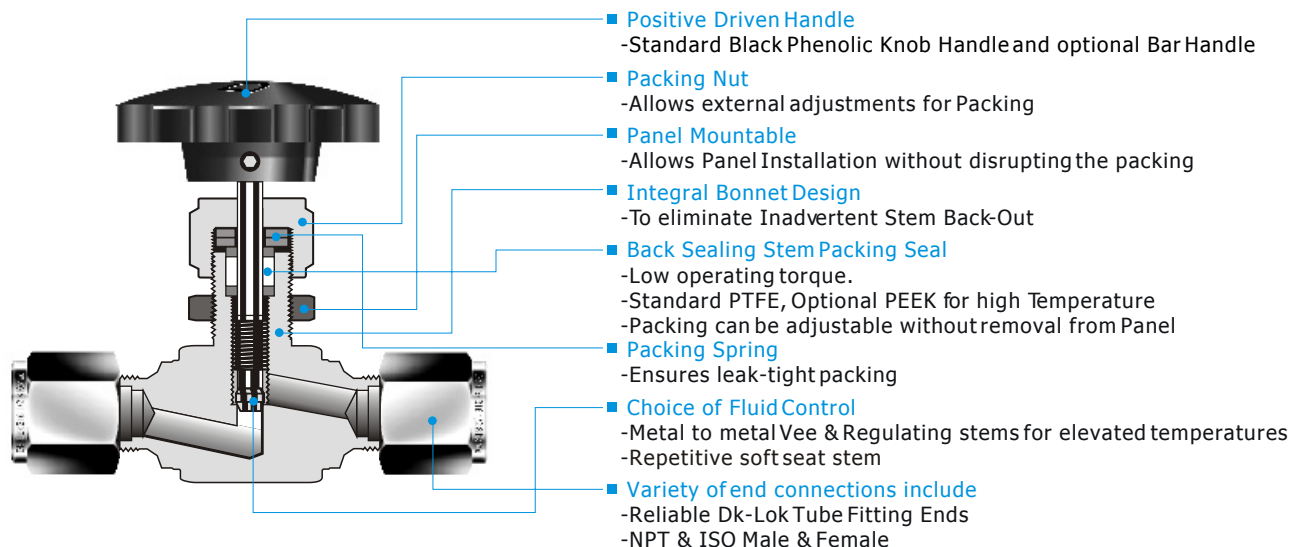


# V15 Series Needle Valves

Forged body, Pressure Rating up to 5000 psi

Catalog Number V15-3  
June 2004

## Integral Bonnet Needle Valves FOR REGULATING & SHUT-OFF



## Design

- Designed for a wide range of general purpose gas and liquid applications
- Forged Body with Inline and Angle pattern
- Integral Bonnet design to eliminate inadvertent stem back-out
- Standard Metal to Metal Seal for pressure tightness at elevated temperatures
- Standard PTFE packing, and optional PEEK packing for high temperature
- Packing nut allows external packing adjustment to ensure leak-free stem seal
- Hard chrome-plated stem threads assures extended service
- Back seated stem to isolate packing from pressure and media
- Broad choices of end connections, reliable Dk-Lok, NPT & ISO Male & Female



## Operation

- Pressure rating up to 5000psi (340 Bar) @100 F (38 C)
- Temperature rating 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 S316 and Brass materials
- Dk-Lok Gap gauge allows easy inspection for sufficient Tube pull-up before a system is pressurized
- Available Sour Gas Service per NACE MR0175

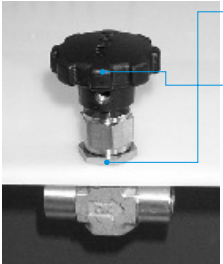
## Factory Test

- Every valve is tested with the nitrogen @1000psig (68bar) for leakage at the seat to a maximum allowable leak rate of 0.1scc/min. The packing is tested for no detectable leakage.

## Panel Mounting as standard

Factory installed panel mounting allows valve installation without disrupting the stem packing

|  | Panel Mounting Details |                 |                 |        |
|--|------------------------|-----------------|-----------------|--------|
|  | Body Size              | Panel Hole Dia. | Panel Thickness |        |
|  |                        |                 | Min             | Max    |
|  | 15A                    | 13.5mm          | 3.17mm          | 6.35mm |
|  | 15B                    | 13.5mm          | 3.17mm          | 6.35mm |
|  | 15C                    | 20.0mm          | 3.17mm          | 6.35mm |
|  | 15D                    | 26.2mm          | 3.17mm          | 6.35mm |



**Panel Nut**  
Keep the panel nut always on the external portion of the panel.

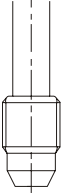
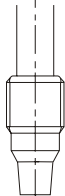
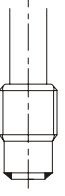
When processing panel mounting, you need to take the phenolic knob handle or optional bar handle out of the valve by applying right Hex. allen key.

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

Note : 1. Packing adjustments may be required while the valve is mounted.  
2. Excessive temperature cycles may also need packing adjustment.

## Choice of Stem Tip's available

Metal-to-metal Vee seal for pressure tightness even at elevated temperatures, Regulating stem for flow rate control, and soft-seat for repetitive shut-off.

| Vee Stem  | Regulating Stem   | Soft seat   |
|---|---|---|
|  |  |  |

## Materials of Construction

Black Knob Handles are Standard and Bar Handles are optional.

| Parts                  | MATERIALS                    |       |                  |
|------------------------|------------------------------|-------|------------------|
|                        | S316                         | BRASS | ALLOY 400        |
| Knob Handle            | Black phenolic knob handles  |       |                  |
| Bar handle             | Stainless steel              |       |                  |
| Handle Pin             | Steel                        |       |                  |
| Set Screw              | Steel                        |       |                  |
| Packing Nut            | S316                         | Brass | Alloy R-405/B164 |
| Packing Gland          | S316                         | Brass | Alloy R-405/B164 |
| Packing                | Standard PTFE, Optional PEEK |       |                  |
| Regulating Stem        | S316                         | S316  | Alloy R-405      |
| Vee Stem               | S316                         | S316  |                  |
| Soft Seat Stem         | S316                         | S316  |                  |
| Stem tip ( Soft Seat ) | *Kel-F(CTFE)                 |       |                  |
| Panel Nut              | Stainless Steel              | Brass | Stainless Steel  |
| Body                   | S316                         | Brass | Alloy 400/B564   |

Wetted parts are listed in bold letters.

Lubrication : Fluorocarbon base

\*Kel-F is the trademark of 3M Co.,

# Ordering Information and Table of Dimensions



| Valve Ordering Number | End Connection |                               | Orifice (mm) | Cv   | Dimensions (mm) |    |      |      |      |     |      |    |    |
|-----------------------|----------------|-------------------------------|--------------|------|-----------------|----|------|------|------|-----|------|----|----|
|                       | Inlet          | Outlet                        |              |      | A               | B  | L    | L1   | L2   | E   | D    | H  | H1 |
| V15A                  | F-2N           | 1/8" Female NPT               | 2.0          | 0.09 | 60              | 21 | 42   | 21   | 21   | 9.5 | 11   | 36 | 32 |
|                       | M-2N           | 1/8" Male NPT                 |              |      |                 |    | 42   | 21   | 20   |     |      |    |    |
|                       | MD-2N2T        | 1/8" Male NPT 1/8" Dk-Lok     |              |      |                 |    | 47   | 21   | 26   |     |      |    |    |
|                       | D-2T           | 1/8" Dk-Lok                   |              |      |                 |    | 26   | 52   | 26   |     |      |    |    |
|                       | D-3M           | 3mm Dk-Lok                    |              |      |                 |    | 26   | 52   | 26   |     |      |    |    |
| V15B                  | F-2N           | 1/8" Female NPT               | 4.3          | 0.37 | 60              | 21 | 42   | 21   | 21   | 9.5 | 11   | 36 | 45 |
|                       | M-2N           | 1/8" Male NPT                 |              |      |                 |    | 42   | 21   | 21   |     |      |    |    |
|                       | M-4N           | 1/4" Male NPT                 |              |      |                 |    | 25   | 50   | 25   |     |      |    |    |
|                       | MD-4N4T        | 1/4" Male NPT 1/4" Dk-Lok     |              |      |                 |    | 54   | 25   | 28.8 |     |      |    |    |
|                       | D-6M-          | 6mm Dk-Lok                    |              |      |                 |    | 29   | 57.6 | 28.8 |     |      |    |    |
|                       | D-4T-          | 1/4" Dk-Lok                   |              |      |                 |    | 30   | 59.2 | 29.6 |     |      |    |    |
| V15C                  | F-4N           | 1/4" Female NPT               | 6.4          | 0.73 | 71              | 28 | 56   | 28   | 28   | 13  | 13.5 | 48 | 64 |
|                       | F-4R           | 1/4" Female ISO Tapered       |              |      |                 |    | 61.2 | 28   | 33.2 |     |      |    |    |
|                       | MF-4N          | 1/4" Male NPT 1/4" Female NPT |              |      |                 |    | 58   | 29   | 29   |     |      |    |    |
|                       | MD-4N6T        | 1/4" Male NPT 3/8" Dk-Lok     |              |      |                 |    | 62.2 | 29   | 33.2 |     |      |    |    |
|                       | M-6N           | 3/8" Male NPT                 |              |      |                 |    | 65   | 36   | 36   |     |      |    |    |
|                       | MD-6N6T        | 3/8" Male NPT 3/8" Dk-Lok     |              |      |                 |    | 66   | 33.2 | 33.2 |     |      |    |    |
|                       | MD-6N8T        | 3/8" Male NPT 1/2" Dk-Lok     |              |      |                 |    | 72   | 36   | 36   |     |      |    |    |
|                       | M-10M          | 10mm Dk-Lok                   |              |      |                 |    | 33   | 66   | 33.2 |     |      |    |    |
|                       | D-6T           | 3/8" Dk-Lok                   |              |      |                 |    | 36   | 72   | 36   |     |      |    |    |
|                       | D-12M          | 12mm Dk-Lok                   |              |      |                 |    | 49   | 97   | 48.5 |     |      |    |    |
| V15D                  | F-6N           | 3/8" Female NPT               | 9.5          | 1.80 | 99              | 38 | 76   | 38   | 38   | 19  | 19   | 66 | 76 |
|                       | F-6R           | 3/8" Female ISO Tapered       |              |      |                 |    | 76   | 38   | 38   |     |      |    |    |
|                       | F-8N           | 1/2" Female NPT               |              |      |                 |    | 76   | 38   | 38   |     |      |    |    |
|                       | F-8R           | 1/2" Female ISO Tapered       |              |      |                 |    | 76   | 38   | 38   |     |      |    |    |
|                       | M-8N           | 1/2" Male NPT                 |              |      |                 |    | 76   | 38   | 38   |     |      |    |    |
|                       | MF-8N          | 1/2" Male NPT 1/2" Female NPT |              |      |                 |    | 76   | 38   | 38   |     |      |    |    |
|                       | D-8T           | 1/2" Dk-Lok                   |              |      |                 |    | 76   | 38   | 38   |     |      |    |    |
|                       | D-12T          | 3/4" Dk-Lok                   |              |      |                 |    | 97   | 48.5 | 48.5 |     |      |    |    |

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

## Technical Data

### Working pressure

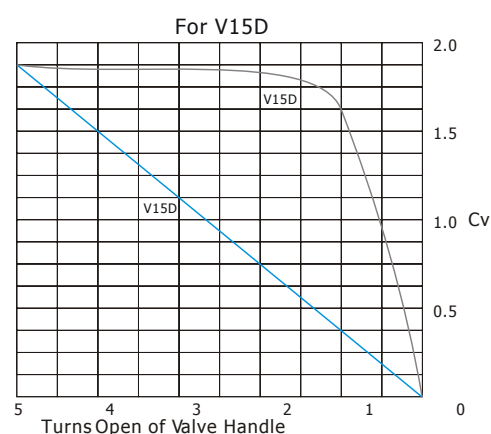
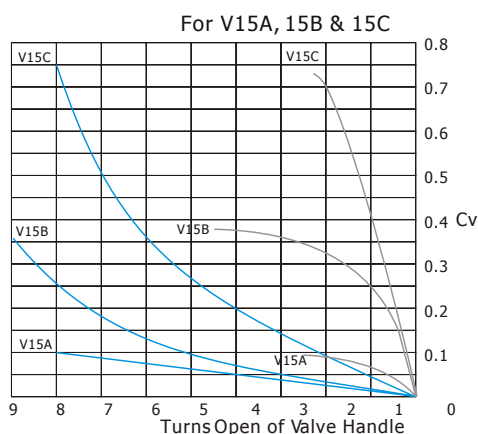
The class rating and rated working pressure are the way that ASME standards simplify the design process. The pressure rating is governed by the allowable stress for each different material group, class rating and service temperature.

| ASME Material Group    |              | TABLE 2-2.2  |      | N/A   |     | TABLE 2-3.4 |     |
|------------------------|--------------|--------------|------|-------|-----|-------------|-----|
| Material Name          |              | S316         |      | Brass |     | Alloy 400   |     |
| ASME CLASS Rating      |              | 2080         |      | N/A   |     | 1500        |     |
| Temperature @ pressure |              | psig         | bar  | psig  | bar | psig        | Bar |
| -65 F (-54 C) to       | 100F (38 C)  | 5000         | 344  | 3000  | 206 | 3000        | 206 |
|                        | 200F (93 C)  | 4290         | 295  | 2350  | 161 | 2640        | 181 |
|                        | 300F (148 C) | 3870         | 266  | 2050  | 141 | 2470        | 170 |
|                        | 350F (176 C) | 3710         | 255  | 1470  | 101 | 2430        | 167 |
|                        | 400F (204 C) | 3560         | 245  | 390   | 26  | 2390        | 164 |
|                        |              | 450F (232 C) | 3430 | 236   | -   | 2380        | 163 |

\* Pressure ratings of Valves with reliable Dk-Lok ends are determined by the tubing material and wall thickness. Please see Dk-Lok Tube Fitting catalog for the details of working pressures in various tubing sizes, materials and wall thicknesses. Note : Pressure rating of valve is sometimes limited to the working pressure of pipe ends and the tubing connected.

**Temperature and Pressure Rating with standard PTFE and Optional PEEK packing**

| Valve Material       | Stem                              | with PTFE packing               |                               | with PEEK packing               |                               |
|----------------------|-----------------------------------|---------------------------------|-------------------------------|---------------------------------|-------------------------------|
|                      |                                   | Temperature Rating              | Pressure Rating @100 F (38 C) | Temperature Rating              | Pressure Rating @100 F (38 C) |
| Stainless Steel S316 | Metal to metal (Vee & Regulating) | -65 F to 450 F (-54 C to 232 C) | 5000 psig (344 bar)           | -65 F to 600 F (-54 C to 315 C) | 3130 psig (215 bar)           |
|                      | Soft Seat (Kel-F)                 | -65 F to 200 F (-54 C to 93 C)  |                               | -65 F to 200 F (-54 C to 93 C)  |                               |
| Brass                | Metal to metal (Vee & Regulating) | -65 F to 400 F (-54 C to 204 C) | 3000 psig (206 bar)           | -65 F to 400 F (-54 C to 204 C) | 3000 psig (206 bar)           |
|                      | Soft Seat (Kel-F)                 | -65 F to 200 F (-54 C to 93 C)  |                               | -65 F to 200 F (-54 C to 93 C)  |                               |
| Alloy 400            | Metal to metal (Vee & Regulating) | -65 F to 450 F (-54 C to 232 C) | 3000 psig (206 bar)           | -65 F to 500 F (-54 C to 260 C) | 2370 psig (162 bar)           |
|                      | Soft Seat (Kel-F)                 | -65 F to 200 F (-54 C to 93 C)  |                               | -65 F to 200 F (-54 C to 93 C)  |                               |

**Flow Curves**

**How to order**

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

| Valve Pattern   | Stem Packing Designator  | Stem Designator   | Handle Designator   | Body Material Designator   |
|---|--|---|---|--|
| <ul style="list-style-type: none"> <li>Nil: Inline pattern</li> <li>A: Angle pattern</li> </ul> | <ul style="list-style-type: none"> <li>Nil : standard PTFE</li> <li>PK : PEEK</li> </ul> | <ul style="list-style-type: none"> <li>Nil : Standard Vee</li> <li>R : Regulating</li> <li>K : Soft tip with Kel-F</li> </ul> | <ul style="list-style-type: none"> <li>Nil : Standard black phenolic round handle</li> <li>BH : Bar Handle</li> </ul> | <ul style="list-style-type: none"> <li>S : S316</li> <li>B : Brass</li> <li>M : Alloy 400</li> </ul> |

Examples : V15B-F-2N-B for Inline Pattern, Standard Vee tip with Phenolic Handle and Brass Body

V15B-F-2N-A-PK- K-BH-S for Angle Pattern, Peek stem packing, Soft tip with Bar Handle and S316 Body

A : Angle Pattern  
 PK : Peek stem Packing  
 S : S316 body  
 BH : Bar handle  
 K : Kel-F soft Tip

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 Tech accepts no liability for any improper selection, installation, operation or maintenance.

For more information, please contact us:

**ExpotechUSA**

**10700 Rockley Road**

**Houston, TX -77099**

**USA**

E-mail: [sales@ExpotechUSA.com](mailto:sales@ExpotechUSA.com)

Website: [www.ExpotechUSA.com](http://www.ExpotechUSA.com)