

**Integral Bonnet Needle Valves For regulating and shut-off**

**Stem**

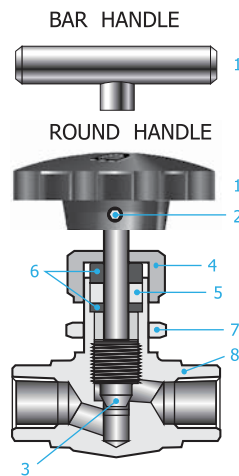
Hard chrome plated stem threads assures extended service life

**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.

**Disassembly**

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

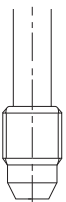
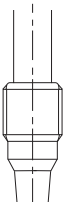
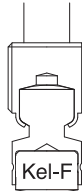
- Handle Set Screw Allen Key

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

• 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

**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															
	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															
	M-4N-	1/4" Male NPT							25(0.98)								
	MD-4N4T-	1/4" Male NPT   1/4" DK-Lok						50(1.97)	25(0.98)					25(0.98)			
	D-6M-	6mm DK-Lok						54(2.13)	28.8(1.13)					28.8(1.13)			
	D-4T-	1/4" DK-Lok						29(1.14)	57.6(2.27)					28.8(1.13)			
	D-8M-	8mm DK-Lok						30(1.18)	59.2(2.33)					29.6(1.16)			
V15C	F-4N-	1/4" Female NPT	6.4 (0.252)	0.73	71 (2.80)	29(1.14)	62(2.45)	29(1.14)	33.2(1.31)	13 (0.51)	13.5 (0.53)	50 (1.97)	64 (2.52)				
	F-4R-	1/4" Female ISO Tapered															
	MF-4N-	1/4" Male NPT   1/4" Female NPT															
	MD-4N6T-	1/4" Male NPT   3/8" DK-Lok												61.2(2.41)	33.2(1.31)		
	M-6N-	3/8" Male NPT												58(2.28)	29(1.14)		
	MD-6N6T-	3/8" Male NPT   3/8" DK-Lok												62.2(2.45)	33.2(1.31)		
	MD-6N8T-	3/8" Male NPT   1/2" DK-Lok												65(2.56)	36(1.42)		
	D-10M-	10mm DK-Lok															
	D-6T-	3/8" DK-Lok												33(1.30)	66(2.60)	33.2(1.31)	33.2(1.31)
	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															
	D-12T-	3/4" DK-Lok												49(1.93)	97(3.82)	48.5(1.91)	

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).

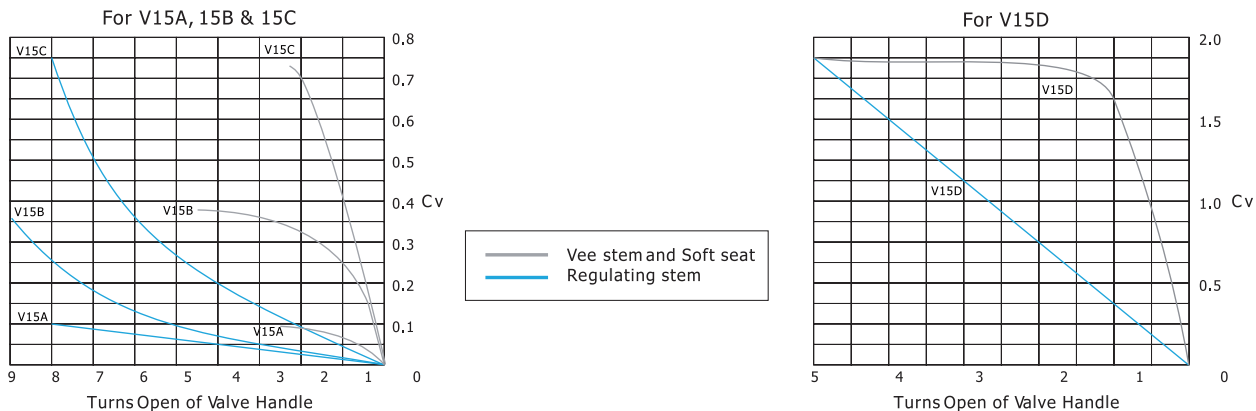
ASME Material Group	TABLE 2-2.2		N/A		TABLE 2-3.4		
	SS316		Brass		Alloy 400		
ASME Class Rating	2,080		N/A		1,500		
Temperature @ pressure	psig	bar	psig	bar	psig	bar	
-65F (-54°C) to	100°F (38°C)	5,000	345	3,000	207	3,000	207
	200°F (93°C)	4,293	296	2,353	162	2,640	182
	300°F (148°C)	3,877	267	2,059	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
<b>Handle for Soft Seat</b> 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.

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