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TECHNICAL DATA

SINGLE-CHEK Check Valves Series CV



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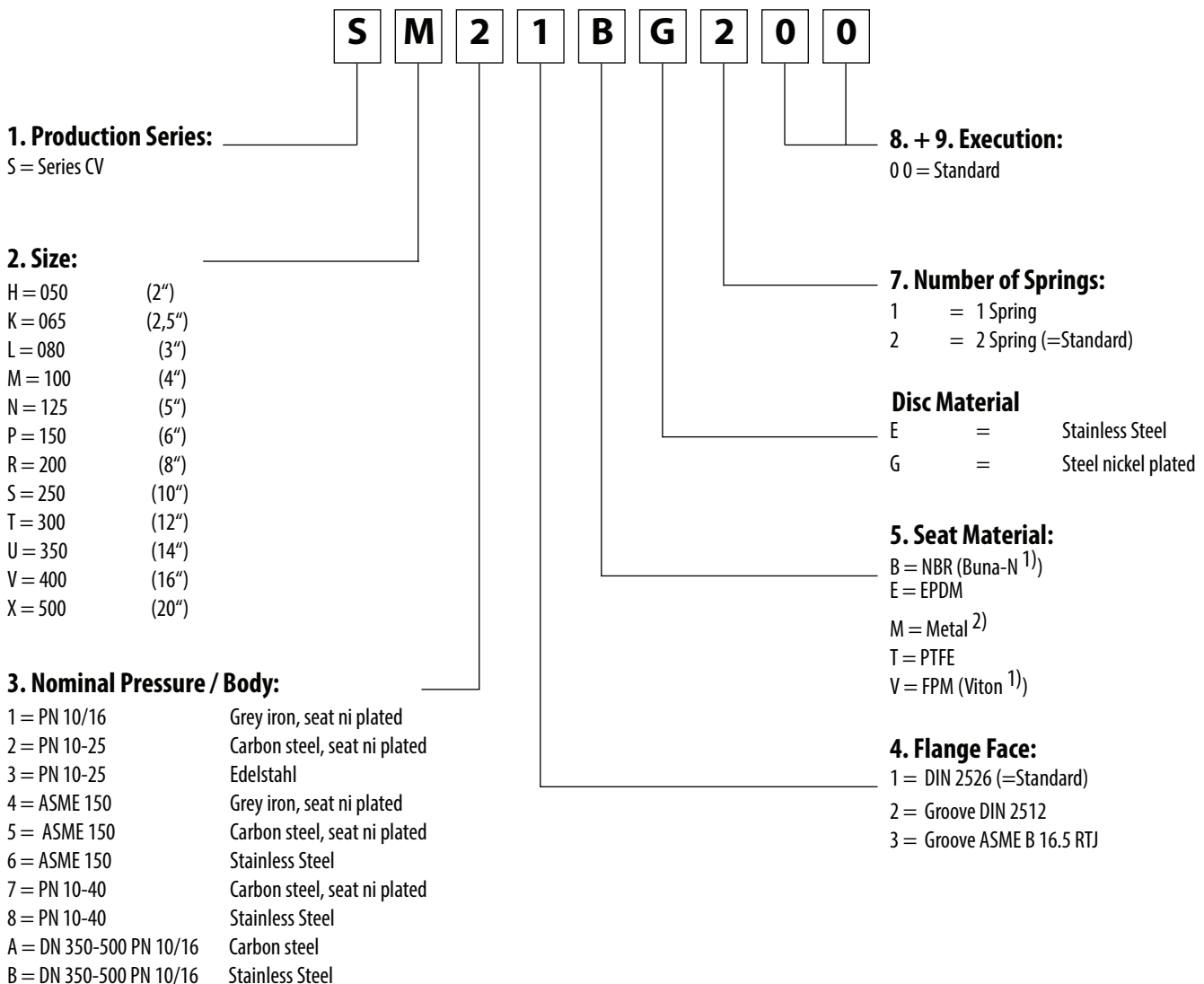
SINGLE-CHEK Check Valves Series CV Model-Numbers DN 50-500

Every SINGLE-CHEK Check Valve has an identification plate with the model number stamped on. This number specifies the valve in detail. The numbering key is explained below.

Ordering example:

SINGLE-CHEK Check Valve Series CV DN 100, PN 10/16, body carbon steel, flange face standard to DIN 2526, seat NBR, disc steel nickel plated, number of springs 2 (standard).

Model-Number: SM21BG200

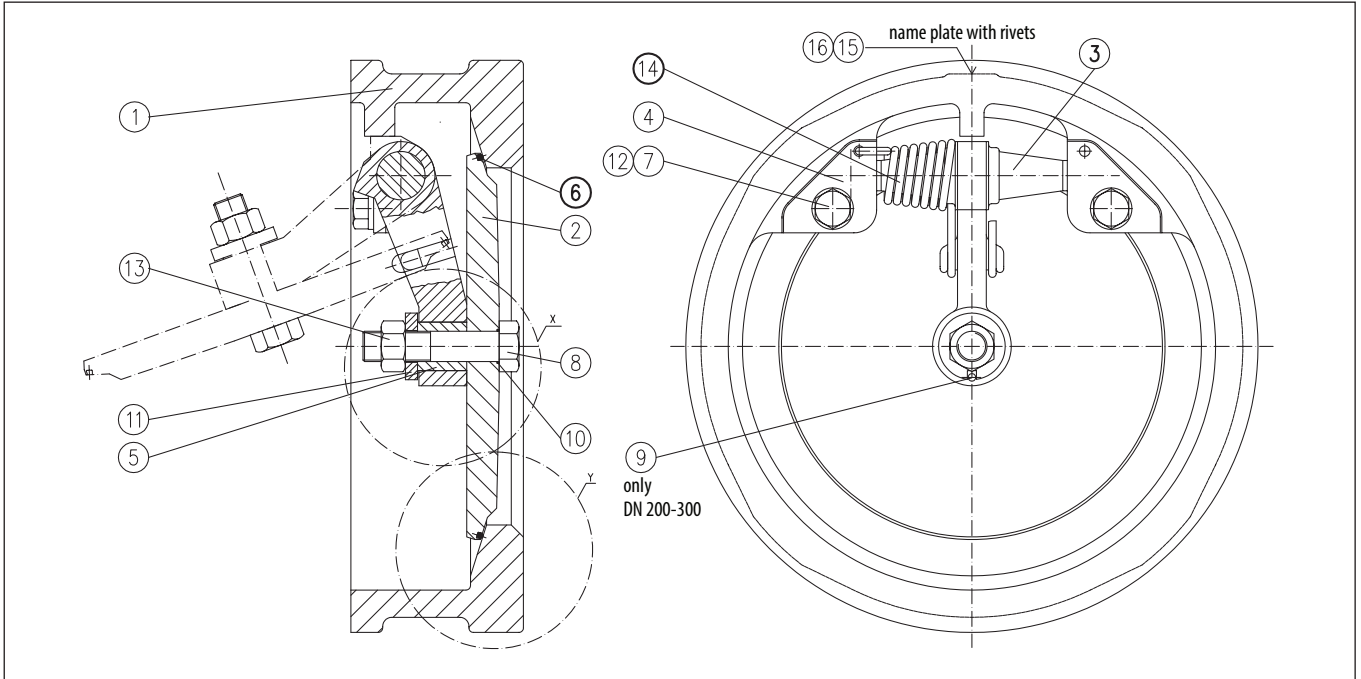


¹⁾ registered trade name or trade mark

²⁾ in combination with stainless steel body only

SINGLE-CHEK Check Valves Series CV DN 50-300 with O-Ring seat

Materials



| Item | Description | Sign in Model-No. | Execution Carbon Steel | Execution Stainless Steel | Execution Cast Iron |
|------|------------------|-----------------------|---------------------------|------------------------------|------------------------|
| 1 | Body | | 1.0619 ** | stainless steel | EN-JL1040 ** |
| 2 | Disc | G | Nickel-plated steel | - | Nickel-plated steel |
| | | Lever | stainless steel | stainless steel | stainless steel |
| 3 | Klemmstück | DN 50-150 | stainless steel | stainless steel | stainless steel |
| | | Connector | EN-JS1030 / 1.4305 | stainless steel | EN-JS1030 / 1.4305 |
| 4 | Seat-Sealing | | stainless steel | stainless steel | stainless steel |
| 5 | Screw | | stainless steel | stainless steel | stainless steel |
| 6 | Screw | B | O-ring NBR (Perbunan) | O-ring NBR (Perbunan) | O-ring NBR (Perbunan) |
| | | Pin (only DN 200-300) | O-ring FPM (Viton) | O-ring FPM (Viton) | O-ring FPM (Viton) |
| | | O-ring | O-ring PTFE | O-ring PTFE | O-ring PTFE |
| | | Lock washer | O-ring EPDM | O-ring EPDM | O-ring EPDM |
| 7 | Screw locking | | stainless steel | stainless steel | stainless steel |
| 8 | Self Locking Nut | | stainless steel | stainless steel | stainless steel |
| 9 | Spring | | stainless steel | stainless steel | stainless steel |
| 10 | Rivet | B* | NBR | NBR | NBR |
| | | Name plate | FPM | FPM | FPM |
| | | T* | PTFE | PTFE | PTFE |
| | | E* | EPDM | EPDM | EPDM |
| 11 | Lock washer | | stainless steel | stainless steel | stainless steel |
| 12 | Screw locking | | stainless steel | stainless steel | stainless steel |
| 13 | Self Locking Nut | | stainless steel | stainless steel | stainless steel |
| 14 | Spring | | stainless steel | stainless steel | stainless steel |
| 15 | Rivet | | aluminum | aluminum | aluminum |
| 16 | Name plate | | aluminum | aluminum | aluminum |

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SINGLE-CHEK Check Valves Series CV DN 50-300 with O-Ring seat

Application Limits

• Opening Pressure

SINGLE-CHEK Check Valves Series CV can be equipped with one or two (standard) springs. With one spring the opening pressure is about 15 mbar and with two springs about 30 mbar.

If only one spring is required this needs to be specified in the order.

• Nominal Pressure

SINGLE-CHEK Check Valves Series CV are available in following nominal pressures:

Dimensions in mm, Weights in kg

with Body in EN-JL1040: PN 10/16/ASME 150

with Body in 1.0619: siehe Tabelle

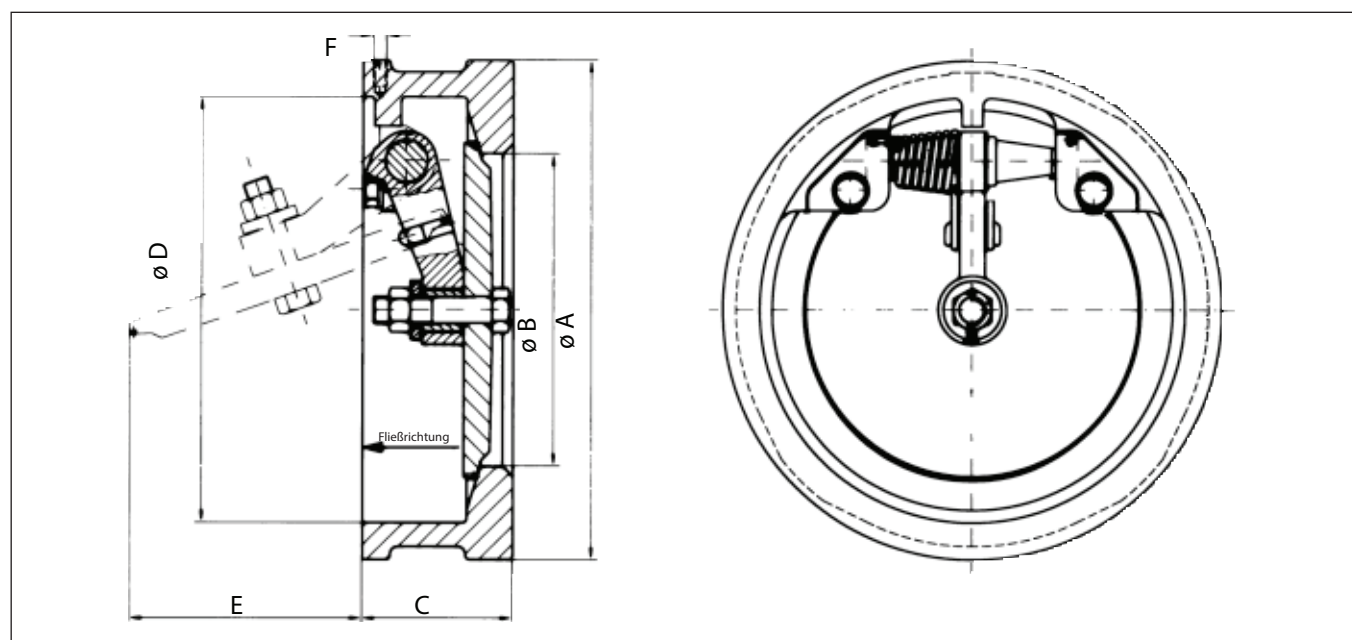
with Body in Stainless Steel: siehe Tabelle

• Temperature Range

Depending on O-Ring material the following temperature ranges are applicable:

| O-Ring | | | |
|-----------------|-----------------|-----------------|-----------------|
| NBR | FPM | PTFE | EPDM |
| -10° bis +100°C | -10° bis +200°C | -10° bis +200°C | -10° bis +130°C |

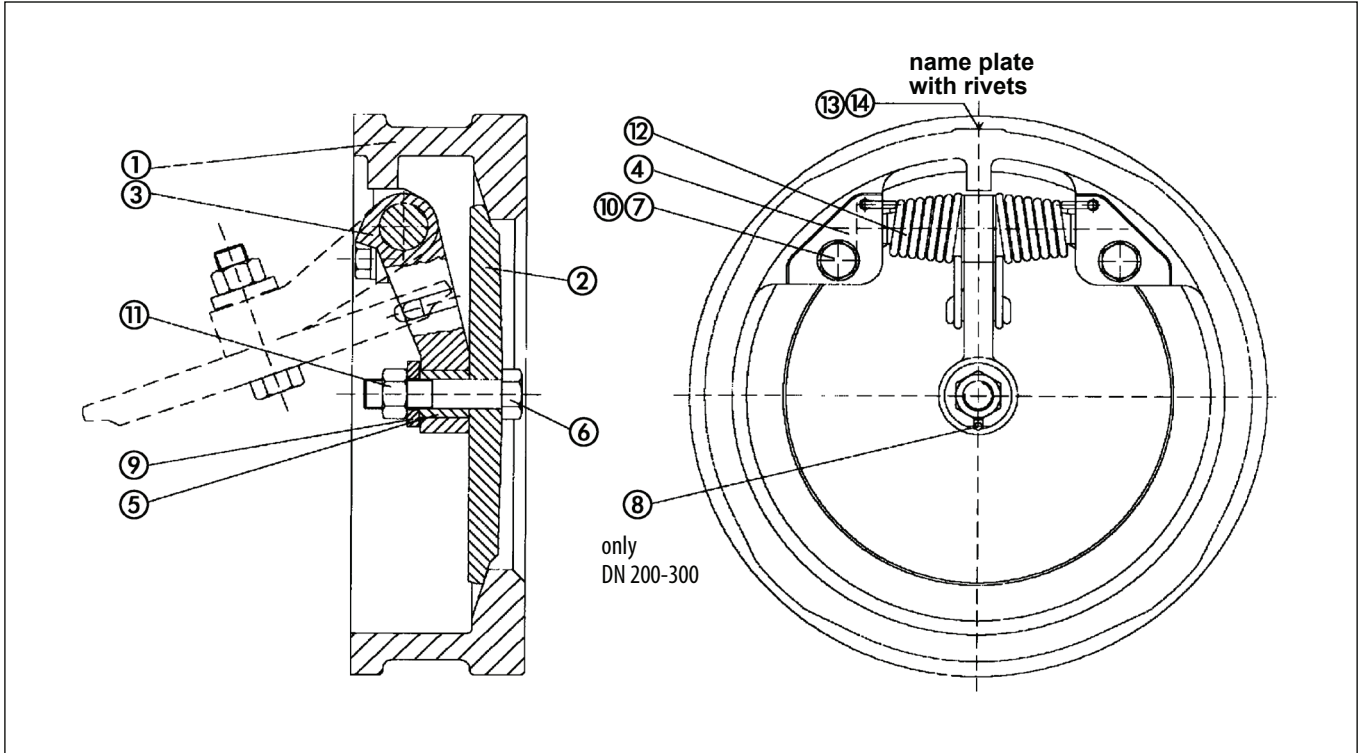
SINGLE-CHEK metal seated check valves are designed for the temperature range -10 °C to +300 °C.



| DN | A | | B | C | D | E | F | PN 10 | |
|-----|-------------------------|-------|-----|-----|-----|-----|------|--|------------------------|
| | PN 10/16/25 ASME 150 | PN 40 | | | | | | Execution Carbon Steel Stainless Steel | Execution Cast Iron |
| 50 | 102 | 102 | 40 | 43 | 60 | 12 | - | 1,4 | 1,4 |
| 65 | 121 | 121 | 48 | 46 | 72 | 20 | - | 2,2 | 2,2 |
| 80 | 133 | 133 | 60 | 64 | 91 | 25 | - | 3,1 | 3,1 |
| 100 | 162 | 162 | 78 | 64 | 113 | 42 | - | 5,8 | 4,8 |
| 125 | 192 | 192 | 99 | 70 | 140 | 63 | - | 7,9 | 7,5 |
| 150 | 218 | 218 | 118 | 76 | 167 | 84 | - | 11,0 | 10,5 |
| 200 | 273 | 273 | 158 | 89 | 218 | 112 | M 10 | 18,0 | 17,0 |
| 250 | 328 | - | 196 | 114 | 272 | 134 | M 10 | 34,0 | 32,0 |
| 300 | 378 | - | 236 | 114 | 322 | 147 | M 10 | 44,0 | 42,0 |

SINGLE-CHEK Check Valves Series CV DN 50-300 with metal seat

Materials



| Item | Description | Sign in Model-No. | Execution Stainless steel |
|------|---------------------|-------------------|------------------------------|
| 1 | Casing | | Stainless steel |
| 2 | Disc | E | Stainless steel |
| 3 | Lever | DN50-300 | Stainless steel |
| 4 | Clamping piece | | Stainless steel |
| 5 | Connector | | Stainless steel |
| 6 | Screw | | Stainless steel |
| 7 | Screw | | Stainless steel |
| 8 | Pen | (only DN200-300) | Stainless steel |
| 9 | Disc | | Stainless steel |
| 10 | Screw locking | | Stainless steel |
| 11 | Self-locking mother | | Stainless steel |
| 12 | Spring left / right | | Stainless steel |
| 13 | Rivet | | Aluminum |
| 14 | Name plate | | Aluminum |

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SINGLE-CHEK Check Valves Series CV DN 50-300 with metal seat

Application Limits

• Opening Pressure

Check Valves Series CV can be equipped with one or two (standard) springs. With one spring the opening pressure is about 15 mbar and with two about 30 mbar.

If only one spring is required this needs to be specified in the order.

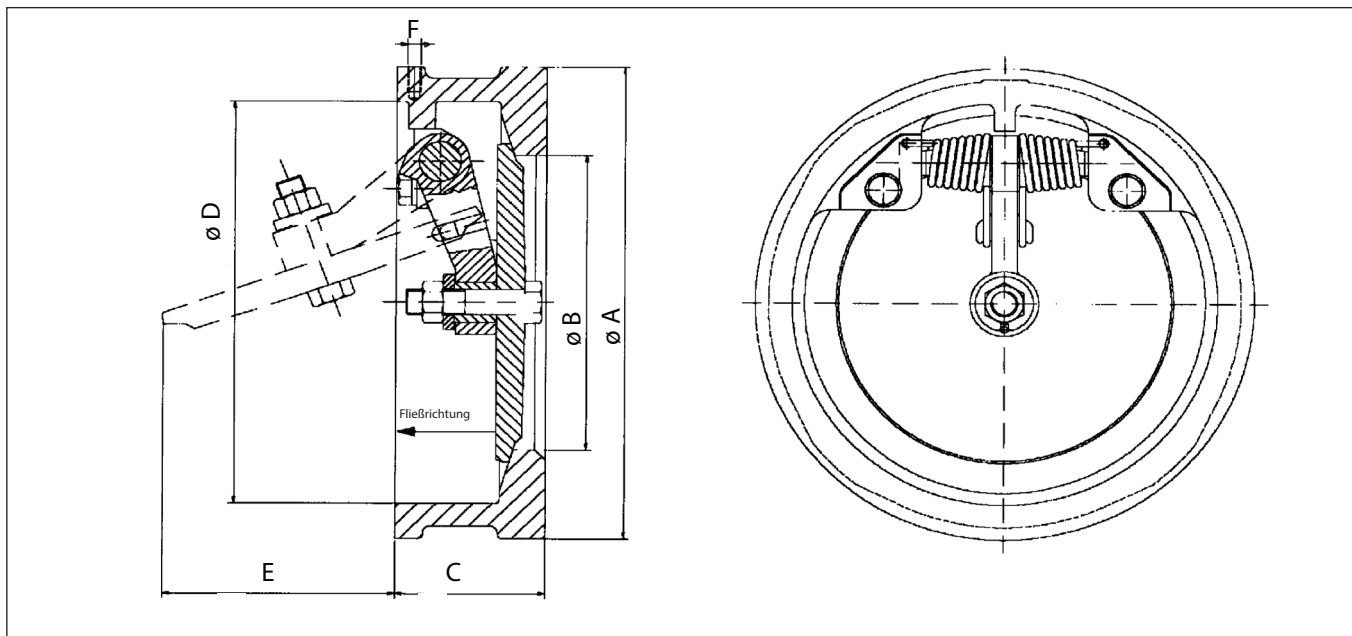
• Nominal Pressure

Available PN classes see table below

• Temperature Range

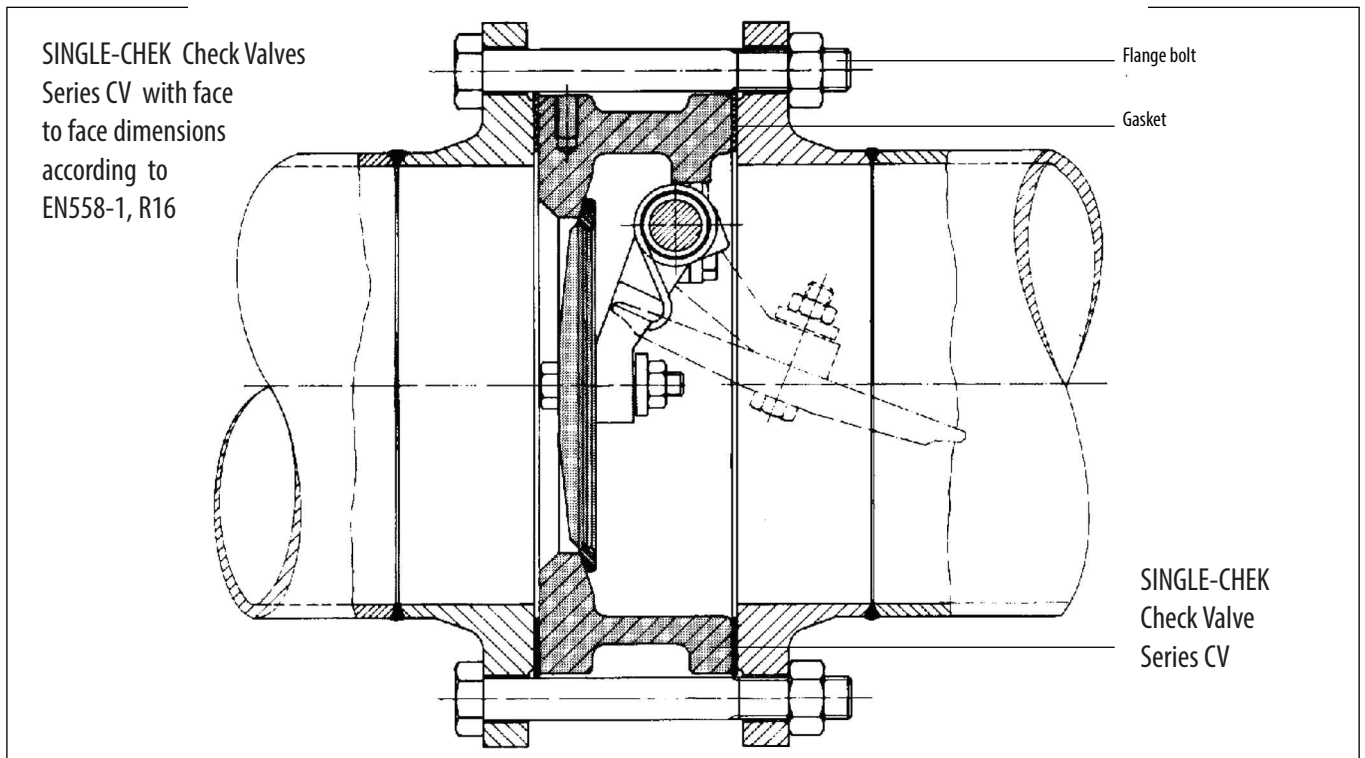
Valves are designed for temperature range -10 °C to +300 °C

Dimensions in mm, Weights in kg



| DN | A | | B | C | D | E | F | Weight |
|-----|-------------------------|-------|-----|-----|-----|-----|------|--------|
| | PN 10/16/25 ASME 150 | PN 40 | | | | | | |
| 50 | 102 | 102 | 40 | 43 | 60 | 12 | - | 1,4 |
| 65 | 121 | 121 | 48 | 46 | 72 | 20 | - | 2,2 |
| 80 | 133 | 133 | 60 | 64 | 91 | 25 | - | 3,1 |
| 100 | 162 | 162 | 78 | 64 | 113 | 42 | - | 5,8 |
| 125 | 192 | 192 | 99 | 70 | 140 | 63 | - | 7,9 |
| 150 | 218 | 218 | 118 | 76 | 167 | 84 | - | 11,0 |
| 200 | 273 | 273 | 158 | 89 | 218 | 112 | M 10 | 18,0 |
| 250 | 328 | - | 196 | 114 | 272 | 134 | M 10 | 34,0 |
| 300 | 378 | - | 236 | 114 | 322 | 147 | M 10 | 44,0 |

SINGLE-CHEK Check Valves Series CV Flange Bolt Dimensions DN 50-300



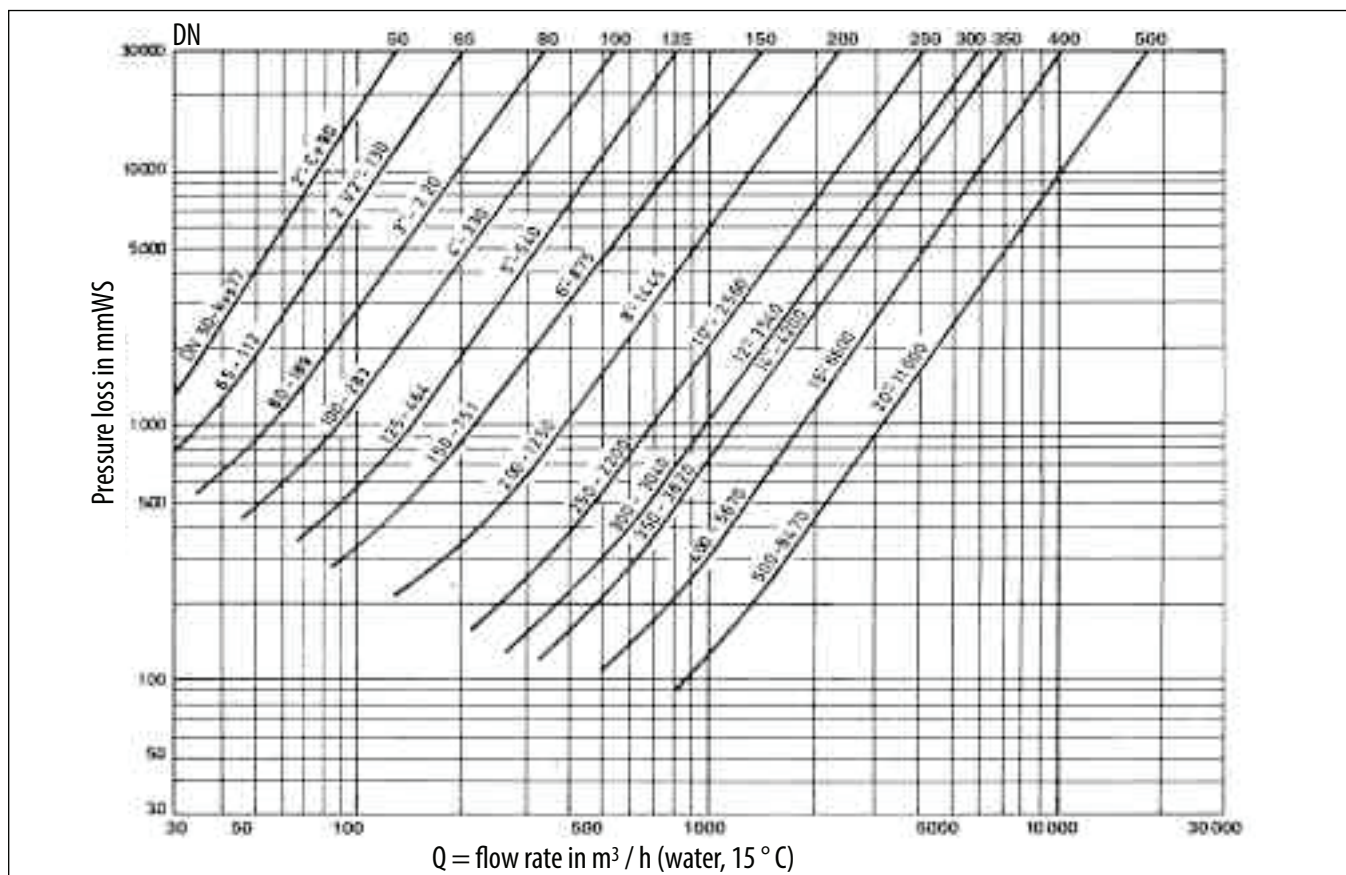
The following table shows the dimensions of flange bolts

| DN | PN | | | | ASME 150 |
|-----|----------------|----------------|----------------|----------------|---------------|
| | 10 | 16 | 25 | 40 | |
| 50 | 4xM16x100 | | 4xM16x110 | | 4x5/8"x4" |
| 65 | 4xM16x110 | | 4xM16x110 | | 4x5/8"x4 1/2" |
| 80 | 8xM16x130 | | 8xM16x140 | | 4x5/8"x5 1/2" |
| 100 | 8xM16x130 | | 8xM20x140 | | 8x5/8"x5 1/2" |
| 125 | 8xM16x140 | | 8xM24x150 | | 8x3/4"x6" |
| 150 | 8xM20x150 | | 8xM24x160 | | 8x3/4"x6 1/2" |
| 200 | 8x M20x170 | 12x M20x170 | 12x M24x190 | 12x M27x200 | 8x3/4"x7" |
| 250 | 12x M20x200 | 12x M24x200 | 12x M27x220 | - | 12x7/8"x8" |
| 300 | 12x M20x200 | 12x M24x200 | 16x M27x220 | - | 12x7/8"x8" |

Bolt dimensions are for weld neck flanges according to the following standards:
EN1092 (PN10, PN16, PN25, PN40) or ASME B 16.5, Class 150.

SINGLE-CHEK Check Valves Series CV

Flow rates



for other liquids applies:

$$Q = \frac{K_{vs} \cdot \sqrt{\Delta p}}{\sqrt{\gamma_o}}$$

Q = Flow rate m³/h
 K_{vs} = Flow coefficient (see table)
 Δp = Pressure difference in bar
 γ_o = Spec. Weight in kg/dm³

for gases:

$$V_N = \frac{514 \cdot K_{vs} \cdot \sqrt{\Delta p \cdot p_2}}{\sqrt{\rho \cdot T}}$$

V_N = Standard volume in Nm³/h
 ρ = Spec. Density in kg/m³
 T = Temperature in °K
 Δp = Pressure difference in bar
 p₂ = Downstream pressure in bar absolute
 K_{vs} = Flow coefficient (see table)

| DN | Kvs value | DN | Kvs value | DN | Kvs value |
|-----|-----------|-----|-----------|-----|-----------|
| 50 | 40 | 125 | 380 | 300 | 3170 |
| 65 | 65 | 150 | 590 | 350 | 3620 |
| 80 | 110 | 200 | 1175 | 400 | 5670 |
| 100 | 215 | 250 | 2050 | 500 | 9470 |

Value is the flow rate in m³ / h of water at 5 to 30 °C, which goes through the open valve at a pressure difference of 1 bar.





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