

Integral Bonnet Needle Valves For regulating and shut-off

Stem

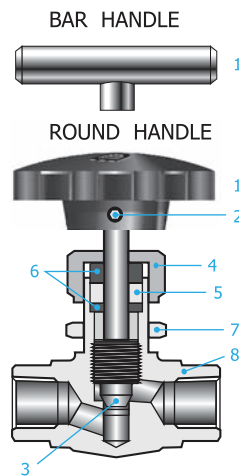
Hard chrome plated stem threads assures extended service life

Choice of Fluid Control

- Metal to metal Vee & Regulating stems for elevated temperatures
- Repetitive soft seat for gas leak-tight

Variety of end connections

- Reliable DK-Lok Tube Fitting Ends
- NPT & ISO Male & Female



Positive Driven Handle

Choice of Round handle and Bar handle

Packing Nut

Allows external adjustments of packing

Panel Nut

Allows panel installation

Integral Bonnet Design

To eliminate inadvertent stem back-out

Packing

- Low operating torque.
- Standard PTFE
- Optional Chevron PEEK for high temperature

Materials of Construction

| Components | VALVE BODY MATERIALS | | | |
|------------|-----------------------------------|--|-------------|------------------|
| | Material Grade/ASTM Specification | | | |
| | SS316 | BRASS | ALLOY 400 | |
| 1 | Round handle | Nylon with brass insert | | |
| | Bar handle | SS316/A276 | | |
| 2 | Set Screw | SS304/A276 | | |
| 3 | Standard Vee Stem | SS316/A276 Hard Chrome-plated on stem tip and threads | Alloy R-405 | |
| | Optional Regulating stem | SS316/A276 Hard Chrome-plated on threads | | |
| | Optional Soft Seat Stem | PCTFE | | |
| 4 | Packing Nut | SS316/A276 | Brass/B16 | Alloy R-405/B164 |
| 5 | Packing | Standard PTFE, Optional PEEK | | |
| 6 | Packing Gland | SS316/A276 | Brass/B16 | Alloy R-405/B164 |
| 7 | Panel Nut | SS316/A276 | Brass/B16 | SS316/A276 |
| 8 | Body | SS316/A182 | Brass/B283 | Alloy 400/B564 |

Wetted parts and lubricant are listed in blue.

Lubrication : Molybdenum disulfide with hydrocarbon coating

Design

- Designed for a wide range of general purpose in gas and liquid applications
- Forged Body with Inline and Angle pattern
- Integral Bonnet design to eliminate inadvertent stem back-out
- Standard metal seal for pressure tightness at elevated temperatures
- Standard PTFE packing, and optional PEEK packing for higher temperature service
- Packing nut allows external packing adjustment to ensure leak-free packing on stem
- Broad choices of end connections include reliable DK-Lok, NPT & ISO Male & Female pipe threads

Operation


- Pressure rating up to 5,000psig (345bar) @100°F (38°C)
- Temperature rating up to 450°F (232°C) with standard PTFE packing; up to 600°F (315°C) with optional PEEK packing
- Panel mounting without packing disruption
- Standard SS316 and Brass material valve construction
- DK-Lok Gap gauge allows easy inspection for sufficient tube pull-up before a system is pressurized
- Valves for Sour Gas Service meeting the requirements of NACE MR0175 are available

Factory Test

Every valve is tested with the nitrogen @1,000psig (68bar) for leakage at the seat to a maximum allowable leak rate of 0.1 SCCM. The packing is tested for no detectable leakage.

Panel mounting

How to mount the valve on panel.



Panel Nut

| Panel hole drill and thickness | | mm (in) | |
|--------------------------------|------------------|-----------------|----------------|
| Valve Series | Panel Hole Drill | Panel Thickness | |
| | | Min. | Max. |
| V15A | 13.5 (0.53) | 3.17 (0.125) | 6.35 (0.25) |
| V15B | 13.5 (0.53) | | |
| V15C | 20.0 (0.79) | | |
| V15D | 26.2 (1.03) | | |

- 2.Remove the packing nut & panel nut and set aside for later use.
- 3.Place the valve bonnet in the panel hole.

Reassembly

4. Tighten the panel nut onto the valve bonnet.
Keep the panel nut always on the external portion of the panel.
5. Finger tighten the packing nut onto the valve body.
6. Place the round handle on the stem. Align the set screw with the groove on the side of the stem. Tighten the set screw.
7. Fully close the valve and retract the stem two or three turns before torque the packing nut to the torque below.

• Packing Nut Torque Table

| Valve Series | Torque | |
|--------------|----------|----------|
| | lbf · ft | kgf · cm |
| V15A, V15B | 5.2 | 71.9 |
| V15C | 10.6 | 146.6 |
| V15D | 25.1 | 347 |

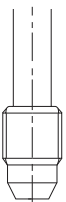
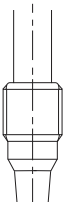
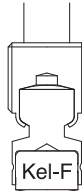
Disassembly

- 1.Un-tighten the handle set screw using an allen key and remove the handle.

• Handle Set Screw Allen Key

| Valve Series | Allen Key | |
|--------------|--------------|------------|
| | Round Handle | Bar Handle |
| V15A & V15B | Hex.2.5mm | Hex. 4.0mm |
| V15C | Hex.3.0mm | |
| V15D | | Hex. 5.0mm |

Choice of Stem Tip

| Vee Stem | Regulating Stem | Non-Rotating Soft Seat |
|---|---|--|
|  |  |  |
| Metal to metal Vee stem for pressure tightness at elevated temperature. | Regulating stem for flow rate control | Non-rotating PCTFE soft seat for repetitive shut-off on gas. • Round Handle is recommended for soft seat valve. |

Note : Soft seat packing adjustment may be required during service to compensate the physical compression of soft seat after repeated shut-off.

Ordering Information and Table of Dimensions



Unit : mm (in.)

| Valve Basic Ordering Number | End Connections | | Orifice | Cv | Dimensions | | | | | | | | | | | |
|-----------------------------|-----------------|---------------------------------|----------------|----------|--------------|----------|----------|------------|------------|---------------|----------------|--------------|--------------|------------|------------|------------|
| | Inlet | Outlet | | | A | B | L | L1 | L2 | E | D | H | H1 | | | |
| V15A | F-2N- | 1/8" Female NPT | 2.0 (0.08) | 0.09 | 60 (2.36) | 21(0.83) | 42(1.65) | 21(0.83) | | 9.5 (0.37) | 11 (0.43) | 36 (1.42) | 32 (1.26) | | | |
| | M-2N- | 1/8" Male NPT | | | | | | 20(0.79) | 26(1.02) | | | | | | | |
| | MD-2N2T | 1/8" Male NPT 1/8" DK-Lok | | | | | | 26(1.02) | 52(2.05) | | | | | | | |
| | D-2T- | 1/8" DK-Lok | | | | | | | | | | | | | | |
| | D-3M- | 3mm DK-Lok | | | | | | | | | | | | | | |
| V15B | F-2N- | 1/8" Female NPT | 4.3 (0.17) | 0.37 | 60 (2.36) | 21(0.83) | 42(1.65) | 21(0.83) | | 9.5 (0.37) | 11 (0.43) | 36 (1.42) | 45 (1.77) | | | |
| | M-2N- | 1/8" Male NPT | | | | | | 25(0.98) | 50(1.97) | | | | | 25(0.98) | 25(0.98) | |
| | M-4N- | 1/4" Male NPT | | | | | | 54(2.13) | 28.8(1.13) | | | | | | | |
| | MD-4N4T- | 1/4" Male NPT 1/4" DK-Lok | | | | | | | | | | | | | | |
| | D-6M- | 6mm DK-Lok | | | | | | 29(1.14) | 57.6(2.27) | | | | | 29.6(1.16) | | |
| | D-4T- | 1/4" DK-Lok | | | | | | | | | | | | | | |
| | D-8M- | 8mm DK-Lok | | | | | | 30(1.18) | 59.2(2.33) | | | | | | | |
| V15C | F-4N- | 1/4" Female NPT | 6.4 (0.252) | 0.73 | 71 (2.80) | 29(1.14) | 56(2.20) | 28(1.10) | 28(1.10) | 13 (0.51) | 13.5 (0.53) | 50 (1.97) | 64 (2.52) | | | |
| | F-4R- | 1/4" Female ISO Tapered | | | | | | 61.2(2.41) | 33.2(1.31) | | | | | | | |
| | MF-4N- | 1/4" Male NPT 1/4" Female NPT | | | | | | | | | | | | | | |
| | MD-4N6T- | 1/4" Male NPT 3/8" DK-Lok | | | | | | 58(2.28) | 29(1.14) | | | | | | | |
| | M-6N- | 3/8" Male NPT | | | | | | 62.2(2.45) | 33.2(1.31) | | | | | | | |
| | MD-6N6T- | 3/8" Male NPT 3/8" DK-Lok | | | | | | 65(2.56) | | | | | | 36(1.42) | | |
| | MD-6N8T- | 3/8" Male NPT 1/2" DK-Lok | | | | | | 33(1.30) | 66(2.60) | | | | | 33.2(1.31) | 33.2(1.31) | |
| | D-10M- | 10mm DK-Lok | | | | | | | | | | | | | | |
| | D-6T- | 3/8" DK-Lok | | | | | | | | | | | | | | |
| | D-12M- | 12mm DK-Lok | | | | | | | | | | | | | | |
| D-8T- | 1/2" DK-Lok | 36(1.42) | 72(2.83) | 36(1.42) | 36(1.42) | | | | | | | | | | | |
| V15D | F-6N- | 3/8" Female NPT | 9.5 (0.374) | 1.80 | 99 (3.90) | 38(1.50) | 76(2.99) | 38(1.50) | 38(1.50) | 19 (0.75) | 19 (0.75) | 66 (2.60) | 76 (3.00) | | | |
| | F-6R- | 3/8" Female ISO Tapered | | | | | | | | | | | | | | |
| | F-8N- | 1/2" Female NPT | | | | | | | | | | | | | | |
| | F-8R- | 1/2" Female ISO Tapered | | | | | | | | | | | | | | |
| | M-8N- | 1/2" Male NPT | | | | | | | | | | | | | | |
| | MF-8N- | 1/2" Male NPT 1/2" Female NPT | | | | | | | | | | | | | | |
| | D-8T- | 1/2" DK-Lok | | | | | | | | | | | | 49(1.93) | 97(3.82) | 48.5(1.91) |
| | D-12T- | 3/4" DK-Lok | | | | | | | | | | | | | | |

All dimensions shown are for reference only and are subject to change. Dimensions with DK-Lok nuts are in finger-tight position. Patterns: To order angle pattern, use -A as a suffix to the valve ordering number. Example: V15A-F-2N-A

Table 1. Pressure-Temperature Ratings for valves with standard PTFE packing

Pressure rating of valves with PCTFE soft seat is limited to 200°F (93°C).

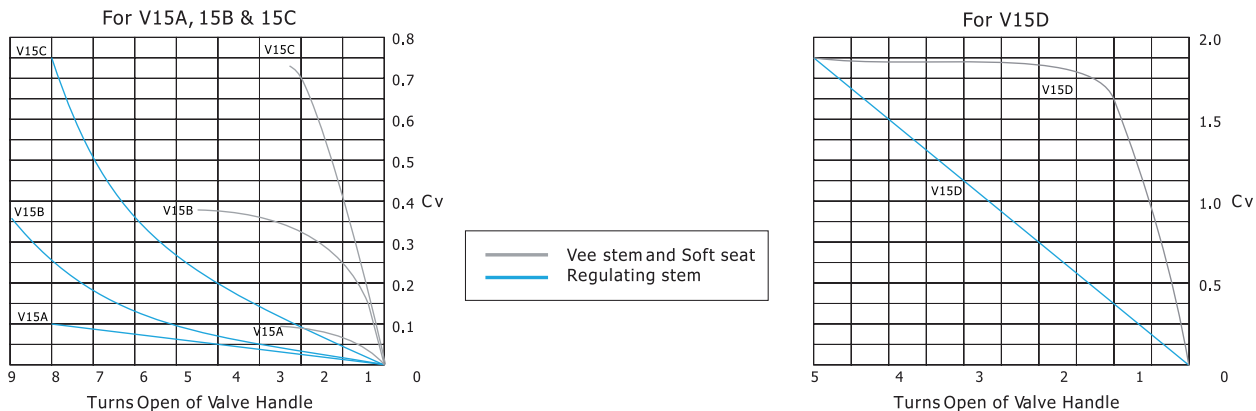
| ASME Material Group | TABLE 2-2.2 | | N/A | | TABLE 2-3.4 | | |
|------------------------|---------------|-------|-------|-------|-------------|-------|-----|
| | SS316 | | Brass | | Alloy 400 | | |
| ASME Class Rating | 2,080 | | N/A | | 1,500 | | |
| Temperature @ pressure | psig | bar | psig | bar | psig | bar | |
| -65F (-54°C) to | 100°F (38°C) | 5,000 | 345 | 3,000 | 207 | 3,000 | 207 |
| | 200°F (93°C) | 4,293 | 296 | 2,353 | 162 | 2,640 | 182 |
| | 300°F (148°C) | 3,877 | 267 | 2,059 | 142 | 2,470 | 170 |
| | 350°F (176°C) | 3,719 | 256 | 1,471 | 101 | 2,430 | 167 |
| | 400°F (204°C) | 3,562 | 246 | 392 | 27 | 2,390 | 165 |
| | 450°F (232°C) | 3,437 | 237 | - | - | 2,380 | 164 |

Note : Pressure rating of valve may be limited to the working pressure of pipe ends and the tubing connected. Refer to DK-Lok Tube Fitting catalog for the details of working pressures in various tubing sizes, materials and wall thickness.

Table 2. Pressure-Temperature Ratings for valves with optional PEEK packing

| Valve Material | Packing | Stem | Pressure –Temperature Rating °F (°C) |
|----------------|---------|--------------------------------------|--|
| SS316 | PEEK | Metal to metal (Vee & Regulating) | -65 to 600 (-54 to 315) @ 3,130 psig (215 bar) |
| Brass | | | -65 to 400 (-54 to 204) @ 3,000 psig (207 bar) |
| Alloy 400 | | | -65 to 500 (-54 to 260) @ 2,370 psig (163 bar) |

Flow Curves



How to order

Select applicable Valve Pattern, Stem type, Handle and Body material from designators listed below.

V15B-F-2N
V15B-F-2N

| Valve Pattern | Stem Packing Designator | Stem Designator | Handle Designator | Body Material Designator |
|---|----------------------------------|--|---|---|
| Nil : Inline pattern A : Angle pattern | Nil : Standard PTFE PK : PEEK | Nil : Standard Vee stem tip R : Regulating tip K : PCTFE (Kel-F) soft seat | Nil : Nylon Round Handle BH : Bar Handle | S : SS316 B : Brass M : Alloy 400 |
| Handle for Soft Seat Nylon Round Handle is recommended for soft seat valve. This helps prevent the soft seat from damage. | | | | |

We reserve the right to change specifications stated in this catalog for our continuing Program of improvement.

Safe Valve Selection

The Selection of a Valve for any application or system design must be considered to ensure safe performance. Valve function, Valve rating, material compatibility, proper installation, operation and maintenance remain the sole responsibility of the system designer and the user. DK-Lok accepts no liability for any improper selection, installation, operation or maintenance.

| | | | |
|---|---|--|---|
|  Fittings & Valves www.dklok.com | IDK-LOK Corporation Mailing Address 7, Golden root-ro 129beon-gil, Juchon-myeon, Gimhae-si, Gyeongsangnam-do, South Korea 621-842 | DK-Lok contact information Tel. (82) 55-338-0114 Fax. (82) 55-901-0143 E-mail : sales@dklok.com | For International customers Tel. (82) 55-338-0031/2 Fax. (82) 55-901-0142 E-mail : dklok@dklok.com |
|---|---|--|---|