



TI-P134-04
CMGT Issue 16

DCV4 Disc Check Valve

Description

The DCV4 stainless steel disc check valve is of the wafer pattern designed to be sandwiched between ASME flanges. It is suitable for use on a wide range of fluids for applications in process lines, hot water systems, steam and condensate systems etc.

Face-to-face dimensions conform to EN 558 part 2, series 52.

As standard it will be supplied with a metal-to-metal seat for use on steam applications. Where it will be used on oil, air, gas and water applications, alternative seat material is available - see 'Optional extras'.

Optional extras

High temperature springs for temperatures up to 400 °C (752 °F).

Viton soft seats for oils, air and gas applications.

EPM soft seats for water applications.

Standards

This product fully complies with the requirements of the European Pressure Equipment Directive 2014/68/EU.

Standard shut-off

Standard valves conform to EN 12266-1 rate E.

Valves conforming to EN 12266-1 rate D are available on request. Soft seated versions meet EN 12266-1 rate A, providing a differential pressure exists.

Certification

This product is available with certification to EN 10204 3.1.

Note: All certification/inspection requirements must be stated at the time of order placement.

Sizes and pipe connections

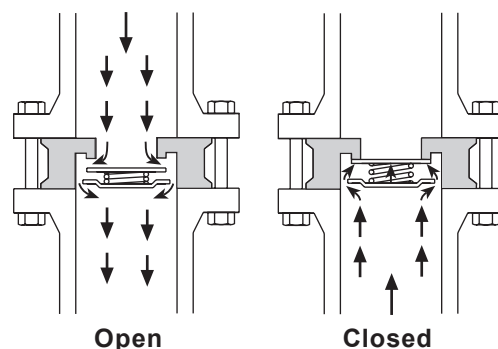
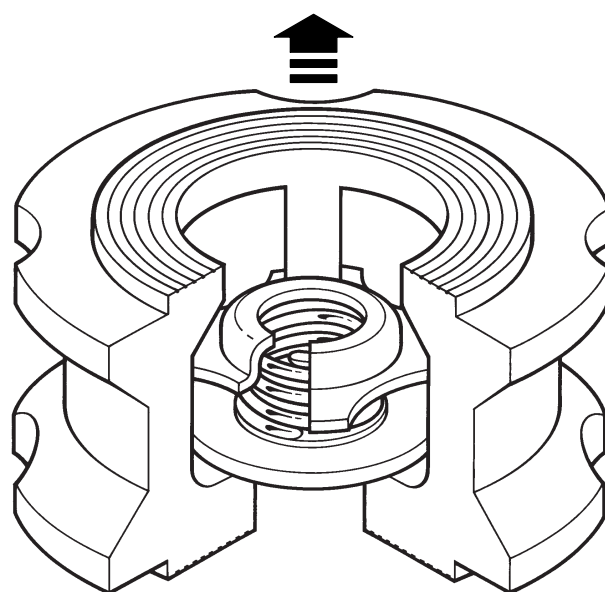
DN15, DN20, DN25, DN40, DN50, DN80 and DN100

(½", ¾", 1", 1½", 2", 3", and 4")

Suitable for installation between ASME 150 or ASME 300 flanges.

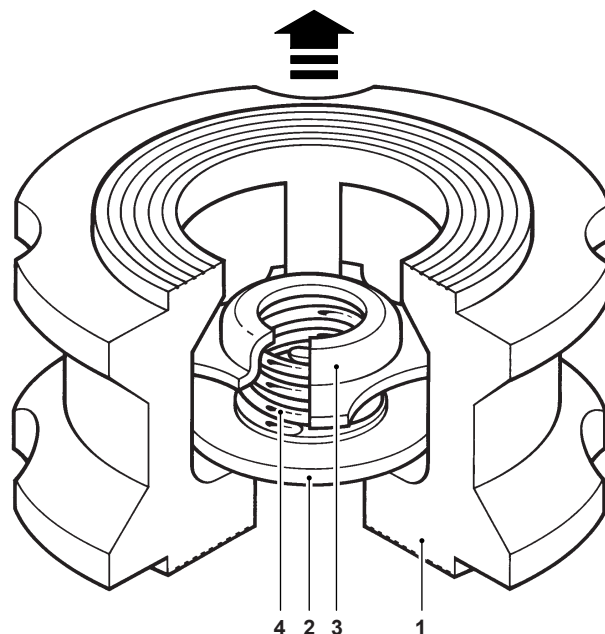
Operation

Disc check valves are opened by the pressure of the fluid and closed by the spring as soon as the flow ceases and before the reverse flow occurs.

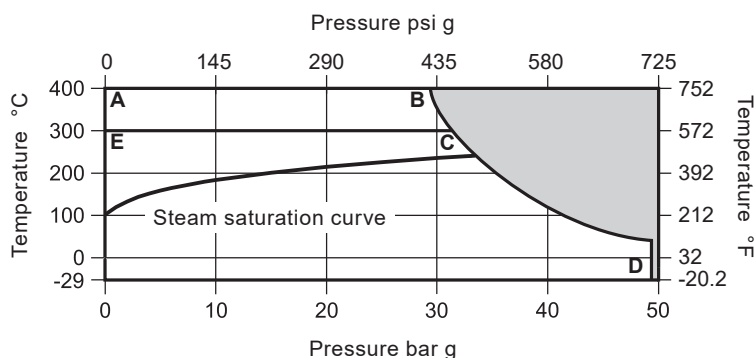


Materials

No.	Part	Material	
1	Body	Austenitic stainless steel	ASTM A351 CF3M
2	Disc	Austenitic stainless steel	ASTM A276 316
3	Spring retainer	Austenitic stainless steel	BS 1449 316 S11
4	Standard spring	Austenitic stainless steel	BS 2056 316 S42
	High temperature spring	Nickel alloy	Nimonic 90



Pressure/temperature limits



The product **must not** be used in this region.

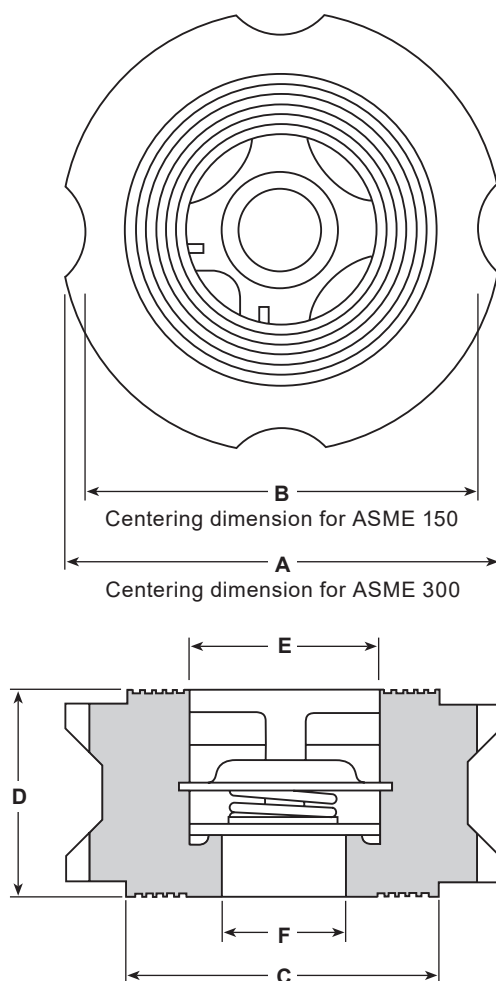
A-B-D High temperature spring and without spring.

E-C-D Standard spring.

Please note: The figures displayed are only relevant when a metal-to-metal seat is used. If Viton or EPDM seats are used the product is restricted to the limits of the seat material chosen.

Body design conditions for saturated steam service			ASME 300
PMA	Maximum allowable pressure	49 bar g @ 37 °C	711 psi g @ 98.6 °F
TMA	Maximum allowable temperature	400 °C @ 29 bar g	752 °F @ 421 psi g
	Minimum allowable temperature	-29 °C	-20.2 °F
PMO	Maximum operating pressure for saturated steam service	34 bar g @ 243 °C	493 psi g @ 469 °F
	Standard spring	300 °C @ 31.5 bar g	572 °F @ 457 psi g
TMO	Maximum operating temperature	High temperature spring	400 °C @ 29 bar g
		Without spring	752 °F @ 421 psi g
	Minimum operating temperature	-29 °C	-20.2 °F
Note: For lower operating temperatures consult Spirax Sarco			
Temperature limits	Viton seat	-25 °C to +205 °C	-13 °F to +401 °F
	EPDM seat	-40 °C to +120 °C	-40 °F to +248 °F
Product is safe for use under full vacuum conditions			
Designed for a maximum cold hydraulic test pressure of		76 bar g	1102 psi g

Dimensions/weights (approximate) in mm and kg



	ASME 300	ASME 150					
Size	A	B	C	D	E	F	Weight
DN15	54 (2.13)	47 (1.85)	38 (1.50)	25 (0.98)	22.35 (0.88)	15 (0.59)	0.24 (0.53)
DN20	67 (2.64)	57 (2.24)	46 (1.81)	31 (1.22)	27.35 (1.08)	20 (0.79)	0.41 (0.90)
DN25	73 (2.87)	67 (2.64)	54 (2.13)	35 (1.38)	33.15 (1.31)	25 (0.98)	0.54 (1.19)
DN40	95 (3.74)	86 (3.39)	76 (2.99)	45 (1.77)	49.15 (1.94)	40 (1.57)	1.15 (2.54)
DN50	111 (4.37)	105 (4.13)	95 (3.74)	56 (2.20)	59.15 (2.33)	50 (1.97)	1.84 (4.06)
DN80	149 (5.87)	136 (5.35)	130 (5.12)	71 (2.80)	90.15 (3.55)	80 (3.15)	3.69 (8.14)
DN100	181 (7.13)	174 (6.85)	160 (6.30)	80 (3.15)	111.15 (4.38)	100 (3.94)	5.70 (12.6)

Kv values

DN	15	20	25	40	50	80	100	For conversion: Cv (UK) = Kv x 0.963 Cv (US) = Kv x 1.156
Kv	4.4	7.5	12	26	39	84	150	

Opening pressures in mbar

Differential pressures with zero flow for standard and high temperature springs.

→ Flow direction

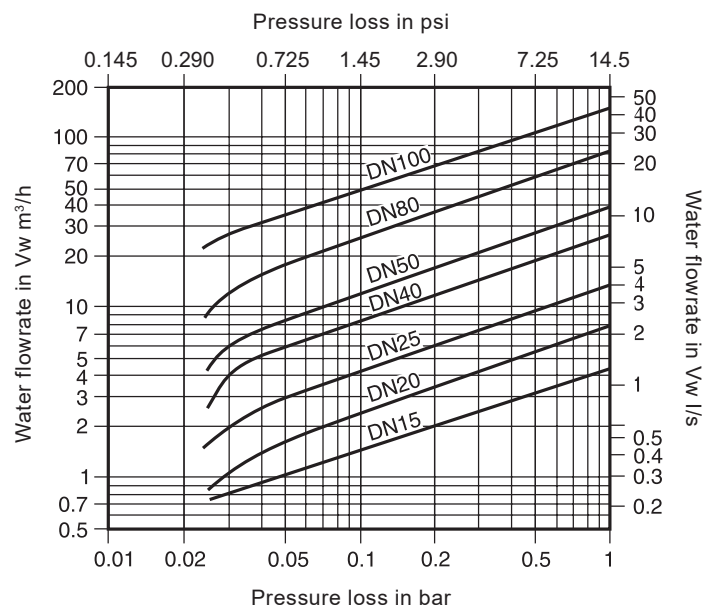
DN	15 (½")	20 (¾")	25 (1")	40 (1½")	50 (2")	80 (3")	100 (4")
↑	25 (0.36 psi)	25 (0.36 psi)	25 (0.36 psi)	28 (0.41 psi)	29 (0.42 psi)	31 (0.45 psi)	33 (0.48 psi)
→	22.5 (0.33 psi)	22.5 (0.33 psi)	22.5 (0.33 psi)	24 (0.35 psi)	24.5 (0.36 psi)	25.5 (0.37 psi)	26.5 (0.38 psi)
↓	20 (0.29 psi)	20 (0.29 psi)	20 (0.29 psi)	20 (0.29 psi)	20 (0.29 psi)	20 (0.29 psi)	20 (0.29 psi)

Where lowest opening pressures are required, valves without springs can be installed in vertical pipes with bottom-to-top flow.

Without spring

↑	2.5 (0.036 psi)	2.5 (0.036 psi)	2.5 (0.036 psi)	4.0 (0.058 psi)	4.5 (0.065 psi)	5.5 (0.080 psi)	6.5 (0.094 psi)
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Pressure loss diagram



Pressure loss diagram with open valve at 20 °C (68 °F). The values indicated are applicable to spring loaded valves with horizontal flow. With vertical flow, insignificant deviations occur only within the range of partial opening.

The curves given in the chart are valid for water at 20 °C (68 °F). To determine the pressure for other fluids the equivalent water volume flowrate must be calculated and used in the graph.

$$\dot{V}_w = \sqrt{\frac{\rho}{1000}} \times \dot{V}$$

Where: \dot{V}_w = Equivalent water volume flow in l/s or m³/h

ρ = Density of fluid kg/m³

\dot{V} = Volume of fluid l/s or m³/h

Pressure loss information for steam, compressed air and gases is available from Spirax Sarco.

How to order

Example: 1 off Spirax Sarco DN40, DCV4 stainless steel disc check valve for fitting between ASME 300 flanges.

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions supplied with the product.

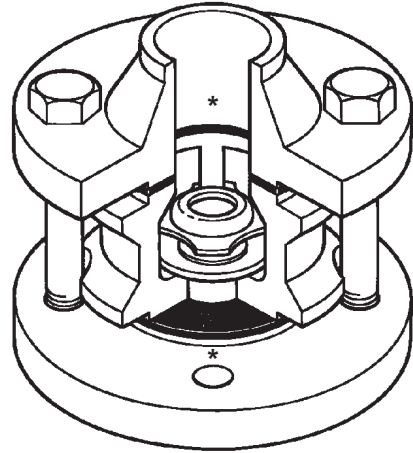
DCV4 disc check valves must be fitted in accordance with the direction of flow arrow indicating correct fluid flow direction. When fitted with a spring they can be installed in any plane. When supplied without a spring they must be fitted in a vertical flow line with the flow from bottom-to-top.

*** Note:** Flanges, bolts (or studs), nuts and joint gaskets are to be provided by the installer. Disc check valves are non-maintainable (no spares are available). Disc check valves are not suitable for use where heavily pulsating flow exists, such as close to a compressor.

Various options are denoted by a marking on the valve body:

'N'	- High temperature spring	- Standard metal disc
'W'	- Without spring	- Standard metal disc
'V'	- Standard spring	- Viton soft faced disc
'E'	- Standard spring	- EPDM soft faced disc
'WV'	- Without spring	- Viton soft faced disc
'WE'	- Without spring	- EPDM soft faced disc
'T'	- Valves tested to EN 12266-1 Rate D	

No identification indicates a standard spring with a metal disc.



Disposal

If a product which contains a Viton component has been subjected to a temperature approaching 315 °C (599 °F) or higher, then it may have decomposed and formed hydrofluoric acid. Avoid skin contact and inhalation of any fumes as the acid will cause deep skin burns and damage to the respiratory system. Viton must be disposed of in a recognised manner as stated in the Installation and Maintenance Instructions. No other ecological hazard is anticipated with the disposal of this product providing due care is taken.