VDK-LOK

Needle Valves

Rev. 01-02
Apr. 2025

IDK-LOK

V15 Series

Rev. 01-01
Aug. 2023

DK-LOK®
Needle Valves

V15 Series Needle Valves

Rev.01-01
Aug.2023

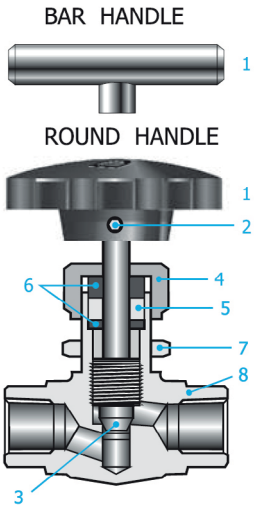
Forged body, Pressure Rating up to 5000psig (345bar)

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 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)		

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

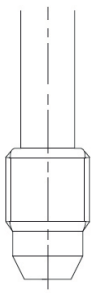
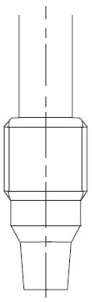
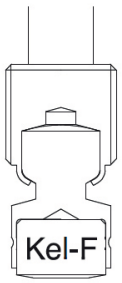
2.Remove the packing nut & panel nut and set aside for later use.
3.Place the valve bonnet in the panel hole.

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

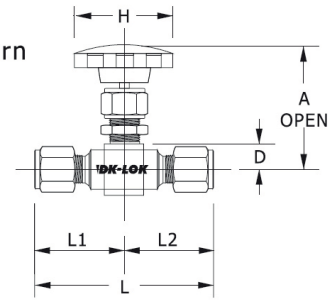
Choice of Stem Tip

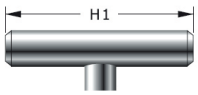
Vee Stem	Regulating Stem	Non-Rotating Soft Seat
		
Metal to metal Vee stem for pressure tightness at elevated temperature.	Regulating stem for flow rate control	Non-rotating PCTFE soft seat for repetitive shut-off on gas. • Round Handle is recommended for soft seat valve.

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

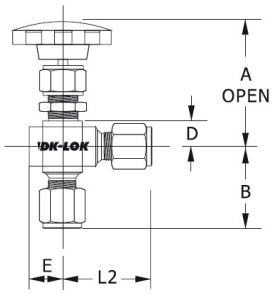
Ordering Information and Table of Dimensions

Inline Pattern





Angle Pattern



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)				
	MD-2N2T	1/8" Male NPT	1/8" DK-Lok					47(1.85)		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												
	M-4N-	1/4" Male NPT					25(0.98)	50(1.97)	25(0.98)	25(0.98)				
	MD-4N4T-	1/4" Male NPT	1/4" DK-Lok					54(2.13)		28.8(1.13)				
	D-6M-	6mm DK-Lok					29(1.14)	57.6(2.27)	28.8(1.13)					
	D-4T-	1/4" DK-Lok												
	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)	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												
	MF-4N-	1/4" Male NPT	1/4" Female NPT					61.2(2.41)		33.2(1.31)				
	MD-4N6T-	1/4" Male NPT	3/8" DK-Lok				29(1.14)	58(2.28)	29(1.14)	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											
	D-10M-	10mm DK-Lok					33(1.30)	66(2.60)	33.2(1.31)	33.2(1.31)				
	D-6T-	3/8" DK-Lok												
	D-12M-	12mm DK-Lok					36(1.42)	72(2.83)	36(1.42)	36(1.42)				
	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).

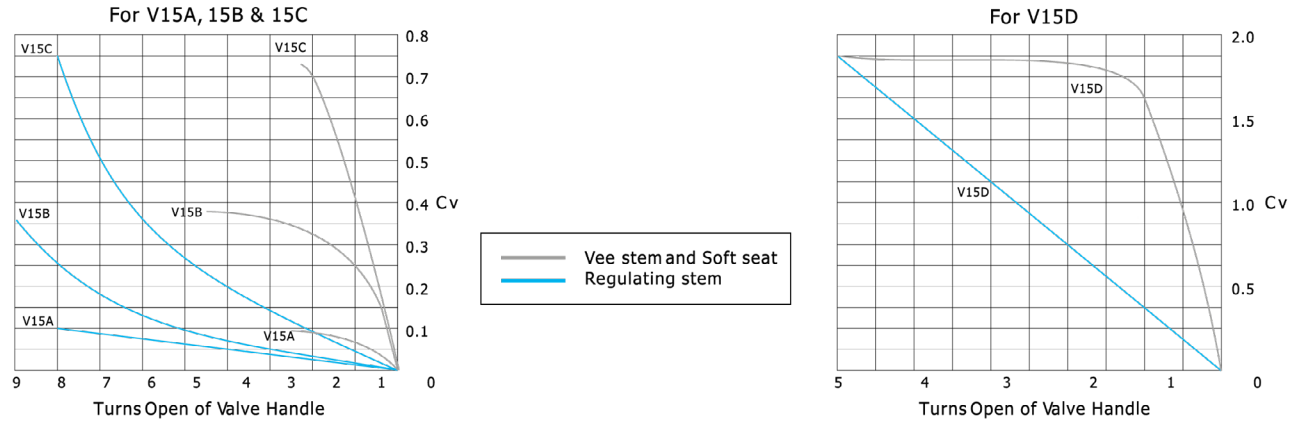
ASME Material Group		TABLE 2-2.2		N/A		TABLE 2-3.4	
Material Name		SS316		Brass		Alloy 400	
ASME Class Rating		2,080		N/A		1,500	
Temperature @ pressure		psig	bar	psig	bar	psig	bar
-65°F (-54°C) to	100°F (38°C)	5,000	345	3,000	207	3,000	207
	200°F (93°C)	4,293	296	2,353	162	2,640	182
	300°F (148°C)	3,877	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 **-PK** **-BH** **-S**

V15B-F-2N **-A** **-R** **-S**

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 coutinuing 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.

The information shown in this catalog are not for design purpose, but for reference only.
The accuracy of information is not the liability of our company.

Safe Component Selection

The Selection of component for any applications or system design must be considered to ensure safe performance Component function, material compatibility, component ratings, 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.

DK-LOK

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IDK-LOK

V16, VH16 Series

Rev. 01-01
Aug. 2023

DK-LOK®
Needle Valves

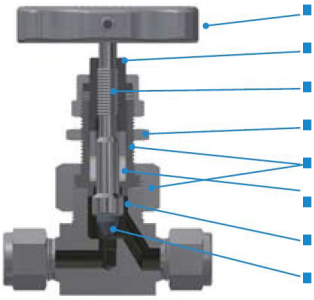
V16/VH16 Series Severe Service Union Bonnet Valves

Rev.01-01
Aug.2023

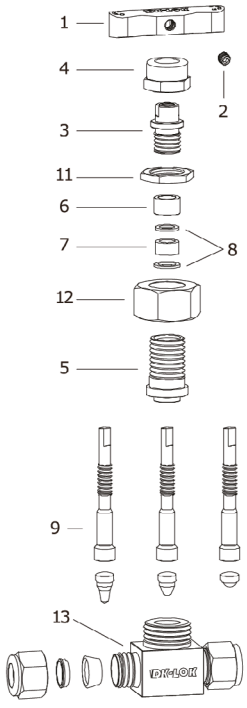
Pressure Rating up to 10,000 psig (689 bar)

Features

- Pressure up to 10,000 psig (689 bar) @ 100°F (38°C).
- Temperature Rating up to 449°F (232°C) with standard PTFE packing; up to 1,200°F (648°C) with Grafoil packing.
- Standard 316 stainless steel, optional Alloy 400, 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 disc and stem packing below the threads design.



- **Handle-** Standard Stainless Steel formed handle, optional aluminum bar handle.
- **External Packing Bolt-** allows packing adjustment without the valve disassembly.
- **Roll threaded and hard chrome plated stem-** is for long valve life.
- **Panel Mounting Nut-** is standard and permits valve to panel or actuator.
- **Union Nut-** prevents accidental disassembly of the valve in service.
- **Stem Packing below the threads-** prevents media contamination and thread lubricant washout.
- **Stem Back Seating-** in fully open position.
- **Non-Rotating Stem Disc at Closure-** is for maximum metal seat life and positive seal.



Materials of Construction

Component	Valve Body Materials		
	SS316	Alloy 400	Alloy C276
	Material Grade/ASTM Specification		
1. Bar handle	Stainless Steel for V16, SS316 / A276 for VH16, optional anodized aluminum handle		
2. Set screw	SS304		
3. Packing bolt	SS316 / A276 or A479		
4. Cap nut	SS316 / A276 or A479		
5. Bonnet	SS316 / A276 or A479	Alloy 400/B164	C276/B574
6. Gland	SS316 / A276 or A479	Alloy 400/B164	C276/B574
7. Packing(2)	PTFE/D1710, optional PEEK & Grafoil		
8. Packing supports (2)	SS316 / A276 or A479	Alloy 400/B164	C276/B574
9. Stem	Hard Chrome-plated SS316 / A276 or A479	Alloy 400/B164	C276/B574
10. Standard globe disc, optional globe ball & regulating disc.	TYPE630/A564	Alloy 400/B164	C276/B574
11. Panel nut	SS316		
12. Union nut	SS316 / A276 or A479		
13. Body	SS316 / A276 or A479	Alloy 400/B164	C276/B574

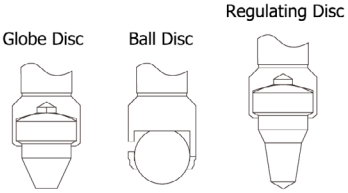
Wetted parts and lubricants are listed in blue.

Lubrication : • Nickel anti-seize lubricant (hydrocarbon carrier).
• Ball disc: hydrocarbon-based.

Technical Data

Ratings below are for valves with standard PTFE packing. Refer to valve ratings with optional packing on Page 4.

Valve Material	Stem Disc Designator	Temperature Range °F (°C)	Pressure Rating @ -65 to 100°F (-53 to 38°C)
SS316 Alloy 400 Alloy C276	Globe: Nil. Regulating: -R Ball: -B	-65 to 450 (-53 to 232)	10,000 psig (689 bar)

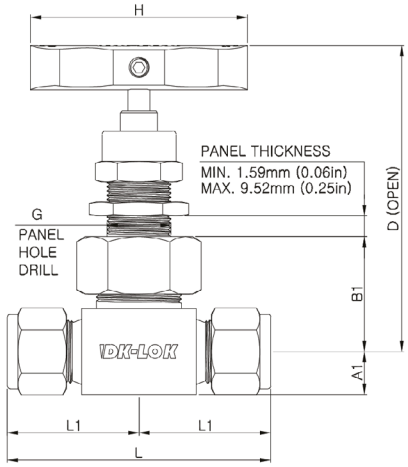


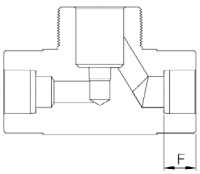
Factory Test and Cleaning

Every valve is tested with the nitrogen gas @ 1,000 psig (68.9 bar) for leakage at the seat to a maximum allowable leak rate of 0.1 SCCM. The packing is tested for no detectable leakage. Optional hydrostatic shell test with additional cost is performed with pure water at 1.5 times the working pressure. Every valve is cleaned and packaged in accordance with DK-Lok cleaning standard DC-01.

All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

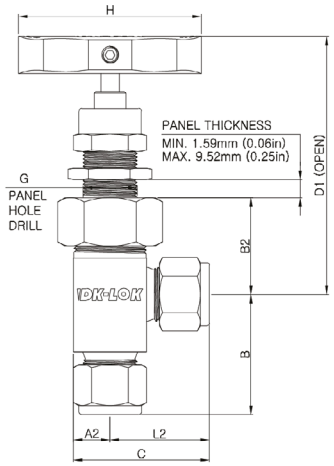
■ In-line pattern





■ Socket weld end

■ Angle pattern



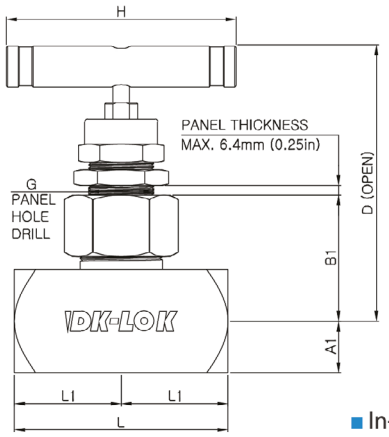
Basic Ordering Number		End Connections Inlet	End Connections Outlet	Orifice mm(in.)	Cv	Dimensions, mm(inch) L	L1	L2	B	C	B1	B2	A1	A2	H	G	D	D1	F
V16A-	F2N-	1/8 Female NPT		4.0 (0.156)	0.35	50.8(2.00)	25.4(1.00)	22.6(0.89)	25.4(1.00)	32.3(1.27)	27.7(1.09)	27.7(1.09)	9.7(0.38)	9.7(0.38)	45.0(1.77)	15.1(19/32)	77.2(3.04)	77.2(3.04)	-
	F4N-	1/4 Female NPT				52.3(2.06)	26.2(1.03)	22.6(0.89)	25.4(1.00)	32.3(1.27)	27.7(1.09)	27.7(1.09)	9.7(0.39)	9.7(0.38)	45.0(1.77)	15.1(19/32)	77.2(3.04)	77.2(3.04)	-
	M4N-	1/4 Male NPT				50.8(2.00)	25.4(1.00)	25.4(1.00)	25.4(1.00)	35.1(1.38)	27.7(1.09)	27.7(1.09)	9.7(0.38)	9.7(0.38)	45.0(1.77)	15.1(19/32)	77.2(3.04)	77.2(3.04)	-
	MF4N-	1/4 Male to Female NPT				51.6(2.03)	26.2(1.03)	22.6(0.89)	25.4(1,00)	32.3(1.27)	27.7(1.09)	27.7(1.09)	9.7(0.39)	9.7(0.38)	45.0(1.77)	15.1(19/32)	77.2(3.04)	77.2(3.04)	-
	D6M-	6mm DK-Lok				61.0(2.40)	30.5(1.20)	29.5(1.16)	37.6(1.48)	39.1(1.54)	27.7(1.09)	27.7(1.09)	9.7(0.38)	9.7(0.38)	45.0(1.77)	15.1(19/32)	77.2(3.04)	77.2(3.04)	-
	D4T-	1/4 DK-Lok				61.0(2.40)	30.5(1.20)	29.5(1.16)	37.6(1.48)	39.1(1.54)	27.7(1.09)	27.7(1.09)	9.7(0.38)	9.7(0.38)	45.0(1.77)	15.1(19/32)	77.2(3.04)	77.2(3.04)	-
	SW4T-	1/4 TSW				46.2(1.82)	23.1(0.91)	22.4(0.88)	30.2(1.19)	31.8(1.25)	27.7(1.09)	27.7(1.09)	9.7(0.38)	9.7(0.38)	45.0(1.77)	15.1(19/32)	77.2(3.04)	77.2(3.04)	7.1(0.28)
	D8M-	8mm DK-Lok				61.0(2.40)	30.5(1.20)	-	-	-	27.7(1.09)	-	9.7(0.38)	-	45.0(1.77)	15.1(19/32)	77.2(3.04)	-	-
V16B-	F4N-	1/4 Female NPT		6.4 (0.25)	0.86	57.2(2.25)	28.4(1.12)	25.4(1.00)	28.4(1.12)	38.1(1.50)	34.0(1.34)	37.3(1.47)	12.7(0.50)	12.7(0.50)	64.0(2.52)	19.8(25/32)	92(3.62)	92(3.62)	-
	F6N-	3/8 Female NPT				57.2(2.25)	28.4(1.12)	25.4(1.00)	28.4(1.12)	38.1(1.50)	34.0(1.34)	37.3(1.47)	12.7(0.50)	12.7(0.50)	64.0(2.52)	19.8(25/32)	92(3.62)	92(3.62)	-
	D10M-	10mm DK-Lok				72.4(2.85)	36.1(1.42)	33.0(1.30)	39.4(1.55)	45.7(1.80)	34.0(1.34)	34.3(1.35)	12.7(0.50)	12.7(0.50)	64.0(2.52)	19.8(25/32)	92(3.62)	92(3.62)	-
	D6T-	3/8 DK-Lok				71.9(2.83)	35.8(1.41)	32.8(1.29)	42.2(1.66)	45.5(1.79)	34.0(1.34)	31.0(1.22)	12.7(0.50)	12.7(0.50)	64.0(2.52)	19.8(25/32)	92(3.62)	92(3.62)	-
	D12M-	12mm DK-Lok				77.2(3.04)	38.6(1.52)	35.6(1.40)	41.9(1.65)	48.3(1.90)	34.0(1.34)	34.0(1.34)	12.7(0.50)	12.7(0.50)	64.0(2.52)	19.8(25/32)	92(3.62)	92(3.62)	-
	D8T-	1/2 DK-Lok				77.2(3.04)	38.6(1.52)	35.6(1.40)	41.9(1.65)	48.3(1.90)	34.0(1.34)	34.0(1.34)	12.7(0.50)	12.7(0.50)	64.0(2.52)	19.8(25/32)	92(3.62)	92(3.62)	-
	SW4P-	1/4 PSW				57.2(2.25)	28.4(1.12)	25.4(1.00)	28.4(1.12)	38.1(1.50)	34.0(1.34)	37.3(1.47)	12.7(0.50)	12.7(0.50)	64.0(2.52)	19.8(25/32)	92(3.62)	92(3.62)	9.5(0.37)
	SW6T-	3/8 TSW				57.2(2.25)	28.4(1.12)	25.4(1.00)	31.8(1.25)	38.1(1.50)	34.0(1.34)	34.0(1.34)	12.7(0.50)	12.7(0.50)	64.0(2.52)	19.8(25/32)	92(3.62)	92(3.62)	7.9(0.31)
	SW8T-	1/2 TSW				57.2(2.25)	28.4(1.12)	25.4(1.00)	25.4(1.00)	38.1(1.50)	34.0(1.34)	35.6(1.40)	12.7(0.50)	12.7(0.50)	64.0(2.52)	19.8(25/32)	92(3.62)	92(3.62)	9.5(0.37)
V16C-	F8N-	1/2 Female NPT		11.1 (0.437)	2.20	79.2(3.12)	39.6(1.56)	33.3(1.31)	39.6(1.56)	50.8(2.00)	46.2(1.82)	50.8(2.00)	15.7(0.62)	17.5(0.69)	90.0(3.54)	26.2(1-1/32)	121(4.78)	126(4.97)	-
	F12N-	3/4 Female NPT				82.6(3.25)	41.1(1.62)	-	-	-	48.5(1.91)	-	19.8(0.78)	-	90.0(3.54)	26.2(1-1/32)	124(4.88)	-	-
	F16N-	1" Female NPT				91.9(3.62)	46.0(1.81)	-	-	-	54.1(2.13)	-	25.4(1.00)	--	90.0(3.54)	26.2(1-1/32)	129(5.10)	-	-
	MF8N-	1/2 Male to Female NPT				79.2(3.12)	39.6(1.56)	33.3(1.31)	39.6(1.56)	50.8(2.00)	46.2(1.82)	50.8(2.00)	15.7(0.62)	17.5(0.69)	90.0(3.54)	26.2(1-1/32)	121(4.78)	126(4.97)	-
	MF12N-	3/4 Male to Female NPT				82.6(3.25)	41.1(1.62)	36.5(1.43)	41.3(1.62)	56.4(2.22)	48.5(1.91)	50.8(2.00)	19.8(0.78)	19.8(0.78)	90.0(3.54)	26.2(1-1/32)	124(4.88)	126(4.97)	-
	MF16N-	1" Male to Female NPT				91.9(3.62)	46.0(1.81)	-	-	-	54.1(2.13)	-	25.4(1.00)	-	90.0(3.54)	26.2(1-1/32)	129(5.10)	-	-
	D12M-	DK-Lok 12mm				99.6(3.92)	49.8(1.96)	42.7(1.68)	52.8(2.08)	60.2(2.37)	46.2(1.82)	47.3(1.88)	15.7(0.62)	17.5(0.69)	90.0(3.54)	26.2(1-1/32)	121(4.78)	123(4.85)	-
	D8T-	1/2 DK-Lok				99.6(3.92)	49.8(1.96)	42.7(1.68)	52.8(2.08)	60.2(2.37)	46.2(1.82)	47.3(1.88)	15.7(0.62)	17.5(0.69)	90.0(3.54)	26.2(1-1/32)	121(4.78)	123(4.85)	-
	D12T-	3/4 DK-Lok				99.0(3.89)	49.5(1.94)	42.7(1.68)	52.8(2.08)	60.2(2.37)	46.2(1.82)	47.3(1.88)	15.7(0.62)	17.5(0.69)	90.0(3.54)	26.2(1-1/32)	121(4.78)	123(4.85)	-
	D16T-	1 DK-Lok				104(4.09)	51.8(2.04)	-	-	-	47.3(1.88)	-	17.5(0.69)	-	90.0(3.54)	26.2(1-1/32)	123(4.85)	-	-
	SW8P-	1/2 PSW				79.2(3.12)	39.6(1.56)	33.3(1.31)	39.6(1.56)	50.8(2.00)	47.3(1.88)	50.8(2.00)	17.5(0.69)	17.5(0.69)	90.0(3.54)	26.2(1-1/32)	123(4.85)	126(4.97)	9.5(0.37)
	SW8T-	1/2 TSW				79.2(3.12)	39.6(1.56)	33.3(1.31)	42.9(1.69)	50.8(2.00)	46.2(1.82)	47.3(1.88)	15.7(0.62)	17.5(0.69)	90.0(3.54)	26.2(1-1/32)	121(4.78)	123(4.85)	9.5(0.37)
	SW12T-	3/4 TSW				79.2(3.12)	39.6(1.56)	-	-	-	46.2(1.82)	-	15.7(0.62)	-	90.0(3.54)	26.2(1-1/32)	121(4.78)	-	11.2(0.44)

All dimensions shown are for reference only and are subject to change. Dimensions with DK-Lok nuts are in finger-tight position.

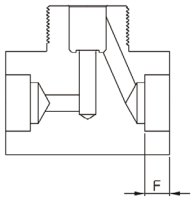
- Non-rotating globe disc providing repetitive leak tight shut-off is standard.
- To order Angle Pattern, insert -A in the basic ordering number. Refer to the ordering information on page 4.

Ordering Information

VH16 Series (High Pressure)



■ In-line pattern



■ Socket weld end

Basic Ordering Number		End Connections		Orifice mm(in.)	Cv	Dimensions, mm(inch)							
		Inlet	Outlet			L	L1	B1	A1	H	G	D	F
VH16A-	F2N-	1/8 Female NPT		4.0 (0.156)	0.35	57.2(2.25)	28.7(1.13)	34.0(1.34)	12.7(0.50)	63.5(2.50)	20.6(0.81)	77.2(3.04)	-
	F4N-	1/4 Female NPT				57.2(2.25)	28.7(1.13)	34.0(1.34)	12.7(0.50)	63.5(2.50)	20.6(0.81)	77.2(3.04)	-
	M4N-	1/4 Male NPT				57.2(2.25)	28.7(1.13)	34.0(1.34)	12.7(0.50)	63.5(2.50)	20.6(0.81)	77.2(3.04)	-
	MF4N-	1/4 Male to Female NPT				57.2(2.25)	28.7(1.13)	34.0(1.34)	12.7(0.50)	63.5(2.50)	20.6(0.81)	77.2(3.04)	-
	D4T-	1/4 DK-Lok				71.6(2.82)	35.8(1.41)	34.0(1.34)	127(0.50)	63.5(2.50)	20.6(0.81)	77.2(3.04)	-
	SW4T-	1/4 TSW				57.2(2.25)	28.7(1.13)	34.0(1.34)	12.7(0.50)	63.5(2.50)	20.6(0.81)	77.2(3.04)	7.1(0.28)
VH16B-	F4N-	1/4 Female NPT		6.4 (0.25)	0.86	79.5(3.13)	39.6(1.56)	46.0(1.81)	16.0(0.63)	88.9(3.50)	26.9(1.06)	108(4.27)	-
	F8N-	1/2 Female NPT				82.6(3.25)	41.4(1.63)	48.2(1.90)	19.8(0.78)	88.9(3.50)	26.9(1.06)	111(4.36)	-
	M8N-	1/2 Male NPT				79.5(3.13)	39.6(1.56)	46.0(1.81)	16.0(0.63)	88.9(3.50)	26.9(1.06)	108(4.27)	-
	MF8N-	1/2 Male to Female NPT				82.6(3.25)	41.4(1.63)	48.2(1.90)	19.8(0.78)	88.9(3.50)	26.9(1.06)	111(4.36)	-

All dimensions shown are for reference only and are subject to change. Dimensions with DK-Lok nuts are in finger-tight position.

- Non-rotating globe disc providing repetitive leak tight shut-off is standard.
- To order Angle Pattern, insert -A in the basic ordering number. Refer to the ordering information on page 4.

Pressure-Temperature Ratings

Ratings are based on valves with optional Grafoil packing.

V16 Series

ASME Class	2500		N/A
Material Group	2.2	3.4	N/A
Material Name	SS316	Alloy 400	Alloy C-276
Temperature, °F (°C)	Working Pressure, psig (bar)		
-65 (-53) to 100 (38)	6000 (413)	5000 (344)	6000 (413)
200 (93)	5160 (355)	4400 (303)	6000 (413)
300 (148)	4660 (321)	4120 (283)	6000 (413)
400 (204)	4280 (294)	3980 (274)	5880 (405)
500 (260)	3980 (274)	3960 (272)	5540 (381)
600 (315)	3760 (259)	-	5040 (347)
700 (371)	3600 (248)	-	4730 (325)
800 (426)	3460 (238)	-	4230 (291)
900 (482)	3280 (225)	-	3745 (258)
1000 (537)	3030 (208)	-	3030 (208)
1100 (593)	2685 (184)	-	2685 (184)
1200 (648)	1715 (118)	-	1545 (106)

VH16 Series (High Pressure)

ASME Class	N/A
Material Group	N/A
Material Name	SS316
Temperature, °F (°C)	Working Pressure, psig (bar)
-65 (-53) to 100 (38)	10000(689)
200 (93)	9290 (640)
300 (148)	8390 (578)
400 (204)	7705 (530)
500 (260)	7165 (493)
600 (315)	6770 (466)
700 (371)	6480 (446)
800 (426)	6230 (429)
900 (482)	5905 (406)
1000 (537)	5450 (375)
1100 (593)	4835 (333)
1200 (648)	3085 (212)

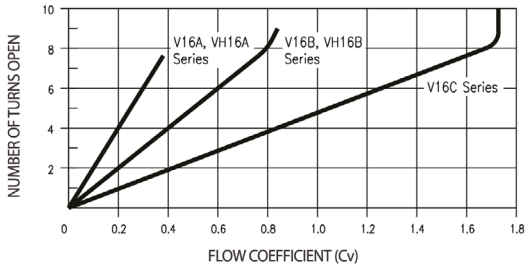
Grafoil packing information
Grafoil is a high temperature packing material that requires a load on the material to generate a seal. In air, Grafoil maximum temperature is 973°F (523°C), in steam, Grafoil goes up to the maximum temperature of 1,200°F (648°C). Grafoil packing is not for use with pneumatic actuating valves.

Valve ratings with DK-Lok end connections
Valve ratings may be limited to the maximum working pressure of connective pipe and tubing. For valve rating with DK-Lok tube fitting end connections, refer to DK-Lok catalog providing suggested working pressures in various tubing OD, wall thicknesses, and materials.

Packing adjustment and actuation torque
Extreme temperature fluctuations 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.

Valve ratings with optional PEEK packing
SS316 and C276 valve with PEEK packing is limited to maximum 600 °F (315 °C) rating; Alloy 400 valve with PEEK packing is limited to maximum 500 °F (260 °C) rating.

Flow Data @ 100°F (38°C) for valves with regulating disc



Globe and Ball Disc
Valve with standard globe and ball disc is designed for use in a fully open or fully closed position.
Refer to Cv in the ordering information and dimensions table on Page 2.

Cv reduction
Valve flow may be reduced by the restriction of pipe and tubing connected.

Sour Gas Valves

Valves for use in sour gas are available. Valve wetted components are selected to the requirements of NACE MR0175 for sulfide stress cracking resistant materials. To order, insert -SG in the basic ordering number.

Optional Handles

SS316 bar handle is standard. Optional anodized black aluminum bar handle is available.
To order valve with factory-assembled optional aluminum handle, insert designator -AH in the ordering number.
To order handle for field assembly, select desired handle ordering number from the table.

Valve Series	Field Assembly Bar Handle	
	SS316	Aluminum
V16A	V16A-BH	V16A-AH
V16B	V16B-BH	V16B-AH
V16C	V16C-BH	V16C-AH

Ordering Information

Select the desired valve basic ordering number, options and body material.
Regulating stem disc is standard for VH16 series.
Optional ball stem disc stem is available.
To order, insert designator -R or -B in the ordering number.

V16B-D-6T-	**A**	**-PK**	**-B**			**-BD**	
V16C-MF-12N-		**GF**		**-AH**	**-SG**		**-S**
VH16B-F-8N-	Valve Pattern Designator	Packing Material Designator	Stem Disc Designator	Handle Designator	Sour Gas Designator	Pneumatic Actuator Designator	Valve Material Designator
	Nil : In-line **A** : Angle	**Nil** : PTFE **PK** : PEEK **GF** : Grafoil*	**Nil** : Globe **R** : Regulating **B** : Ball	**Nil** : Stainless Steel Formed handle for V16, SS316 bar handle for VH16 **AH**: Aluminum bar handle for V16	**Nil** : no Sour Gas **SG** : Sour Gas	Refer to the actuator ordering information on page 6	**S** : SS316 **M** : Alloy 400 **HC** : Alloy C276

*Grafoil TM UCAR

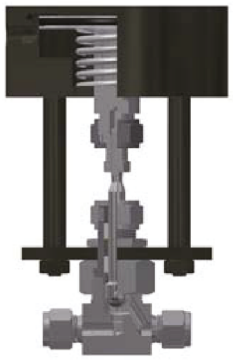
We reserve the right to change the specifications stated in this catalog for our coutinuing program of valve improvement.

Pneumatic Actuators

V16 series Pneumatic actuators are designed to actuate valves remotely.
V16A and V16B series are available to be equipped with pneumatic actuators in normally closed, normally open, and double-acting models.

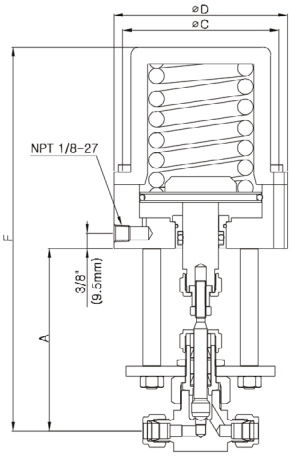
Normally Closed Actuators

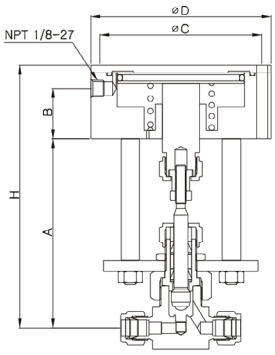
Normally Open Actuators

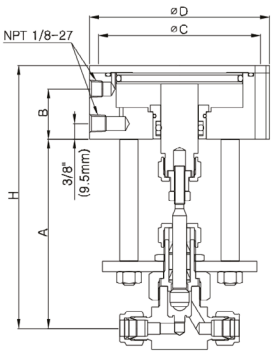


Double-Acting Actuators

Dimensions







Valve Series	Dimensions in.(mm)					
	A	H	⌀D	⌀C	B	F
V16A	107 (4.22)	150 (5.91)	95.3 (3.75)	82.6 (3.25)	28.4 (1.12)	215 (8.47)
V16B	114 (4.47)	158 (6.22)	108 (4.25)	96.8 (3.81)	30.2 (1.19)	239 (9.41)

All dimensions are reference only and subject to change.

Actuator Technical Data Pressure-Temperature Ratings

Normally closed	Normally open and double acting
150 psig (10.3 bar) -20 to 300°F (-28 to 148°C)	150 psig (10.3 bar) -20 to 400°F (-28 to 204°C)

Pneumatic Actuator Applicability

V16A and V16B series valves with PTFE or PEEK packing are applicable to pneumatic actuator. Those valves with Grafoil packing are not applicable to pneumatic actuator.

Operation Information

Curve 1 - 6 indicate the minimum actuator pressure to open or close pneumatic actuators against system pressure.
To prolong valve life, actuators should be operated at minimum air actuator pressures.
Curves shown are based on packing bolt factory adjustment.
Packing bolt adjustment may be required to maintain the valve leak-tight.
If the packing bolt is over-tightened, the actuating pressure can not overcome the friction force between the over-tightened packing and the stem
If the packing bolt is under-tightened for low system pressures, it may leak at high system pressures.
However, packing bolt torque must be sufficiently maintained to prevent packing from leakage.

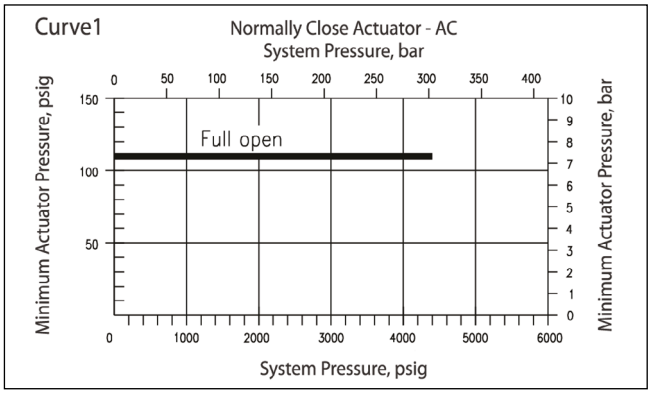
Normally Closed Actuators

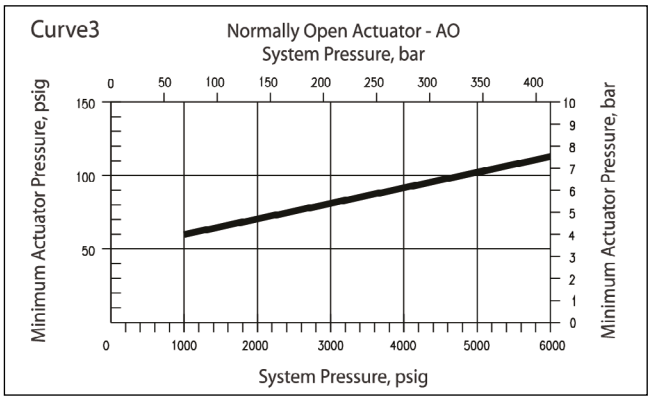
Adjusting the actuator stem drive nut affects the actuator inside the spring force.
This will also have implications for other actuator components sequentially.

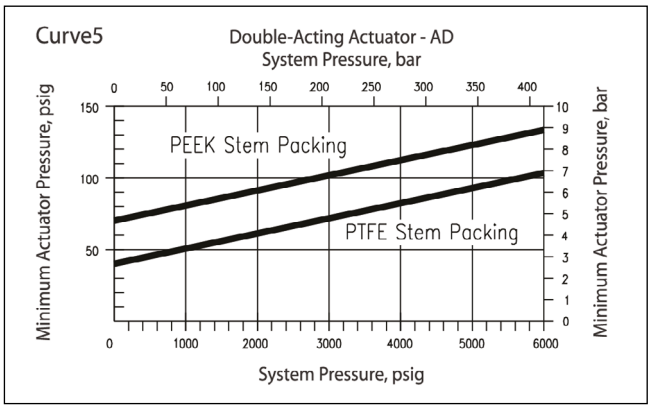
Normally Open Actuators

The stem orifice opens beyond the first open position depends on system pressure, flow characteristics of the fluid and valve packing nut adjustment.

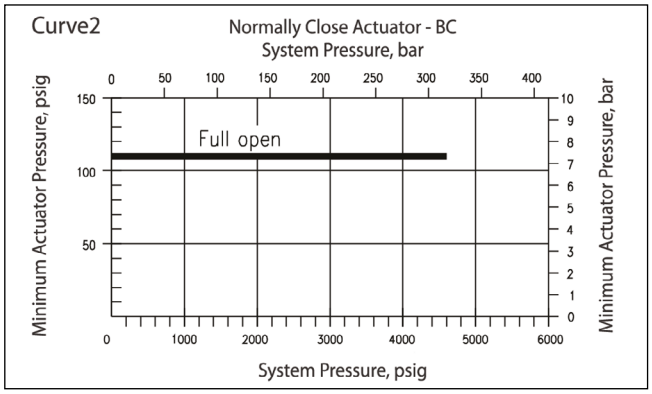
V16A Series

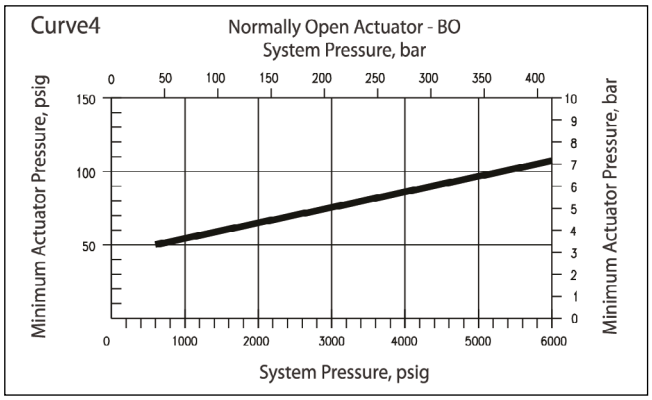


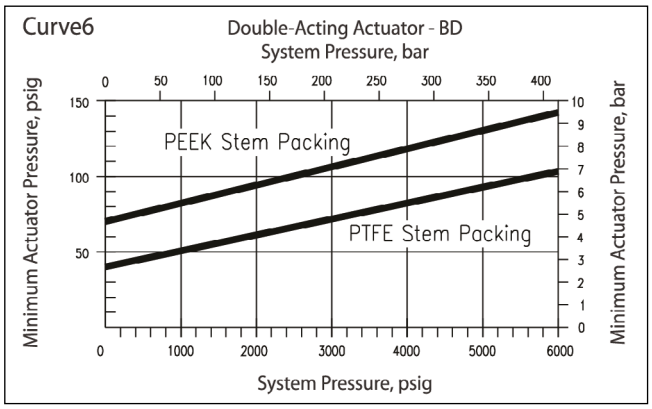




V16B Series







Actuator Ordering Information

To order valves with a pneumatic double acting actuator, insert the desired actuator designator from the chart in the valve ordering number.
Example: V16B-D6T-PK-B-**BD**-S

Valve Series	Pneumatic Actuator Designator		
	Normally Closed	Normally Open	Double Acting
V16A	AC	AO	AD
V16B	BC	BO	BD

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.

The information shown in this catalog are not for design purpose, but for reference only.
The accuracy of information is not the liability of our company.

Safe Component Selection

The Selection of component for any applications or system design must be considered to ensure safe performance Component function, material compatibility, component ratings, 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.

DK-LOK

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IDK-LOK

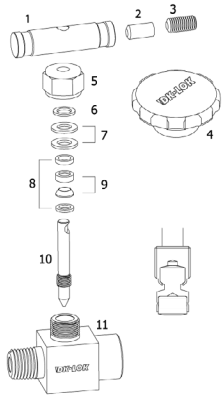
VB16-V46A Needle Valves

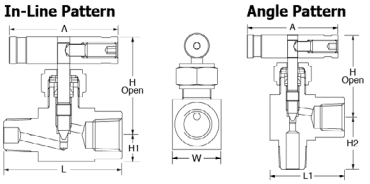
Rev. 01-01
Aug. 2023

VB16 Series Integral Bonnet Needle Valves

Rev.01-01
Aug.2023

Pressure Rating up to 6,000 psig





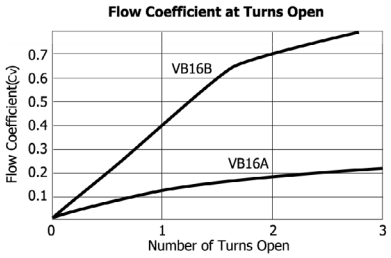
Features

Two-piece chevron PFA stem packing design with compensating spring packing.

- improves sealing integrity.
- high pressure valve but with compact design.

Flow Data

Cv are measured at the valve. Therefore restrictions at end connections may reduce flow.



Materials of Construction

	Components	Material Grade
1	Bar Handle	SS316/ASTM A276
2	Position Pin	
3	Set Screw	Grade B8 TYPE 304/A193
4	Optional Round Handle	Nylon with brass insert
5	Cap Nut	SS316/ASTM A276
6	Gland	
7	Spring Packing (2)	S17700/A693
8	Upper / Lower Gland (2)	SS316/ASTM A276
9	Chevron Packing (2)	PFA/D3307
10	Standard Vee Stem	SS316/ASTM A276
10.1	Optional Soft Stem	Kel-F (PCTFE)
11	Body	SS316/ASTM A276

Pressure-Temperature Ratings

Temperature rating of VB16A & B series with nonrotating Kel-F soft seat -65 to 200 °F (-53 to 93 °C), Vee stem metal seat -65 to 450 °F (-53 to 232 °C).
Non-rotating soft sear for repetitive shut-off on gas

ASME Class	2500
Material Group	2.2
Material	SS316
Temperature °F (°C)	Working Pressure, psig (bar)
-65 to 100 (-53 to 37)	6000 (413)
200 (93)	5160 (355)
250 (121)	4910 (338)
300 (148)	4660 (321)

Ordering Information and Dimensions

Ordering Number		End Connection		Dimensions, mm(in.) Orifice/Cv	H	H1	H2	L	L1	A	W
VB16A-	D4T-S	1/4 in. DK-Lok		3.2 (0.125) Cv 0.21	43.1 (1.69)	10.7 (0.42)	29.5 (1.16)	62.5 (2.46)	39.9 (1.57)	44.5 (1.75)	21.6 (0.85)
	F4N-S	1/4 in. Female NPT				10.7 (0.42)	25.4 (1.00)	47.8 (1.88)	36.6 (1.44)		
	M4N-S	1/4 in. Male NPT					-	49.3 (1.94)	-	*36.0 (1.42)	
	MF4N-S	1/4 in. Male	1/4 in. Female				26.2 (1.03)	48.5 (1.91)	36.6 (1.44)		
VB16B-	D6T-S	3/8 in. DK-Lok		6.4 (0.25) Cv 0.73	58.0 (2.28)	16.8 (0.66)	-	78.2 (3.08)	-	64.0 (2.52)	32.0 (1.26)
	D8T-S	1/2 in. DK-Lok					-	83.8 (3.30)	-		
	F6N-S	3/8 in. Female NPT					-	63.5 (2.50)	-		
	F8N-S	1/2 in. Female NPT					35.8 (1.41)		52.3 (2.06)	*50.0 (1.97)	
	MF6N-S	3/8 in. Male NPT	3/8 in. Female NPT				31.0 (1.22)				
	MF8N-S	1/2 in. Male NPT	1/2 in. Female NPT				35.8 (1.41)				
	MF12N8N-S	3/4 in. Male NPT	1/2 in. Female NPT				-		-		

Angle Pattern : Valves with L1 dimension available for Angle Pattern. * Round handle diameter.
To order a valve with soft stem, insert -K in the ordering number. i.e., VB16A-D4T-K-S

Factory Test

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

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.

All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

DK-LOK®
DK-Lok Tube Fittings

V46A series Hex. Body Needle Valves

Rev.01-01
Aug.2023

Pressure rating up to 10,000 psig

Features

- **Packing bolt** permits packing adjustment externally.
- **Chevron PTFE packing** design provides far improved sealing integrity.
- **Packing** below stem threads is to isolate **threads** from system fluid and lubricant washout.
- **Non-rotating** stem tip at closure for long-life and leak-tight shutoff.
- **Lock plate** ensures the valve fastened to the body.
- **NACE** MR0175/ISO 15156-3 applicable

Pressure-Temperature Ratings

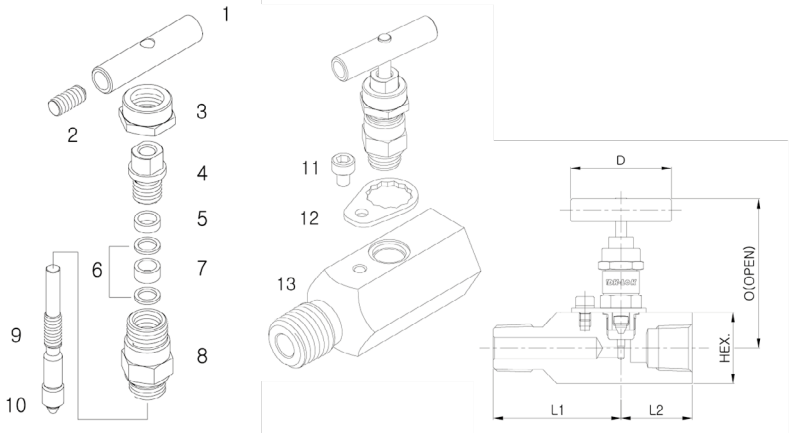
Body Material	Packing material	Temperature Rating	Pressure Rating @ 38 °C (100 °F)	Pressure Rating @ Max. Temp.
Stainless steel	PTFE	- 54 to 232 °C (-65 to 450 °F)	689 bar (10,000 psig)	285 bar @ 232 °C 4,130 psig @ 450 °F
	Grafoil	-54 to 648 °C (-65 to 1,200 °F)		118 bar @ 648 °C 1,715 psig @ 1,200 °F
Carbon steel	PTFE	- 29 to 176 °C (-20 to 350 °F)	689 bar (10,000 psig)	360 bar @ 176 °C (5,230 psig @ 350 °F)
	Grafoil	- 29 to 176 °C (-20 to 350 °F)		

Materials of Construction

Component	Valve Body Materials	
	Stainless steel	Carbon steel
	Grade/ASTM specification	
1. Handle	Stainless steel	Carbon steel
2. Set screw	SS316/A276 or A479	Carbon steel
3. Cap nut		C.Steel/JIS G4051
4. Packing bolt		
5. Gland		SS316/A276 or A479
6. Packing supports	Standard chevron PTFE packing. Optional Grafoil.	
7. Packing	SS316/A276 or A479	SS316/A276 or A479
8. Bonnet		C.Steel/JIS G4051
9. Stem		SS316/A276 or A479
10. stem disc	SS630/A564	
11. Lock bolt	Stainless steel	
12. Lock plate		
13. Body	SS316/A276 or A479	C.Steel/ JIS G4051, White zinc galvanized.

Wetted components listed in blue.

Grafoil : TM UCAR



Ordering Information and Dimensions

Basic Ordering No.		End Connection		Orifice in. (mm)	Cv	Dimensions, in.(mm)					
		Inlet	Outlet			L	L1	L2	Hex	D	O
V46A-	D-4T-	1/4 DK-Lok		0.126 (3.2)	0.37	3.21 (81.5)	1.59 (40.4)	1.62 (41.1)	1.25 (31.75)	1.77 (45)	2.64 (67.2)
	D-6T-	3/8 DK-Lok			0.64	3.33 (84.5)	1.65 (41.9)	1.68 (42.6)			
	D-8T-	1/2 DK-Lok			0.83	3.54 (90.0)	1.76 (44.7)	1.78 (45.3)			
	F-4N-	1/4 Female NPT			0.83	3.0 (76.2)	1.75 (44.4)	1.25 (31.8)			
	F-6N-	3/8 Female NPT									
	F-8N-	1/2 Female NPT									
	MF-8N-	1/2 Male NPT	1/2 Female NPT			3.5 (88.9)	2.25 (57.1)				
	MF-12N8N-	1/2 Male NPT	1/2 Female NPT				2.25 (57.1)				

Dimensions shown are for reference only and subject to change.

How to order

- To complete ordering number, add material designator **S** for stainless steel or **C** for carbon steel. Example V46A-F8N-**S**
- To order optional Grafoil packing, insert **GF** to the ordering number. Example V46A-F8N-**GF**-S
- To order NACE applicable valve, insert **SG** to the ordering number. Example V46A-F8N-GF-**SG**-S

Factory test, cleaning and packaging

- Every valve is factory tested with nitrogen @ 69 bar (1,000 psig) for leakage at the seat to a maximum allowable leak rate of 0.1 SCCM.
- Stem packing is tested for no detectable leakage.
- Every valve is cleaned and packaged in accordance with DK-Lok Corporation cleaning standard DC-01. Optional DC-11 cleaning for oxygen application is available on request.

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.

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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Safe Component Selection

The Selection of component for any applications or system design must be considered to ensure safe performance Component function, material compatibility, component ratings, 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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IDK-LOK

VEX110 Needle Valves

Rev. 01-01
Aug. 2023

DK-LOK®
Needle Valves

VEX110 Needle Valves

Rev.01-01
Aug.2023

Bar Stock Union Bonnet High Pressure Needle Valve
Maximum Working Pressure 10,000 psig (689 bar)

Features

- Premium multiple four (4) sealing mechanism.
- Unique pressure reacting sealing system eliminates the need of packing adjustment.
- Sealing cup swells up in system pressure for leak-tight operation.
- Backseat stem design prevents stem blowout.
- High precision machining provides low valve operating torque.
- Stem packing below the threads prevents thread lubricant washout and media contamination.

Temperature and Pressure Ratings

Valve Material	Optional Valve O-ring Designator	Standard Sealing Cup Material	Temp. Rating °C (°F)	Pressure Rating @ 38°C (100°F)
SS316	KZ*	PEEK	-30 ~ 250 (-22 ~ 482)	689 bar (10,000 psi)
	VT*		-30 ~ 204 (-22 ~ 399)	

*KZ: Kalrez (Perfluoroelastomer), TM Dupont
*VT: Viton (Vinylidene fluoride-based fluoroelastomer), TM Dupont

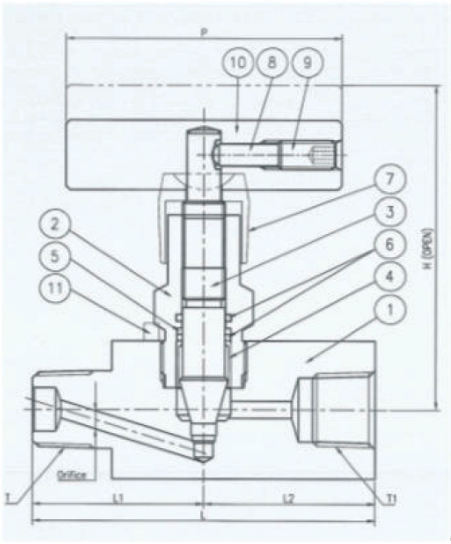
Material of Construction

#	Component	Material / ASTM
1	Body	S316/A479, A276
2	Bonnet	S316/A479, A276
3	Stem	S316/A479, A276
4	Sealing Cup	Standard Polyetheretherketon- PEEK
5	Packing	
6	Upper & Lower O-ring seal	Kalrez or Viton
7	Handle guide	Poly Oxy Methylene- Copolymer- POM C
8	Handle pin	S316/A479, A276
9	Set screw	
10	Bar Handle	
11	Bonnet Locking Pin	

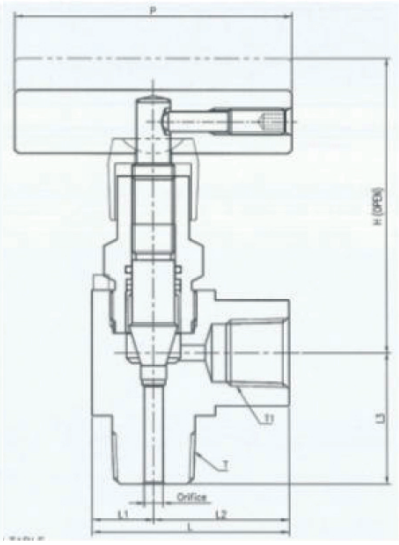
Lubrication : Molybdenum disulfide lubricant

Note: 1. Wetted components are marked in blue.
2. Sealing system is marked in Red.

In-line pattern



Angle pattern

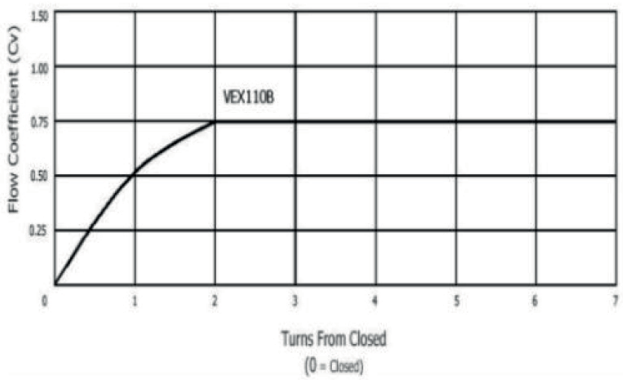


Ordering Information and Table of Dimensions

Basic Ordering Number		End Connections		Orifice mm (in.)	Cv	Dimensions, mm (inch)					
		Inlet	Outlet			L	L1	L2	L3	H	P
In-line pattern **VEX110B-**	MF-4N-*-S	1/4" Male NPT	1/4" Female NPT	4.76 (0.19)	0.75	88.9 (3.5)	44.45 (1.75)	44.45 (1.75)	-	90.0 (3.54)	71.5 (2.81)
	MF-6N-*-S	3/8" Male NPT	3/8" Female NPT								
	MF-8N-*-S	1/2" Male NPT	1/2" Female NPT								
Angle pattern **VEX110B-**	MF-4N-A-*-S	1/4" Male NPT	1/4" Female NPT			50.8 (2.0)	15.87 (0.62)	34.93 (1.38)	36.6 (1.44)	90.0 (3.54)	71.5 (2.81)
	MF-6N-A-*-S	3/8" Male NPT	3/8" Female NPT								
	MF-8N-A-*-S	1/2" Male NPT	1/2" Female NPT								

***Ordering information**
To order valve with Viton o-ring, insert the designator "**VT**"to the valve ordering number. Example: VEX110B-MF-4N-**VT**-S.
To order valve with Kalrez o-ring, insert the designator "**KZ**"to the valve ordering number. Example: VEX110B-MF-8N-A-**KZ**-S.

Flow Coefficient at Turns Open



Flow Data

Cv is measured at the valve.
Restrictions in end connections may reduce the flow.

Factory Test

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

Model Shown: Angle Pattern
VEX110B-MF-8N-A-VT-S

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Safe Component Selection

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VG16 Series

Rev. 01-01
Aug. 2023

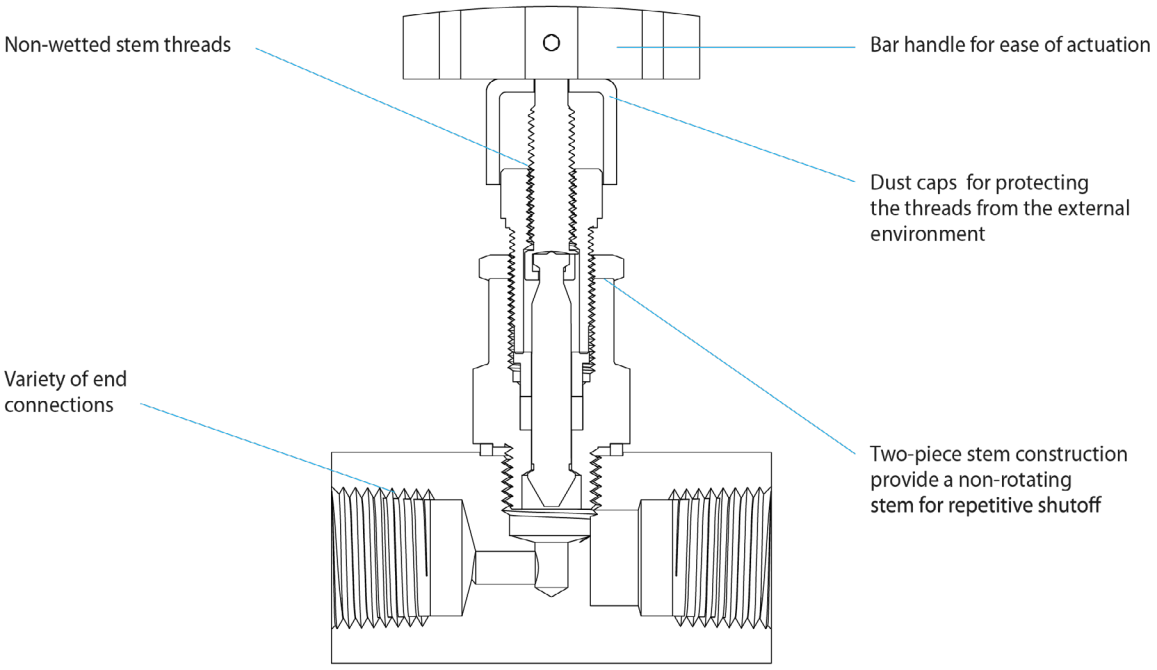
VG16 Series General Utility Service Needle Valves

Rev.01-01
Aug.2023

Pressure up to 6,000 psig (413 bar)

Features

- Compact and sturdy design.
- Sintered molded handle for the user of the handle operational convenience.
- Stainless steel spring pin in order to prevent the loosening of bonnet.
- The fluid is not in contact with the threaded stem.
- VG16 series Isolates and vents the system media in instrument air, nitrogen header, lube oil, and general utility service applications in the oil and gas, chemical, petrochemical, and other general industrial markets.

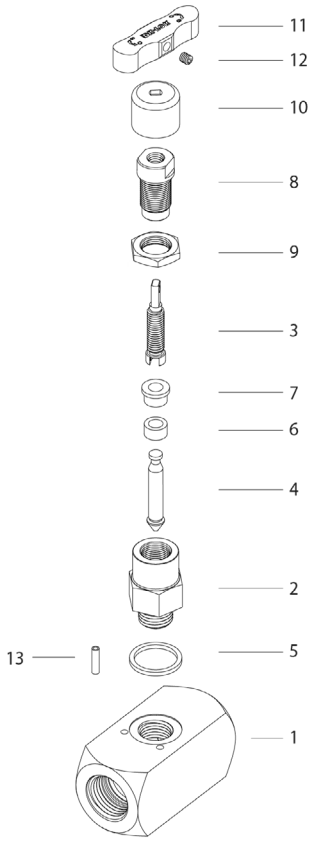


Design

- Straight and angle patterns.
- Standard PTFE packing, and optional Graphite packing for higher temperature service.
- Broad choices of end connections include reliable NPT & ISO Male & Female pipe threads.

All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

Material of Construction



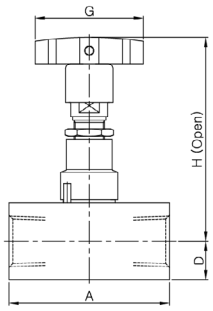
Component	Valve Body Materials	
	Stainless Steel	Carbon Steel
	Material Grade/ASTM Specification	
1. Body	SS316 / A276	Zinc plated carbon steel/AISI 1018
2. Bonnet	SS316 / A276	
3. Stem	SS316 / A276	
4. Stem disc	S17400 SS / A564 Condition H1150D	
5. Bonnet seal ring	SS316 / A276	
6. Packing	Carbon/glass-filled PTFE or graphite	
7. Gland	SS316 / A276	
8. Packing Bolt	SS316 / A276	
9. Lock nut	Stainless steel	
10. Cap	Stainless steel	
11. Handle	Stainless steel	
12. Set screw	Stainless steel	
13. Spring pin	Stainless steel	

* Wetted parts are listed in blue.

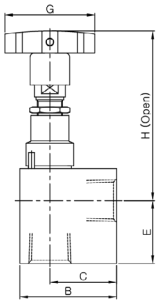
Pressure-Temperature Ratings

Temperature, °F(°C)	Packing Material	
	PTFE	Graphite
	Working Pressure, psig(bar)	
-20 (-28) to 0 (-17)	-	6000 (413)
0 (-17) to 100 (37)	6000 (413)	6000 (413)
200 (93)	5160 (355)	5160 (355)
300 (148)	4680 (322)	4680 (322)
400 (204)	4260 (293)	4260 (293)
450 (232)	4110 (283)	4110 (283)
500 (260)	-	3960 (272)
600 (315)	-	3780 (260)
650 (343)	-	3660 (252)

Ordering Information and Table of Dimensions



In-line pattern

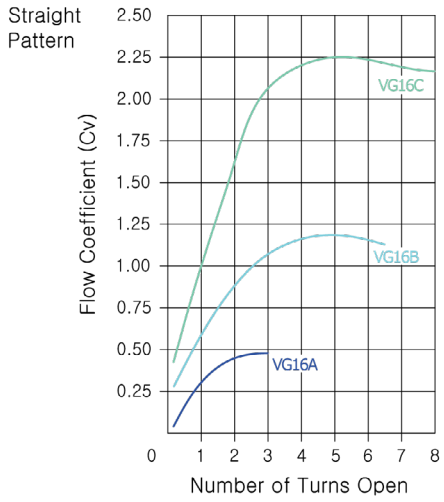


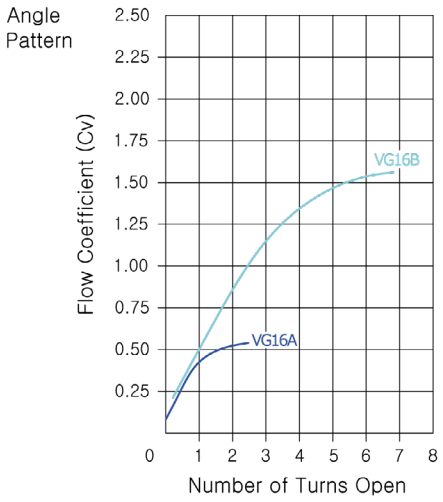
Angle pattern

Valve Basic Ordering Number		End Connections		Orifice mm(in.)	Cv	DIMENSION, mm(in.)						
		Inlet	Outlet			G	D	H	A	E	B	C
VG16A	F-4N	1/4" Female NPT		5.0(0.20)	0.45	45(1.77)	12.7(0.50)	81.2(3.20)	54.1(2.13)	-	-	-
	F-4N-A				0.55		-		-	21.6(0.85)	38.1(1.50)	25.4(1.00)
	F-6N	3/8" Female NPT			0.45		12.7(0.50)		57.2(2.25)	-	-	-
	F-6N-A				0.55		-		-	27.9(1.10)	44.5(1.75)	31.8(1.25)
	F-8N	1/2" Female NPT			0.45		16.0(0.63)	84.6(3.33)	66.8(2.63)	-	-	-
	F-8N-A				0.55		-		-	31.2(1.23)	51.0(2.00)	33.3(1.31)
	MF-4N	1/4" Male NPT	1/4" Female NPT		0.45		12.7(0.50)	81.2(3.20)	60.5(2.38)	-		
	MF-6N	3/8" Male NPT	3/8" Female NPT									
	MF-8N	1/2" Male NPT	1/2" Female NPT				16.0(0.63)	84.6(3.33)	70.0(2.76)			
	SW-4P	1/4" Pipe Socket weld					12.7(0.50)	81.2(3.20)	57.2(2.25)			
	SW-6P	3/8" Pipe Socket weld					16.0(0.63)	84.6(3.33)				
	SW-8P	1/2" Pipe Socket weld					19.1(0.75)	87.6(3.45)	63.5(2.50)			
	SW-4T	1/4" Tube Socket weld					12.7(0.50)	81.2(3.20)	50.8(2.00)			
	SW-6T	3/8" Tube Socket weld										
	SW-8T	1/2" Tube Socket weld							57.2(2.25)			
	SW-6M	6mm Tube Socket weld							60.5(2.38)			
	SW-8M	8mm Tube Socket weld							51.0(2.00)			
	SW-10M	10mm Tube Socket weld										
	SW-12M	12mm Tube Socket weld							57.2(2.25)			
VG16B	F-8N	1/2" Female NPT		8.0(0.31)	1.20	64(2.52)	16.0(0.63)	98.3(3.87)	70.0(2.76)	-	-	-
	F-8N-A	1/2" Female NPT			1.60		-		-	31.2(1.23)	51.0(2.00)	35.1(1.38)
	F-12N	3/4" Female NPT			1.20		19.1(0.75)	101(3.98)	76.2(3.00)	-	-	-
	F-12N-A	3/4" Female NPT			1.60		-		-	40.6(1.60)	63.5(2.50)	38.1(1.50)
	F-16N	1" Female NPT			1.20		25.4(1.00)	108(4.25)	88.9(3.50)	-	-	-
	F-16N-A	1" Female NPT			1.60		-		-	40.6(1.60)	70.0(2.76)	44.5(1.75)
	MF-8N	1/2" Male NPT	1/2" Female NPT		1.20		16.0(0.63)	98.3(3.87)	76.2(3.00)	-		
	MF-12N	3/4" Male NPT	3/4" Female NPT				19.1(0.75)	101(3.98)	79.6(3.13)			
	MF-16N	1" Male NPT	1" Female NPT				25.4(1.00)	108(4.25)	88.9(3.50)			
	SW-8P	1/2" Pipe Socket weld					19.1(0.75)	101(3.98)	66.8(2.63)			
	SW-12P	3/4" Pipe Socket weld					22.4(0.88)	105(4.13)	82.6(3.25)			
	SW-16P	1" Pipe Socket weld					25.4(1.00)	108(4.25)	88.9(3.50)			
	SW-8T	1/2" Tube Socket weld					16.0(0.63)	98.3(3.87)	66.8(2.63)			
	SW-12T	3/4" Tube Socket weld										
	SW-16T	1" Tube Socket weld					19.1(0.75)	101(3.98)				
	SW-12M	12mm Tube Socket weld					16.0(0.63)	98.3(3.87)				
	SW-14M	14mm Tube Socket weld										
	SW-16M	16mm Tube Socket weld										
VG16C	F-12N	3/4" Female NPT		11.0(0.43)	2.25	64(2.52)	22.4(0.88)	133(5.24)	82.6(3.25)	-		
	F-16N	1" Female NPT					25.4(1.00)	136(5.35)	102(4.02)			
	MF-12N	3/4" Male NPT	3/4" Female NPT				22.4(0.88)	133(5.24)	88.9(3.50)			
	MF-16N	1" Male NPT	1" Female NPT				25.4(1.00)	136(5.35)	102(4.02)			
	SW-12P	3/4" Pipe Socket weld					22.4(0.88)	133(5.24)	88.9(3.50)			
	SW-16P	1" Pipe Socket weld					25.4(1.00)	136(5.35)				
	SW-12T	3/4" Tube Socket weld					22.4(0.88)	133(5.24)	82.6(3.25)			
	SW-16T	1" Tube Socket weld										
	SW-14M	14mm Tube Socket weld							95.3(3.75)			
	SW-16M	16mm Tube Socket weld							88.9(3.50)			
	SW-18M	18mm Tube Socket weld							82.6(3.25)			
	SW-25M	25mm Tube Socket weld										

All dimensions shown are for reference only and are subject to change. Dimensions with DK-Lok nuts are in finger-tight position.

Flow Data @ 100°F(38°C)





Option & Accessories

- **Antitamper Handle**
  Stainless steel bar handle is standard.
  Optional antitamper handle is available.
  To order valve with factory-assembled optional antitamper handle, insert designator -AT in the ordering number.
  To order handle for field assembly, select desired handle ordering number from the table (“How to order”).

- **Antitamper Key**
  The key can be operated with the antitamper handle.
  Order separately.
  Ordering NO. G16-KEY-AT-SA.

Factory Test and Cleaning

Every valve is tested with the nitrogen gas @ 1,000 psig (68.9 bar) for leakage at the seat to a maximum allowable leak rate of 0.1 SCCM.
The packing is tested for no detectable leakage. Optional hydrostatic shell test with additional cost is performed with pure water at 1.5 times the working pressure.
Every valve is cleaned and packaged in accordance with DK-Lok cleaning standard DC-01.

Sour Gas Service

Valves for use in sour gas are available. Valve wetted components are selected to the requirements of NACE MR0175 for sulfide stress cracking resistant materials.
To order, insert -SG in the basic ordering number.

How to order

VG16A-MF4N-

-A	-GF	-AT	-S
Valve Pattern Designator	Packing Material Designator	Option Designator	Valve Material Designator
Nil : In-line **A :** Angle	**Nil :** PTFE **GF :** Graphite	**Nil :** Stainless Steel formed handle **AT :** Antitamper handle	**S :** SS316 **C :** Carbon Steel

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.

The information shown in this catalog are not for design purpose, but for reference only.
The accuracy of information is not the liability of our company.

Safe Component Selection

The Selection of component for any applications or system design must be considered to ensure safe performance Component function, material compatibility, component ratings, 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.

DK-LOK

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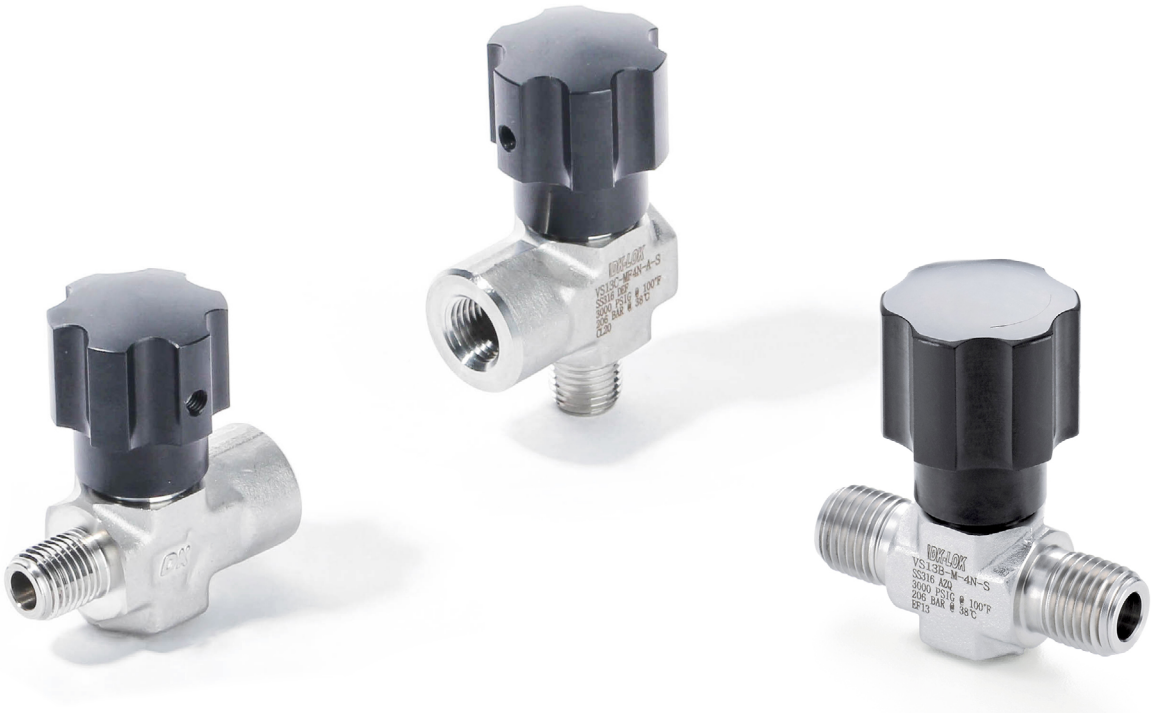
7, Golden root-ro 129beon-gil, Juchon-myeon, Gimhae-si, Gyeongsangnam-do, South Korea. 50969
Tel. +82-55-338-0114 Fax. +82-55-901-0141 **www.dklok.com**

IDK-LOK

VS13 Series

Rev. 01-01
Aug. 2023



DK-LOK®
Needle Valves

VS13 Series Non-Rotating Stem Needle Valves

Rev.01-01
Aug.2023

Pressure up to 3,000 psig (207bar)

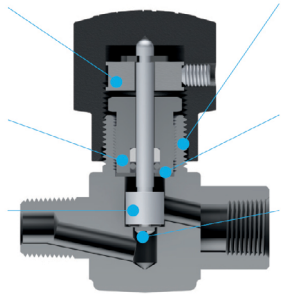
Features

- Compact and sturdy design
- Preventing influx of contaminants when operating the valve is protected by applying the handle
- The size of the orifice provided 0.145 in. (3.7 mm) and 0.216 in. (5.5 mm).
- DK-Lok Tube Fitting, male NPT, female NPT, and others are available.

Improving the flow control function in a suitably adjustment the vertical movement of the stem

No adjustment is needed in this O-ring stem seals

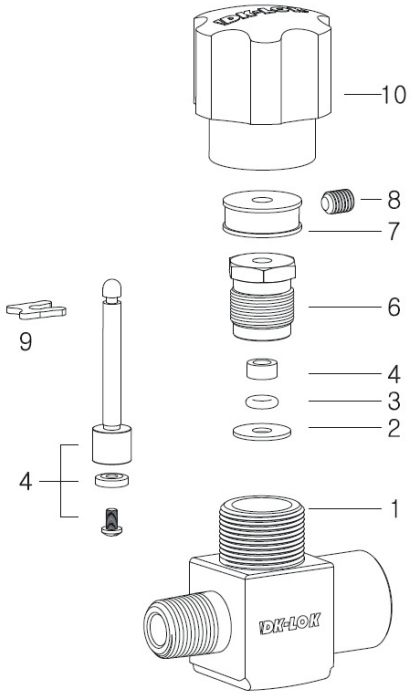
Provide a non-rotating stem repeatedly blocking



Extends the life of the screw to not expose the system fluid to open and close the thread

Securely seal the stem head backs contacts in the fully open state

Easy maintenance and possible replacement of the stem tip



Material of Construction

Component	Wetted parts are listed in blue.		
	SS316	Alloy400	Brass
	Material Grade/ASTM Standard		
1. Body	SS316/A182	Alloy400/B564	Brass C377/B283
2. Washer	PTFE coated SS316/A276	PTFE coated Alloy400/B164	Mo coated Brass C360/B16
3. O-ring	FKM		
4. Back-up ring	PTFE/D1710		
5. Stem	SS316/A276	Alloy400/B164	SS316/A276
Stem tip	PCTFE/D1430		
Screw	SS316/A276	Alloy400/B164	SS316/A276
6. Packing bolt	Mo coated SS316/A276	Mo coated Alloy400/B164	Mo coated Brass C360/B16
7. Handle spool	Aluminum 6061/B211		
8. Set screw	Stainless Steel 304		
9. Retainer	Zinc plated steel		
10. Handle	Aluminum 6061/B211 with block anodizing		

Wetted parts are listed in blue.

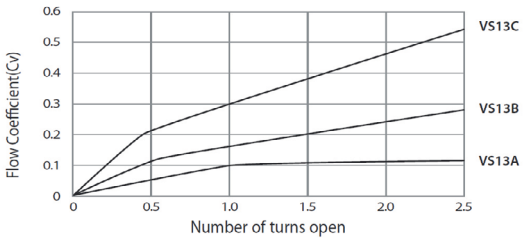
Apply only the proper torque to require a shutoff in order to prevent leakage, maintaining the proper performance, and increase the lifetime of the valve.

Pressure-Temperature Ratings

ASME Class	1250		1500		N/A	
Material Group	2.2		3.4		N/A	
Material Name	SS316		Alloy 400		Brass	
Stem tip Material	PCTFE	PEEK	PCTFE	PEEK	PCTFE	PEEK
Temperature, °F(°C)	Working Pressure, psig(bar)					
-20(-28) to 100(38)	3000(207)	3000(207)	3000(207)	3000(207)	3000(207)	3000(207)
150(65)	2790(192)	2790(192)	2815(194)	2815(194)	2675(184)	2675(184)
200(93)	2580(178)	2580(178)	2630(181)	2630(181)	2350(162)	2350(162)
250(121)	-	2455(169)	-	2540(175)	-	2200(152)
300(149)	-	2330(160)	-	2450(169)	-	2050(141)
350(177)	-	2236(154)	-	2408(166)	-	1220(84.1)
400(204)	-	2141(148)	-	2365(163)	-	390(26.9)
450(232)	-	2067(143)	-	2365(163)	-	-

- Buna N, EPDM, and silicon O-ring is max. 250°F(121°C).
- Buna C O-ring is -65°F(-53°C) to 250°F(121°C)

Flow Data @ 100°F(38°C)

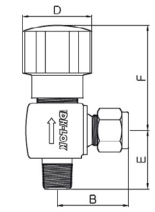


Factory Test and Cleaning

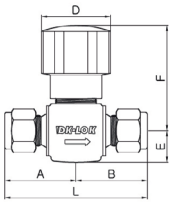
Every valve is tested with the nitrogen gas @ 1,000 psig (68.9 bar) for leakage at the seat to a maximum allowable leak rate of 0.1SCCM.
The packing is tested for no detectable leakage. Optional hydrostatic shell test with additional cost is performed with pure water at 1.5 times the working pressure.
Every valve is cleaned and packaged in accordance with DK-Lok cleaning standard DC-01.

Ordering Information and Table of Dimensions

In-line pattern



Angle pattern



Valve Basic Ordering Number		End Connections		Orifice, mm(in.)	Cv	Dimensions, mm(in.)					
		Inlet	Outlet			A	B	D	E	F	L
VS13A-	D2T	1/8" DK-Lok	1/8" DK-Lok	2.4(0.093)	0.12	27.9(1.10)		28.5(1.12)	8.50(0.33)	48.5(1.91)	55.8(2.20)
VS13B-	D4T	1/4" DK-Lok	1/4" DK-Lok	3.7(0.145)	0.27	28.7(1.13)		28.5(1.12)	10.6(0.42)	48.5(1.91)	57.4(2.26)
	D6M	6mm DK-Lok	6mm DK-Lok			28.7(1.13)					57.4(2.26)
	M4N	1/4" Male NPT	1/4" Male NPT			25.0(0.98)					50.0(1.97)
	MD4N4T	1/4" Male NPT	1/4" DK-Lok			25.0(0.98)	28.7(1.13)				53.7(2.11)
	MD4N6M	1/4" Male NPT	6mm DK-Lok			25.0(0.98)	28.7(1.13)				53.7(2.11)
VS13C-	D6T	3/8" DK-Lok	3/8" DK-Lok	5.5(0.217)	0.53	32.8(1.29)		31.8(1.25)	14.5(0.57)	51.9(2.04)	65.6(2.58)
	F4N	1/4" Female NPT	1/4" Female NPT			27.8(1.09)					55.6(2.18)
	M6N	3/8" Male NPT	3/8" Male NPT			28.4(1.12)					56.8(2.24)
	MD4N6T	1/4" Male NPT	3/8" DK-Lok			28.4(1.12)	32.8(1.29)				61.2(2.41)
	MF8N4N	1/2" Male NPT	1/4" Female NPT			28.4(1.12)	27.8(1.09)				56.2(2.21)

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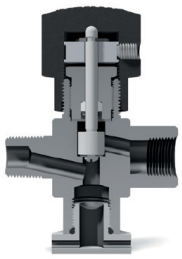
Option



Rupture disc prevent overpressure of sample cylinder or other pot by ejecting the cylinder fluid to atmosphere.

Ordering Number	Nominal Burst Pressure at 70°F(20°C)
RD1	2850 psig ± 150 psig 196 bar ± 10.3 bar
RD2	1900 psig ± 100 psig 130 bar ± 6.8 bar

Sour Gas Valves

Valves for use in sour gas are available. Valve wetted components are selected to the requirements of NACE MR0175 for sulfide stress cracking resistant materials.
To order, insert -SG in the basic ordering number.

How to order

VS13B-MF4N-

-A	-PK	-BC	-RD1	-S
Valve Pattern Designator	Stem tip Material Designator	O-ring Material Designator	Rupture Disc Designator	Valve Material Designator
Nil : Inline **A** : Angle	**Nil** : PCTFE **PA** : PEEK	**Nil** : FKM **BC** : Buna C **N** : NBR **EP** : EPDM **SI** : Silicon	**RD1** : 2850 psig **RD2** : 1900 psig	**S** : SS316 **M** : Alloy 400 **B** : Brass

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