

BUTTERFLY VALVE WAFER TYPE

of carbon steel

31100 (31000 - 31200) series





CONTROL

Description

Edition 22-03-2011

Wafer type butterfly valve 31100 (31000 – 31200) series is used in industrial pipelines for demanding on-off and regulating tasks as well as in district heating, district cooling, petrochemical, oil industry, pulp and paper industry and power production. It is tight to both directions of flow.

The body material is cast carbon steel. The 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. Seal materials depend on media.

Nominal dimensions:	DN 80 - 800	
Nominal pressure	PN25bar	
Disk seal alternatives	Stainless steel (CS)	PTFE+C (TS)
Closing pressure (ΔP)	DN 80–350 – 20 bar	DN 80–350 – 25 bar
	DN 400–800 – 16 bar	DN 400–600 – 16 bar
* Tightness class ISO 5208, EN 12266-1	RATE B	RATE A
** Working temperature of liquid media (version for steam also available)	+260°C -40°C	+180°C -40°C
Face-to-face length according to ISO 5752	EN 558-1 Series 20 DIN3202 K1 or EN 558-1 Series 25 DIN3202 K2 or EN 558-1 Series 16 DIN3202 K3	
*** Connection	Between neck-type flanges: EN1092-1 Type 11, Facing Type B, PN25, PN16, PN10, ANSI CLASS 150. Size of assembly gasket in accordance to SFS 4378, DIN 2690.	
Safety	Conform to the requirements of the Council Directive 97/23/EC on Pressure Equipment, marking: Class: gas, group 1.   Explosion-proof design is available as per special order. Marking in accordance to ATEX Directive 94/9/EC: group II 2 GD, protection concept of non-electrical components: c T6.	

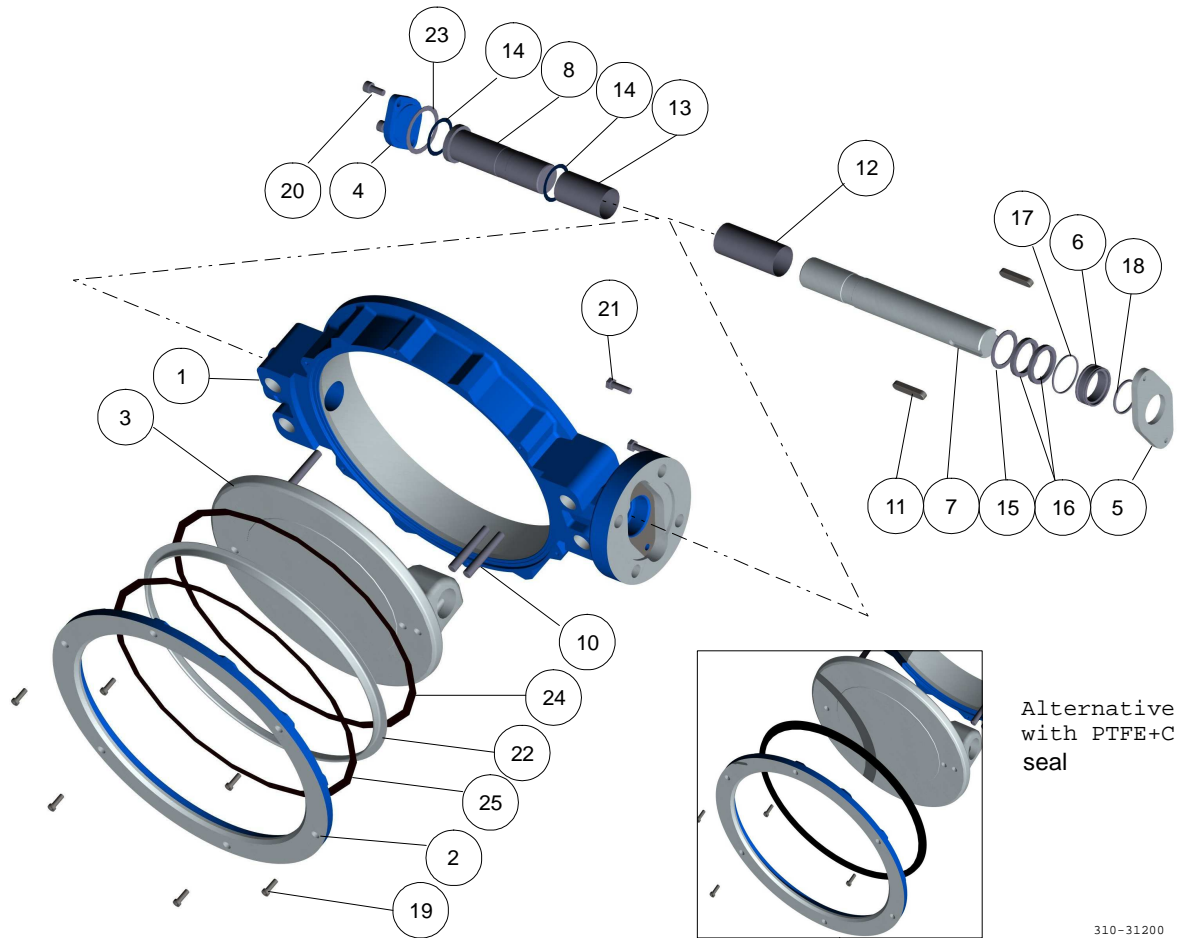
*) Option with Rate A for stainless steel seat is available.

**) Wider temperature range is available.

***) For the valves DN450 and higher the design pressure (PN10,PN16,PN25)of flanges on the pipeline must be specified in order. Consult factory for details.



Exploded view

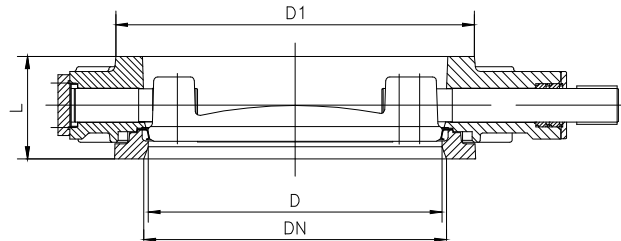
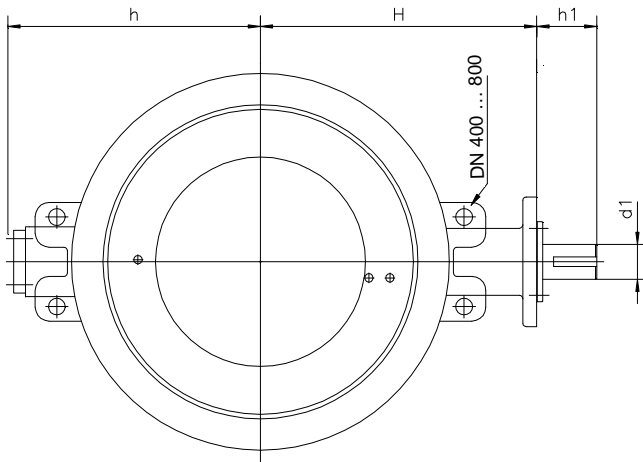


Parts list and standard materials

Part	Material		
1	Body	Cast carbon steel GP240GH/ WCB	
2	Counter flange	Carbon steel P265GH	
3	Disk	Stainless steel EN10213-4 1.4408, ASTM A351 CF8M	
4	Subshaft cover	Carbon steel	
5	Gland	Stainless steel 1.4436 / 1.4404	
6	Shaft seal bushing	Stainless steel	
7	Main shaft	Stainless steel EN10088-3 1.4460 / 1.4418	
8	Subshaft	Stainless steel EN10088-3 1.4460 / 1.4418	
10	Conical pins	Stainless steel 1.4462	
11	Key	Carbon steel	
12	Stem bearing	PTFE on stainless steel net	
13	Subshaft bearing	PTFE on stainless steel net	
14	Bearing plate	PTFE on stainless steel net	
15	Back-up-ring	Stainless steel	
16	Box packing	Graphite	
17,18	O-ring	FPM	Not fitted in steam version
19	Socket screw	Stainless steel ISO 3506 A4-80	
20	Socket screw	Stainless steel ISO 3506 A4-80	
21	Hexagonal screw	Stainless steel ISO 3506 A4-80	
22	Seat ring	Hard chrome plated stainless steel AISI 316, AISI 904L or PTFE+C	
23	Bottom cover gasket	Carbon Fibre SFS5811	Graphite for steam version
24, 25	Shim	Carbon Fibre SFS5811	Graphite for steam version



Dimensions



DN	L			D1	D	h	H	h1	d1	Flange ISO5211	Weight, kg			
	31000	31100	31200								31100 Bare shaft	31000	31100	31200
80	49	46	64	138	72	114	144	45	15	F07	6.5	6.5	6.5	6.5
100	56	52	64	158	89	131	168	52	20	F07	8	7	8	7
125	64	56	70	188	113	143	179	52	20	F07	9.8	8.7	9.8	8.7
150	70	56	76	212	137	160	199	58	25	F10	14.9	13	14.9	13
200	71	60	89	268	187	200	224	58	25	F12	25	29*)	29*)	29*)
250	76	68	114	320	238	232	269	63	30	F12	30	38*)	38*)	38*)
300	83	78	114	370	286	275	308	69	35	F14	40.5	54*)	54*)	54*)
350	92	78	127	430	337	303	335	75	40	F14	52	67*)	67*)	67*)
400	–	102	140	482	386	333	380	86	50	F16	86.5	–	118*)	118*)
450	–	114	–	530	437	358	408	86	50	F16	117	–	149*)	–
500	–	127	152	585	483	388	458	103	60	F16	160	–	198*)	198*)
600	–	154	178	685	582	448	530	119	70	F25	280	–	337*)	337*)
700	–	165	229	785	682	498	602	119	70	F30	318	–	375*)	375*)
800	–	190	241	885	775	566	650	125	90	F30	454	–	511*)	515*)

*) with manual gear

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	80	100	125	150	200	250	300	350	400	450	500	600	700	800
Torque*, Nm	CS		90	130	180	240	400	700	1'100	1'600	2'200	3'000	4'200	6'800	10'000	13'000
	TS		70	100	140	190	320	550	850	1'300	1'800	2'400	3'400	5'500	–	–

*) for steam duty use the next size up.



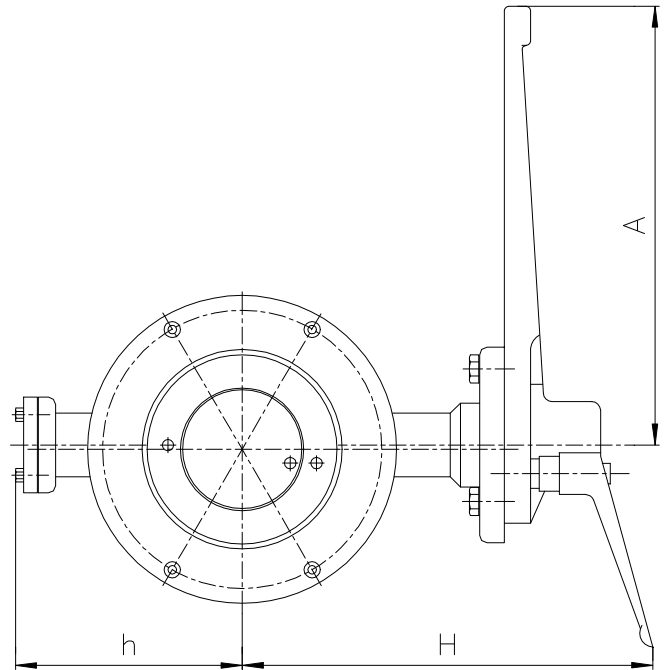
Handlever

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 in line with pipe.

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

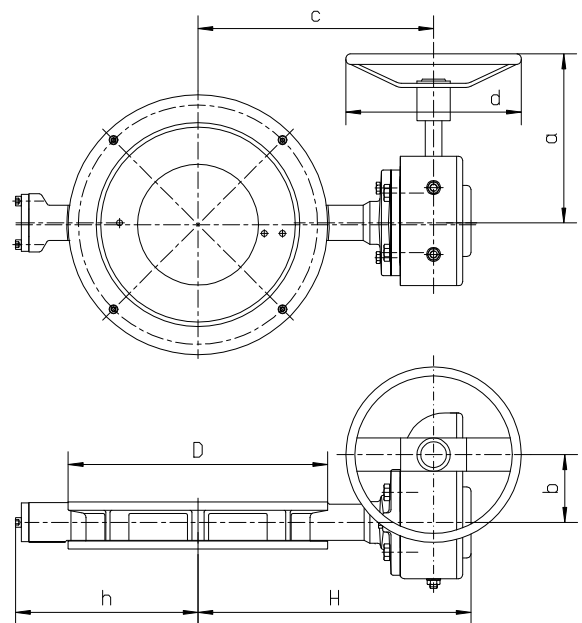


Manual gear

Opening and closing of the valves from the handwheel.

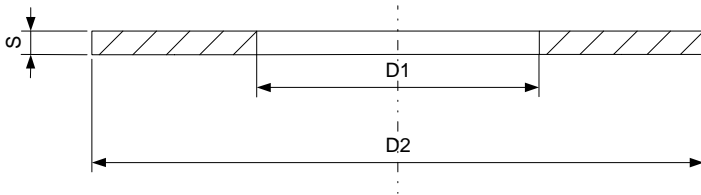
The position of disc can be seen on a position indicator on top of the gear.

DN	D	h	H	a	b	c	d
80	138	114	204	218	45	171	200
100	158	131	228	218	45	195	200
125	188	143	239	218	45	206	200
150	212	160	286	220	71	240	200
200	268	200	311	220	71	265	200
250	320	232	356	255	71	310	300
300	370	275	398	291	86	350	400
350	430	303	425	291	86	377	400
400	482	333	501	387	130	435	500
450	530	358	536	387	130	463	500
500	585	388	579	387	130	513	500
600	685	448	689	500	263	589	500
700	785	498	761	500	263	661	500
800	885	565	819	579	431	714	700





Mounting gasket.



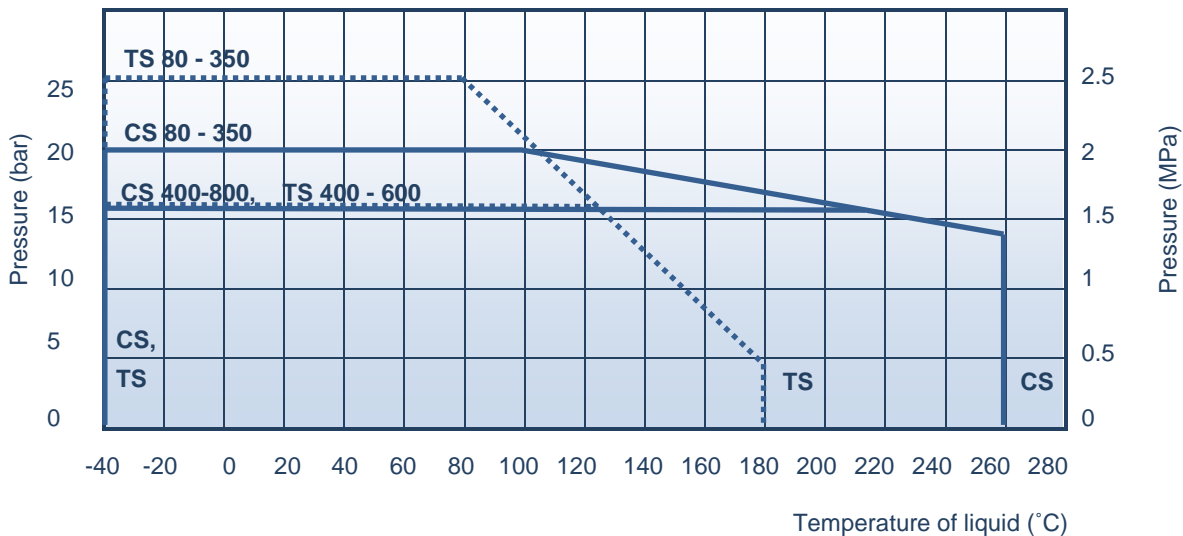
Gasket thickness "S" can be 0.5 – 3.0mm, 2.0mm is recommended.

DN	80	100	125	150	200	250	300	350	400	450	500	600	700	800	
D1*(MM)	90	115	141	169	220	274	325	368	420	470	520	620	720	820	
D2(MM)	PN10	142	162	192	218	273	328	378	438	490	540	595	695	810	915
	PN16	142	168	195	225	273	330	385	445	497	557	618	735	805	910
	PN25	142	168	195	225	285	342	402	458	515	565	625	730	830	940

D1* - maximum permissible size.

Pressure / Temperature Rating.

The max pressure difference depends on the working temperature of liquid media.



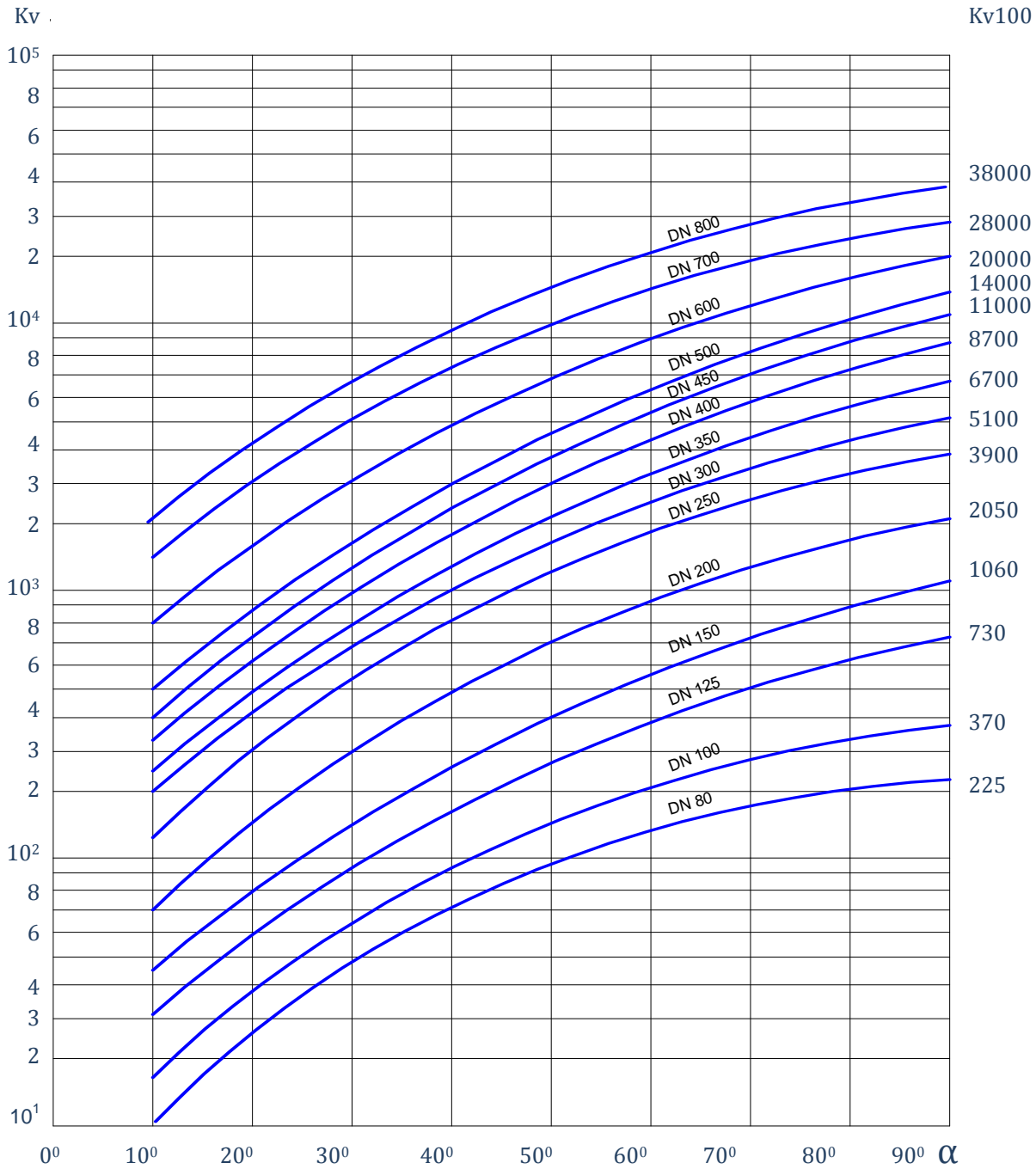
Product codes

	Face-to-face length according to ISO 5752					
	EN 558-1 Series 25 DIN3202 K2 DN 80 – 350		EN 558-1 Series 20 DIN3202 K1		EN 558-1 Series 16 DIN3202 K3	
Seat	PTFE+C	Stainless steel	PTFE+C	Stainless steel	PTFE+C	Stainless steel
handlever up to DN150	31002TS_ _	31000CS_ _	31102TS_ _	31100CS_ _	31202TS_ _	31200CS_ _
bare shaft	31002TS_ _ Z	31000CS_ _ Z	31102TS_ _ Z	31100CS_ _ Z	31202TS_ _ Z	31200CS_ _ Z
manual gear	31002TS_ _ M	31000CS_ _ M	31102TS_ _ M	31100CS_ _ M	31202TS_ _ M	31200CS_ _ M
For steam on special order. Code number: 31101CS_ _						



Flow curves

Indicating typical Kv values.



WATER:

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

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

K_v = KVvalue – Capacity factor

DN = nominal valve size (mm)

α – disc opening angle

Δp = pressure difference, bar

ρ – density of liquid kg/dm^3

V – flow velocity m/s

Q – volume flow m^3/h



How to order

		3	1	1	00	CS	800	M
Body material:	3 – Carbon steel, 4 – Stainless steel							
Valve type:	1 - butterfly valve,							
Connection:	0, 1, 2 - wafer type, 3 - welded end, 5 – flanged,							
Special options:	00 – standard, 01 - For steam, 02 - PTFE+C seat							
Main seal	(CS) - Stainless steel, (TS) - PTFE+C							
Size DN								
Operation:	(_) - handlever, (Z) - bare shaft, (M) - manual gear							