

DK-LOK

Bellows Valves

Rev. 01-02
Apr. 2025





Bellows Valves V13W Series

Rev. 02-01
Mar. 2024



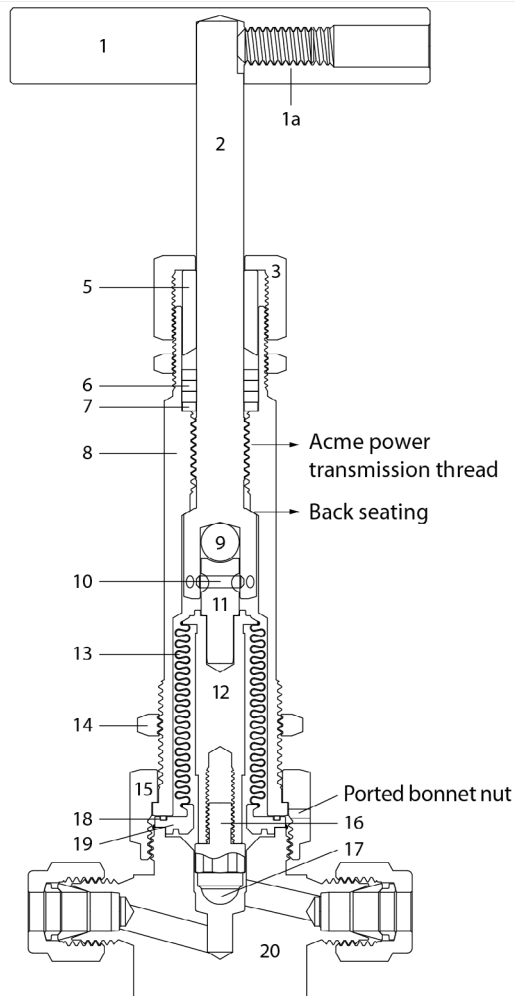
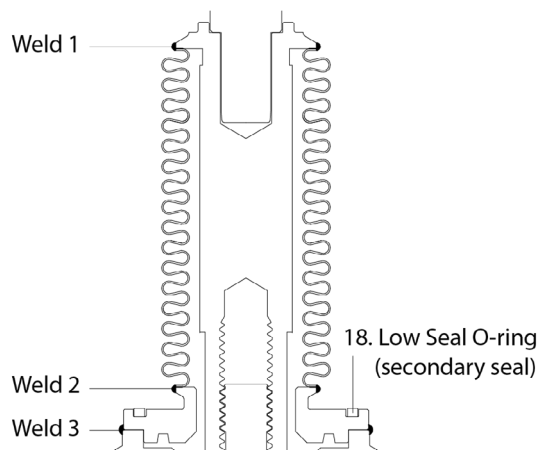


Figure 1.
Bellows Subassembly (Primary Seal)



Features

V13W series bellows valve offers the most difficult fluid handling application. This design with the secondary sealing system fits to the need for a safe and reliable system.

Applications include cryogenic to high temperatures, high pressure to vacuum in power plants, instrumentation, panels, and critical sampling system for toxic, radioactive, and hazardous fluids.

Bellows subassembly (Figure 1)

Welding upper end of the bellows to 12. stem (weld 1) and the other end to 19. stem weld ring (weld 2), this bellows is then welded to the valve body (weld 3).

Bellows subassembly with the three places of welding provides all metal, hermetical sealed valve. This primary seal offers a complete sealing between the system and atmosphere where leakage is not accepted.

Secondary seal (6), (18).

All welded stainless steel valves with secondary seal makes this valve for the most difficult fluid containment applications.

Secondary sealing prevents leakage to atmosphere in the event of a bellows rupture due to excessive pressurization. Leakage past the primary seal is contained by secondary seal.

Actuator threads (2)

Hardened 440C stainless steel actuator is for maximum strength, wear resistance, and positive stem retraction.

Acme power transmission threads constructed on actuator (2) and the bonnet (8) for low operation torque and to handle the extreme force transmitted to the threads in high pressure bellows valve. The threads are not in contact with the process fluid and are protected from atmospheric containments by the packing (6).

Valve actuation

Valves in high pressure tend to stick in the closed position. The ball bearing (9), and double pin (10) on a shoulder of stem extension (11) provide positive lifting of stem (12) and stem retraction.

Compressing or stretching the bellows allows linear motion of the stem with the convolutions.

Ported bonnet nut (15)

This allows monitoring sealing condition of weld 3 (Figure 1) and low seal O-ring (18).

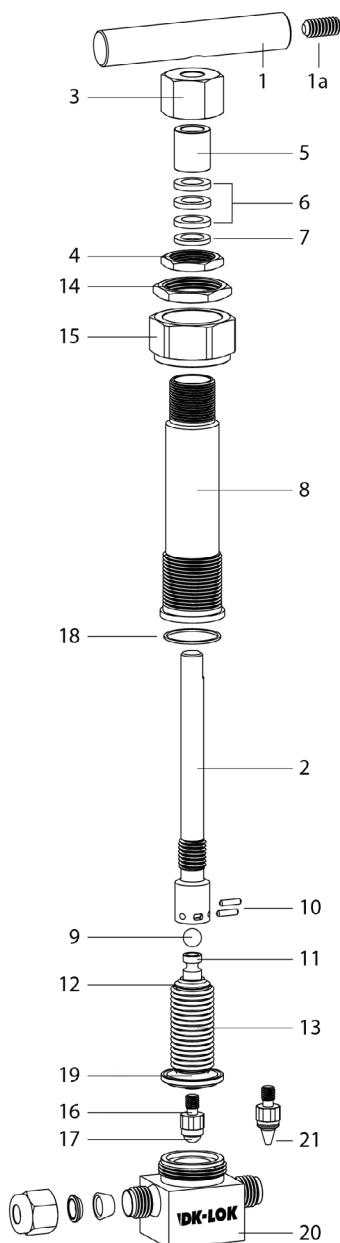
Turns to Open

Bellows valves operated by manual actuating bar handle requires around 1 3/4 turns on the V13WA series and 2 1/2 turns on the V13WB & V13WC series to open the valves to full flow.

A jam nut (4) is provided for locking the gland nut (3).

Additional Features

- Non-rotating stem disc (17).
- Standard panel (14) and bottom mounting.
- Union bonnet construction allows packing (6) replacement for maintenance.
- Safety back-seat sealing in the valve closed position.
- DK-Lok tube fitting and socket or butt weld end connections.
- Regulating stem disc for V13WA series.



Materials of Construction

Component	Material Grade/ASTM specification
1. Handle	Aluminum Blue-anodized /B211
1a. Set Screw	Alloy Steel/ANSI 18.3
2. Actuator	440C SS/A276
3. Gland Nut	316SS/A479 or A276
4. Jam Nut	316SS/A479 or A276
5. Gland	316SS/A479 or A276
6. Packing	GRAFOIL, optional PTFE/D1710
7. Spacer	316SS/A479 or A276
8. Bonnet	316SS/A479 or A276
9. Ball Bearing	316SS/A479 or A276
10. Pin (2)	416SS
11. Stem Extension	440CSS/A276 or A276
12. Stem	316SS/A479 or A276
13. Bellows	Type 321 /A240 or 1.4541-DIN EN10028-7
14. Panel Mount Nut	316SS/A479 or A276
15. Bonnet Nut	316SS/A479 or A276
16. Stem Adapter	316SS/A479 or A276
17. Spherical stem disc	Cobalt alloy/AMS 5373
21. Optional regulating stem disc	316SS/A479 or A276
18. Low Seal O-Ring	316SS/A479
19. Stem Weld Ring	316SS/A479
20. Body	316SS/A479

Wetted parts and lubricants are listed in [blue](#).

Lubricants

Spherical stem disc : Fluorinated-based.

Non-wetted lubricant : Silicon based

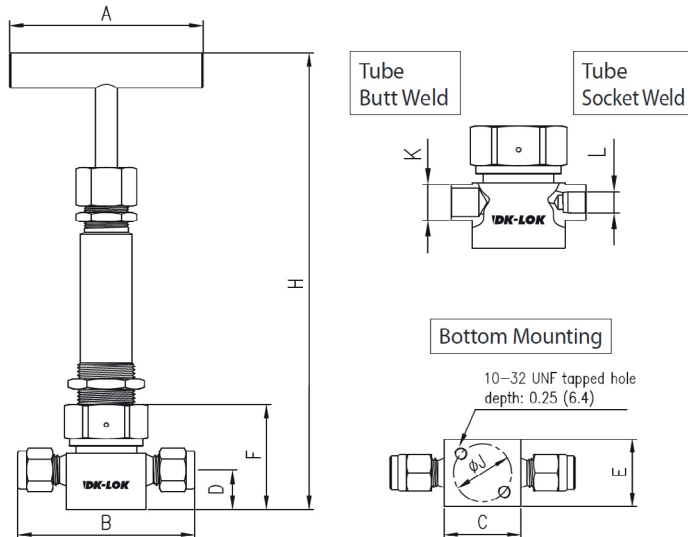
Factory Test

Every bellows valve is vacuum-tested with helium at room temperature for 5s to a maximum leak rate of 4×10^{-9} std cm³/s at the seat, envelope, and all seals.

Cleaning and Packaging

Every bellows 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.

Ordering Information and Dimensions



Basic Ordering		End Connections		Orifice	Dimensions, in (mm)								
Number		Inlet	Outlet		B	C	D	E	F	H	J	K	L
V13WA-	D4T-	1/4 in.DK-Lok	0.172 (4.37)	2.46 (62.5)	1.13 (28.7)	0.56 (14.2)	1.00 (25.4)	1.49 (37.8)	6.45 (164)	1.00 (25.4)	-	-	2.75 (69.9)
	D6M-	6mm DK-Lok	0.172 (4.37)	2.46 (62.5)							-	-	
	SW4T-	1/4 in. Tube Socket Weld	0.156 (3.96)	1.68 (42.7)							0.38 (9.7)	0.25 (6.4)	
	W6T-	3/8 in. Tube Butt Weld	0.156 (3.96)	1.68 (42.7)									
V13WB-	D6T-	3/8 in. DK-Lok	0.265 (6.73)	3.09 (78.5)	1.57 (39.9)	0.50 (12.7)	1.13 (28.7)	1.61 (40.9)	6.59 (167)	1.13 (28.7)	-	-	
	D10M-	10mm DK-Lok	0.281 (7.14)	3.11 (79.0)							-	-	
	SW6T-	3/8 in. Tube Socket Weld	0.281 (7.14)	2.27 (57.7)							0.50 (12.7)	0.38 (9.7)	
	W8T-	1/2 in. Tube Butt Weld	0.281 (7.14)	2.27 (57.7)									
V13WC-	D8T-	1/2 in. DK-Lok	0.312 (7.92)	3.30 (83.8)	1.57 (39.9)	0.50 (12.7)	1.13 (28.7)	1.61 (40.9)	6.59 (167)	1.13 (28.7)	-	-	
	D12M-	12mm DK-Lok	0.281 (7.14)	3.30 (83.8)							-	-	
	SW8T-	1/2 in. Tube Socket Weld	0.312 (7.92)	2.27 (57.7)							0.75 (19.1)	0.50 (12.7)	
	W12T-	3/4 in. Tube Butt Weld	0.312 (7.92)	2.27 (57.7)									

Ordering information.

Select the desired valve basic ordering number, and optional disc.

Note :

Optional regulating disc is applicable only to V13WA series

V13WA-D4T-

-R

-S

Stem Disc Designator	Valve Material Designator
Nil : Spherical stem disc R : Regulating stem disc	S : stainless steel 316

Pressure-Temperature Ratings

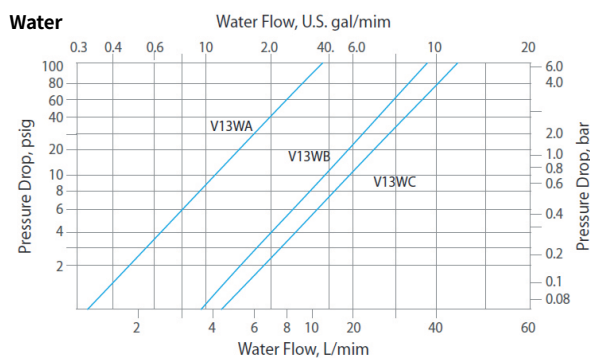
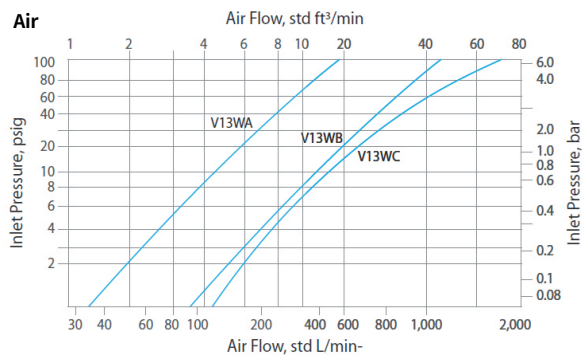
Ratings are for SS316 valves with spherical and regulating stem disc.

Temperature, °F(°C)	Working Pressure, psig (bar)
-20 to 650 (-28 to 343)	2500 (172)
700 (371)	2120 (146)
750 (398)	1740 (119)
800 (426)	1360 (93.7)
850 (454)	980 (67.5)
900 (482)	600 (41.3)
950 (510)	540 (37.2)
1000 (537)	480 (33.0)
1050 (565)	425 (29.2)
1100 (593)	360 (24.8)
1150 (621)	300 (20.6)
1200 (648)	250 (17.2)

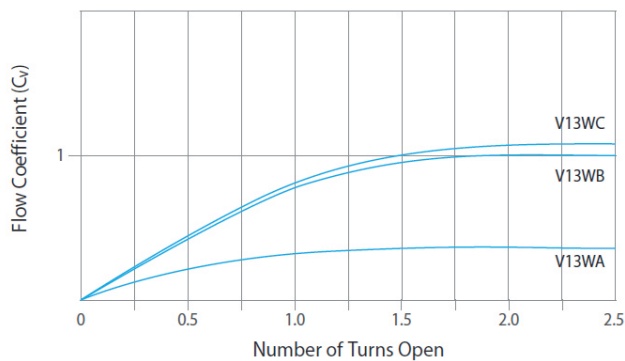
Technical Data

Valve series	Stem disc	Cv	Internal Volume in. ³ (cm ³)
V13WA	Standard spherical	0.36	0.11 (1.8)
V13WB		1.0	0.25 (4.1)
V13WC		1.2	0.27 (4.4)
V13WA	Optional regulating	0.36	0.11 (1.8)

Flow Data @ 70 °F (20 °C)



Flow Coefficient at Turns Open



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. Valves 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.
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Safe Component Selection

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VDK-LOK

V43 Series

Rev. 01-01
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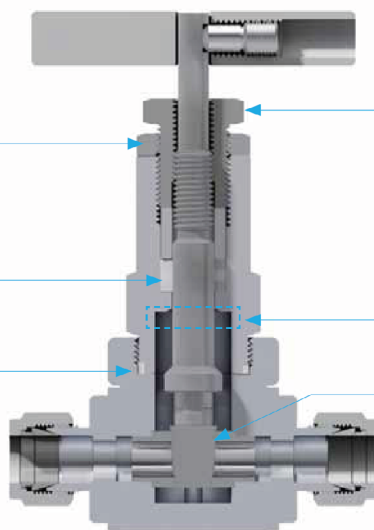
Features

- Pressure up to 3600 psig (248 bar)
- Temperature up to -65°F (-53°C) ~ 449°F (232°C) with Standard PTFE Packing
- End connection : Screwed End 1/4 ~ 1" , DK-Lok Tube Fitting 1/8 ~ 1"
- Straight through flow path for providing a minimum pressure drop and maximum flow
- Valve stem back seating against the bevelled edge of bonnet in fully open position prevents maximum leakage through bonnet when packing fails

prevents accidental
Packing Bolt disassembly

Packing seal to PTFE

Spiral wound gasket
SS316 With Graphite



Packing bolt design permits
packing adjustments in the
open position

Stem back seating
Fully open position

Wedge & Seat Ring Stellite
hard facing at Closure is for
maximum metal seat life and
positive seal.

Design

- DK-LOK Gate valve are design to ASME B16.34 Class 1500 pressure rating
- NPT thread connections in accordance with ASME B1.20.1

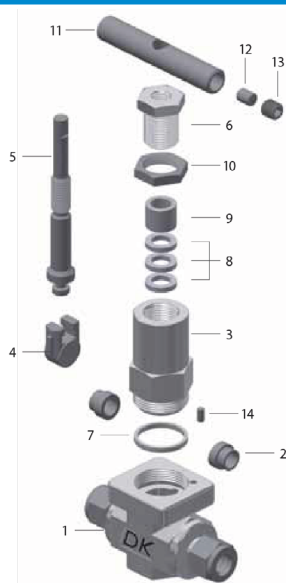
Factory Test

- Every valve is factory tested with nitrogen @ 69 bar (1000 psig) for leakage at the seat to a maximum allowable leak rate of 0.1 SCCM.
- Stem packing is tested for no detectable leakage.

Cleaning and Packaging

- Every valve is cleaned and packaged in accordance with DK-LOK cleaning standard DC-01.

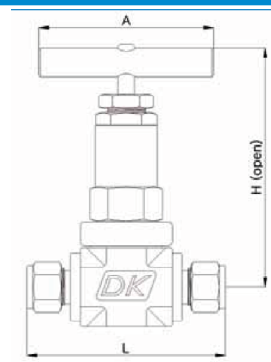
Materials of Construction



Component	Valve Material
1. Body	ASTM A182 F316
2. Seat ring	ASTM A279 TYPE 316 (Hard facing)
3. Bonnet	ASTM A279 TYPE 316
4. Wedge	ASTM A351 CF8M (Hard facing)
5. Stem	ASTM A279 TYPE 316
6. Packing bolt	ASTM A279 TYPE 316
7. Bonnet Packing	PTFE
8. Packing	PTFE
9. Gland	ASTM A279 TYPE 316
10. Lock Nut	ASTM A279 TYPE 316
11. Handle	ASTM A279 TYPE 316
12. Handle pin	Stainless steel
13. Bolt	Stainless steel
14. Pin	Stainless steel

Wetted components are listed in [blue](#).

Dimensions



Basic Ordering		End Connection	Orifice	Dimensions, mm(inch)		
Number				L	H	A
V43	F6N	3/8" Female NPT	10 (0.394)	86 (3.39)	140 (5.51)	89 (3.5)
	F8N	1/2" Female NPT				
	D8T	1/2" DK-LOK				
	D12T	3/4" DK-LOK		100 (3.94)		
	SW6P	3/8" Socket Weld		86 (3.39)		
	SW8P	1/2" Socket Weld				

All dimensions shown are for reference only and are subject to change.

Ordering Information

Select valve basic ordering number, applicable Packing, body material, Connection size, Valve Class Rating

V43

-F8N

-E

-G

-S

Connection	Class Rating	Packing Material	Valve Body Material Designator
Female NPT 3/8": F6N F8N D8T D12T SW6P SW8P	Nil : Class 1500	Nil : PTFE G : Graphite	S : ASTM A182 F316

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