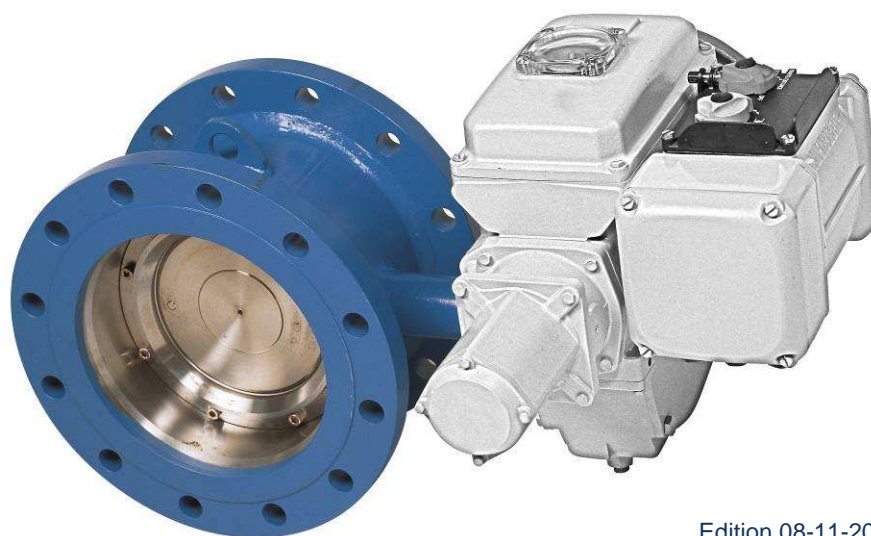


BUTTERFLY VALVE of carbon steel with flanges **31500 series**

CONTROL




Edition 08-11-2010

Description

The welded butterfly valve 31500 with flanges is used for example in district heating, district cooling and industry. It can be used as an on-off or control valve. Högfors butterfly valve is tight in both flow directions.

The body of the butterfly valve is of carbon steel. The eccentric disc and shafts are made of stainless steel. Replaceable seat ring is hard chrome plated 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.

Nominal dimensions:	DN 200 - 1200
Nominal pressure	PN 25bar
Disk seal	Stainless steel (CS)
Closing pressure (ΔP)	ΔP 16bar or 25bar
* Tightness class ISO 5208, EN 12266-1	RATE B
** Working temperature of liquid media (version for steam also available)	DN 200 – 1000 max +260°C/ min -40°C DN1200 max + 260°C/ min -20°C
Face-to-face length according to EN 558-1	series 14
Connection	between flanges: EN1092-1 Type B, PN 25, PN 16 and PN 10 ANSI CLASS 150
Safety	Conform to the requirements of the Council Directive 97/23/EC on Pressure Equipment, marking: Class: gas, group 1.  0575

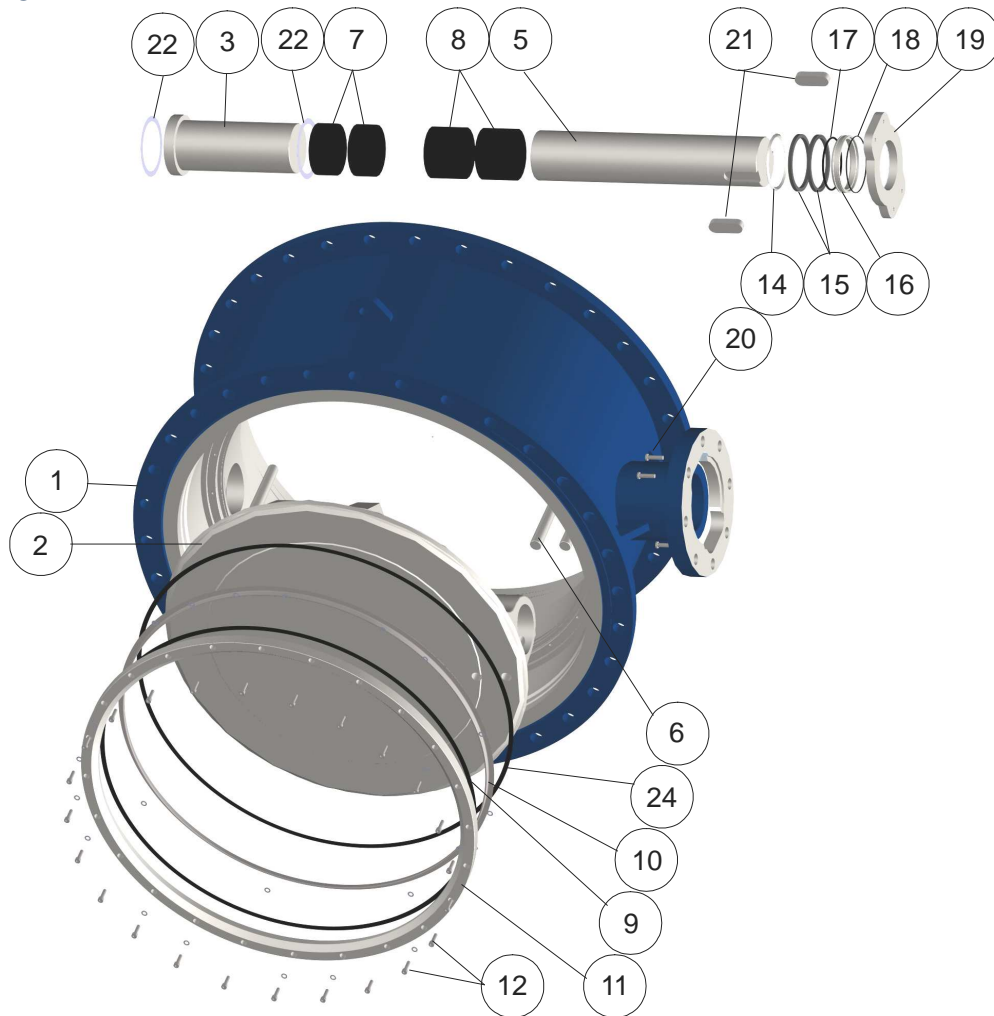
*) Option with Rate A is available also.

**) Wider temperature range is available.

Consult factory for details.



Exploded view

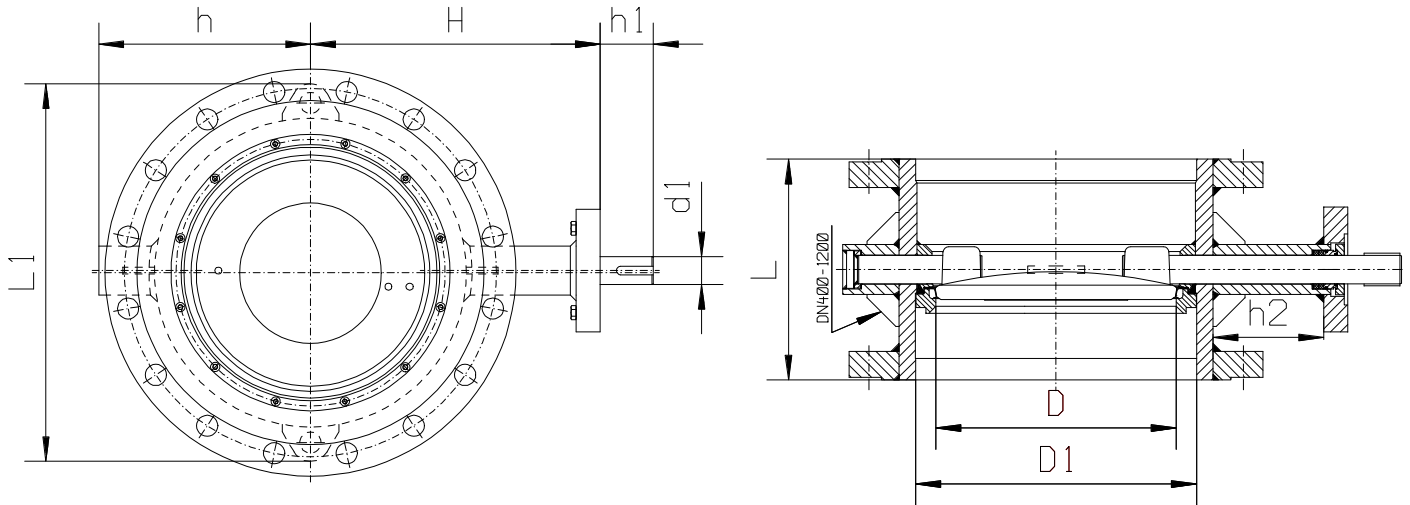


Parts list and standard materials

Part	Material
1 Body	Carbon steel EN 10028-2 P265GH
2 Disk	Stainless steel EN10213-4 1.4408, ASTM A351 CF8M
3 Subshaft	Stainless steel EN 10088-3 1.4460 / 1.4418
5 Main shaft	Stainless steel EN 10088-3 1.4460 / 1.4418
6 Conical pin	Stainless steel EN10088-3 1.4462
7 Subshaft bearing	PTFE on stainless steel net
8 Stem bearing	PTFE on stainless steel net
9,24 Shim	Carbon Fiber SFS5811 Graphite for steam version
10 Seat ring	Stainless steel AISI 316, AISI 904L hard chrome plated
11 Retaining ring	Carbon steel P265GH
12 Socket screw	Stainless steel ISO 3506 A4-80
13 Washer	Stainless steel
14 Back-up-ring	Stainless steel 1.4404
15 Box packing	Graphite
16 Shaft seal bushing	Stainless steel 1.4404
17,18 O-ring	EPDM Not fitted for steam version
19 Gland	Stainless steel 1.4436 / 1.4404
20 Hexagonal screw	Stainless steel ISO 3506 A4-80
21 Key	Carbon steel
22 Bearing plate	PTFE on stainless steel net



Dimensions



DN	L	D	D1	h	H	h1	d1	h2	L1	Flange ISO5211	weight, kg
200	230	137.5	210.1	154	259	58	25	115	233	F10	71
250	250	187	263.0	193	298	63	30	125	385	F12	87
300	270	238	312.7	229	323	69	35	125	435	F12	109
350	290	286	344.4	255	352	75	40	125	465	F14	158
400	310	337	393.8	300	409	75	40	155	540	F14	194
450	330	386	444.4	326	445	86	50	163	590	F16	268
500	350	437	495.4	351	470	86	50	163	660	F16	326
600	390	483	593.6	376	548	103	60	186	760	F16	505
700	430	582	693.6	440	601	119	70	186	860	F25	628
800	470	682	795.2	490	651	119	70	187	955	F30	758
900	510	775	894.4	575	718	125	90	200	1070	F30	1'251
1000	550	855	994.0	636	764	130	100	183	1200	F30	1'646
1200	630	1054	1195	755	873	160	140	183	1440	F35	2'513

Operation

Högfors valves can be equipped with an actuator to your specification.

- bare shaft (not recommended),
- manual gear,
- electric actuator,
- pneumatic or hydraulic actuator.

Operation torque.

DN	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400
Torque*, Nm	240	400	700	1'100	1'600	2'200	3'000	4'200	6'800	10'000	13'000	16'000	24'000	34'000

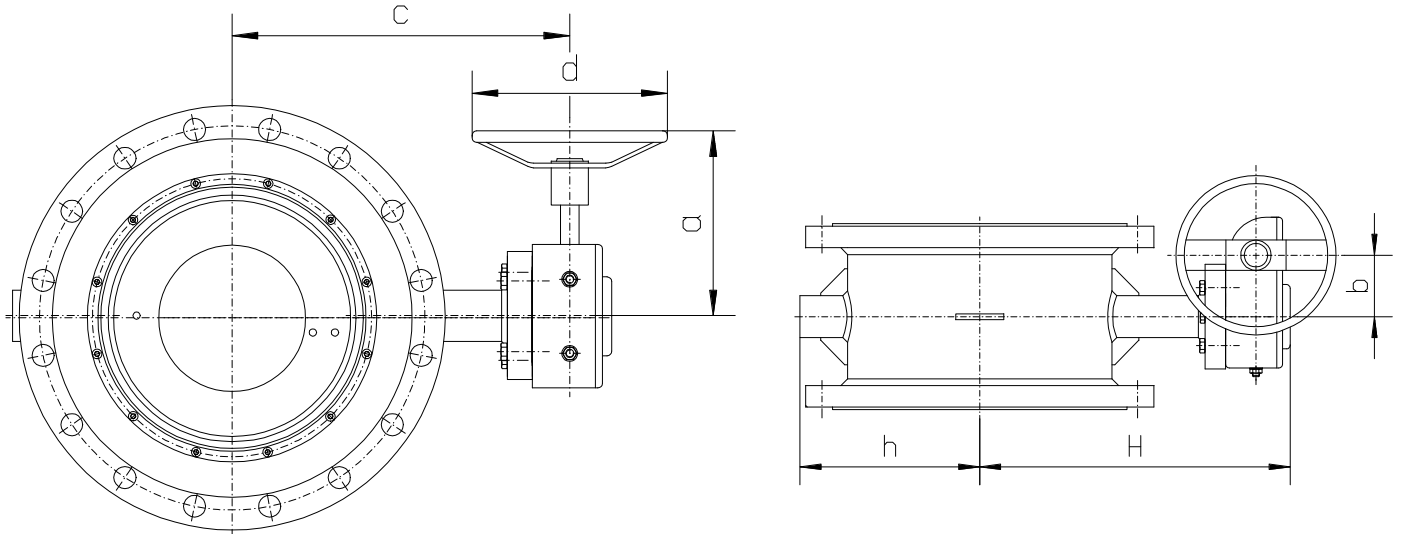
*) for steam duty use the next size up



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.



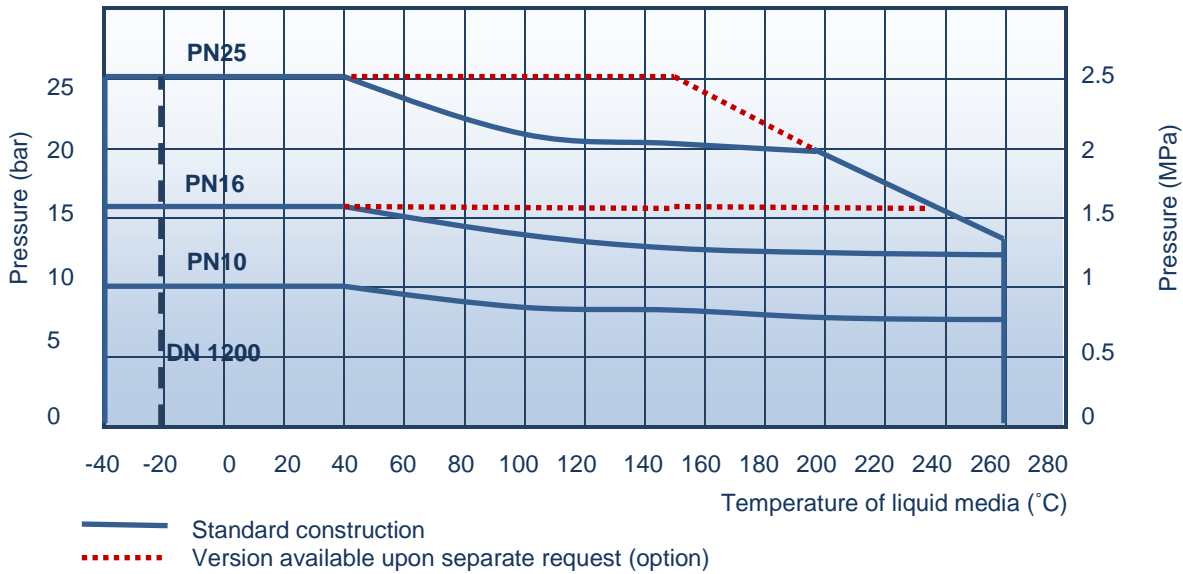
DN	H	h	a	b	c	d	weight*, kg
200	349	154	202	67	301	200	71
250	379	193	247	67	340	300	87
300	417	229	264	90	373	300	109
350	446	255	264	90	402	500	158
400	503	300	264	90	459	500	194
450	573	326	405	138	500	500	268
500	576	351	362	123	520	500	326
600	675	376	387	154	598	500	505
700	761	440	505	181	687	500	628
800	811	490	505	181	737	500	758
900	887	575	592	237	792	500	1251
1000	942	636	615	431	807	600	1'646
1200	1051	755	615	431	962	700	2'513

* weight of hand wheel is not included



Pressure / Temperature Rating.

Rating according to EN1092-1 (CE).



Temperature °C		RT	100	150	200	250	300
		Max. allowable pressure (bar)					
PN10	DN ≤ 700	10.0	9.2	8.8	8.3	7.6	6.9
	DN > 700	10.0	8.5	8.3	7.7	7.0	6.4
PN16	DN ≤ 500	16.0	14.8	14.0	13.3	12.1	11.0
	DN > 500	16.0	13.7	13.3	12.4	11.3	10.2
PN25	DN ≤ 400	25.0	23.2	22.0	20.8	19.0	17.2
	DN > 400	25.0	21.4	20.8	19.4	17.7	16.0

How to order

		3	1	5	00	CS	800	M	5
Body material:	3 – Carbon steel								
Valve type:	1 - butterfly valve,								
Connection:	0, 1, 2 – wafer type, 3 - welded end, 5 – flanged,								
Design options:	00 – Standard, 01 - For steam								
Main seal	(CS) - Stainless steel								
Size DN									
Operation:	(Z) - bare shaft, (M) - manual gear								
Options	(5) – ΔP = 25 bar								

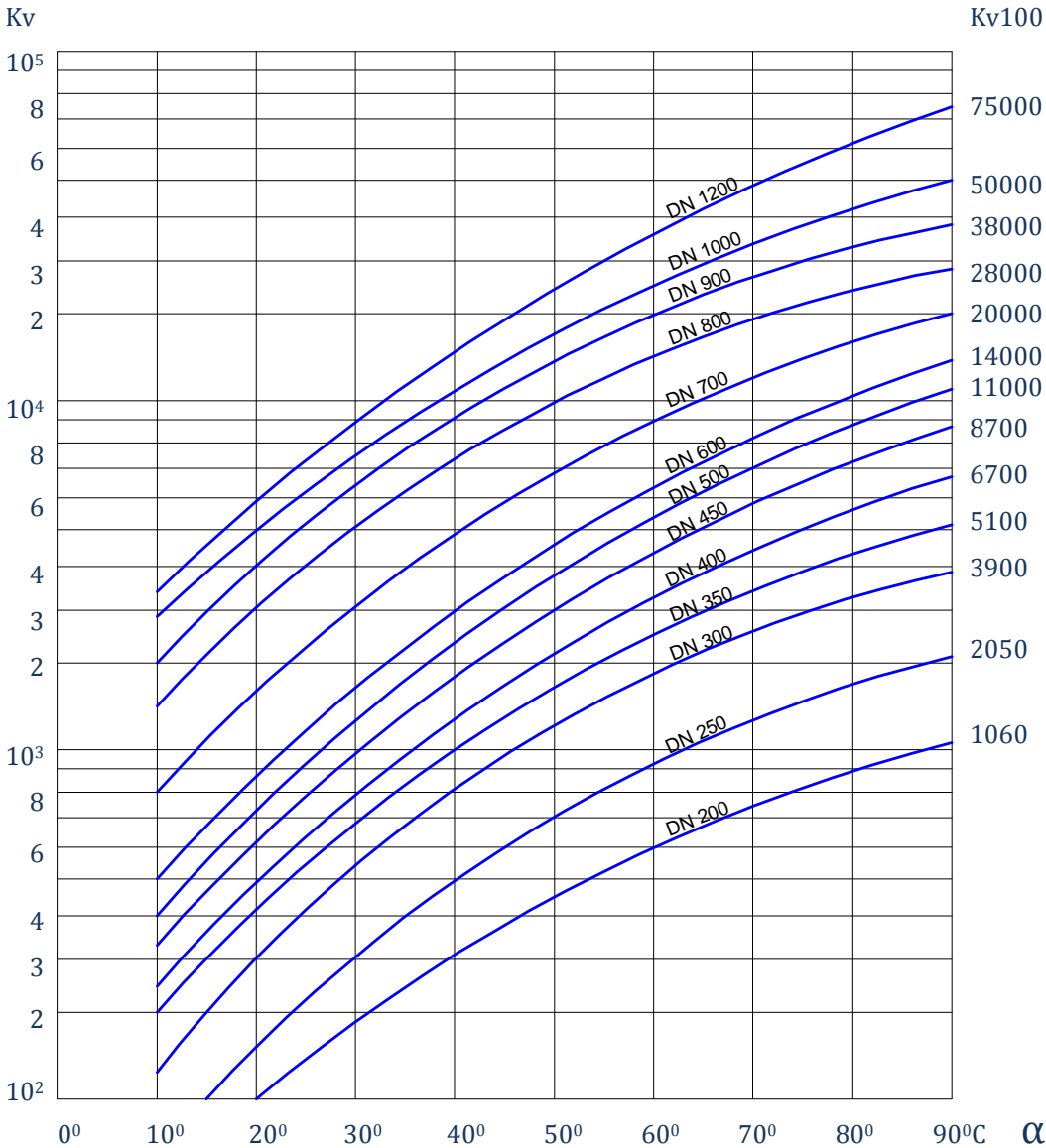


Product codes

	Maximum Closing pressure (ΔP)			
	16 bar		25 bar	
bare shaft	31500CS__Z	31500CS__Z	31500CS__Z5	31500CS__Z5
manual gear	31500CS__M	31500CS__M	31500CS__M5	31500CS__M5
	For steam on special order. Code number: 31501CS__			

Flow curves

Indicating typical Kv value.



WATER:

Volume flow:

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

K_V = KV value - Capacity factor

DN = nominal valve size (mm)

α = disk opening angle

Δp = pressure difference, bar

ρ - density of liquid, kg/dm³

V - flow velocity, m/s

Q - volume flow, m³ / h

Flow velocity:

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