Cert. No. LRQ 0963008

ISO 9001

TI-P134-50
ST Issue 3

DCV2 and DCV3 Disc Check Valves

Description
The DCV2 and DCV3 disc check valves are of the wafer pattern designed to be sandwiched between flanges. They are 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 1, series 49.

Sizes and pipe connections
DN15, 20, 25, 32, 40, 50, 65, 80, 100
Suitable for installation between BS 10 Tables 'E' and 'H',
BS 4504/(DIN) PN6, 10, 16, 25, 40;
JIS 5, 10, 16, 20 flanges with the following exceptions:-
DN40, 50, 80 and 100 - will not fit between JIS 5 flanges
DN65 and 80 - will not fit between BS 10 'E' flanges.

Optional extras
Heavy duty springs (700 mbar opening pressure, up to DN65) for boiler feed applications.
Viton soft seats for oil, gas and steam applications.
EPDM soft seats for water applications.

Limiting conditions
Note: Special testing to allow lower temperture operation can be provided at extra cost. Consult Spirax Sarco.

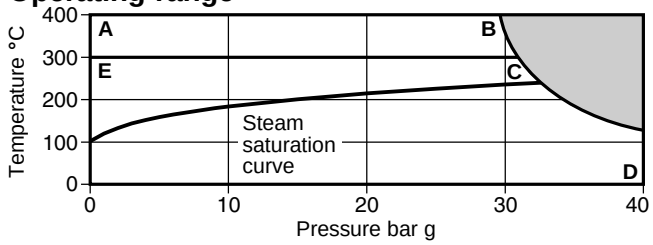
DCV2

Body design conditions		PN40
PMO - Maximum operating pressure		40 bar g
TMO - Maximum operating temperature	Standard spring	300°C
	Heavy duty spring	300°C
	High temperature spring	-
	Without spring	300°C
Minimum operating temperature (standard disc)		-60°C
Temperature limits	Viton seat	-15°C to +250°C
	EPDM seat	-50°C to +150°C
Designed for a maximum cold hydraulic test pressure of 60 bar g		

DCV3

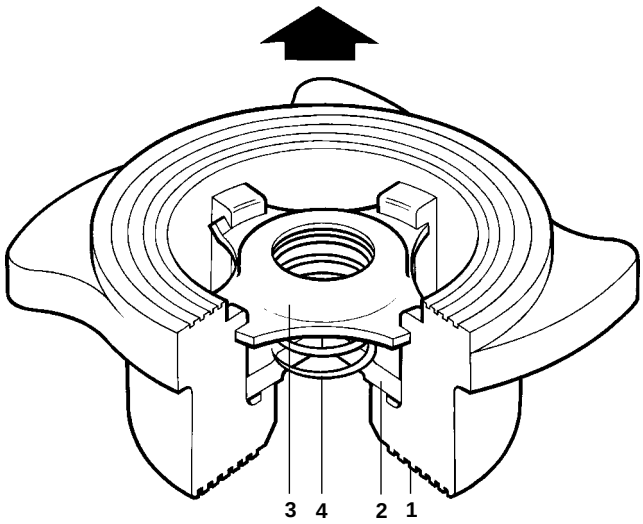
Body design conditions		PN40
PMO - Maximum operating pressure		40 bar g
TMO - Maximum operating temperature	Standard spring	300°C
	Heavy duty spring	300°C
	High temperature spring	400°C
	Without spring	400°C
Minimum operating temperature (standard disc)		-10°C
Temperature limits	Viton seat	-10°C to +250°C
	EPDM seat	-10°C to +150°C
Designed for a maximum cold hydraulic test pressure of 60 bar g		

Operating range



The product must not be used in this region.

E-C-D DCV2 and DCV3 with standard spring.
A-B-D DCV3 High temperature spring and without spring.



Materials

No.	Part		Material	
1	Body	DCV2	Ferritic stainless steel	WS 1.4313
		DCV3	Austenitic stainless steel	WS 1.4581
2	Disc		Austenitic stainless steel	BS 1449 316 S11
3	Spring retainer		Austenitic stainless steel	BS 1449 316 S11
4	Standard spring		Austenitic stainless steel	BS 2056 316 S42
	Heavy duty spring		Austenitic stainless steel	BS 2056 316 S42
	High temp. spring		Nickel alloy	Nimonic 90

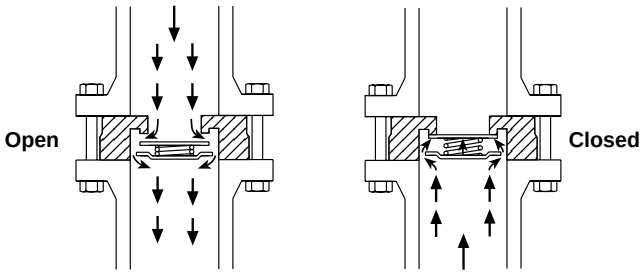
Note: Special testing to allow lower temperture operation can be provided at extra cost. Consult Spirax Sarco

Certification
The DCV2 and DCV3 is available with certification to EN 10204 2.2.
The DCV3 is also available with certification to EN 10204 3.1.B.
Note: All certification/inspection requirements must be stated at the time of order placement.

Standards
Designed and manufactured in accordance with BS 7438.

Standard shut-off
Standard valves conform to DIN 3230 part 3, BN2.
Valves conforming to DIN 3230 part 3, BO3 available on request.
Soft seated versions meet DIN 3230 part 3 BN1 and BO1 provided a differential pressure exists.

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.



Local regulations may restrict the use of this product to below the conditions quoted.
In the interests of development and improvement of the product, we reserve the right to change the specification.

Dimensions/weights (approximate) in mm and kg

Size	A	B	C	D	E	F	Weight
DN15	60.0	43	38	16.0	29.0	15	0.13
DN20	69.5	53	45	19.0	35.7	20	0.19
DN25	80.5	63	55	22.0	44.0	25	0.32
DN32	90.5	75	68	28.0	54.5	32	0.55
DN40	101.0	85	79	31.5	65.5	40	0.74
DN50	115.0	95	93	40.0	77.0	50	1.25
DN65	142.0	115	113	46.0	97.5	65	1.87
DN80	154.0	133	128	50.0	111.5	80	2.42
DN100	184.0	154	148	60.0	130.0	100	3.81

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 0.97 C_V (US) = K_V x 1.17

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

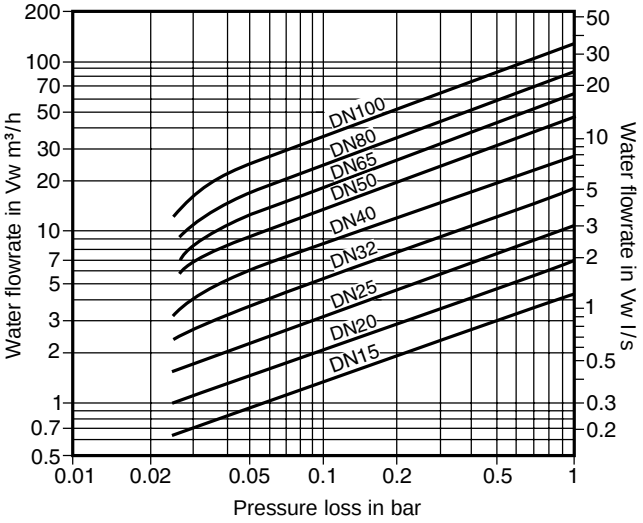
Where lowest opening pressures are required, valves without springs can be installed in vertical pipes with bottom-to-top flow.

Without spring

↑	2.5	2.5	2.5	3.5	4.0	4.5	5	5.5	6.5

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

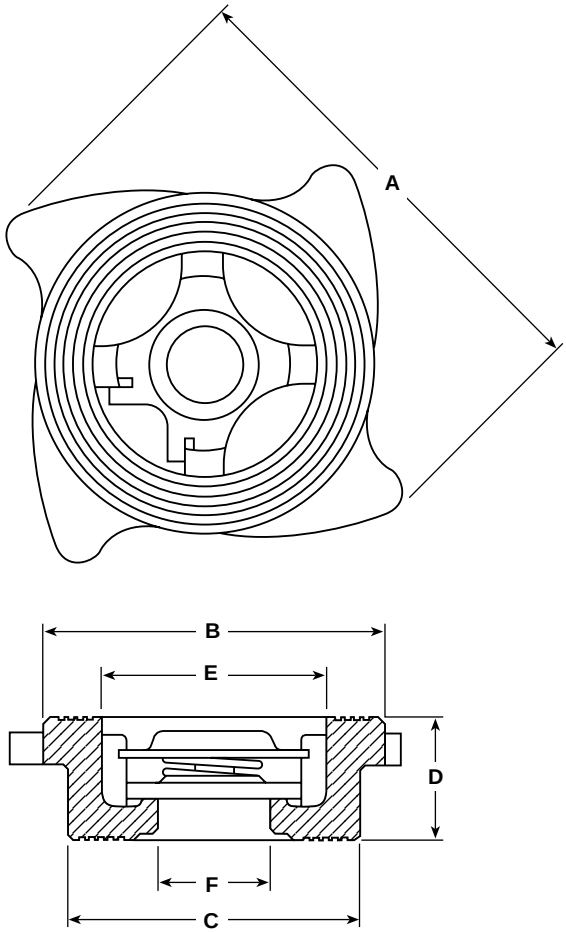
ρ = Density of fluid kg/m³

$\dot{V}$ = 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 DN50, DCV3 austenitic stainless steel disc check valve for fitting between BS 4504 PN25 flanges.

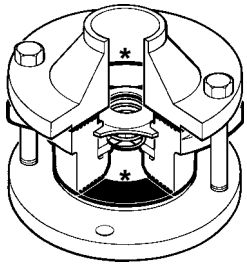


Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P134-07) supplied with the product.

DCV 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.

The 'cam' design of the body allows the various flange types to be accommodated. The body is rotated to touch the flange joint bolts ensuring that the valve is centred in the pipeline.



* **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
'H'	– Heavy duty 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
'HV'	– Heavy duty spring	– Viton soft faced disc
'HE'	– Heavy duty spring	– EPDM soft faced disc
'T'	– Valves tested to DIN 3230 part 3, B03	

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 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-P134-07). No other ecological hazard is anticipated with the disposal of this product providing due care is taken.