Coreline

# Dual Plate Check Valve

## Fig.612 : Wafer

www.coreline.dk

# General information

Coreline Fig.612 wafer dual check valve is a self-operating check valve where it is desirable to permit flow in one direction and prevent backflow in the opposite direction. The disc opens in case that the upstream pressure exceeds the downstream pressure and the spring elasticity. When the flow velocity upstream decreases or ceases, the sping will automatically close the dual plates prior to flow reversal. This creats a postive shutoff against flow reversal and eliminates system surges and water hammer.

It is designed to handle a variety of applications:
In downstream of pump preventing flow reverser.
In wellhead injection lines, for oil rigs and platforms.
In gas and oil processing plants and refinery on delivery/discharge side of pumps.
For LNG and chemical storage tank, use on discharge side of pump to prevent backflow.

## *Design features*

● **No plug design on the body** - Shaft is fixed in valve body so there is no any possible leakage and potential accident. Short face-to-face dimension.
● Lighter weight, by 80-90% than non-conventional full-body check valves.
● Low cracking pressure because of spring-loaded, double disc design.
● Long leaf springs prevent rubbing of plate on seat.

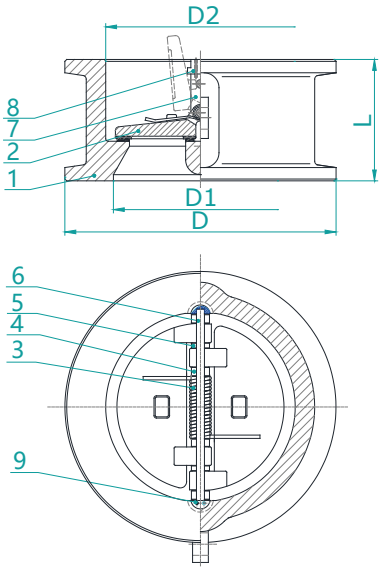
## *Specifications*

| | |
|---|---|
| **Connection:** | Wafer |
| **Nominal diameter:** | DN50-DN600 |
| **Rating:** | CLASS150/CLASS300, PN10/PN16/PN25/PN40 |
| **Body:** | Carbon steel, stainless steel, duplex, super duplex |
| **Disc:** | Stainless steel, duplex, super duplex |
| **Seat:** | Stainless steel, duplex, super duplex, rubber |
| **Spring:** | Stainless steel, Inconel |

# Technical data

## *Part list and material specification*

| No. | Part name | Material |
|---|---|---|
| 1 | Body | WCB, CF8, CF8M |
| 2 | Disc | CF8, CF8M, 2205, 2507 |
| 3 | Spring | SS304, SS316, Inconel X750 |
| 4 | Spring plate | SS304, SS316 |
| 5 | Spacer | SS304, SS316 |
| 6 | Shaft | SS304, SS316, 2205, 2507 |
| 7 | Seat | 13Cr, SS304, SS316, 2205, 2507, NBR, EPDM, FPM, PTFE |
| 8 | Locating piece | SS304, SS316 |
| 9 | Screw | SS304, SS316 |




## *Dimensions*

| DN | INCH | Rating | L | D | D1 | D2 | Weight [Kg] |
|---|---|---|---|---|---|---|---|
| 50 | 2 | Class150 PN20 | 60 | 103 | 51 | 61 | 2.5 |
| 65 | 2 ½ | | 67 | 122 | 65 | 75 | 3 |
| 80 | 3 | | 73 | 135 | 80 | 92 | 4 |
| 100 | 4 | | 73 | 173 | 102 | 114 | 6 |
| 125 | 5 | | 86 | 195 | 127 | 140 | 8 |
| 150 | 6 | | 98 | 220 | 152 | 166 | 13 |
| 200 | 8 | | 127 | 277 | 203 | 210 | 25 |
| 250 | 10 | | 146 | 337 | 254 | 266 | 39 |
| 300 | 12 | | 181 | 407 | 305 | 310 | 54 |
| 350 | 14 | | 184 | 448 | 350 | 355 | 80 |
| 400 | 16 | | 191 | 512 | 400 | 405 | 117 |
| 450 | 18 | | 203 | 547 | 450 | 455 | 138 |
| 500 | 20 | | 219 | 604 | 500 | 505 | 163 |
| 600 | 24 | | 222 | 715 | 600 | 605 | 331 |
| **DN** | **INCH** | **Rating** | **L** | **D** | **D1** | **D2** | **Weight [Kg]** |
| 50 | 2 | Class300 PN40 | 60 | 110 | 51 | 61 | 3 |
| 65 | 2 ½ | | 67 | 128 | 65 | 75 | 4 |
| 80 | 3 | | 73 | 147 | 80 | 92 | 6 |
| 100 | 4 | | 73 | 179 | 102 | 114 | 8 |
| 125 | 5 | | 86 | 214 | 127 | 140 | 15 |
| 150 | 6 | | 98 | 249 | 152 | 166 | 18 |
| 200 | 8 | | 127 | 305 | 203 | 210 | 31 |
| 250 | 10 | | 146 | 359 | 254 | 266 | 51 |
| 300 | 12 | | 181 | 420 | 305 | 310 | 77 |
| 350 | 14 | | 222 | 483 | 350 | 355 | 117 |
| 400 | 16 | | 232 | 537 | 400 | 405 | 190 |
| 450 | 18 | | 264 | 594 | 450 | 455 | 200 |
| 500 | 20 | | 292 | 652 | 500 | 505 | 265 |
| 600 | 24 | | 318 | 772 | 600 | 608 | 410 |

## *Fluid data*

| DN | INCH | Fluid resistance coefficient ξ - Valve full open | Kv | Opening pressure [KPa] | |
|---|---|---|---|---|---|
| | | | | Vertical flow ↑ | Horizontal flow → |
| 50 | 2 | 2.6 | 63 | 2 | 1 |
| 65 | 2 ½“ | 2.4 | 109 | 2 | 1 |
| 80 | 3 | 2.3 | 172 | 2 | 1 |
| 100 | 4 | 2.0 | 289 | 2 | 1 |
| 125 | 5 | 1.8 | 476 | 2 | 1 |
| 150 | 6 | 1.5 | 750 | 2 | 1 |
| 200 | 8 | 1.3 | 1432 | 2 | 1 |
| 250 | 10 | 1.2 | 2330 | 2 | 1 |
| 300 | 12 | 1.0 | 3676 | 2 | 1 |
| 350 | 14 | 0.9 | 5274 | 2 | 1 |
| 400 | 16 | 0.8 | 7306 | 3 | 1 |
| 450 | 18 | 0.8 | 9246 | 3 | 1 |
| 500 | 20 | 0.8 | 11415 | 3 | 1 |
| 600 | 24 | 0.7 | 17573 | 3 | 1 |

The flow coefficient - Kv can be calculated according to the below formula:

**Liquild:**

$$K_V = Q * \sqrt{\frac{W}{\Delta P}}$$

**Gas:**

$$K_V = \frac{V_N}{514} * \sqrt{\frac{G*T}{\Delta P * P_d}}$$

| | |
|---|---|
| $K_V$: | Flow coefficient |
| Q: | Maximum flow volumn, $m^3/h$ |
| W: | Exact weight, $kg/m^3$ |
| △P: | Pressure loss, bar |
| $V_N$: | Maximum flow, $Nm^3/h$ |
| G: | Exact weight, $kg/Nm^3$ |
| T: | Absolute temperature, Kelvin |
| $P_d$: | Absolute pressure downstream, bar |



**CORELINE LTD.**
**Add:** No.4 Wangjiang Road, Muqiao Town, Zhengpugang New District, 238200 Hexian, Ma'anshan City, Anhui Province, China
**Http:** // www.coreline.dk **E-mail:** mail@coreline.cn