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 without notice. © Copyright 2012

DCV10 Stainless Steel and DCV10C Carbon Steel Centrally Guided Disc Check Valves

Description

The **DCV10** (cast stainless steel) and **DCV10C** (zinc plated cast carbon steel) are wafer pattern disc check valves that have been designed to be sandwiched between flanges for use with pumps and general cycling applications. They are suitable for use on a wide range of fluids for applications in process lines, hot water systems, steam and condensate systems etc. The centrally guided design ensures improved life span of the unit plus more reliability when compared to traditional disc check valves. These disc check valves will ensure correct flow of condensate and other suitable fluids whilst also preventing reverse flow - maintaining production and profit at all times.

Standards: Designed in accordance with BS EN 14341:2006. This product fully complies with the requirements of the European Pressure Equipment Directive 97/23/EC and carries the CE mark when so required.

Shut-off: Shut-off conforms to EN 12266-1:2003 Rate F.

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

Sizes: DN25, DN40, DN50, DN80, DN100, DN125, DN150, DN200 and DN250

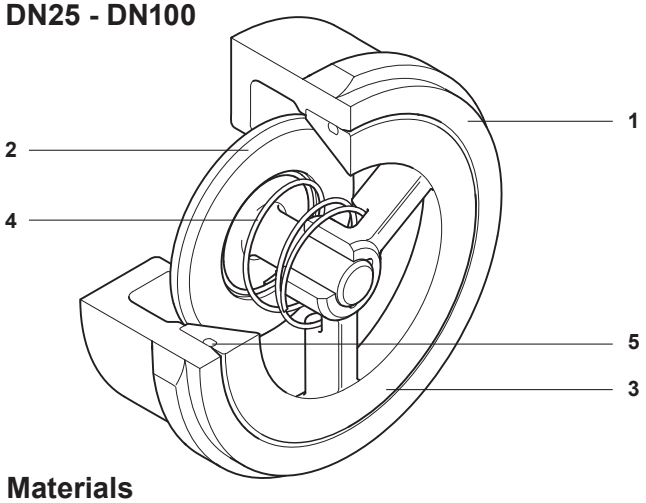
The PN rated design fits between the following flanges:	DN25 - DN80	EN 1092 PN25, PN16, JIS / KS 10K and JIS / KS 20K.
	DN100	EN 1092 PN25, PN16, PN40, JIS / KS 10K and JIS / KS 20K.
	DN125 - DN250	EN 1092 PN25, PN16, PN40 and JIS / KS 20K.

The ASME Class 300 design fits between the following flanges: ASME B 16.5 Class 150 and Class 300.

Face-to-face dimensions are in accordance with EN 558 Series 49 for the DN125 - DN200 size range and EN 558 Series 52 for the DN250.

DCV10

DN25 - DN100

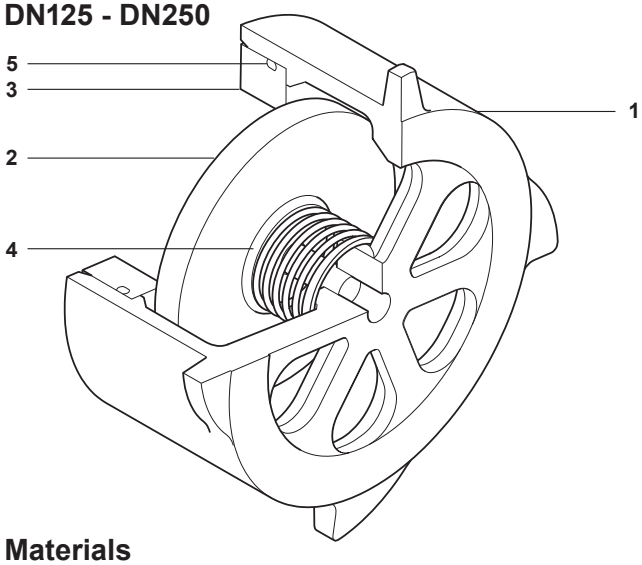


Materials

No.	Part		Material	
1	Body	PN	Austenitic stainless steel	1.4308
		ASME	Austenitic stainless steel	A351 CF8
2	Disc	DN25 - DN40	Austenitic stainless steel	A276 316L
		DN50 - DN100	Austenitic stainless steel	AISI 316L
3	Spider		Martensitic stainless steel	BS 3146-2 ANC2
4	Spring		Stainless steel	BS 2056 316 S42
5	'O' ring	DN25 - DN80	Fluorocarbon polymer FEPM (TFEP)	
		DN100	Graphoil ring	

DCV10 and DCV10C

DN125 - DN250



Materials

No.	Part			Material	
1	Body	DCV10	PN	Austenitic stainless steel	1.4308
			ASME	Austenitic stainless steel	A351 CF8
		DCV10C	PN	Carbon steel	1.0619+N
			ASME	Carbon steel	A216 WCB
2	Disc		PN	Austenitic stainless steel	1.4308
			ASME	Austenitic stainless steel	A351 CF8
3	Seat		PN	Austenitic stainless steel	1.4308
			ASME	Austenitic stainless steel	A351 CF8
4	Spring			Stainless steel	316L
5	Gaskets			Reinforced exfoliated graphite	

K_V values

Size	DN25	DN40	DN50	DN80	DN100	DN125	DN150	DN200	DN250
K_V	10.8	26	43	80	130	188	213	432	735

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.

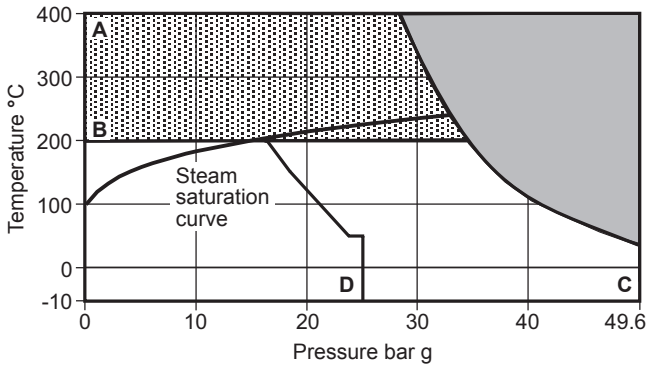
➔ Flow direction

DN	DN25	DN40	DN50	DN80	DN100	DN125	DN150	DN200	DN250
↑	25	28	29	31	33	44	46	48.5	54
➔	22.5	24.5	24.5	25.5	27	32	33	34	37
↓	20	20	20	30	20	20	20	20	20

Pressure/temperature limits

DCV10

DN25 - DN100



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

Please note that only the DN100 can be used in this region.

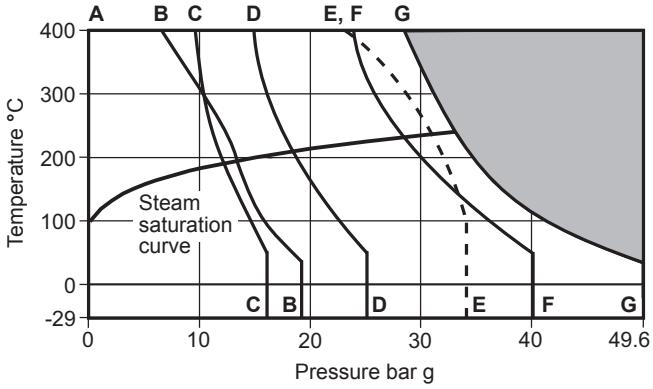
A - C DN100 for fitting between EN 1092 PN40, PN25, PN16, JIS/KS 10K, JIS/KS 20K, ASME Class 150 and 300 flanges.
B - C DN25 - DN80 for fitting between ASME Class 150 and 300 flanges.
B - D DN25 - DN80 for fitting between EN 1092 PN25, PN16 and JIS/KS 10K flanges.

Body design condition				PN25, PN16 or ASME Class 300
PMA	Maximum allowable pressure	PN25		25 bar g @ 0°C
		PN40		40 bar g @ 0°C
		ASME Class 300		49.6 bar g @ 0°C
TMA	Maximum allowable temperature	PN25		200°C @ 17.2 bar g
		ASME Class 300	DN25 - DN80	200°C @ 34.5 bar g
			DN100	400°C @ 28.4 bar g
Minimum allowable temperature				-10°C
PMO	Maximum operating pressure	PN25		25 bar g @ 0°C
		ASME Class 300	DN25 - DN100	49.5 bar g @ 0°C
TMO	Maximum operating temperature	PN25		200°C @ 17.2 bar g
		ASME Class 300	DN25 - DN80	200°C @ 34.5 bar g
			DN100	400°C @ 28.4 bar g
Temperature limits			DN25 - DN80	-10°C to +200°C
			DN100	-10°C to +400°C
Minimum operating temperature				-10°C
Designed for a maximum cold hydraulic test pressure of:		PN25		37.5 bar g
		ASME Class 300	DN25 - DN100	74.4 bar g

Pressure/temperature limits

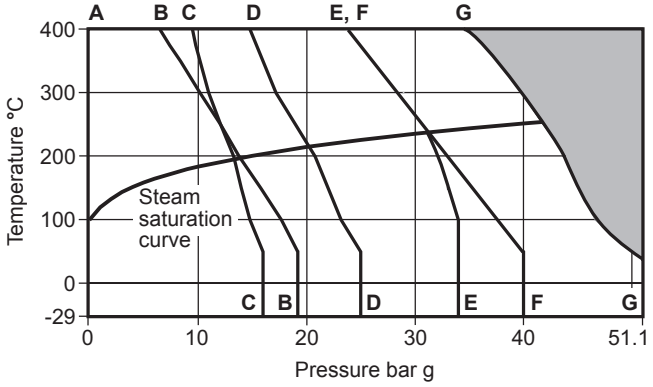
DCV10

DN125 - DN250



DCV10C

DN125 - DN250



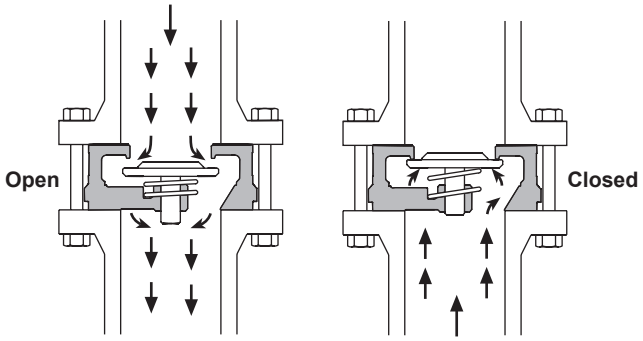
The product **must not** be used in this region.

A - B Flanged ASME Class 150.
A - C Flanged EN 1092 PN16.
A - D Flanged EN 1092 PN25.
A - E Flanged JIS/KS 20K.
A - F Flanged EN 1092 PN40.
A - G Flanged ASME Class 300.

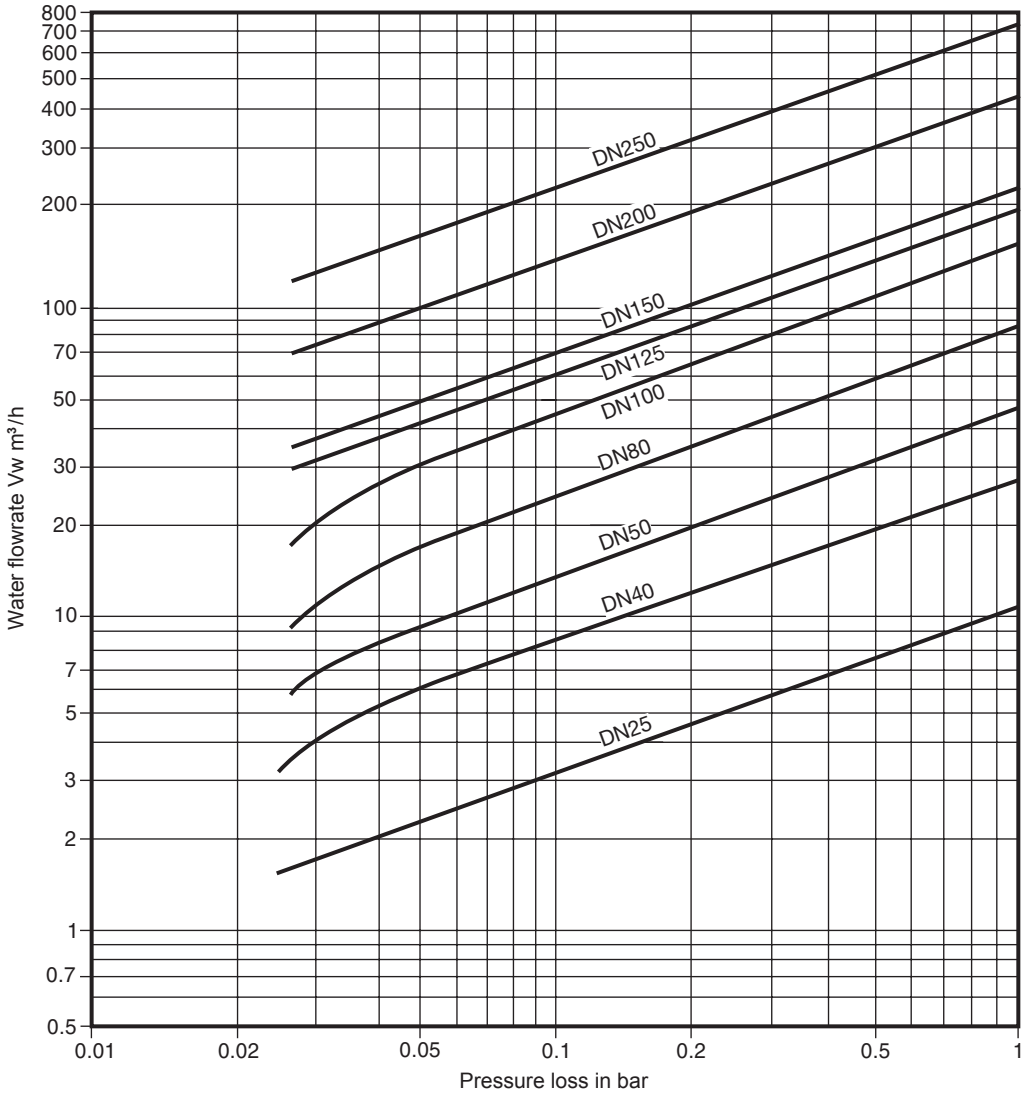
Body design condition			PN40 or ASME Class 300
PMA	Maximum allowable pressure	DCV10	49.6 bar g @ 38°C
		DCV10C	51.1 bar g @ 38°C
TMA	Maximum allowable temperature	DCV10	400°C @ 28.4 bar g
		DCV10C	400°C @ 34.7 bar g
Minimum allowable temperature			-29°C
PMO	Maximum operating pressure for saturated steam service	DCV10	33 bar g @ 241°C
		DCV10C	42 bar g @ 255°C
TMO	Maximum operating temperature	DCV10	400°C @ 28.4 bar g
		DCV10C	400°C @ 34.7 bar g
Temperature limits			-29°C to +400°C
Minimum operating temperature			-29°C
Designed for a maximum cold hydraulic test pressure of:			77 bar g

Principle of operation

The DCV10 and DCV10C are opened by the pressure and flow of condensate and are closed by the pressure of the spring when the flow ceases and before reverse flow occurs.



Pressure loss diagram



Pressure loss diagram with open valve at 20°C. The values indicated are applicable 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

Dimensions / weights (approximate) in mm and kg

PN25 and PN16

Size	A	B	C	D Open	D Closed	E	F	Weight
DN25	71	71	22	31	24	25	34	0.40
DN40	92	86	31.5	44	34	40	49	0.82
DN50	107	101	40	55	42.5	50	61	1.34
DN80	142	131	50	69	53	80	89	2.56
DN100	178	162	60	81	60	100	100	5.30
DN125	219	188	90	-	91	117	125	11.00
DN150	253	214	106	-	106	146	150	16.00
DN200	325	269	140	-	142.3	183	200	32.00
DN250	376.5	322	200	-	204	230	250	60.00

JIS/KS 10K

Size	A	B	C	D Open	D Closed	E	F	Weight
DN25	71	71	22	31	24	25	34	0.40
DN40	92	86	31.5	44	34	40	49	0.82
DN50	107	101	40	55	42.5	50	61	1.34
DN80	142	131	50	69	53	80	89	2.56
DN100	178	162	60	81	60	100	100	5.30

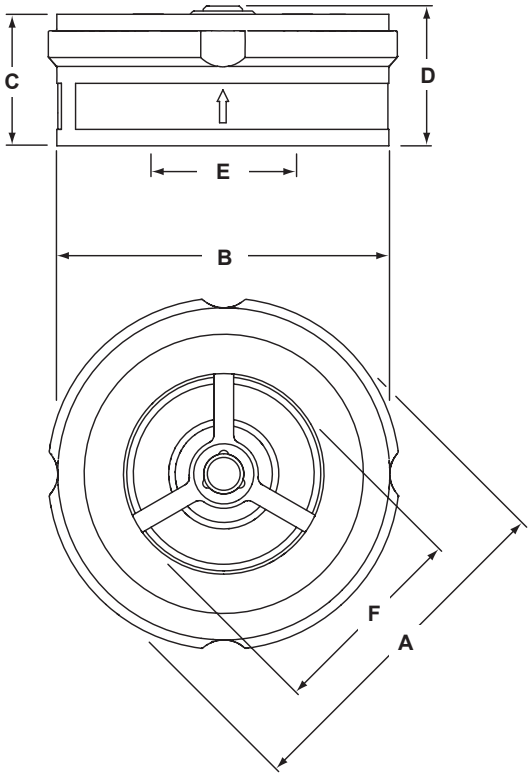
PN40 and JIS/KS 20K

Size	A	B	C	D Open	D Closed	E	F	Weight
DN100	178	162	60	81	60	100	100	5.30
DN125	219	188	90	-	91	117	125	11.00
DN150	253	214	106	-	106	146	150	16.00
DN200	325	269	140	-	142.3	183	200	32.00
DN250	376.5	322	200	-	204	230	250	60.00

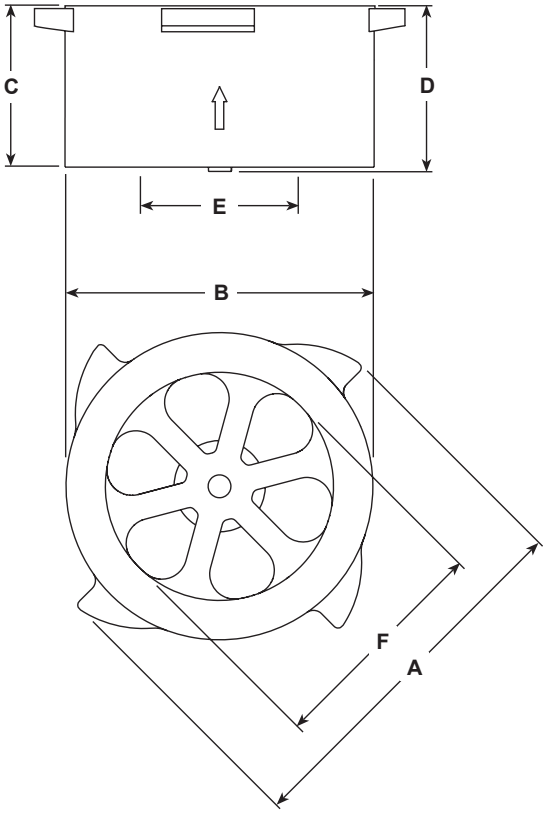
ASME Class 150 and ASME Class 300

Size	A	B	C	D Open	D Closed	E	F	Weight
DN25	70	63	35.5	37	35	25	30	0.50
DN40	95	86	45	47	45	40	48	0.82
DN50	108	101.5	56	57.5	56	50	61	1.85
DN80	146	133	71	71	71	80	89	3.50
DN100	178	162	60	81	60	100	100	5.30
DN125	219	188	90	-	91	117	125	11.00
DN150	253	214	106	-	106	146	150	16.00
DN200	325	269	140	-	142.3	183	200	32.00
DN250	376.5	322	200	-	204	230	250	60.00

DN25 - DN100



DN125 - DN250



Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P601-33) supplied with the product.

Installation note:

The DCV10 and DCV10C can be fitted in either a horizontal or vertical line in accordance with the direction of flow arrow on the body.

Note: Flanges, bolts (or studs), nuts and gaskets are to be supplied by the installer.

Disposal:

These products are recyclable. No ecological hazard is anticipated with the disposal of these products providing due care is taken.

How to order

Example: 1 off Spirax Sarco DN80 DCV10 stainless steel check valve to fit between PN16 flanges.

Spare parts

The DCV10 and DCV10C are non-maintainable disc check valves - There are no available spares.