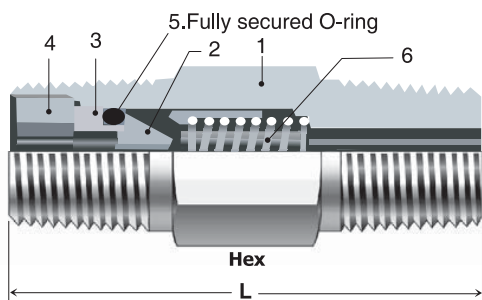


IDK-LOK[®] Check Valves

Table 1. **Spring Cracking, Reseal and Back Pressure @ 70 °F (21 °C) (for V33)**

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

VP33 Series One-Piece Check Valves



Features

- O-ring seal blow-out proof design
- One piece body construction.
- Working pressure up to 3,000 psig (206 bar)

Materials of Construction

Component	Valve Body Materials	
	Stainless Steel	Brass
	Material Grade/ASTM	
1. Body	SS316 / A276, A479	Brass 360 / B16
2. Poppet		
3. O-ring Holder		
4. Locking Screw		
5. O-ring	FKM	NBR
6. Spring	SS302/A313	

Wetted parts are listed in blue.

Lubrication :

- Silicon-based Lubricant on Poppet
- Molybdenum Dry Film Lubricant on SS316 Locking Screw.

Ordering Information and Dimensions

Basic Ordering Number	End Connections		Cv	Dimensions mm (in.)	
	Inlet	Outlet		L	Hex.
VP33A-	M-4N-	1/4 in. Male NPT	0.35	41 (1.62)	14.28 (9/16)
	M-4R-	1/4 in. ISO Male Tapered			
	F-4N-	1/4 in. Female NPT			
	F-4R-	1/4 in. ISO Female Tapered		61 (2.41)	19.05 (3/4)
	MF-4N-	1/4 in. Male NPT		64 (2.54)	
	FM-4N-	1/4 in. Female NPT		44 (1.75)	
VP33B-	M-8N-	1/2 in. Male NPT	1.20	58 (2.28)	22.22 (7/8)
	F-8N-	1/2 in. Female NPT		94 (3.71)	26.98 (1-1/16)
	MF-8N-	1/2 in. Male NPT		72 (2.83)	

Table 2. **Spring Cracking, Reseal and Back Pressure @ 70°F (21°C)**

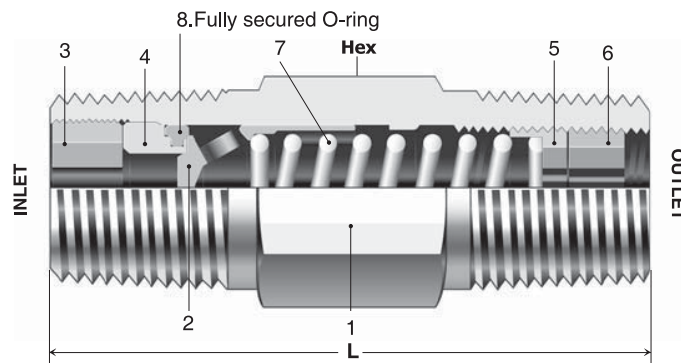
Spring Nominal Cracking Pressure Designator		Cracking Pressure Ranges				Reseal Pressures psig (bar)
psig	bar	Min. Pressure		Max. Pressure		
		psig	bar	psig	bar	
1/3	0.02	0	0	3	0.21	6 to 20 (0.41 to 1.38) back pressure
1	0.07	0	0	4	0.28	5 to 20 (0.34 to 1.38) back pressure
10	0.69	7	0.48	13	0.90	3 to 10 (0.21 to 0.69) back pressure
25	1.72	21	1.45	29	2.00	Minimum 5 (0.34) Reseal pressure

VA33 Series One-Piece Adjustable Check Valves / VDA33 Series In-Line Adjustable Check Valves

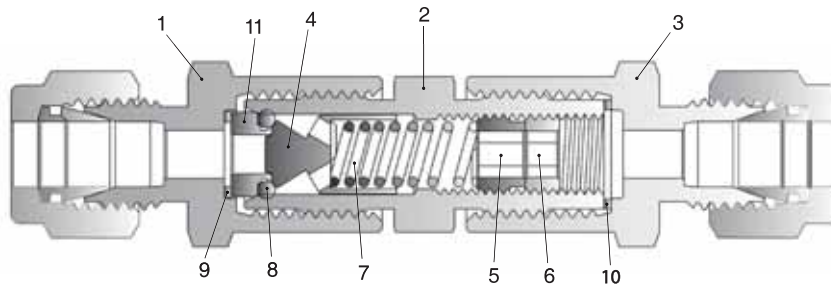
Features

- Cracking pressure adjustable from 3 to 600 psig (0.2 to 41.3 bar)
- Working pressure up to 3,000 psig (206 bar)
- Temperature up to 190°C (375°F) with FKM O-ring
- Standard materials : 316 stainless steel and brass.

VA33 Series



VDA33 Series



Materials of Construction

Component		Valve Body Materials	
		Stainless Steel	Brass
		Material Grade/ASTM	
VA33 Series	VDA33 Series	SS316 /A276, A479	Brass 360 / B16
1. Body	1. Inlet body 2. Center body 3. Outlet body		
2. Poppet 360 / B16	4. Poppet		
3. Insert locking screw	-		
4. Insert	11. Insert		
5. Adjustable screw	5. Adjustable screw		
6. Locking screw	6. Locking screw		
7. Spring	7. Spring	SS302/A313	
8. O-ring	8. O-ring	FKM, Optional FFKM	NBR
	9. Inlet gasket 10. Outlet gasket	TFE coated SS316	

Wetted parts are listed in blue.

Lubrication :

- Silicon-based Lubricant on Poppet
- Molybdenum Dry Film Lubricant on SS316 Locking Screw and Insert Locking Screw.

VA33 Series Ordering Information and Dimensions

Basic Ordering Number	End Connections	Cv	L		Hex	
			mm	in.		
VA33A-	F-4N	0.35	41.1	1.62	9/16	
	M-4N-					1/4 in. Female NPT
	M-4R-					1/4 in. Male NPT
VA33B-	M-8N-	1.2	65.0	2.56	7/8	
	M-8R-					1/4 in. ISO Male Tapped
						1/2 in. Male NPT



VDA33 Series Ordering Information and Dimensions

Basic Ordering Number	End Connections		Cv	Dimensions mm(in.)		
	Inlet	Outlet		L	H	h
VDA33	D-4T-S	1/4 in. DK-Lok	0.37	82.0(3.23)	9/16 in.	5/8 in.
	D-6M-S	6mm DK-Lok				
	D-8M-S	8mm DK-Lok				
	MD-4N4T-S	1/4 in. Male NPT				

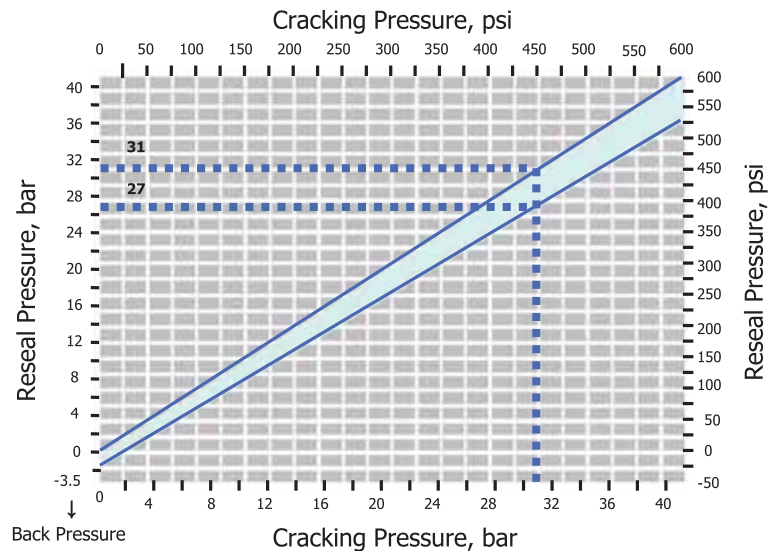


Table 3. Spring Cracking Pressure Range Designator

Cracking Pressure Range @21 °C (70 °F)		Designator
psig	bar	
3 to 50	0.2 to 3.4	3
50 to 150	3.4 to 10.3	50
150 to 350	10.3 to 24.1	150
350 to 600	24.1 to 41.3	350

Cracking Pressure vs. Reseal pressure

VA33 and VDA33 Series valves set to crack at 20 psig(1.3 bar) or lower may require back pressure(downstream pressure) to reseal the valve bubble tight.



Example shown : For a valve set to crack at 31 bar (450 psig), the minimum reseal pressure would be 27 bar (390psig).

How to adjust cracking pressure

Step 1	Step 2	Step 3
<p>Slightly unscrew the locking screw counter-clockwise.</p>	<p>1. Gently slide the allen key up to adjustable screw position. 2. Adjust cracking pressure. • To increase cracking pressure, turn adjustable screw clockwise. • To decrease cracking pressure, turn adjustable screw counter-clockwise.</p>	<p>1. Move out the allen key up to the locking screw position. 2. To lock out the locking screw, turn the allen key clockwise.</p>

VH36 Series High Pressure Check Valves / VCH36 Series CNG/NGV Check Valves

Features

- High pressure 6,000 psig (413 bar)
- Seal blow-out proof design with the bonded seal on poppet.



Materials of Construction

Component	Valve Body Material
	Stainless Steel
	Material Grade/ASTM
1. Body	SS316 /A479, A276
2. Connector	
3. Poppet stop	
4. Poppet with bonded seal	Poppet: SS316 /A479, A276 Bonded Seal : FKM, optional EPDM & Kalrez HNBR standard for VCH36 Series
5. Spring	SS302 /A313
6. Indicator ring*	SS316 /A276
7. O-ring	FKM / HNBR standard for VCH36 Series
8. Backup ring	PTFE /D1710
9, 10, 11. DK-Lok Front & Back Ferrule and Nut	SS316 /A479, A276

Wetted parts are listed in blue.
* Indicator ring bears the information of spring designator.

Lubrication :

- Silicon-based Lubricant on Poppet
- Molybdenum Dry Film Lubricant on SS316 Connector threads

CNG Certifications

VCH36 Series check valve with CNG compatible HNBR O-ring are available with CNG certifications.

Certificates	ECE R110	ANSI / AGA NGV 3.1-1995 CGV NGV 12.3-M95	ISO 15500
Certificate No.	110R-000186	2010-REPORT-014 (00)	2010-REPORT-013 (00)
Classification	Class 0	Check valve	Check valve
Temperature	-40 to 120 °C (-40 to 250 °F)	-40 to 121 °C (-40 to 250 °F)	-40 to 121 °C (-40 to 250 °F)
Working Pressure	274 bar @ 120 °C	273 bar @ 121 °C	273 bar @ 121 °C

Table 4. Spring Cracking, Reseal and Back Pressure @ 70 °F (21 °C)

Spring Nominal Cracking Pressure Designator		Cracking Pressure Ranges				Reseal Pressures psig (bar)
psig	bar	Min. Pressure		Max. Pressure		
		psig	bar	psig	bar	
1/3	0.02	0	0	3	0.21	Up to 6 (0.41) back pressure
1	0.07	0	0	4	0.28	Up to 5 (0.35) back pressure
5	0.34	3	0.21	9	0.62	Up to 2 (0.14) back pressure
10	0.69	7	0.48	15	1.03	Minimum 3 (0.21) Reseal pressure
25	1.72	20	1.38	30	2.07	Minimum 17 (1.2) Reseal pressure

Sour Gas Service

Materials of VH36 series valves for sour gas service are selected in accordance with the requirements of NACE MR0175

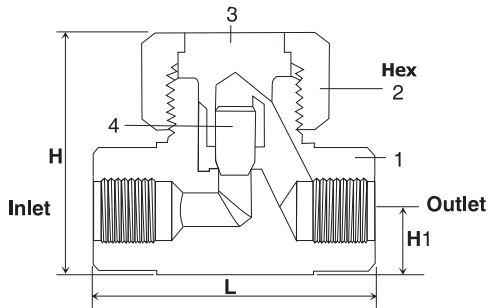
- Spring : alloy X-750/AMS5699
- Nominal Cracking Pressure : 1/3, 1, and 5 psig (0.03, 0.07 and 0.035 bar)
- Seal : ethylene propylene.

To order, insert-SG in the ordering number. i.e., VH36B-D-8T-SG-S

VL36 Series Lift Check Valves

Features

- Working pressure up to 6,000 psig (413 bar)
- Temperature up to 900 °F (482 °C)
- Metal to metal seat



Operation

- Operation of this valve heavily depends on gravity assistance. Thus mounting horizontally with bonnet nut upward to allow poppet to operate vertically.
- Reverse flow closes the valve, keeping poppet in the orifice.
- Forward flow opens the valve, lifting the poppet
- Lift check valve is primarily for use in liquid systems. If a slight amount of leakage can be tolerated it can be used with heavy gases.
- Reverse flow Cv is limited to less than 0.1% of forward Cv.

Materials of Construction

Component	Valve Body Material
	Stainless Steel Material Grade/ASTM
1. Body	SS316/A276 or A479
2. Bonnet Nut	SS316/A276 or A479
3. Bonnet	TYPE630/A564
4. Poppet	SS316/A276 or A479



Complete Ordering Number and Dimensions

Complete Ordering Number	End Connection	Orifice		Cv	Dimensions mm (in.)			
		mm	inch		L	H	H1	Hex
VL36A-	D4T-S	4.0	0.156	0.30	61.0 (2.40)	37.3 (1.47)	9.9 (.39)	7/8
	D6M-S							
	F2N-S							
	F4N-S							
	SW4T-S							
VL36B-	D6T-S	6.4	0.250	0.64	71.9(2.83)	47.0 (1.85)	12.7 (.50)	1 1/4
	F4N-S							
	SW6T-S							
	SW8T-S							
VL36C-	D8T-S	11.1	0.437	2.20	99.6 (3.92)	62.0 (2.44)	15.7 (.62)	1 1/2
	D12T-S							
	F6N-S							
	F8N-S							
	SW8T-S							

Pressure-Temperature Ratings

ASME Class	2500
Material Group	2.2
Material Name	SS316
Temp. °F (°C)	Working Pressure psig (bar)
-65 to 100 (-53 to 37)	6000 (413)
200 (93)	5160 (355)
300 (148)	4660 (321)
400 (204)	4280 (294)
500 (260)	3980 (274)
600 (315)	3760 (259)
700 (371)	3600 (248)
800 (426)	3460 (238)
900 (482)	3280 (225)

How to order : Select a complete ordering number. i.e., VL36A-D-4T-S.

All dimensions shown are for reference only and subject to change. Dimensions with DK-LOK are in finger-tight position. We reserve the right to change specification stated in this catalog for our continuing program of product improvement.

Safe Valve Selection

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

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