

**31300**

# Butterfly valve of carbon steel DN 200 - 1400

06.02.2007

## Operation

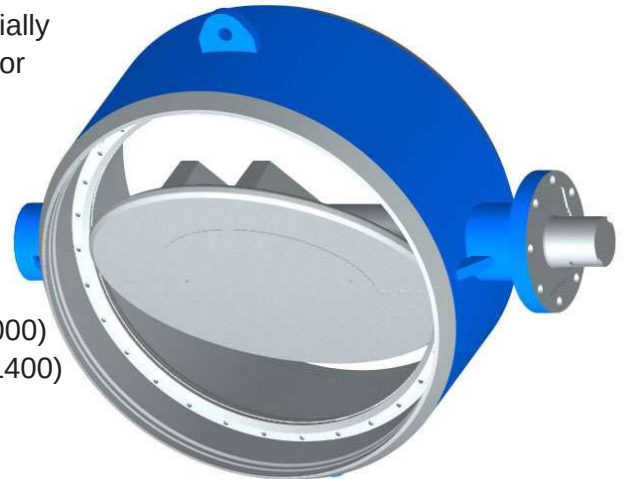
The welded butterfly valve 31300 with weld ends is specially designed for district heating. It can be used as an on-off or control valve. Högfors butterfly valve is tight in both flow directions.

**Nominal pressure** 25 bar

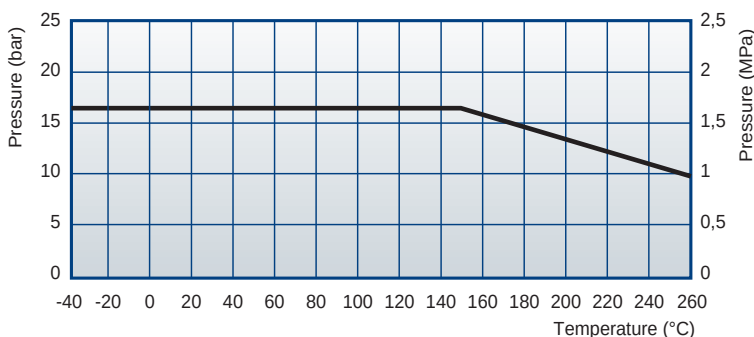
**Closing pressure** 16 bar

**Tightness class** ISO 5208, EN 12266-1, RATE B

**Temperature** max +260°C/ min -40°C (DN200 - 1000)  
max +260°C/ min -20°C (DN1200 - 1400)



The max pressure difference depends on the working temperature



## Construction

The body of the butterfly valve with weld ends is carbon steel. The double eccentric disc and shafts are made of stainless steel. Replaceable seat ring is also 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.

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

Class: Gas, group 1



**Nominal dimensions:** DN 200 - 1400

**Face-to-face length according to** EN 558-1 series 14

**Product codes:** 31300CS\_\_Z with bare shaft  
31300CS\_\_M with manual gear

**Connection:** Weld end:

The pipe according to DIN-standard.

For steam on special order. Code number: 31301CS

On special order: GOST-standard or others.

## Materials

|             |                                                   |
|-------------|---------------------------------------------------|
| Body:       | Carbon steel EN 10028-2 P265GH                    |
| Disc:       | Stainless steel EN 10213-4 1.4408, ASTM A351 CF8M |
| Shaft:      | Stainless steel EN 10088-3 1.4460                 |
| Disc seal:  | Stainless steel                                   |
| Shaft seal: | Graphite/ EPDM O-Rings                            |

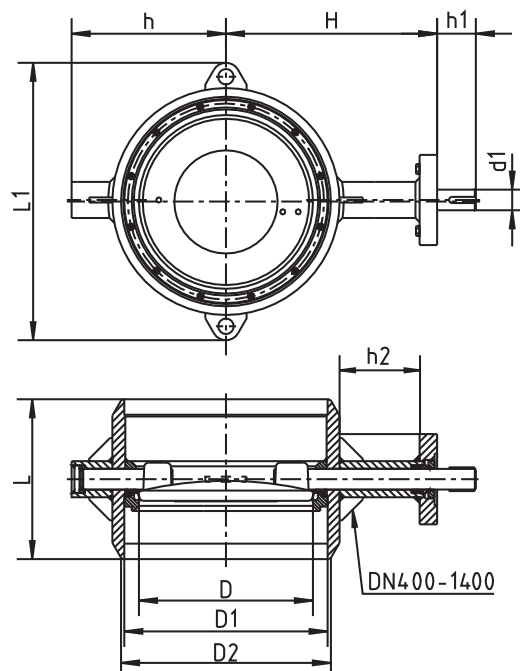
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## Dimensions

| DN   | L   | D     | D1    | D2    | h   | H    | h1  | d1  | h2  | L1   | Flange<br>ISO5211 |
|------|-----|-------|-------|-------|-----|------|-----|-----|-----|------|-------------------|
| 200  | 230 | 137,5 | 210,1 | 219,1 | 154 | 259  | 58  | 25  | 115 | 233  | F10               |
| 250  | 250 | 187   | 263,0 | 273,0 | 193 | 298  | 63  | 30  | 125 | 385  | F12               |
| 300  | 270 | 238   | 312,7 | 323,9 | 229 | 323  | 69  | 35  | 125 | 435  | F12               |
| 350  | 290 | 286   | 344,4 | 355,6 | 255 | 352  | 75  | 40  | 125 | 465  | F14               |
| 400  | 310 | 337   | 393,8 | 406,4 | 300 | 409  | 75  | 40  | 155 | 540  | F14               |
| 450  | 330 | 386   | 444,4 | 457,0 | 326 | 445  | 86  | 50  | 163 | 590  | F16               |
| 500  | 350 | 437   | 495,4 | 508,0 | 351 | 470  | 86  | 50  | 163 | 660  | F16               |
| 600  | 390 | 483   | 593,6 | 609,6 | 376 | 548  | 103 | 60  | 186 | 760  | F16               |
| 700  | 430 | 582   | 693,6 | 711,2 | 440 | 601  | 119 | 70  | 186 | 860  | F25               |
| 800  | 470 | 682   | 795,2 | 812,8 | 490 | 651  | 119 | 70  | 187 | 955  | F30               |
| 900  | 510 | 775   | 894,4 | 914,4 | 575 | 718  | 125 | 90  | 200 | 1070 | F30               |
| 1000 | 550 | 855   | 994,0 | 1016  | 636 | 764  | 130 | 100 | 183 | 1200 | F30               |
| 1200 | 630 | 1054  | 1195  | 1220  | 755 | 873  | 160 | 140 | 182 | 1440 | F35               |
| 1400 | 710 | 1237  | 1392  | 1420  | 912 | 1018 | 180 | 170 | 206 | 1770 | F40               |



## Operation

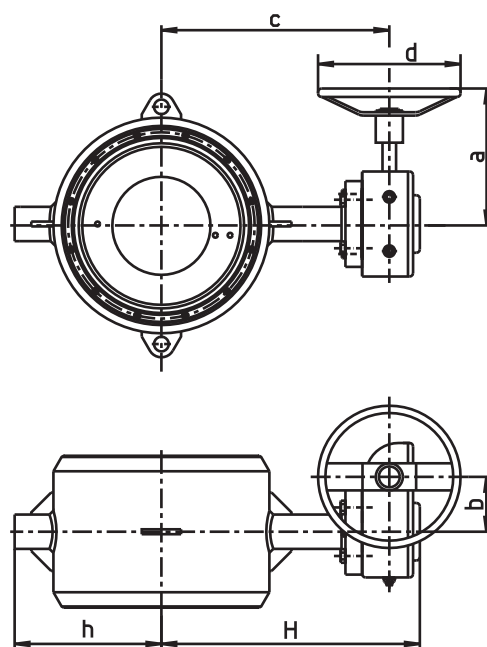
The butterfly valve is delivered with handlever, manual gear, electric, pneumatic or hydraulic actuator according to customer's needs.

## 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   | H    | h   | a   | b   | c    | d   | Weight kg |
|------|------|-----|-----|-----|------|-----|-----------|
| 200  | 349  | 154 | 270 | 71  | 301  | 200 | 50        |
| 250  | 389  | 193 | 322 | 71  | 341  | 300 | 57        |
| 300  | 414  | 229 | 322 | 71  | 366  | 300 | 70        |
| 350  | 452  | 255 | 345 | 97  | 403  | 500 | 107       |
| 400  | 509  | 300 | 345 | 97  | 459  | 500 | 131       |
| 450  | 573  | 326 | 405 | 138 | 500  | 500 | 190       |
| 500  | 598  | 351 | 405 | 138 | 525  | 500 | 219       |
| 600  | 676  | 376 | 405 | 138 | 603  | 500 | 350       |
| 700  | 760  | 440 | 500 | 182 | 665  | 500 | 485       |
| 800  | 810  | 490 | 500 | 182 | 715  | 500 | 574       |
| 900  | 896  | 575 | 615 | 431 | 807  | 500 | 975       |
| 1000 | 942  | 636 | 615 | 431 | 807  | 500 | 1290      |
| 1200 | 1051 | 755 | 615 | 431 | 962  | 600 | 2480      |
| 1400 | 1218 | 912 | 755 | 450 | 1158 | 700 | 3210      |



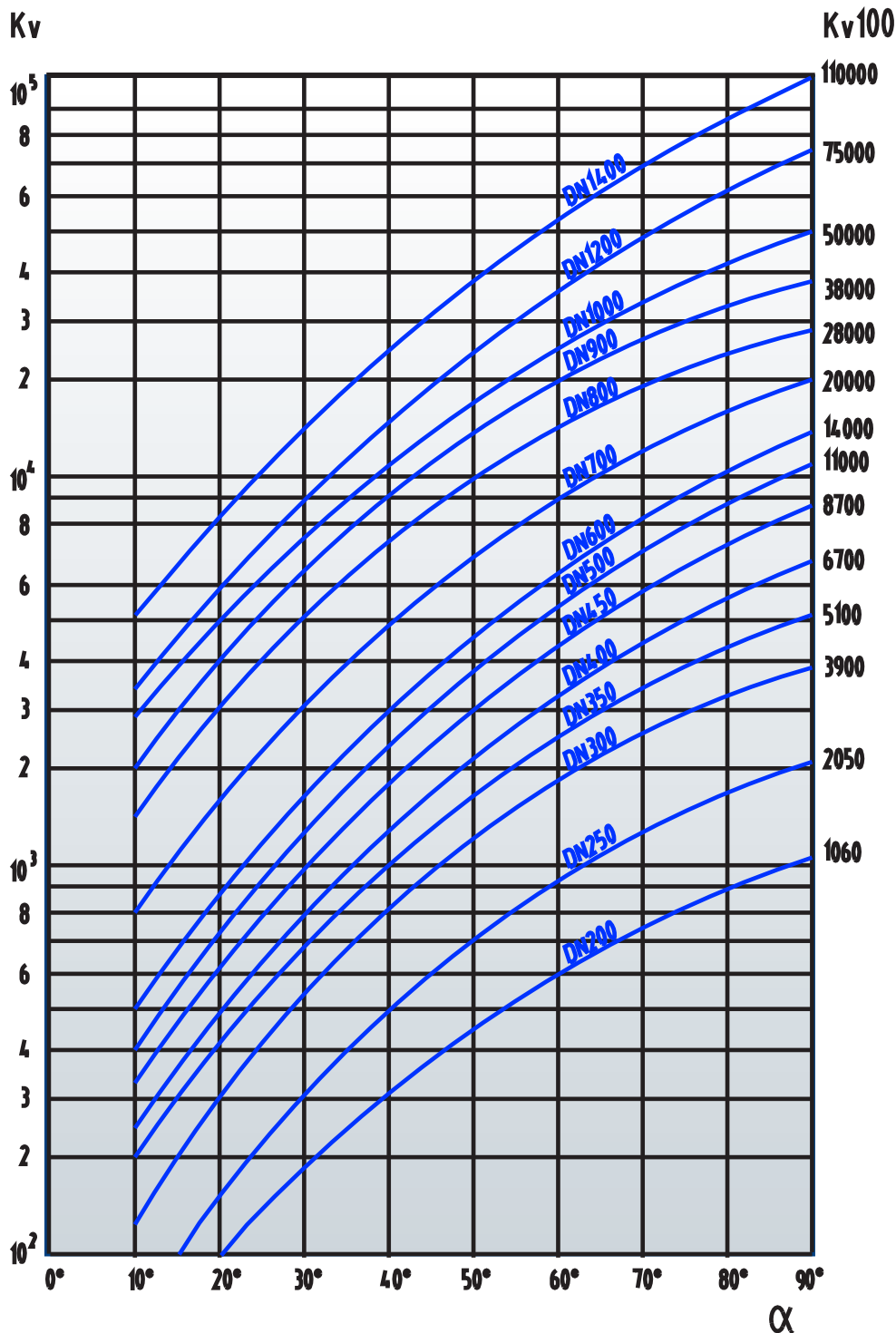
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## The control curves

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  
 $\alpha$   
Q  
 $\Delta p$   
 $\rho$   
v

= kv-value — Capacity factors  
= nominal valve size (mm)  
= disc opening angle  
= volume flow m<sup>3</sup>/h  
= pressure difference bar  
= density of liquid kg/dm<sup>3</sup>  
= flow velocity m/s