



TI-P601-32
 CMGT Issue 7

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.

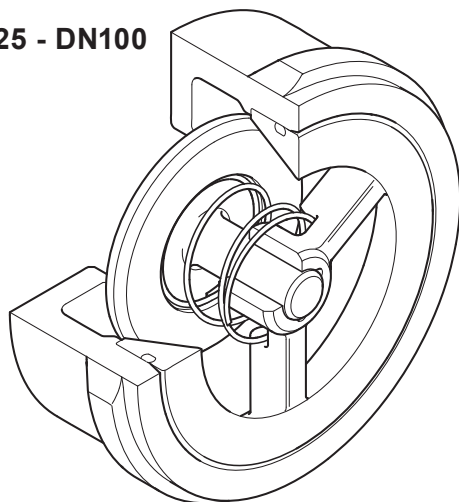
Standards: Designed in accordance with BS EN 14341:2006. This product fully complies with the requirements of the European Pressure Equipment Directive 97/23/EC and carries the **CE** mark when so required.

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.

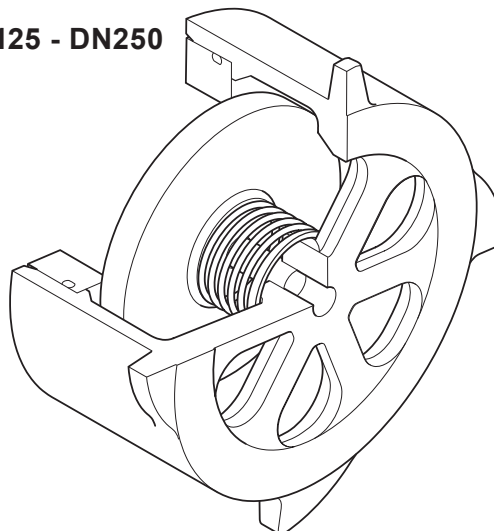
DCV10

DN25 - DN100



DCV10 and DCV10C

DN125 - DN250



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 - DN100 | EN 1092 PN25, PN16, PN40, JIS / KS 10K and JIS / KS 20K |
| | DN125 - DN250 | EN 1092 PN25, PN16, PN40 and JIS / KS 20K |

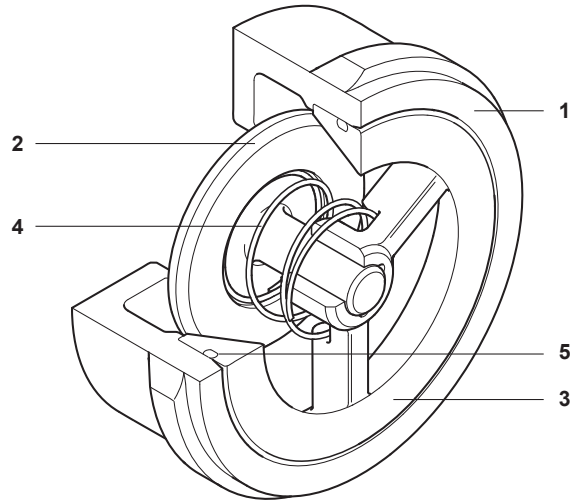
The **ASME Class 300 design** fits between the following flanges: ASME B 16.5 Class 150 and Class 300.

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.

Materials

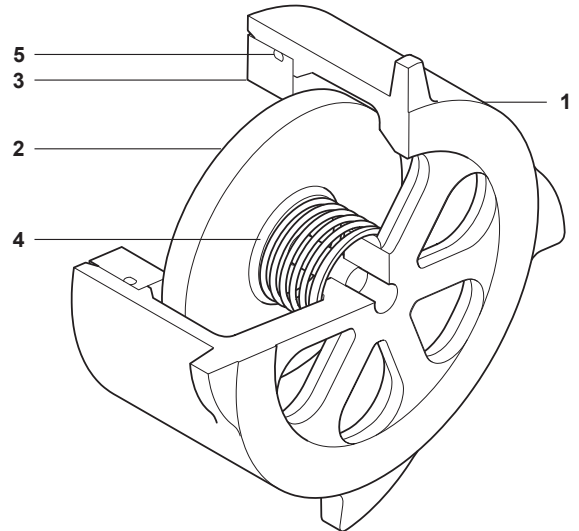
DCV10 DN25 - DN100

| No. | Part | Material | |
|-----|---------|--------------------------------|--------------------------------------|
| 1 | Body | PN | Austenitic stainless steel 1.4308 |
| | | ASME | Austenitic stainless steel A351 CF8 |
| 2 | Disc | | Austenitic stainless steel A276 316L |
| | | | Austenitic stainless steel AISI 316L |
| 3 | Spider | Martensitic stainless steel | BS 3146-2 ANC2 |
| 4 | Spring | Stainless steel | BS 2056 316 S42 |
| 5 | Gaskets | Reinforced exfoliated graphite | |



DCV10 and DCV10C DN125 - DN250

| 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:

$$C_V \text{ (UK)} = K_V \times 0.963$$

$$C_V \text{ (US)} = K_V \times 1.156$$

Opening pressures in mbar

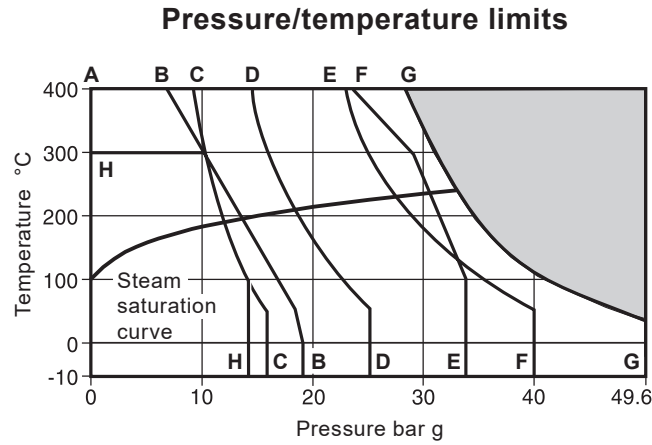
Differential pressures with zero flow.

→ Flow direction

| DN | DN25 | DN40 | DN50 | DN80 | DN100 | DN125 | DN150 | DN200 | DN250 |
|----|------|------|------|------|-------|-------|-------|-------|-------|
| ↑ | 25.0 | 28.0 | 29.0 | 31.0 | 33 | 44 | 46 | 48.5 | 54 |
| → | 22.5 | 24.5 | 24.5 | 25.5 | 27 | 32 | 33 | 34 | 37 |
| ↓ | 20.0 | 20.0 | 20.0 | 30.0 | 20 | 20 | 20 | 20 | 20 |

DCV10

DN25 - DN100



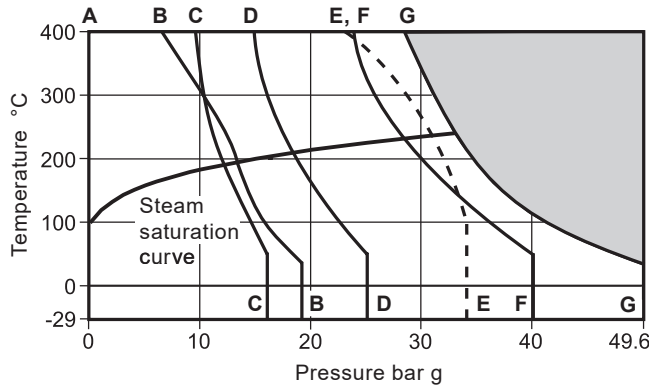
The product **must not** be used in this region.

- 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.
- H - H** Flanged JIS/KS 10K.

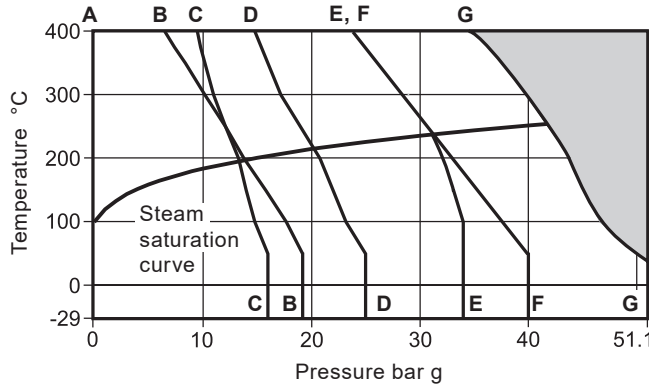
| | | |
|---|-------------------------------|---------------------------------------|
| Body design condition | | PN40 or ASME Class 300 |
| PMA | Maximum allowable pressure | PN40 40 bar g @ 50 °C |
| | | ASME Class 300 49.5 bar g @ 38 °C |
| TMA | Maximum allowable temperature | PN40 400 °C @ 23.8 bar g |
| | | ASME Class 300 400 °C @ 28.4 bar g |
| Minimum allowable temperature | | -10 °C |
| PMO | Maximum operating pressure | PN40 40 bar g @ 50 °C |
| | | ASME Class 300 49.5 bar g @ 38 °C |
| TMO | Maximum operating temperature | PN40 400 °C @ 23.8 bar g |
| | | ASME Class 300 400 °C @ 28.4 bar g |
| Temperature limits | | -10 °C to +400 °C |
| Minimum operating temperature | | -10 °C |
| Designed for a maximum cold hydraulic test pressure of: | | PN40 60 bar g |
| | | ASME Class 300 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 | |

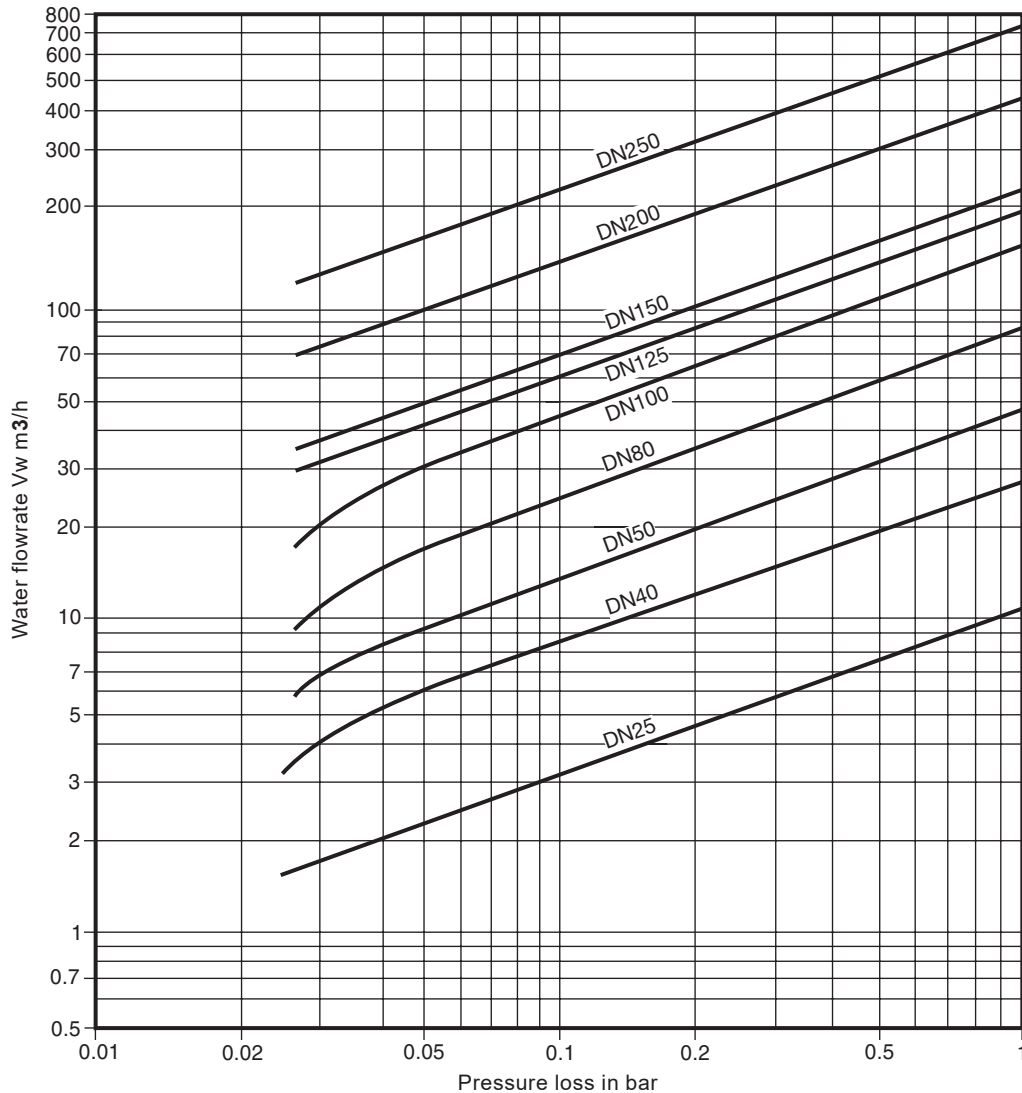
Principle of operation

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.

Open

Closed

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

| PN40, PN25 and PN16 | | | | | | | | |
|---------------------|-------|-----|------|------|--------|-----|-----|--------|
| Size | A | B | C | D | | E | F | Weight |
| | | | | Open | Closed | | | |
| 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 | | E | F | Weight |
| | | | | Open | Closed | | | |
| 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 |

| JIS/KS 20K | | | | | | | | |
|------------|-------|-----|-----|------|--------|-----|-----|--------|
| Size | A | B | C | D | | E | F | Weight |
| | | | | Open | Closed | | | |
| 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 | | E | F | Weight |
| | | | | Open | Closed | | | |
| DN25 | 70 | 63 | 35.5 | 37.0 | 35 | 025 | 030 | 0.50 |
| DN40 | 95 | 85.5 | 45 | 47.0 | 45 | 040 | 048 | 0.82 |
| DN50 | 108 | 101.5 | 56 | 57.5 | 56 | 050 | 061 | 1.85 |
| DN80 | 146 | 133 | 71 | 71.0 | 71 | 080 | 089 | 3.50 |
| DN100 | 178 | 162 | 60 | 81.0 | 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 |

Safety information, installation and maintenance

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

Installation note:

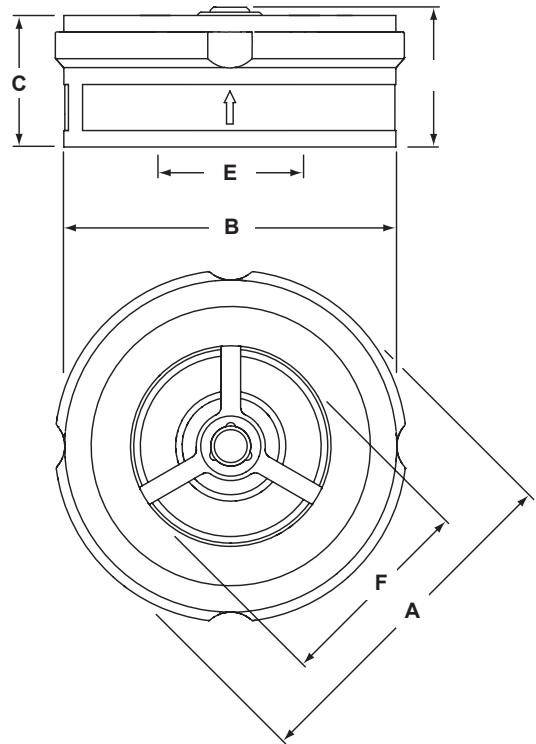
The DCV10 and DCV10C can be fitted in either a horizontal or vertical line in accordance with the direction of flow arrow on the body.

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

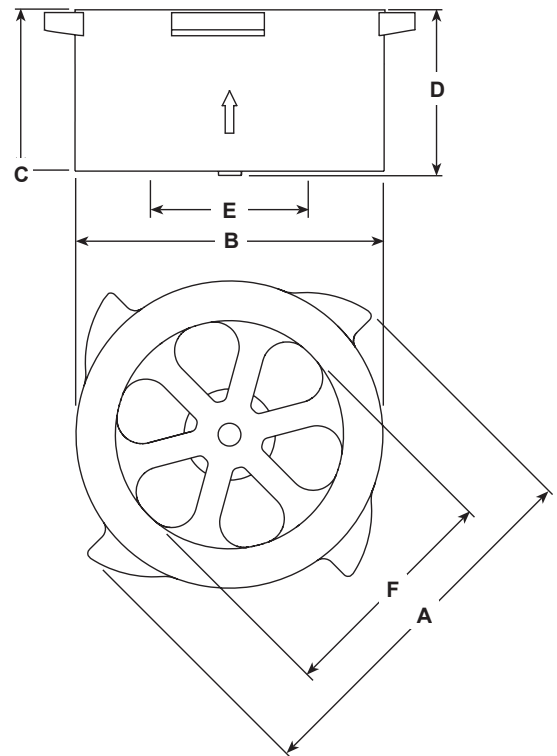
Disposal:

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

DN25 - DN100



DN125 - DN250



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.