

Integral Bonnet Needle Valves For regulating and shut-off
Stem

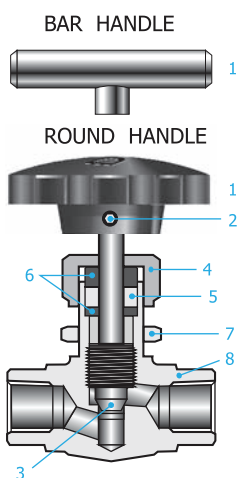
Hard chrome plated stem threads assures extended service life

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
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.

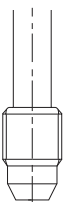
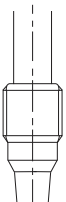

- Handle Set Screw Allen Key

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						21(0.83)	20(0.79)										
	MD-2N2T	1/8" Male NPT	1/8" DK-Lok						26(1.02)										
	D-2T-	1/8" DK-Lok					26(1.02)	52(2.05)	26(1.02)										
	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				29(1.14)	57.6(2.27)	28.8(1.13)	28.8(1.13)									
	D-6M-	6mm DK-Lok					30(1.18)	59.2(2.33)	29.6(1.16)										
	D-4T-	1/4" DK-Lok																	
	D-8M-	8mm DK-Lok																	
V15C	F-4N-	1/4" Female NPT		6.4 (0.252)	0.73	71 (2.80)	28(1.10)	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							58(2.28)					29(1.14)	33.2(1.31)			
	MD-4N6T-	1/4" Male NPT	3/8" DK-Lok				29(1.14)	62.2(2.45)	29(1.14)	33.2(1.31)					36(1.42)				
	M-6N-	3/8" Male NPT														33(1.30)	66(2.60)	33.2(1.31)	33.2(1.31)
	MD-6N6T-	3/8" Male NPT	3/8" DK-Lok																
	MD-6N8T-	3/8" Male NPT	1/2" DK-Lok																
	D-10M-	10mm DK-Lok																	
	D-6T-	3/8" DK-Lok																	
	D-12M-	12mm DK-Lok																	
D-8T-	1/2" DK-Lok																		
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	
Material Name		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

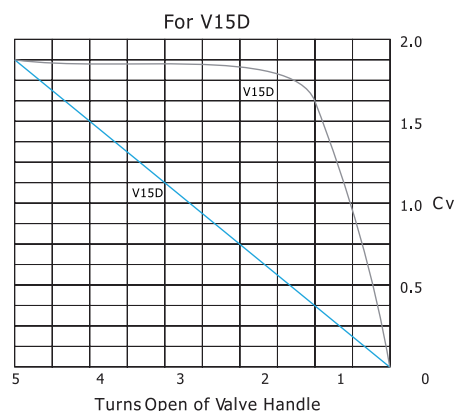
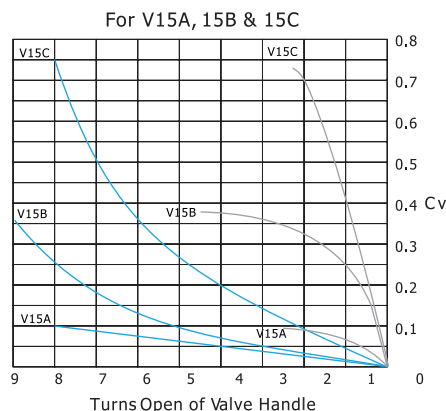
Note : Pressure rating of valve may be limited to the working pressure of pipe ends and the tubing connected.

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
-A Nil : Inline pattern A : Angle pattern	-PK Nil : Standard PTFE PK : PEEK	-R Nil : Standard Vee stem tip R : Regulating tip K : PCTFE (Kel-F) soft seat	-BH Nil : Nylon Round Handle BH : Bar Handle	-S -S 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.