) | Cv | End Connections | | Dimensions (mm) | | | | | | | | | |
|-----------------|--------------|-----|-----------------|-----------------|-----------------|------|------|------|------|------|-----|------|------|------|
| | | | Inlet | Outlet | L | L1 | L2 | A | A1 | B | B1 | D | D1 | |
| SMTVH | S-4T | 1.6 | 0.04 | 1/4" S-LOK | | 60.6 | 30.3 | 29.5 | 87.8 | 87.8 | 9.6 | 37.6 | 28.1 | 28.1 |
| | S-6M | | | 6mm S-LOK | | | | | | | | | | |
| | F-2N | | | 1/8" Female NPT | | 52.4 | 26.2 | 23.1 | | 92.9 | | 25.4 | | |
| | F-4N | | | 1/4" Female NPT | | | | | | | | | | 52.4 |

Testing

- Every valve is factory tested for bubble-tight leakage at both seat and stem packing with nitrogen at 1000psi (69bar).

Ordering Information

| | | | | | | | | | | |
|-------------------------|---|---|---|------------------------------|---|---------------------------------|---|---------------------------------|---|--|
| SMTVH | - | S | - | 2T | - | A | - | GF | - | S6 |
| Valve Series Designator | | End Connection Designator | | Inlet-Outlet Size Designator | | Flow Pattern Designator | | Packing Material Designator | | Body Material Designator |
| | | . S : S-LOK Tube Fitting . M: Male Thread . F : Female Thread | | | | . Nil : Straight . A : Angle | | . Nil : PTFE . GF : Graphite | | . S6 : Stainless Steel 316 . BS : Brass |

S-LOK®