Check Valve
VC

Check Valves

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Check Valve VC

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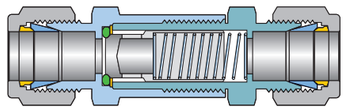
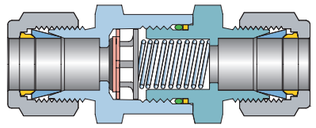
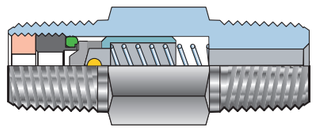
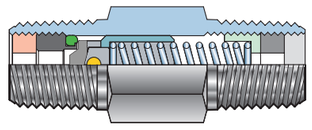
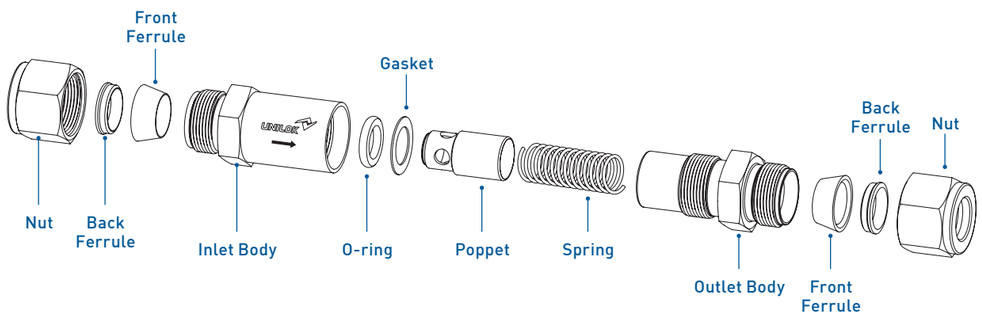
Features

Valve Series			Cracking Pressure	Maximum Working Pressure
VC3	General Purpose		Fixed	3000 psig 207 bar
VC6	High Pressure		Fixed	6000 psig 413 bar
VC3C	Compact One Piece		Fixed	3000 psig 207 bar
VC3CA	Compact Adjustable Cracking Pressure		Adjustable	3000 psig 207 bar



Cleaning

UNILOK valves are free from machine oils, loose particles and grease throughout the close cleaning process.

Testing

Every check valve is 100% factory tested with nitrogen for cracking and reseal performance.

The special cleaning for high purity application is available upon request.

Important Notification

Proper installation, materials compatibility, operation and maintenance of these valves are the responsibility of the user. The total system design must be taken into consideration to ensure optimal performance and safety.

UNILOK check valves are designed for directional flow control only.

How To Order

UNILOK VC series check valves are ordered by part number as shown below.

Example: The following part number, ***VC31U-04T-SS-01*** is designated for VC3 series check valve with both 1/4", UNILOK tube fitting, 1psig cracking pressure, 316SS.

V	C31	U	-	04T	-	SS	-	01	-	
UNILOK Valve	Valve Type	Connection Type		Connection Size		Body Materials		Cracking Pressure		O-ring Materials

Valve Type	
C3	3000psig Fixed CP
C6	6000psig Fixed CP
C3C	3000psig Compact Fixed CP
C3CA	3000psig Compact Adjustable CP

CP - Cracking Pressure

Connection Type	
U	UNILOK Tube Fitting
F	Female NPT or ISO7/1(PT)
M	Male NPT or ISO7/1(PT)

Connection Size							
Fractional(Inch) Tube O.D. Designation							
Tube O.D.	inch	1/8	1/4	3/8	1/2	3/4	1
	mm	3.17	6.35	9.52	12.70	19.05	25.40
Designator		02T	04T	06T	08T	12T	16T

Metric Tube O.D. Designation							
Tube O.D.	mm	3	6	8	10	12	25
Designator		M03T	M06T	M08T	M10T	M12T	M25T

Pipe Size Designation (NPT or ISO7/1-PT)						
Pipe Size	1/8	1/4	3/8	1/2	3/4	1
Designator	02N/R	04N/R	06N/R	08N/R	12N/R	16N/R

Body Materials	
SS	316SS
BS	Brass
MO	Alloy 400

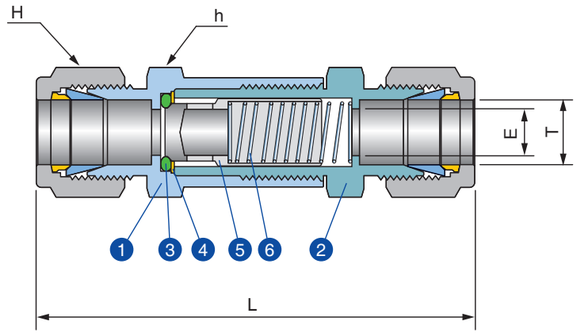
Cracking Pressure	
1/3	1/3 psig
01	1 psig
03	3 psig
10	10 psig
25	25 psig
100	100 psig

O-ring Materials	
None	FKM
E	Ethylene Propylene
N	Buna N
P	Neoprene
K	Kalrez

Seal kits and spring kits are available for retrofit or maintenance. Contact UNILOK local distributors.

VC3 series

(3000 psig, Fixed Cracking Pressure)



Materials of Construction

No.	Description	Materials	
Body Material		316SS	Brass
1	Inlet Body	316SS	Brass
2	Outlet Body	316SS	Brass
3	O-ring	FKM	NBR
4	Gasket	304SS	
5	Poppet	316SS	Brass
6	Spring	302SS	

Poppet - Silicone based lubricant
Inlet Body - Molybdenum dry film lubricant

Ordering Information & Dimensions

Part No.		End Connections		CV	Dimensions (mm)	
		Inlet	Outlet		L	h
VC31	U-02T-	1/8" UNILOK		0.16	54.5	15.87
	U-04T-	1/4" UNILOK		0.47	59.0	
	U-M06T-	6mm UNILOK			59.0	
	F-02N-	1/8" Female NPT			46.5	
	M-02N-	1/8" Male NPT			47.3	
	M-04N-	1/4" Male NPT			52.6	
	MU-04N04T-	1/4" Male NPT	1/4" UNILOK		56.0	
	F-04N-	1/4" Female NPT			54.5	19.05
VC32	U-06T-	3/8" UNILOK		1.48	80.4	19.05
	U-M10T-	10mm UNILOK			81.7	
	M-06N-	3/8" Male NPT			70.6	
VC33	U-08T-	1/2" UNILOK		1.70	85.6	22.22
	U-M12T-	12mm UNILOK			86.0	
	F-06N-	3/8" Female NPT			76.2	
	M-08N-	1/2" Male NPT			83.0	
	F-08N-	1/2" Female NPT			83.0	26.98
VC34	U-10T-	5/8" UNILOK		2.60	88.0	28.58
	F-08N-	1/2" Female NPT			91.2	
VC35	U-12T-	3/4" UNILOK		5.20	91.8	31.75
	F-12N-	3/4" Female NPT			87.5	
	M-12N-	3/4" Male NPT			86.0	
VC36	U-16T-	1" UNILOK		8.00	106.3	34.93
	F-16N-	1" Female NPT			123.0	41.28
	M-16N-	1" Male NPT			102.3	34.93

ISO7/1 Tapered Threads (PT) are available for all fractional sizes of VC3 series valves. Add "R" as a suffix instead of "N".

Dimensions are for reference only and are subject to change without prior notice.

Pressure Rating at 70°F(21°C)

Series	316SS		Brass	
	psig	bar	psig	bar
VC31	3000	207	3000	207
VC32 VC33	3000	207	3000	207
VC34 VC35 VC36	2000	138	1500	103

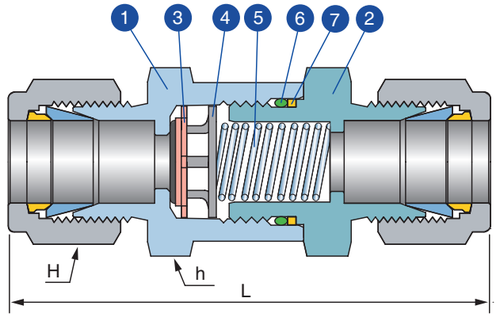
Cracking - Reseal Pressure

(psig)

Norminal Cracking Pressure	Cracking Pressure Range		Reseal Pressure
	Min.	Max.	
1/3	0	3	up to 6
1	0	4	up to 5
3	2	7	up to 4
10	7	15	3
25	20	30	17
50	40	60	35
75	60	90	53
100	80	120	70

VC6 series

(6000 psig, Fixed Cracking Pressure)



Materials of Construction

No.	Description	Materials
1	Inlet Body	316SS
2	Outlet Body	316SS
3	Poppet	FKM bonded 316SS
4	Poppet Stop	316SS
5	Spring	302SS
6	O-ring	FKM
7	Backup Ring	PTFE

Ordering Information & Dimensions

Part No.		End Connections		CV	Dimensions (mm)	
		Inlet	Outlet		L	h
VC61	U-02T-	1/8" UNILOK		0.67	57.7	17.46
	U-04T-	1/4" UNILOK			61.7	
	U-M06T-	6mm UNILOK			61.7	
	M-02N-	1/8" Male NPT			44.8	
	M-04N-	1/4" Male NPT			54.8	
VC62	U-06T-	3/8" UNILOK		1.80	69.9	25.40
	U-08T-	1/2" UNILOK			75.2	
	U-M08T-	8mm UNILOK			68.6	
	U-M10T-	10mm UNILOK			71.1	
	U-M12T-	12mm UNILOK			75.2	
	F-06N-	3/8" Female NPT			64.8	
	F-08N-	1/2" Female NPT			77.0	26.98
	M-12N-	3/4" Male NPT			59.2	25.40
	M-16N-	1" Male NPT			69.2	
VC63	U-12T-	3/4" UNILOK		4.70	110.0	31.75
	U-16T-	1" UNILOK			120.0	34.92
	U-M25T-	25mm UNILOK			120.0	
	F-12N-	3/4" Female NPT			104.0	31.75
	F-16N-	1" Female NPT			123.0	34.92

ISO7/1 Tapered Threads (PT) are available for all fractional sizes of VC6 series valves. Add "R" as a suffix instead of "N".

Pressure Rating at 70°F(21°C)

Series	316SS	
	psig	bar
VC61 VC62	6000	413
VC63	5000	344

O-ring Seal Temperature Rating

O-ring Materials	Temperature Rating	
	℃	℉
FKM	-28 ~ 204	-18 ~ 400
Ethylene Propylene	-45 ~ 135	-49 ~ 275
Buna N	-20 ~ 105	-4 ~ 221
Neoprene	-40 ~ 121	-40 ~ 250
Kalrez	-20 ~ 315	-22 ~ 599

CNG Application

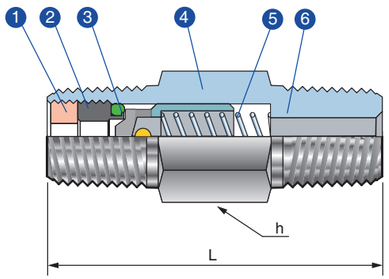
UNILOK VC6 series, high pressure check valves are available for CNG application with CNG compatible HNBR O-ring.

To order, add *-H* to the end of part number.

Dimensions are for reference only and are subject to change without prior notice.

VC3C series

(3000 psig, Fixed Cracking Pressure)



Ordering Information & Dimensions

Part No.		End Connections		CV	Dimensions (mm)	
		Inlet	Outlet		L	h
VC3C1	F-04N-	1/4" Female NPT		0.35	61.0	19.05
	M-04N-	1/4" Male NPT			41.0	14.28
	MF-04N-	1/4" Male NPT	1/4" Female NPT		44.0	19.05
	FM-04N-	1/4" Female NPT	1/4" Male NPT		58.0	
VC3C2	F-08N-	1/2" Female NPT		1.20	94.0	26.98
	M-08N-	1/2" Male NPT			58.0	22.22
	MF-08N-	1/2" Male NPT	1/2" Female NPT		72.0	26.98

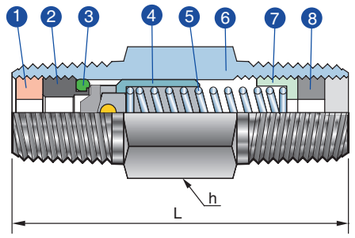
ISO7/1 Tapered Threads (PT) are available for all fractional sizes of VC3C
series valves. Add "R" as a suffix instead of "N".

Materials of Construction

No.	Description	Materials
1	Insert Lock Screw	316SS
2	Insert	316SS
3	O-ring	FKM
4	Poppet	316SS
5	Spring	302SS
6	Body	316SS

VC3CA series

(3000 psig, Compact, Adjustable Cracking Pressure)



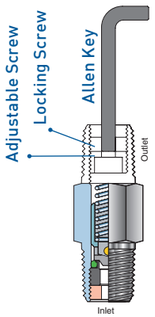
Ordering Information & Dimensions

Part No.		End Connections		CV	Dimensions (mm)	
		Inlet	Outlet		L	h
VC3CA1	F-04N-	1/4" Female NPT		0.35	75.7	19.05
	M-04N-	1/4" Male NPT			41.1	14.28
VC3CA2	M-08N-	1/2" Male NPT		1.20	65.0	22.22

Materials of Construction

No.	Description	Materials
1	Insert Lock Screw	316SS
2	Insert	316SS
3	O-ring	FKM
4	Poppet	316SS
5	Spring	302SS
6	Body	316SS
7	Adjustable Screw	316SS
8	Locking Screw	316SS

Adjustment of Cracking Pressure



1. Unscrew "locking screw" counter-clockwise.
2. Slide "allen key" up to "adjustable screw" position.
3. Turn "adjustable screw";

To decrease cracking pressure

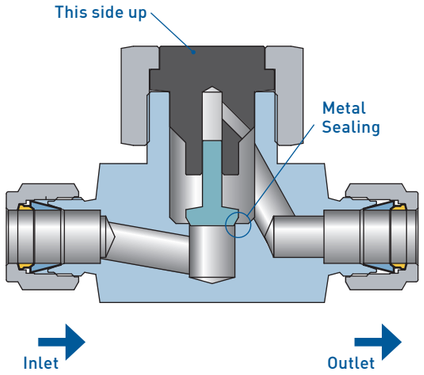
To increase cracking pressure

4. Move out "allen key" up to "locking screw" position.
5. Turn "allen key" clockwise.

Dimensions are for reference only and are subject to change without prior notice.

INSTRUMENT

Lift Check Valve
VLC



Features

Pressure rating up to 6000psig(413bar) @38℃(100℉)

Temperature rating from -53℃(165℉) to 482℃(900℉)

Compact body design.

Metal to metal Sealing.

Operation by Gravity.

Lift check Valve must be mounted horizontally, placing the union nut on top.

Reverse flow coefficient is limited to less than 0.1% of forward flow coefficient.

Cleaning

UNILOK valves are free from machine oils, loose particles and grease throughout the close cleaning process.

Testing

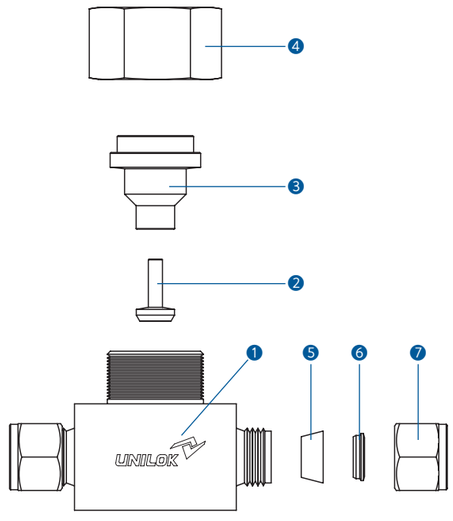
Every Lift check valve is 100% factory tested for proper functionality.

Important Notification

Proper installation, materials compatibility, operation and maintenance of these valves are the responsibility of the user. The total system design must be taken into consideration to ensure optimal Performance and safety.

Pressure – Temperature Ratings

ASME Class	2500
Material Group	2.2
Material Name	316 SS
Temperature ℃(℉)	Working Pressure bar (psig)
-53 to 37 (-65 to 100)	413 (6000)
93(200)	355(5160)
148(300)	321(4660)
204(400)	294(4280)
260(500)	274(3980)
315(600)	259(3760)
371(700)	248(3600)
426(800)	238(3460)
482(900)	225(3280)

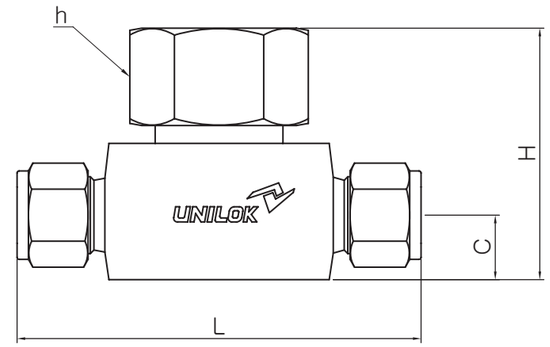


Materials of Construction

No.	Description	Materials
1	BODY	316 SS
2	POPPET	630 SS
3	BONNET	316 SS
4	UNION NUT	316 SS
5	FRONT FERRULE	316 SS
6	BACK FERRULE	316 SS
7	NUT	316 SS

VLC series

(6000 psig, No spring or elastomers)



Ordering Information & Dimensions

Part No.		End Connections		Orifice (mm)	CV	Dimensions (mm)				
		Inlet	Outlet			L	H	C	h	
									inch	mm
VLC1	U-04T-SS	1/4" UNILOK		4.0	0.3	61.0	37.3	9.9	7/8	22.22
	U-M06T-SS	6mm UNILOK								
	F-02N-SS	1/8" Female NPT				50.8				
	F-04N-SS	1/4" Female NPT				46.0				
	WB-04T-SS	1/4" Tube Butt Weld								
VLC2	U-04T-SS	3/8" UNILOK		6.4	0.64	71.9	47.0	12.7	1-1/4	31.75
	F-04N-SS	1/4" Female NPT				57.2				
	WB-06T-SS	3/8" Tube Butt Weld								
	WB-08T-SS	1/2" Tube Butt Weld								
VLC3	U-08T-SS	1/2" UNILOK		11.1	2.2	99.6	62.0	15.7	1-1/2	38.1
	U-12T-SS	3/4" UNILOK								
	F-06N-SS	3/8" Female NPT				79.2				
	F-08N-SS	1/2" Female NPT								
	WB-08T-SS	1/2" Tube Butt Weld				79.5				

Dimensions are for reference only and are subject to change without prior notice.
L is typical finger tight.

Excess Flow Valve
VE

Features

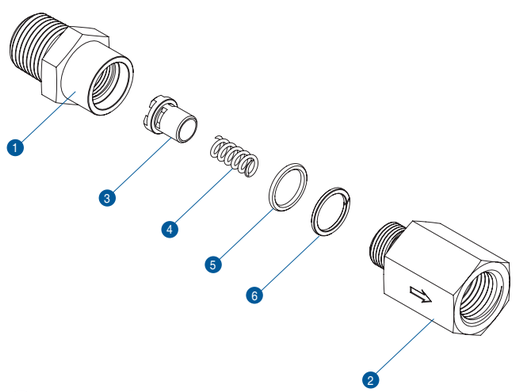
Pressure rating up to 6000psig (413bar) @38℃ (100℉)

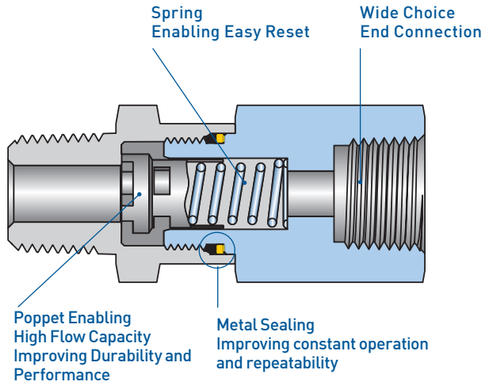
Temperature rating from -23℃(-10℉) to 204℃ (400℉) with standard FKM o-ring

Automatic reset by the bleed vent

Simple spring and seal maintenance with 2 piece body design

Limitless mounting orientation from spring loaded poppet actuation



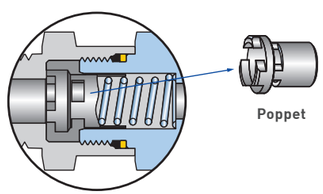


Materials of Construction

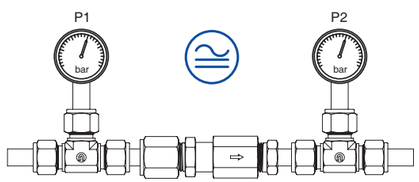
No.	Description	Materials	
Body Material		316SS	Alloy 400
1	Inlet Body	316SS	Alloy 400
2	Outlet Body	316SS	Alloy 400
3	Poppet	316SS	Alloy 400
4	Spring	302SS	Alloy 400
5	O-Ring	FKM	
6	Back-up Ring	PTFE	

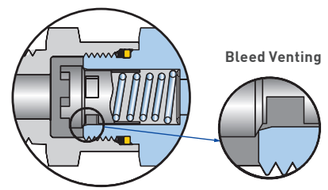
Operation

1. The spring maintains the poppet in a normally opening position as long as the system pressure is balanced.
2. If the system is unbalanced or the downstream pressure drops, the poppet will remain in closed position until the system pressure becomes equal.
3. The bleed in the poppet will allow the pressure to slowly and automatically equalize if the downstream line is closed or repaired.
4. When the pressure will be equal across the valve, the spring will reset the poppet to the open position.

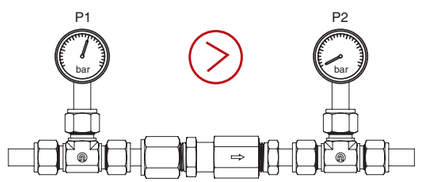


Open Position





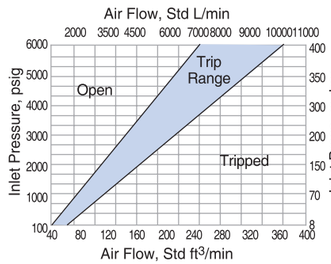
Closed Position



Air Flow Data at 70˚F(21℃)

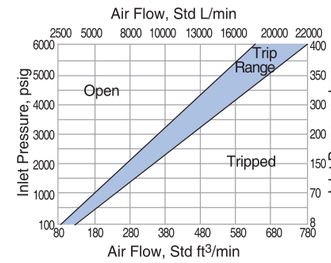
VE1 series

1/8", 1/4", 6mm



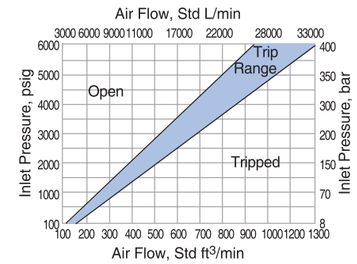
VE2 series

3/8", 8mm, 10mm



VE2 series

1/2", 12mm



Water Flow Data at 70˚F(21℃)

Series	Connection Size	Cv	Trip Range	
			US gal/min	L/min
VE1	1/8", 1/4", 6mm	0.5	3.9~5.8	14.7~21.9
VE2	3/8", 8mm, 10mm	1.1	8.2~10.0	31.0~37.9
	1/2", 12mm	1.1	11.2~14.9	42.4~56.4

Application

Prevent uncontrolled release of system fluid

Cleaning

UNILOK valves are free from machine oils, loose particles and grease throughout the close cleaning process.

The special cleaning for high purity application is available upon request.

Testing

Every VE series valve is 100% factory tested for proper functionality.

How To Order

UNILOK VE series excess flow valves are ordered by part number as shown below.

Example: The following part number, ***VE1U-04T-SS*** is designated for VE series excess flow valve with both 1/4" , UNILOK tube fittings, 316SS.

V	E1	U	-	04T	-	SS	-	
UNILOK Valve	Valve Type	Connection Type		Connection Size		Body Materials		O-ring Materials

Connection Type	
U	UNILOK Tube Fitting
F	Female NPT or ISO7/1(PT)
M	Male NPT or ISO7/1(PT)

Connection Size				
Fractional(Inch) Tube O.D. Designation				
Tube O.D.	inch	1/4	3/8	1/2
	mm	6.35	9.52	12.70
Designator		04T	06T	08T

Metric Tube O.D. Designation					
Tube O.D.	mm	6	8	10	12
Designator		M06T	M08T	M10T	M12T

Pipe Size Designation (NPT or ISO7/1-PT)			
Pipe Size	1/4	3/8	1/2
Designator	04N/R	06N/R	08N/R

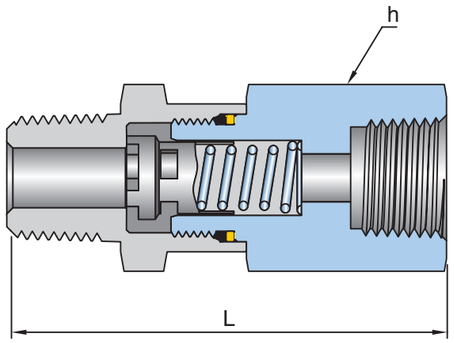
Body Materials	
SS	316SS
M0	Alloy 400

Other alloys are available upon request.

O-ring Materials	
None	FKM
E	Ethylene Propylene
N	Buna N
P	Neoprene
K	Kalrez

Seal kits are available for retrofit or maintenance.
Contact UNILOK local distributors.

VE series



Temperature - Pressure Rating

Temperature Rating		Working Pressure	
℉	℃	psig	bar
100	37	6000	413
200	93	5160	355
250	121	4910	338
300	148	4660	321
400	204	4280	295

316SS body and Viton O-ring

VE2 series valves
with 3/8" Female NPT - 5000psig(344bar)
with 1/2" Female NPT - 4600psig(316bar)

Ordering Information & Dimensions

Part No.		End Connections		Dimensions (mm)	
		Inlet	Outlet	L	h
VE1	U-04T-	1/4" UNILOK		61.7	17.4
	U-M06T-	6mm UNILOK		61.7	
	F-02N-	1/8" Female NPT		47.5	
	F-04N-	1/4" Female NPT		53.8	
	M-02N-	1/8" Male NPT		45.5	
	M-04N-	1/4" Male NPT		55.1	
	MU-04N04T-	1/4" Male NPT	1/4" UNILOK	58.4	
	MF-04N-	1/4" Male NPT	1/4" Female NPT	54.1	
VE2	U-06T-	3/8" UNILOK		69.9	25.4
	U-08T-	1/2" UNILOK		75.4	
	U-M08T-	8mm UNILOK		68.6	
	U-M10T-	10mm UNILOK		71.7	
	U-M12T-	12mm UNILOK		75.2	
	F-06N-	3/8" Female NPT		64.8	
	F-08N-	1/2" Female NPT		77.0	27.0
	M-06N-	3/8" Male NPT		59.9	25.4
	M-08N-	1/2" Male NPT		69.3	
	MU-06N06T-	3/8" Male NPT	3/8" UNILOK	65.0	
	MU-08N08T-	1/2" Male NPT	1/2" UNILOK	72.4	
	MF-06N-	3/8" Male NPT	3/8" Female NPT	62.5	
	MF-08N-	1/2" Male NPT	1/2" Female NPT	73.4	

Outlet body dimension (h) of VE2MF-08N-SS is 27mm.
ISO7/1 Tapered Threads (PT) are available for all fractional sizes of VE series valves. Add "R" as a suffix instead of "N"

Dimensions are for reference only and are subject to change without prior notice.

O-ring Seal Temperature Rating

O-ring Materials	Temperature Rating	
	℃	℉
FKM	-28 ~ 204	-18 ~ 400
Ethylene Propylene	-45 ~ 135	-49 ~ 275
Buna N	-20 ~ 105	-4 ~ 221
Neoprene	-40 ~ 121	-40 ~ 250
Kalrez	-20 ~ 315	-22 ~ 599

Important Notification

Proper installation, materials compatibility, operation and maintenance of these valves are the responsibility of the user.

The total system design must be taken into consideration to ensure optimal performance and safety.

Best Engineering For You