



D-Pro Check Valves

V33 Series: Fixed cracking pressure, Pressure rating up to 3000 psig
 VP33 Series: Fixed cracking pressure, Pressure rating up to 3000 psig
 VH36 Series: Fixed cracking pressure, Pressure rating up to 6000 psig

Catalog No. V33, VP33, VH36-2
 Sept. 2004

Features

- Fixed cracking pressure
- Reliable Dk-Lok tube fitting, NPT and ISO pipe end connections
- 316 Stainless steel and Brass material

Technical Information

Valve Series	V33 Series			VP33 Series	VH36 Series	
	V33A & V33B	V33C & V33D	V33E & V33F	VP33A & VP33B	VH36A & VH36B	VH36C
Maximum Operating Pressure @21C (70F)	S316 & Brass 3000 psi (206 bar)		S316: 2000 psi (137 bar) Brass: 1500 psi (103 bar)	S316 & Brass 3000 psi (206 bar)	S316 6000 psi (413 bar)	S316 5000 psi (344 bar)
Operating Temperature Ratings	Viton O-ring: - 28C to 204C (- 18F to 399F) NBR O-ring: -20C to 105C (-4F to 221F)					
Nominal Cracking Pressure	1/3, 1, 3, 10, and 25 psi (0.02, 0.07, 0.21, 0.69, and 1.72 bar)					

Cracking, Reseal and Back Pressure @ 21C (70F)

Spring Nominal Cracking Pressure		Cracking Pressure Ranges				Reseal Pressure	
psig	bar	Min. Pressure		Max. Pressure		psi	bar
		psi	bar	psi	bar		
1/3	0.02	0	0	3	0.21	Up to 6 back pressure	0.41
1	0.07	0	0	4	0.28	Up to 5 back pressure	0.34
3	0.21	2	0.14	7	0.48	Up to 4 back pressure	0.28
5	0.34	3	0.21	9	0.62	Up to 2 back pressure	0.14
10	0.69	7	0.48	15	1.03	3	0.21
25	1.72	20	1.38	30	2.07	17	1.17
50	3.45	40	2.76	60	4.14	35	2.41
75	5.17	60	4.14	90	6.20	53	3.65
100	6.89	80	5.51	120	8.27	70	4.82

• **Cracking Pressure:** The valve poppet is actuated when the pressure difference between the inlet and the outlet reaches the range of cracking pressure.

• **Reseal Pressure:** Valves that have higher cracking pressure can be resealed to bubble-tight by the spring force. The reseal pressure is the pressure at the same flow direction, but lower than the cracking pressure.

• **Back Pressure:** Valves that have cracking pressure 5 psig (0.34 bar) and lower may not be able to return to the bubble-tight seal. This may require back pressure to press the seal to form a bubble-tight contact in addition to the spring force.

Class Ratings

- Ratings are based on Viton O-rings in S316 valves and NBR in Brass valves

Valve Series	V33 & VP33 Series		V33E and V33F Series		S316 VH36 Series	
	Working Pressure, psig (bar)					
Temperature	S316	Brass	S316	Brass	VH36A & VH36B	VH36C
-28 to 38C (-18 to 100F)	3000 (206)	3000 (206)	2000 (137)	1500 (103)	6000 (413)	5000 (344)
93C (200F)	2575 (177)	2600 (179)	1715 (118)	1300 (89)	5160 (355)	4290 (295)
175C (225F)	2510 (172)	2500 (172)	1670 (115)	1250 (86)	5030 (346)	4180 (288)
121C (250F)	2450 (168)		1630 (112)		4910 (338)	4080 (281)
148C (300F)	2325 (160)		1545 (106)		4660 (321)	3875 (267)
176C (350F)	2255 (155)		1490 (102)		4470 (308)	3720 (256)
190C (375F)	2185 (150)		1450 (99)		4375 (301)	3640 (250)
204C (400F)					4280 (294)	3560 (245)

Operation

- When the valve is not actuated for a period of time, it may require a higher cracking pressure than the set cracking pressure.
- D-Pro check valves prevent reverse flow in circuits. Do not use them as relief valves.
- D-Pro check valves are designed to prevent loss of media caused by failed connections and for uni-directional flow control of fluids as well as gases in chemical processing, power generation, oil and gas industries.

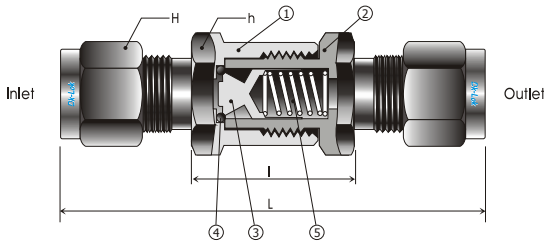
Valve Cleaning and Factory Test

- Every component is cleaned, and packed in a plastic sealing bag to keep them from dust in the air, and then boxed for protection from damage during transportation and storage. Every valve is factory tested for cracking and reseals performance.



D-Pro V33 Series Check Valves

- Feature: Working pressure up to 3000 psig (206 bar)



Materials of Construction

Component	Valve Body Materials	
	Material Grade/ASTM	
1. Body	S316 /A276, A479	Brass 360 /B16
2. Connector		
3. Poppet		
4. O-ring	Viton*, optional Kalrez*	NBR
5. Spring	S302/A313	S302/A313

* Wetted parts are listed in blue.
 Lubrication: * Silicon-based Lubricant for Poppet
 * Molybdenum Dry Film Lubricant for S316 Body Threads

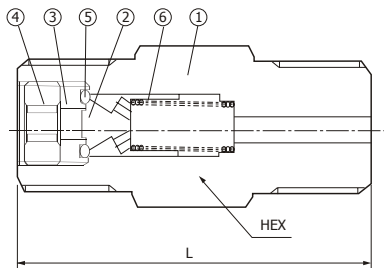
V33 Series Ordering Information and Table of Dimensions

Basic Ordering Number	End Connections		Orifice mm (in.)	Cv	h-Hex	Dimensions mm (inch)			
	Inlet	Outlet				H-Hex	L	I	
V33A-	D-2T-	1/8" Dk-Lok	4.8 (0.19)	0.16	15.88 (5/8)	11.11 (7/16)	55.60 (2.19)	25.00 (0.98)	
	M-2N-	1/8" Male NPT				-	44.40 (1.75)		
	F-2N-	1/8" NPT				-	46.50 (1.83)		
	D-4T-	1/4" Dk-Lok		1/4" Dk-Lok		0.47	14.29 (9/16)	60.00 (2.36)	25.00 (0.98)
	D-6M-	6mm Dk-Lok					14.00		
	MD-4N4T-	1/4" Male NPT					14.29 (9/16)	56.40 (2.22)	
V33B-	M-4N-	1/4" Male NPT	7.1 (0.28)	1.48	19.05 (3/4)	-	53.40 (2.10)	27.10 (1.07)	
	F-4N-	1/4" Female NPT				-	56.80 (2.24)		
	D-6T-	3/8" Dk-Lok				17.46 (11/16)	65.50 (2.58)		
	D-10M-	10mm Dk-Lok				19.00			
V33C-	M-6N-	3/8" Male NPT	10.0 (0.39)	1.7	22.22 (7/8)	-	63.80 (2.51)	36.20 (1.43)	
	F-6N-	3/8" Female NPT				-	84.70 (3.33)		
	D-8T-	1/2" Dk-Lok				22.22 (7/8)	80.20 (3.16)		
	D-12M-	12mm Dk-Lok				22.00			
V33D-	M-8N-	1/2" Male NPT	13.5 (0.53)	2.6	28.58 (1-1/8)	-	91.80 (3.61)	48.10 (1.89)	
	D-10T-	5/8" Dk-Lok				25.40 (1)	91.80 (3.61)		
V33E-	D-12T-	3/4" Dk-Lok	16.0 (0.63)	5.2	31.75 (1-1/4)	28.58 (1-1/8)	110.70 (4.35)	67.00 (2.64)	
	M-12N-	3/4" Male NPT				-	105.30 (4.15)		
	F-12N-	3/4" Female NPT				-	103.00 (4.06)		
V33F-	D-16T-	1" Dk-Lok	18.0 (0.71)	8.0	34.93 (1-3/8)	38.1 (1-1/2)	121.10 (4.77)	68.40 (2.69)	
	M-16N-	1" Male NPT				-	116.20 (4.57)		
	F-16N-	1" Female NPT				-	111.40 (4.39)		

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

D-Pro VP33 Series Check Valves

- Features:
 - O-ring seal blow-out proof design with precision machined O-ring holder allows extremely safe operation in gas high velocity.
 - One piece body construction.
 - Working pressure up to 3000 psig (206 bar)



Materials of Construction

Component	Valve Body Materials	
	Material Grade/ASTM	
1. Body	S316 /A276, A479	Brass 360 /B16
2. Poppet		
3. O-ring Holder		
4. Locking Screw	Viton*, optional Kalrez*	NBR
5. O-ring	S302/A313	S302/A313
6. Spring	S302/A313	S302/A313

* Wetted parts are listed in blue.
 Lubrication: * Silicon-based Lubricant for Poppet
 * Molybdenum Dry Film Lubricant for S316 Body Threads

VP33 Series Ordering Information and Table of Dimensions

Basic Ordering Number	End Connections		Cv	Dimensions mm (inch)	
	Inlet	Outlet		L	Hex.
VP33A-	M-4N-	1/4 Male NPT	0.35	41 (1.62)	14.28 (9/16)
	M-4R-	1/4 ISO Male Tapered			
	F-4N-	1/4 Female NPT		61 (2.41)	19.05 (3/4)
	F-4R-	1/4 ISO Female Tapered			
	MF-4N-	1/4 Male NPT1 4 Female NPT			
	FM-4N-	1/4 Female NPT1 4 Male NPT			
VP33B-	M-8N-	1/2 Male NPT	1.20	58 (2.28)	22.22 (7/8)
	F-8N-	1/2 Female NPT			
	MF-8N-	1/2 Male NPT			



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

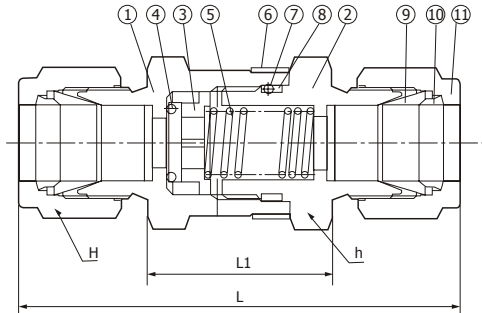
VH36 Series Check Valves

■ Features

- High pressure 6000 psig (206 bar)
- O-ring seal blow-out proof design with precision machined O-ring groove allows extremely safe operation in high gas velocity.



Models Shown:
VH36B-D-8T-5-S
VH36C-F-12N-KZ-5-S



Materials of Construction

Component	Valve Body Materials	
	Material Grade/ASTM	
1. Body	S316 /A479, A276	
2. Connector		
3. Poppet	Viton*, optional Kalrez*	
4. Bonded seal		
5. Spring	S302 /A313	
6. Indicator ring	S316 /A276	
7. O-ring	Viton	
8. Backup ring	PTFE /D1710	
9. 10. 11. Dk-Lok Front & Back ferrule, Nut	S316 /A479, A276	

■ Wetted parts are listed in blue.
 Lubrication: * Silicon-based Lubricant for Poppet
 * Molybdenum Dry Film Lubricant for S316 Body Threads

VH36 Series Ordering Information and Table of Dimensions

Basic Ordering Number	End Connections	Cv	Dimensions mm (inch)				Pressure Rating, psig (bar)
			L	L1	H	h	
VH36A-	D-2T-	1/8" Dk-Lok	57.7 (2.27)	26.4 (1.04)	7/16	11/16	6000 (413)
	D-4T-	1/4" Dk-Lok	61.7 (2.43)	26.4 (1.04)	9/16	11/16	
	D-6M-	6 mm Dk-Lok	61.7 (2.43)	26.4 (1.04)	14	11/16	
	F-4N-	1/4" Female NPT	54.1 (2.13)	-		11/16	
	M-2N-	1/8" Male NPT	45.5 (1.79)	26.4 (1.04)		11/16	
	M-4N-	1/4" Male NPT	55.1 (2.17)	26.4 (1.04)		11/16	
	F-4R-	1/4" ISO Female Tapered	57.9 (2.28)	-		11/16	
	M-4R-	1/4" ISO Male Tapered	55.1 (2.17)	26.4 (1.04)		11/16	
VH36B-	D-6T-	3/8" Dk-Lok	69.9 (2.75)	31.2 (1.23)	11/16	1	6000 (413)
	D-8T-	1/2" Dk-Lok	75.2 (2.96)	31.2 (1.23)	7/8	1	
	D-8M-	8 mm Dk-Lok	68.6 (2.70)	31.2 (1.23)	16	1	
	D-10M-	10 mm Dk-Lok	71.1 (2.80)	31.2 (1.23)	19	1	
	D-12M-	12 mm Dk-Lok	75.2 (2.96)	31.2 (1.23)	22	1	
	F-6N-	3/8" Female NPT	64.8 (2.55)	-		1	5000 (344)
	F-8N-	1/2" Female NPT	77.0 (3.03)			1-1/16	4600 (316)
	M-6N-	3/8" Male NPT	59.9 (2.36)	31.2 (1.23)		1	6000 (413)
	M-8N-	1/2" Male NPT	69.3 (2.73)	31.2 (1.23)		1	6000 (413)
	F-8R-	1/2" ISO Female Tapered	83.6 (3.29)	-		1-1/16	4600 (316)
M-8R-	1/2" ISO Male Tapered	69.3 (2.73)	1.23 (31.2)		1	6000 (413)	
VH36C-	D-12T-	3/4" Dk-Lok	89.4 (3.52)	45.2 (1.78)	1-1/8	1-5/8	5000 (344)
	D-16T-	1" Dk-Lok	98.6 (3.88)	45.5 (1.79)	1-1/2	1-5/8	4700 (323)
	D-22M-	22 mm Dk-Lok	88.4 (3.48)	45.5 (1.79)	32	1-5/8	5000 (344)
	D-25M-	25 mm Dk-Lok	98.6 (3.88)	45.5 (1.79)	40	1-5/8	5000 (344)
	F-12N-	3/4" Female NPT	82.0 (3.23)	82.0 (3.23)		1-5/8	4300 (296)
	F-16N-	1" Female NPT	97.3 (3.83)	97.3 (3.83)		1-5/8	4100 (282)
	M-12N-	3/4" Male NPT	83.6 (3.29)	45.5 (1.79)		1-5/8	5000 (344)
	M-16N-	1" Male NPT	93.2 (3.67)	45.7 (1.80)		1-5/8	5000 (344)
	F-12R-	3/4" ISO Female Tapered	90.2 (3.55)	90.2 (3.55)		1-5/8	4300 (296)
	F-16R-	1" ISO Female Tapered	97.3 (3.83)	97.3 (3.83)		1-5/8	4100 (282)
	M-12R-	3/4" ISO Male Tapered	85.1 (3.35)	45.5 (1.79)		1-5/8	5000 (344)
	M-16R-	1" ISO Male Tapered	93.2 (3.67)	45.7 (1.80)		1-5/8	5000 (344)

© Copyright 2001, 2002, and 2004. DK TECH, all right reserved.

D-Pro[®] Check Valves

Optional Features

■ Seal Materials

O-ring Seal Material	Designator	Temperature Rating	
NBR	BN	-20 to 105C (-4 to 221F)	<ul style="list-style-type: none"> • Viton is standard for S316 valves and NBR is standard for Brass valves • PTFE requires high back pressure for leak-tight seal. <p>* Viton and Kalrez: TM Dupont</p>
Viton*	VT	-28 to 204C (-18 to 399F)	
PTFE	PE	-45 to 176C (-49 to 349F)	
EPDM	EP	-45 to 135C (-49 to 275F)	
Kalrez*	KZ	-20 to 315C (-22 to 599F)	

Recommendation of seal material application.

NBR	Petroleum-based hydraulic and lubricating oils, animals and vegetable oils, acetylene, alcohols, water, air, alkalis, feul oils and many other media.
Viton	High-quality compounds for high temperatures. Synthetic and hydraulic fluids; a wide range of chemicals, heavily oxidizing acids, suitable for vacuum.
EPDM	Chemical resistance: nonflammable hydraulic fluids (Skydrol, Pydraul, Lindol, Cellulube 150, phosphoric esters), pure aniline, fire extinguisher liquids (chlorobromo-methane), acids; excellent resistance to hot water and steam.
Kalrez	Superior compounds for high temperature and most chemicals. This compound combines the chemical properties of PTFE (Teflon) with the mechanical properties of Viton.

Spring and seal kits

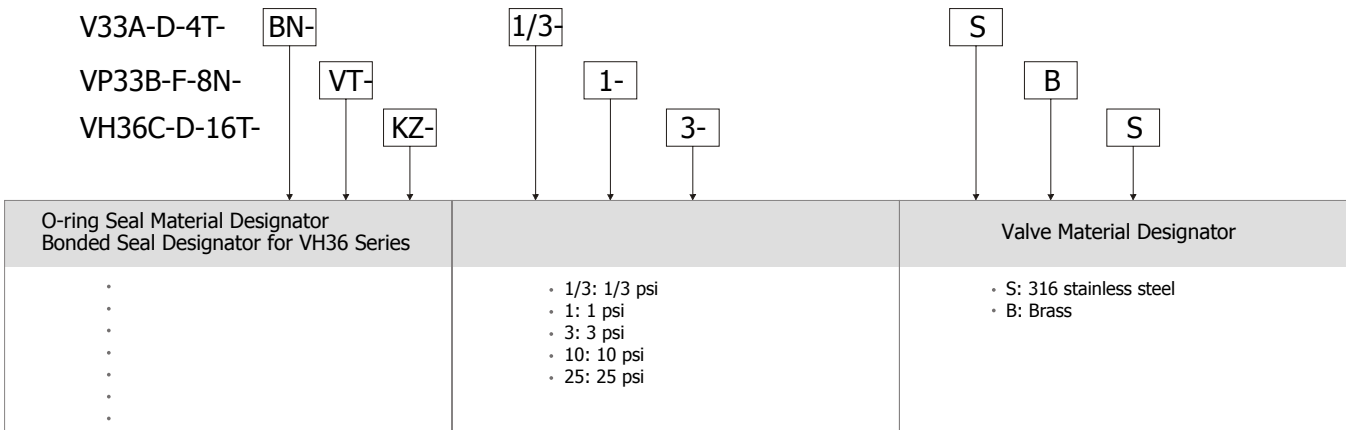
<p>Spring Kit To order spring kit, prefix "CVS" and select check valve series as well as spring nominal cracking pressures.</p> <p>Examples; CVS-V33A-1/3: 1/3 psi spring for V33A series CVS-VP33B-1: 1 psi spring for VP33B series CVS-CH36A-3: 3 psi spring for CH36A series</p>	<p>Seal Kit To order seal kit, prefix "CVO" and select valve series as well as seal designator.</p> <p>Examples; CVO-V33A-BN: NBR O-ring for V33A series CVO-VP33B-VT: Viton O-ring for VP33B series</p> <p>CH36 series seal kit is not available since CH36 series seal is bonded on poppet groove.</p>
--	---

Exotic alloy valves for Sour Gas Service.

Cracking of low or high strength materials in the presence of hydrogen sulfide and water in combination with a tensile stress is called sulfide stress cracking (SCC). For use valves in sour gas, exotic alloy materials are selected to NACE MR0175. Please consult your local Dk-Lok distributor for further details.

How to Order

Select valve, applicable seal, Spring nominal cracking pressure, and body material.



Note: NBR O-ring is standard for Brass valves and Viton O-ring is standard for 316 stainless steel valve.

Safe Valve Selection

The selection of a valve for any application or system design must be considered to ensure safe performance. Valve function, valve rating, material compatibility, proper installation, operation and maintenance remain the sole responsibility of the system designer and the user. Dk Tech accepts no liability for any improper selection, installation, operation or maintenance.

For more information, please contact us:

ExpotechUSA

10700 Rockley Road

Houston, TX -77099

USA

E-mail: sales@ExpotechUSA.com

Website: www.ExpotechUSA.com