

CHECK/ NON-RETURN VALVES

Hydraulic check valves are critical control components designed to allow oil flow in one direction and completely block in reverse direction. The valves are designed to open when a pressure threshold (cracking pressure) is exceeded.

Bemco Fluidtechnik (FLUIDIK) offers a variety of check valve options as detailed below,

Model Code	Mounting	Size Range	Max Pressure	Flow Range
CVK...	Cartridge Type	1/8" to 1" BSP	700 bar	12...250 LPM
LCK...	Line Mounted	1/4" to 1" BSP	700 bar	22...250 LPM
CVMSR...	Cartridge Type	NG 20...NG 30	420 bar	200...400 LPM
CVL...	Line Mounted	3/8" ...1-1/2" BSP	315 bar	30...300 LPM
CVSAE...	Sandwich SAE Type	1" ...2" SAE	400 bar	200...750 LPM

KEY FEATURES & BENEFITS

FLUIDIK check valve are suitable for multiple mounting options including cartridges, line mounting and also as sandwich SAE version for flows from 12 to 750 lpm. Valves are also available for high pressure applications upto 700bar (10,000PSI).

Custom options including NPT, UNF type, custom cracking pressures, SS MOC are also available. Consult factory for custom designed valves.

COMMON APPLICATIONS

- Pump Pressure Lines
- Multi-Pump Flow Combining
- Filter Bypass Circuits
- Pressure Isolation Circuits
- Cooler Bypass Lines
- Anti-Cavitation Lines
- Hydraulic Torque Converter Circuits
- Lubrication Systems
- Accumulator Isolation Lines
- Steering Priority Circuits
- Brake Actuation Pressure Lines...

Refer the following pages for additional details and contact us for your custom application requirements.

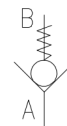
CHECK VALVE - CVK/ LCK



Ball Type | Direct Acting | Screw-in/ Line Mounted

Specification/ Technical Data

Max. Operating Pressure	700 bar
Maximum Flow	250 lpm
Max. Internal Leakage	0.3ml/min
Flow Direction	A to B
Cracking Pressure	1.5 bar
Custom Cracking Pressure	Upon Request
Material	Carbon Steel
Media	Mineral Oil
Oil Temperature Range	+10 to 80°C
Oil Viscosity	ISO VG 46-100
Oil Cleanliness (ISO 4406)	20/18 /15
Orientation	Any
Weight	0.05 - 0.15Kg



CVK and LCK series check valves are direct-acting, ball-type, spring-loaded non-return valves designed for reliable load holding and oil path isolation in hydraulic circuits. The valves permit oil flow from Port A to Port B subject to cracking pressure of the valve. In the reverse direction, the valve provides positive shut-off, completely blocking oil flow.

CVK type is a screw-in cartridge type design suitable for compact manifold integration and LCK is a line-mounted version featuring standard BSP threads.

Consult factory for custom requirements, including: custom cracking pressures, stainless steel construction, specialised thread patterns, etc.

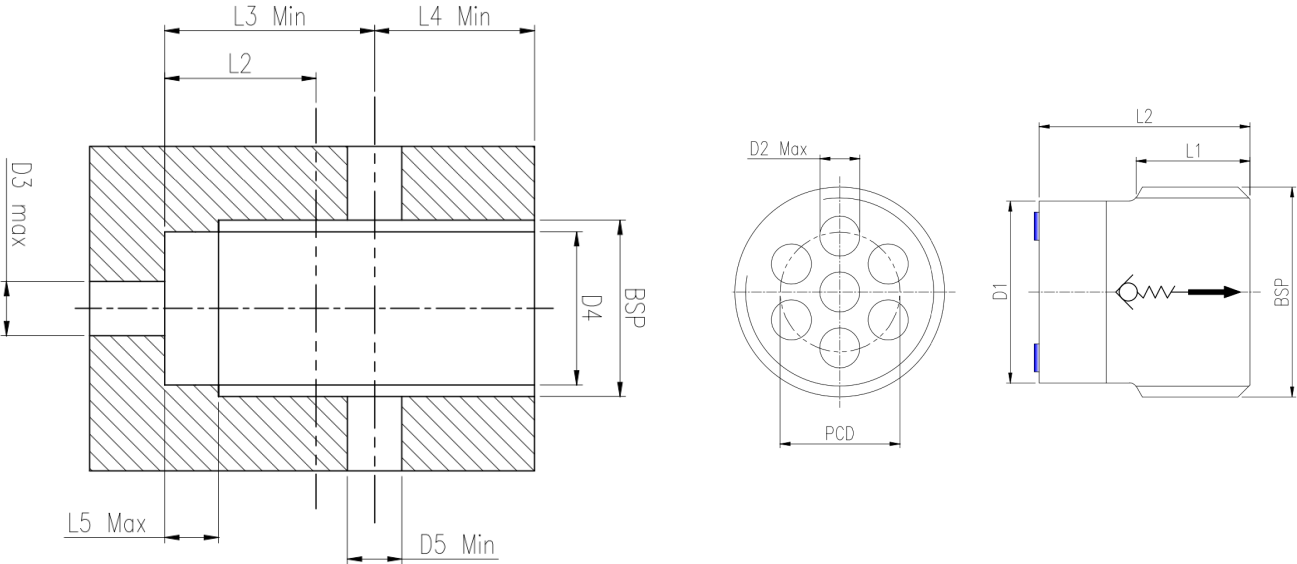
Note: Assembly Tool is available on request or refer page-3 for details
Consult factory for stainless steel MOC

Ordering Information

Basic Code	CVL/ LCK	CVK
Size/ NG	1/8" to 1" BSP	0... 5
Cracking Pr.	1.5 bar	No code
Seal Material	Viton	No code
Version		3x

Size/ Type	Flow LPM	Max Pr. Bar	Wt. Kg	Torque N-m
CVK 0	12	700	0.05	3
CVK 1	22	700	0.05	7
CVK 2	30	600	0.05	15
CVK 3	65	550	0.07	30
CVK 4	180	420	0.10	60
CVK 5	250	350	0.15	120

Size/ Type	Size	Flow LPM	Max Pr. Bar	Wt. Kg
LCK 1	1/4" BSP	22	700	0.12
LCK 2	3/8" BSP	30	700	0.22
LCK 3	1/2" BSP	65	420	0.32
LCK 4	3/4" BSP	180	315	0.55
LCK 5	1" BSP	250	315	1.2



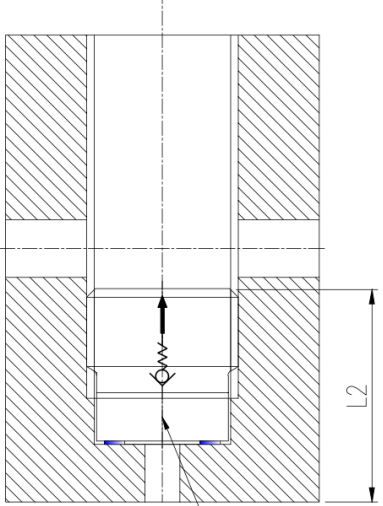
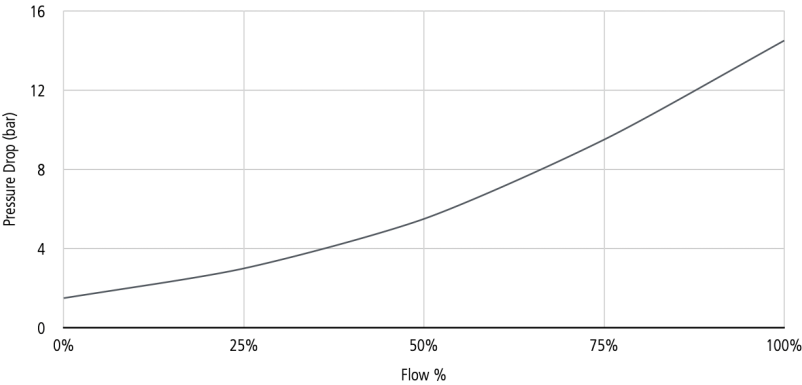
Size	BSP	øD1	øD2	øD3	øD4	øD5	PCD	L1	L2	L3	L4	L5
CVK0-3x	1/8"	8.5	2.0	3.0	8.8	5.0	6.0	6.5	10.0	14.0	15.0	4.0
CVK1-3x	1/4"	11.4	2.5	3.0	11.8	5.0	7.5	7.5	13.5	18.0	20.0	4.0
CVK2-3x	3/8"	14.75	3.0	5.0	15.25	7.0	9.5	10.0	18.0	23.0	20.0	6.0
CVK3-3x	1/2"	18.2	3.5	7.0	19.0	10.0	12.0	12.0	22.0	30.0	25.0	8.0
CVK4-3x	3/4"	23.7	5.5	12.0	24.5	14.0	16.0	16.0	30.0	40.0	30.0	12.0
CVK5-3x	1"	29.7	7.0	16.0	30.75	18.0	21.5	20.0	40.0	52.0	35.0	16.0

Spare List

Rect. Ring CVK 0	ø5xø7.2x1.2mm thk
Rect. Ring CVK 1	ø6xø9.5x2mm thk
Rect. Ring CVK 2	ø8.5xø12.5x2mm thk
Rect. Ring CVK 3	ø11xø15x2mm thk
Rect. Ring CVK 4	ø17xø21x2mm thk
Rect. Ring CVK 5	ø21xø26x2.5mm thk

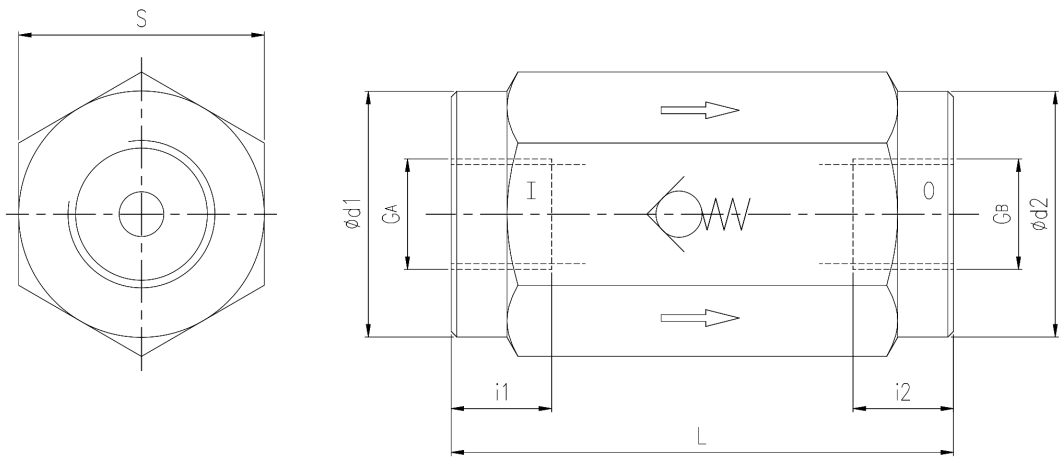
Performance Chart

Recorded at TOil = 40°C and 68 cSt.



Check Valve
CVK...-3x

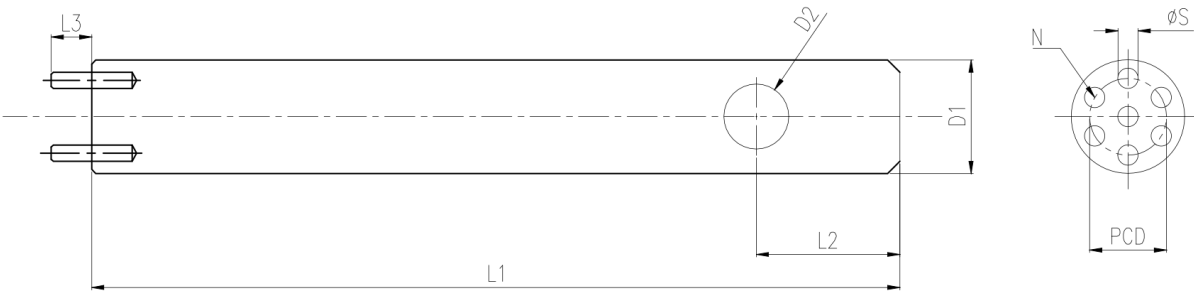
Line Mounted (LCK)



Size	GA	GB	d1	d2	i1	i2	L	S	Pr. Rating
LCK1-3x	G1/4"	G1/4"	21.5	21.5	12.0	12.0	45.0	22.0	700 Bar
LCK2-3x	G3/8"	G3/8"	23.5	23.5	12.0	12.0	50.0	24.0	700 Bar
LCK3-3x	G1/2"	G1/2"	29.5	29.5	14.0	14.0	60.0	30.0	420 Bar
LCK4-3x	G3/4"	G3/4"	35.5	35.5	16.0	16.0	75.0	36.0	315 Bar
LCK5-3x	G1"	G1"	45.5	45.5	18.0	18.0	90.0	46.0	315 Bar

- Note:
- For operating pressure >300bar, use lapped washer instead of bonded washer.
 - For Pressure <300 bar, use fitting with ED seal.

Assembly Tool



Ordering Information

Assembly Tool CVK0	ATCVK03x
Assembly Tool CVK1	ATCVK13x
Assembly Tool CVK2	ATCVK23x
Assembly Tool CVK3	ATCVK33x
Assembly Tool CVK4	ATCVK43x
Assembly Tool CVK5	ATCVK53x

Size	BSP	D1	D2	L1	L2	L3	PCD	N	S
CVK0-3x	1/8"	8.0	4	60	10	5	6.0	7	1.5
CVK1-3x	1/4"	10.5	5	80	14	4	7.5	7	2.0
CVK2-3x	3/8"	14.5	7	90	18	7	9.5	7	2.5
CVK3-3x	1/2"	18	9	110	22	7	12.0	7	3.0
CVK4-3x	3/4"	24	12	140	30	9	16.0	7	5.0
CVK5-3x	1"	30	15	174	38	14	21.5	7	6.5

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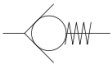
CHECK VALVE - CVMSR



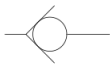
Cartridge Type | 420bar | 400lpm

Specification/ Technical Data

Max. Operating Pressure	400 bar
Maximum Flow	400 lpm
Max. Internal Leakage	0.3ml/min
Flow Direction	A to B
Cracking Pressure	0 or 1.5bar
Custom Cracking Pressure	Upon Request
Material	Carbon Steel
Media	Mineral Oil
Oil Temperature Range	+10 to 80°C
Oil Viscosity	ISO VG 46-100
Oil Cleanliness (ISO 4406)	20/18 /15
Orientation	Any
Weight (approx.)	0.4 - 1.0Kg

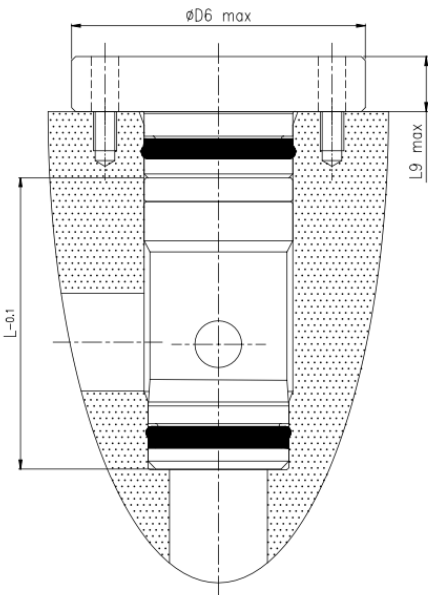


With Spring



Without Spring

Check valves or non-return valves are designed to allow oil flow through them in only one direction and block in opposite direction. The unique flange locking design facilitates superior performance and zero leak. The valve may also be used without flange for replacement purposes. These valves are ideal for high flow applications and are available without spring (0 bar cracking) or standard 1.5bar cracking pressures.



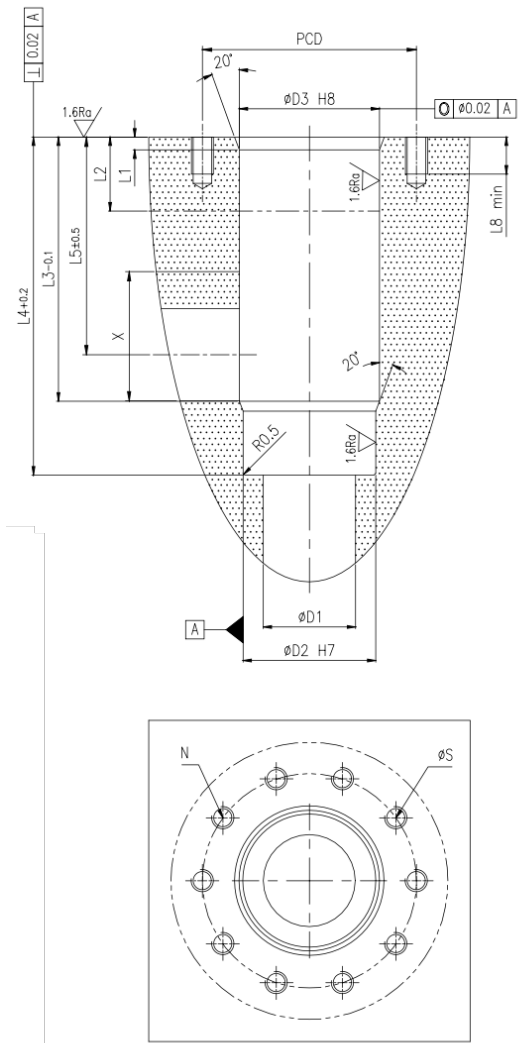
Note: CVMSR is supplied with mounting flange as standard, but cartridge (without flange) may be used as 1:1 replacement for spare requirements.

Ordering Information

Basic Code		CVMSR
Size/ NG	20,25,30	20...30
Cracking Pr.	0/ 1.5bar	0/1.5
Seal Material	Viton	No code
Version	Flange Type	2x

Model	Size	Max Flow	Max Pr.	Torque N-m	Weight Kg
CVMSR 20	NG 20	200 lpm	420 bar	10	0.40
CVMSR 25	NG 25	300 lpm	420 bar	10	0.65
CVMSR 30	NG 30	400 lpm	420 bar	20	1.00

Model	CVMSR 20	CVMSR 25	CVMSR 30
øD1	20	25	30
øD2	28	36	42
øD3	30	38	44
øD4	G1"	G1-1/4"	G1-1/2"
øD5	41	51	56
øD6	65	75	85
L1	3	3.5	3.5
L2	16	16	16
L3	56.5	72.5	79.5
L4	72	91	100
L5	44	57.5	62
L6	16	16	16
L7	20	20	20
L8	10	10	13
L9	14	14	14
L	55.3	74.3	83.3
X	40	40	45
øS	M6	M6	M8
N	6	10	8
PCD	50	58	66



Supplied without mounting bolts

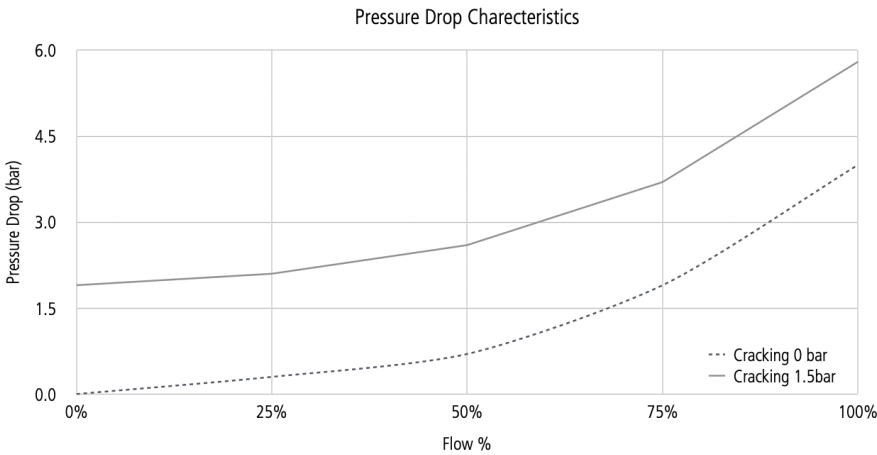
All dimensions in mm

Spare List

CVMSR20...	SSVMSR202X
CVMSR25...	SSVMSR252X
CVMSR30...	SSVMSR302X

Performance Chart

Recorded at TOil = 40°C and 68 cSt.



CHECK VALVE - CVL



Ball Type | Direct Acting | Line Mounted

Specification/ Technical Data

Max. Operating Pressure	315 bar
Maximum Flow	300 LPM
Max. Internal Leakage	0.3ml/min
Flow Direction	A to B
Cracking Pressure	0.5 bar
Sizes (BSP)	3/8" to 1-1/2"
Material	Carbon Steel
Media	Mineral Oil
Oil Temperature Range	+10 to 80°C
Oil Viscosity	ISO VG 46-100
Oil Cleanliness (ISO 4406)	20/18 /15
Orientation	Any
Weight	0.02 - 0.22Kg



CVL valves are line-type, direct-acting, ball-type, spring-loaded non-return/ check valves. These valves are used for blocking or isolating a specific oil path or load holding in one direction. The valves allow oil flow in A-B direction (above the cracking pressure) but block oil flow in the reverse direction. These valves may be mounted directly to the pump delivery port or manifold block ports.

The unique feature of CVL-type valves is that they are built into a standard adapter-style fitting, thereby eliminating the need for additional fittings that are commonly used with line-mounted valves. This not only makes the assembly compact, but also eliminates potential leakage points. The valves are designed for reduced pressure differential at rated flows and for medium pressure applications.

A variety of customisations are possible, including custom cracking pressures, stainless steel MOC, and other custom configurations, including thread patterns and very low cracking pressures. Consult factory with details to tailor the product to your application requirements.

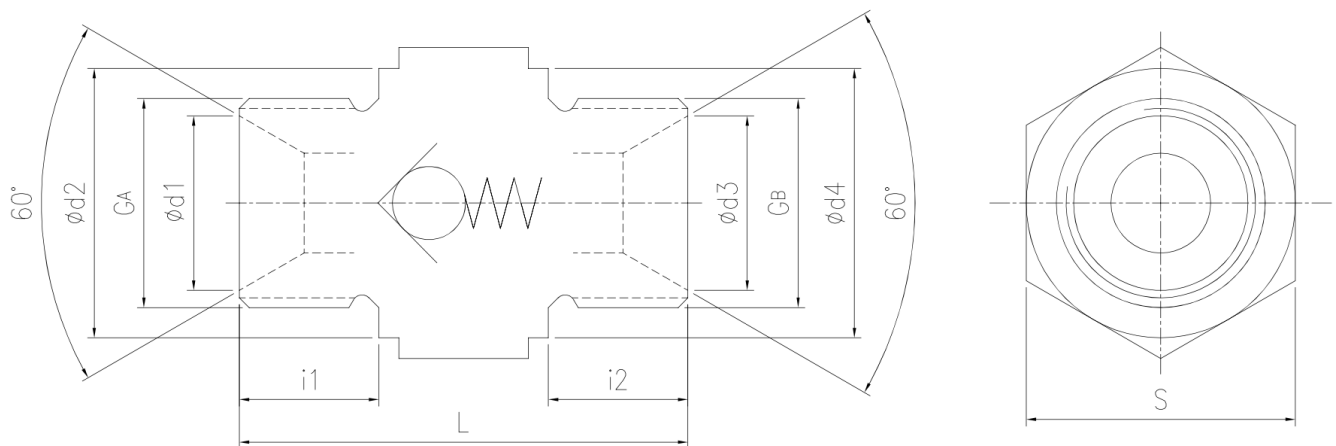
Note: Consult factory for stainless steel (SS304) MOC, NPT or UNF threads and custom cracking pressures

Ordering Information

Basic Code		CVL
Size/ NG	3/8" to 1-1/2" BSP	2... 7
Cracking Pr.	0.5 bar	No code
ED Seal	With-E/ Without-W	E/ W
Seal Material	NBR	No code
Version		1x

Size	Size	Flow LPM	Max Pr. Bar	Wt. Kg
CVL 2	G 3/8"	30	315	0.02
CVL 3	G 1/2"	60	315	0.05
CVL 4	G 3/4"	120	315	0.10
CVL 5	G 1"	160	315	0.15
CVL 6	G 1-1/4"	225	315	0.18
CVL 7	G 1-1/2"	300	315	0.22

ΔP = 5 bar at rated flows calculated considering ISO VG46 at 50° C



Size	GA	GB	$\phi d1$	$\phi d2$	$\phi d3$	$\phi d4$	i1	i2	L	S
CVL2-1x	G3/8"	G3/8"	14.0	21.0	14.0	21.0	12.0	12.0	38.0	22.0
CVL3-1x	G1/2"	G1/2"	17.5	26.0	17.5	26.0	14.0	14.0	45.0	27.0
CVL4-1x	G3/4"	G3/4"	22.9	32.0	22.9	32.0	16.0	16.0	48.0	32.0
CVL5-1x	G1"	G1"	28.7	39.0	28.7	39.0	19.0	19.0	55.0	41.0
CVL6-1x	G1.1/4"	G1.1/4"	36.8	49.0	36.8	49.0	20.0	20.0	61.0	50.0
CVL7-1x	G1.1/2"	G1.1/2"	42.7	55.0	42.7	55.0	22.0	22.0	66.0	55.0

All dimensions in mm

Spare List*

Seal Kit CVL2	SSVCVL2
Seal Kit CVL3	SSVCVL3
Seal Kit CVL4	SSVCVL4
Seal Kit CVL5	SSVCVL5
Seal Kit CVL6	SSVCVL6
Seal Kit CVL7	SSVCVL7

*Only for ED seal version

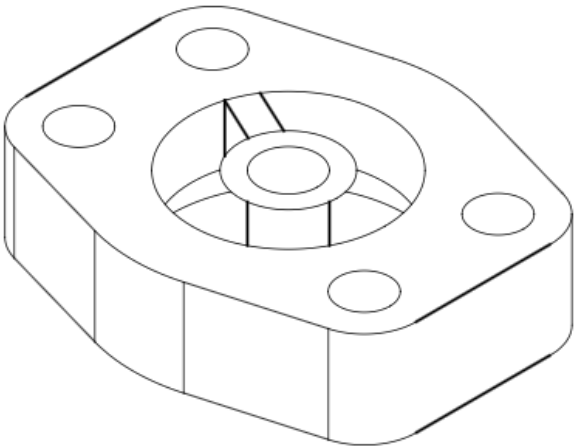
CHECK VALVE - SAE



Sandwich SAE Type | 1" to 2" | 3000/6000 psi

Specification/ Technical Data

Max. Operating Pressure	400 bar
Max Flow	750 LPM
Mounting	Sandwich Type
Design	Disc Type
Cracking Pressure	~ 1 bar
Surface Treatment	Zinc Plated
Body Material	Carbon Steel
Media	Mineral Oil
Oil Temperature Range	+10 to 60°C
Oil Viscosity	ISO VG 46-100
Oil Cleanliness (ISO 4406)	20/18 /15
Orientation	Any
Weight (approx.)	0.9...4.5 Kg



SAE flange mounted direct operated check valves can be mounted directly to the delivery port of pumps with SAE type 61 or 62 ports. These compact valves block oil flow in one direction and allow flow in opposite direction subject to a cracking pressure. While they may be mounted anywhere in an hydraulic circuit to isolate a specific branch of oil path, they are ideally suited for pump delivery ports since they protect the pumps from pressure spikes and shocks that may other wise damage the pump.

Use of these compact valves eliminate the need for line mounted check valves on the pump delivery port and thereby reduce chances of leakage.

* Consult factory for other sizes & custom requirements

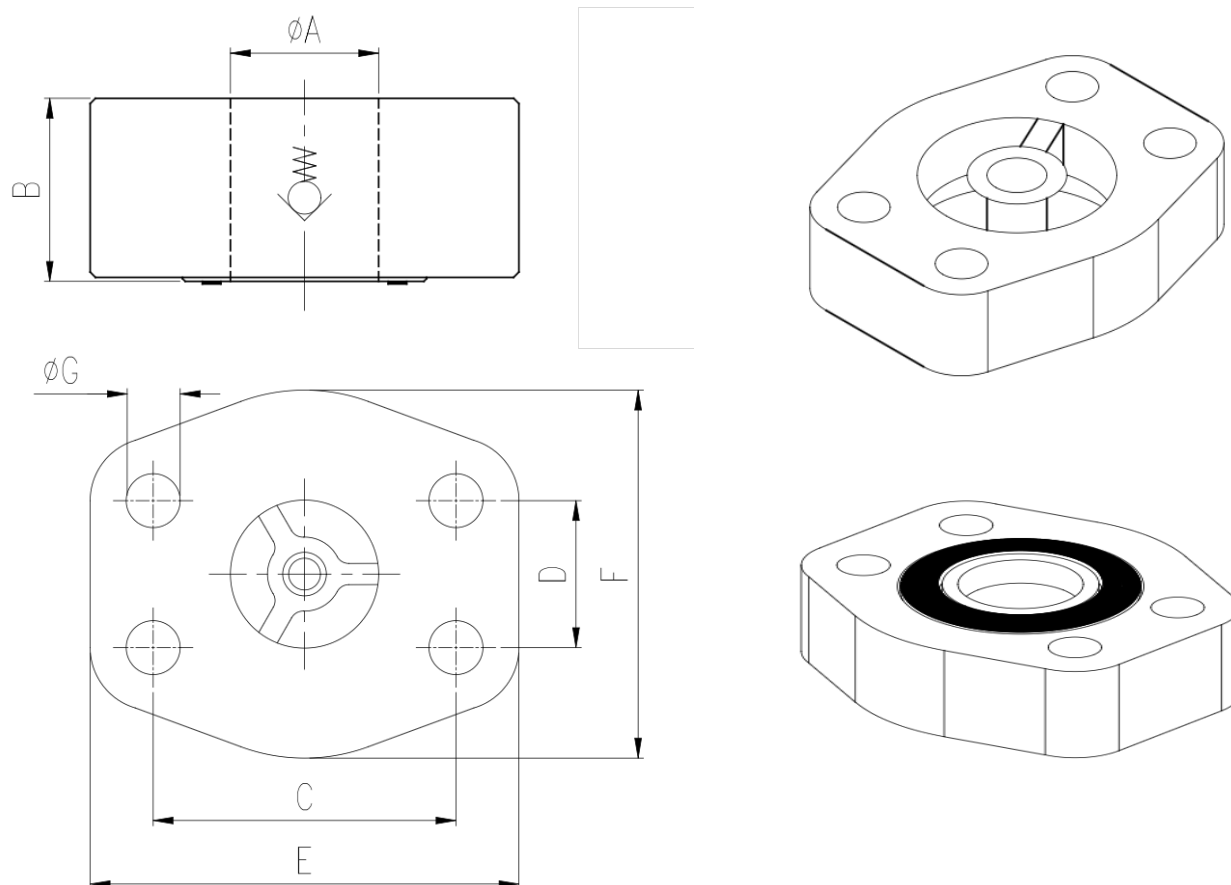
Ordering Information

Basic Code	Check Valve - SAE	CVSAE
Series	3000 (3)/ 6000 (6)PSI	3/ 6
Size	DN 25...50	25
Seals	Viton	-
Version		1x

Size	Size Inch	Max Flow LPM	Max Pressure Bar	Weight Kg
DN 25	1"	200	345 (400)	0.90 (1.20)
DN 32	1-1/4"	300	280 (350)	1.20 (1.70)
DN 40	1-1/2"	450	210 (350)	1.90 (2.80)
DN 50	2"	750	210 (350)	2.50 (4.50)

Figures in brackets () are for 6000PSI series

Dimensions



3000 PSI Standard Pressure Series (According to ISO 6162-1: 2012)

Nominal Size	Size Inch	ϕA	B	C	D	E	F	ϕG	Seal Size
DN 25	1"	38.5	30	52.4	26.2	70.0	58.4	10.5	$\phi 31.5 \times \phi 38.5 \times 3.5 \text{thk}$
DN 32	1-1/4"	43.7	32.5	58.7	30.2	79.5	72.6	10.5	$\phi 37.5 \times \phi 44.5 \times 3.5 \text{thk}$
DN 40	1-1/2"	50.8	38	69.9	35.7	94.0	82.2	13.0	$\phi 47.5 \times \phi 54.5 \times 3.5 \text{thk}$
DN 50	2"	62.8	40	77.8	42.9	102.0	96.4	13.0	$\phi 56.0 \times \phi 63.0 \times 3.5 \text{thk}$

6000 PSI Standard Pressure Series (According to ISO 6162-2: 2012)

Nominal Size	Size Inch	ϕA	B	C	D	E	F	ϕG	Seal Size
DN 25	1"	38.8	30	52.2	27.8	81	69.6	13	$\phi 31.5 \times \phi 38.5 \times 3.5 \text{thk}$
DN 32	1-1/4"	44.5	32.5	66.6	31.8	95	77.2	15	$\phi 37.5 \times \phi 44.5 \times 3.5 \text{thk}$
DN 40	1-1/2"	51.6	38	79.3	36.5	113	95.0	17	$\phi 47.5 \times \phi 54.5 \times 3.5 \text{thk}$
DN 50	2"	67.6	40	96.8	44.5	133	113.8	21	$\phi 56.0 \times \phi 63.0 \times 3.5 \text{thk}$

Bolt Kits are not supplied with the valves
All dimensions in mm