



TI-P601-01
ST Issue 11

DCV8 Disc Check Valve

Description

DCV8 disc check valves are of a wafer pattern, designed to be sandwiched between DIN 2501 and EN 1092 flanges. Their function is to prevent reverse flow on a wide variety of fluids. The DCV8 is designed for use with aggressive fluids, vapours, acids and alkalines at high pressures and temperatures. The valves are provided with an M8 threaded tapping for product earthing and conform to EN 558 part 1, series 49.

Optional extras

Heavy duty springs (700 mbar opening pressure, up to DN65) for boiler feed applications

High temperature springs

Viton soft seats for oils and gas applications

EPM soft seats for water applications

Standards

Designed and manufactured in accordance with ÄD Merkblätter. This product fully complies with the requirements of the European Pressure Equipment Directive 97/23/EC.

Standard shut-off

Standard valves conform to EN 122 66-1 rate D.

Soft seated versions meet EN 12266-1 rate A, providing a differential pressure exists.

Certification

These products are available with certification to EN 10204 3.1. and the body is sourced from a TÜV approved foundry.

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

Sizes and pipe connections

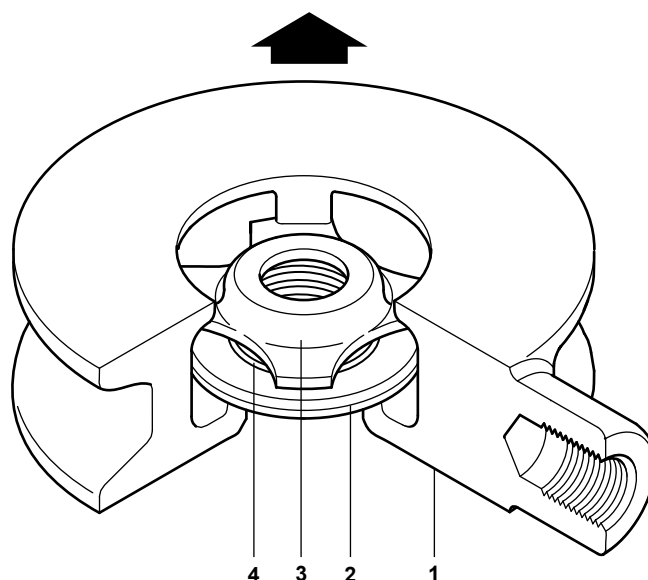
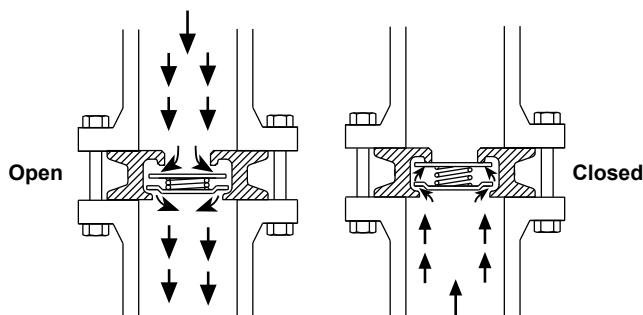
DN15, DN20, DN25, DN32, DN40, DN50, DN65, DN80 and DN100
Suitable for installation between the following flanges:
EN 1092 / DIN 2501 PN10, PN16, PN25 and PN40.

Materials

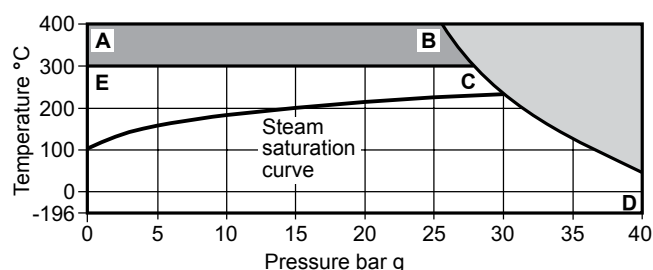
No.	Part	Material
1	Body	Austenitic stainless steel WS 1.4408
2	Disc	Austenitic stainless steel ASTM A276 316
3	Spring retainer	Austenitic stainless steel BS 1449 316 S 11
	Standard spring	Austenitic stainless steel BS 2056 316 S 42
4	Heavy duty spring	Austenitic stainless steel BS 2056 316 S 42
	High temp. spring	Nickel alloy Nimonic 90

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.



Pressure / temperature limits



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

For use in this area use a DCV8 with high temperature spring or DCV8 without spring.

A-B-D Without standard or high temperature springs.

E-C-D Standard spring and heavy duty spring.

Please note: Special testing to allow lower temperature operation can be provided at extra cost. Consult Spirax Sarco.

Body design conditions		PN40
PMA	Maximum allowable pressure	40 barg @ 50°C
TMA	Maximum allowable temperature	400°C @ 25.6 barg
Minimum allowable temperature		-196°C
PMO	Maximum operating pressure (bar g)	40 bar g @ 50°C
TMO	Maximum operating temperature	Standard spring 300°C @ 27.6 bar g
		Heavy duty spring 300°C @ 27.6 bar g
		High temperature spring 400°C @ 25.6 bar g
		Without spring 400°C @ 25.6 bar g
Minimum operating temperature (standard disc)		-196°C
Temperature limits	Viton seat	-25°C to +205°C
	EPDM seat	-40°C to +120°C
Designed for a maximum cold hydraulic test pressure of 60 bar g		

Dimensions/weights (approximate) in mm and kg

	A*	B	C	D	E	Weight
DN15	16.0	53	15	65	23.0	0.18
DN20	19.0	63	20	72	28.0	0.27
DN25	22.0	72	25	78	33.8	0.40
DN32	28.0	84	32	93	41.8	0.67
DN40	31.5	94	40	104	49.8	0.90
DN50	40.0	109	50	115	59.8	1.45
DN65	46.0	129	65	138	75.8	2.14
DN80	50.0	144	80	152	90.8	2.69
DN100	60.0	164	100	171	111.8	4.36
PN16	60.0	169	100	174	111.8	4.36
PN40	60.0	169	100	174	111.8	4.36

* EN 558 part 1, series 49

K_V values

DN	15	20	25	32	40	50	65	80	100
K _V	4.4	6.8	10.8	17	26	43	60	80	113

For conversion: C_V (UK) = K_V x 0.963 C_V (US) = K_V x 1.156

Opening pressures in mbar

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

→ Flow direction

DN	15	20	25	32	40	50	65	80	100
↑	25	25	25	27	28	29	30	31	33
→	22.5	22.5	22.5	23.5	24.5	24.5	25	25.5	26.5
↓	20	20	20	20	20	20	20	20	20

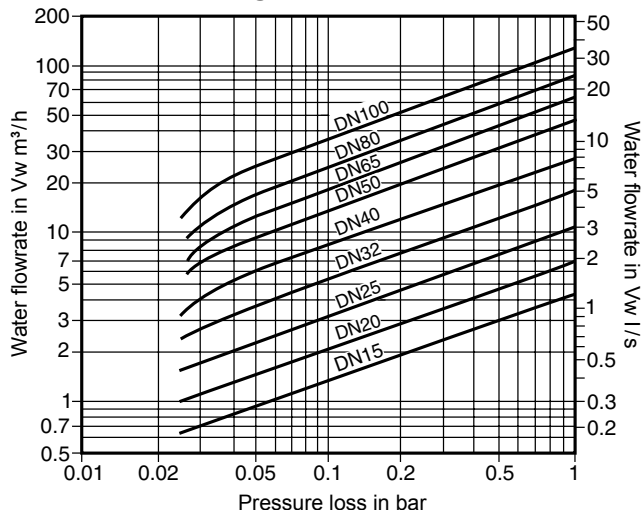
Where lowest opening pressures are required, valves without springs can be installed in vertical pipes with bottom-to-top flow.

Without spring

↑	2.5	2.5	2.5	3.5	4	4.5	5	5.5	6.5
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Heavy duty springs approximately 700 mbar

Pressure loss diagram



Pressure loss diagram with open valve at 20°C. 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. 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

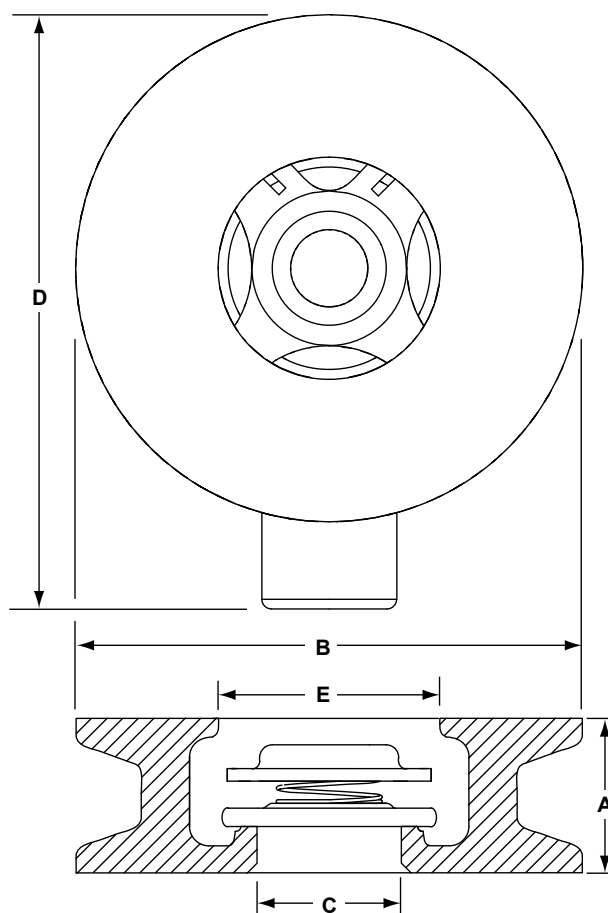
ρ = Density of fluid kg/m³

\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

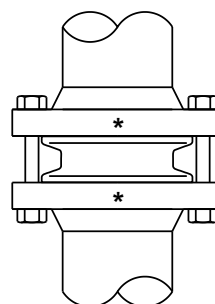
Example: 1 off Spirax Sarco DN25, DCV8 disc check valve for fitting between DIN 2501 / EN 1092 DN25 PN40 flanges.



Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P601-02) supplied with the product.

DCV8 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
- 'W' – Without spring
- 'H' – Heavy duty spring
- 'V' – Standard spring
- 'E' – Standard spring
- Standard metal disc
- Standard metal disc
- Viton soft faced disc
- EPDM soft faced disc

No identification indicates a standard spring with a metal disc.

Disposal

If a product that contains a Viton component has been subjected to a temperature approaching 315°C 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 (IM-P601-02). No other ecological hazard is anticipated with the disposal of this product providing due care is taken.