

31100

Butterfly valve of carbon steel DN 80 - 600

26.04.2006

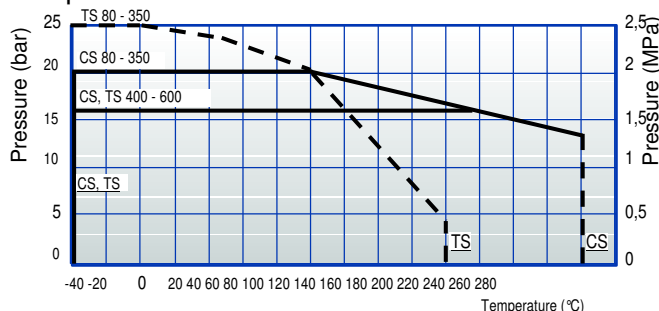
Operation

Butterfly valve 31100 is used in industrial pipelines for demanding on-off and regulating tasks as well as in district heating. It is tight to both directions of flow.

| | |
|---------------------------------|----------------------------|
| Nominal pressure | PN 25 |
| Closing pressure difference | CS 20 bar DN 80 - 350 |
| | TS 25 bar DN 80 - 350 |
| | CS, TS 16 bar DN 400 - 600 |
| Disc seal alternatives | AISI 316, PTFE+C |
| Temperature and tightness class | |
| AISI 316 | max +260 °C/ min -40 °C |
| | ISO5208, EN 12266-1 RATE B |
| PTFE+C | max +180 °C/ min -40 °C |
| | ISO5208, EN 12266-1 RATE A |



The max pressure difference depends on the working temperature



Construction

This wafer type butterfly valve is installed between flanges. The body material is cast carbon steel. Double eccentric disc and shaft are stainless steel. The shaft packing box is a combination of graphite rings and O-rings which are possible to tighten while in pipeline and are also replaceable.

Face-to-face length according to ISO 5752, EN 558-1 series 20 DIN 3202 K1

Connection: Between flanges DIN2501 PN25, PN16, PN10, ANSI CLASS 150

Conform with the requirements of the Council Directive 97/23/EC on Pressure Equipment, marking:
Class: Gas, group 1

 0409

Nominal dimensions: DN 80 - 600

Product codes:

| | |
|---------|---------------|
| 31100CS | metal seated |
| 31102TS | teflon seated |

| | |
|-------|----------------------------|
| 311.. | with handlever up to DN150 |
| 311.. | Z with bare shaft |
| 311.. | M with manual gear |

For steam on special order. Code number: 31101CS
max 8 bar/ 170 °C

Materials

| | |
|-------------|--|
| Body: | Cast carbon steel GP240GH/ WCB |
| Disc: | Stainless steel EN10213-4 1.4408, ASTM A351 CF8M |
| Shaft: | Stainless steel EN10088-3 1.4460 |
| Disc seal: | Stainless steel AISI 316/ PTFE+C |
| Shaft seal: | Graphite/ FPM O-Ring |

31100

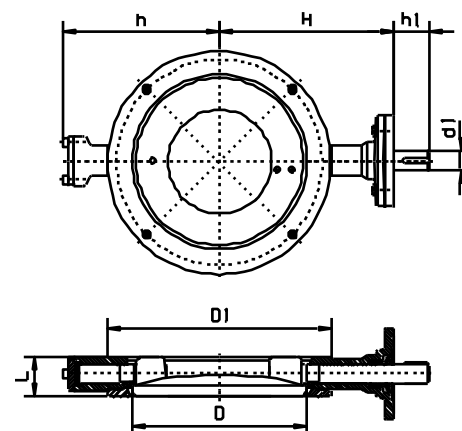
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Dimensions

| DN | L | D1 | D | h | H | h1 | d1 | Flange ISO5211 | Weight kg |
|-----|-----|-----|-----|-----|-----|-----|----|-------------------|--------------|
| 80 | 46 | 138 | 72 | 114 | 144 | 45 | 15 | F07 | 6,5 |
| 100 | 52 | 158 | 89 | 131 | 168 | 52 | 20 | F07 | 7,0 |
| 125 | 56 | 188 | 113 | 143 | 179 | 52 | 20 | F07 | 8,7 |
| 150 | 56 | 212 | 137 | 160 | 199 | 58 | 25 | F10 | 13 |
| 200 | 60 | 268 | 187 | 200 | 224 | 58 | 25 | F12 | 29*) |
| 250 | 68 | 320 | 238 | 232 | 269 | 63 | 30 | F12 | 38*) |
| 300 | 78 | 370 | 286 | 275 | 308 | 69 | 35 | F14 | 54*) |
| 350 | 78 | 430 | 337 | 303 | 335 | 69 | 35 | F14 | 67*) |
| 400 | 102 | 482 | 386 | 333 | 380 | 86 | 50 | F16 | 118*) |
| 500 | 127 | 585 | 483 | 388 | 458 | 103 | 60 | F16 | 198*) |
| 600 | 154 | 685 | 582 | 448 | 530 | 119 | 70 | F25 | 337*) |

*) with manual gear



Operation

The butterfly valve is delivered with handlever, manual gear, electric, pneumatic or hydraulic actuator according to customer's needs.

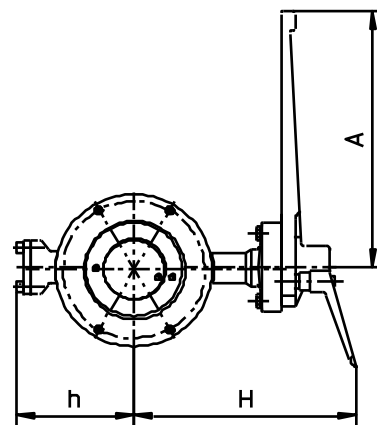
Handlever

The smaller sizes, DN 80 -150 can be operated with handlever.

The opening and closing of valves is stepless.

The valve is open when the handlever is parallel to the pipe.

| DN | h | H | A |
|-----|-----|-----|-----|
| 80 | 114 | 223 | 300 |
| 100 | 131 | 246 | 300 |
| 125 | 143 | 260 | 300 |
| 150 | 160 | 289 | 420 |

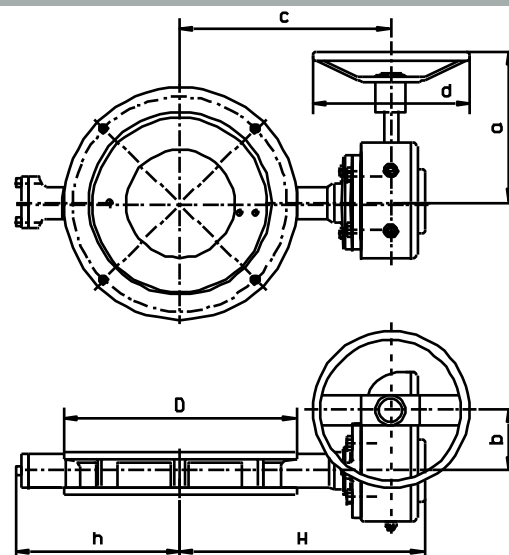


Manual gear

Opening and closing of the valves from the handwheel.

The position of disc can be seen on a position indicator on top of the gear.

| DN | L | D | h | H | a | b | c | d |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 80 | 46 | 138 | 114 | 204 | 218 | 45 | 171 | 200 |
| 100 | 52 | 158 | 131 | 228 | 218 | 45 | 195 | 200 |
| 125 | 56 | 188 | 143 | 239 | 218 | 45 | 206 | 200 |
| 150 | 56 | 212 | 160 | 286 | 220 | 71 | 240 | 200 |
| 200 | 60 | 268 | 200 | 311 | 220 | 71 | 265 | 200 |
| 250 | 68 | 320 | 232 | 356 | 255 | 71 | 310 | 300 |
| 300 | 78 | 370 | 275 | 398 | 291 | 86 | 350 | 400 |
| 350 | 78 | 430 | 303 | 425 | 291 | 86 | 377 | 400 |
| 400 | 102 | 482 | 333 | 501 | 387 | 130 | 435 | 500 |
| 500 | 127 | 585 | 388 | 579 | 387 | 130 | 513 | 500 |
| 600 | 154 | 685 | 448 | 689 | 500 | 263 | 589 | 500 |



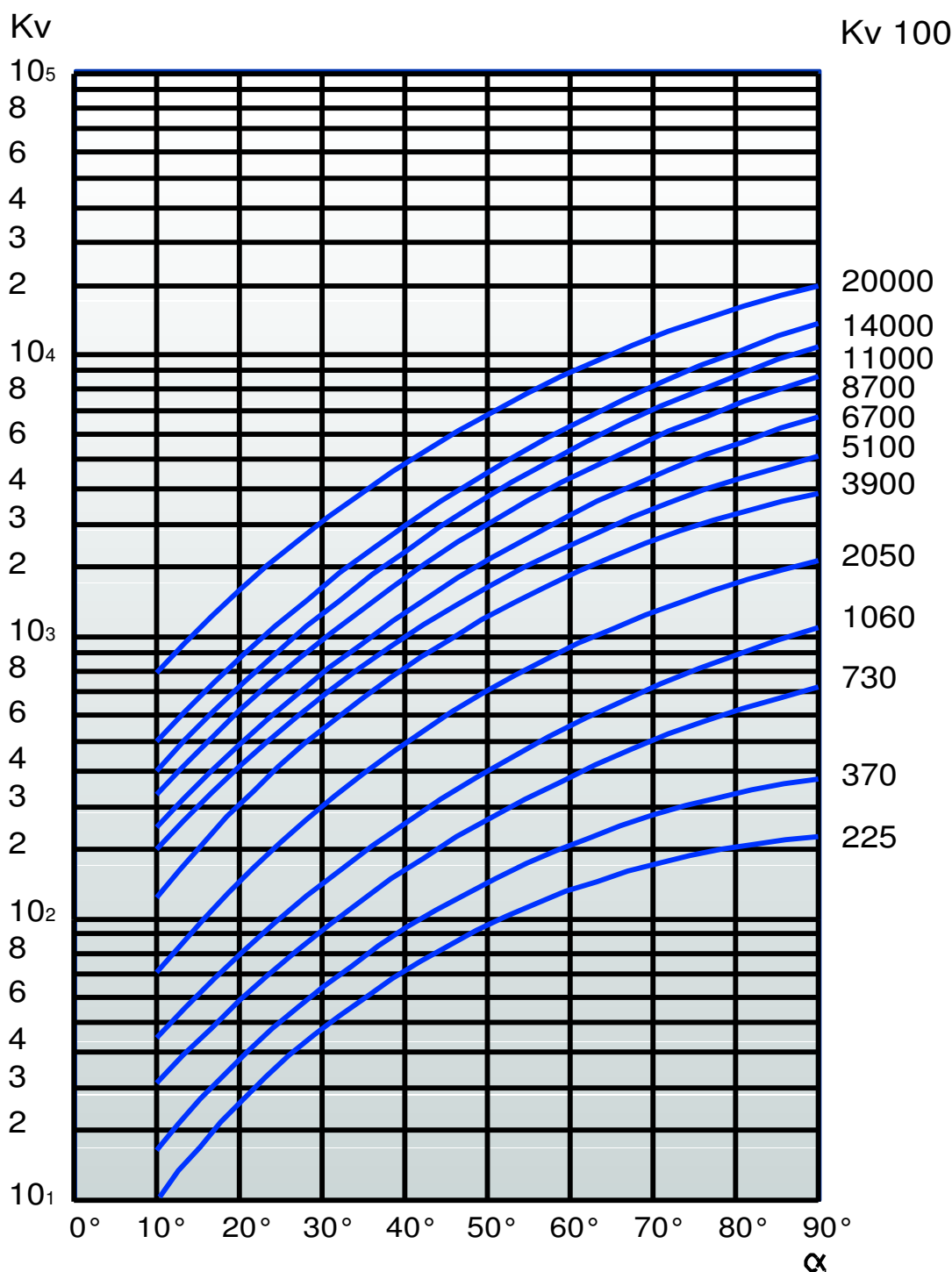
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The control curves

The curves indicate the regulating values of the valve at different opening angles.



WATER:

Volume flow:

$$Q = K_v \sqrt{\frac{\Delta p}{\rho}}$$

Flow velocity:

$$v = 354 \frac{Q}{DN^2}$$

K_v

DN

α

Q

Δp

ρ

v

= kv-value — Capacity factors

= nominal valve size (mm)

= disc opening angle

= volume flow m³/h

= pressure difference bar

= density of liquid kg/dm³

= flow velocity m/s