

**BUTTERFLY VALVE
WAFER TYPE
of carbon steel
311 (310 - 312) series**



Description

Edition 23-07-2015

Wafer type butterfly valve 311 (310 – 312) 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 of valve is full bore and 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.

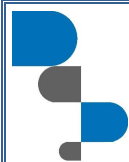
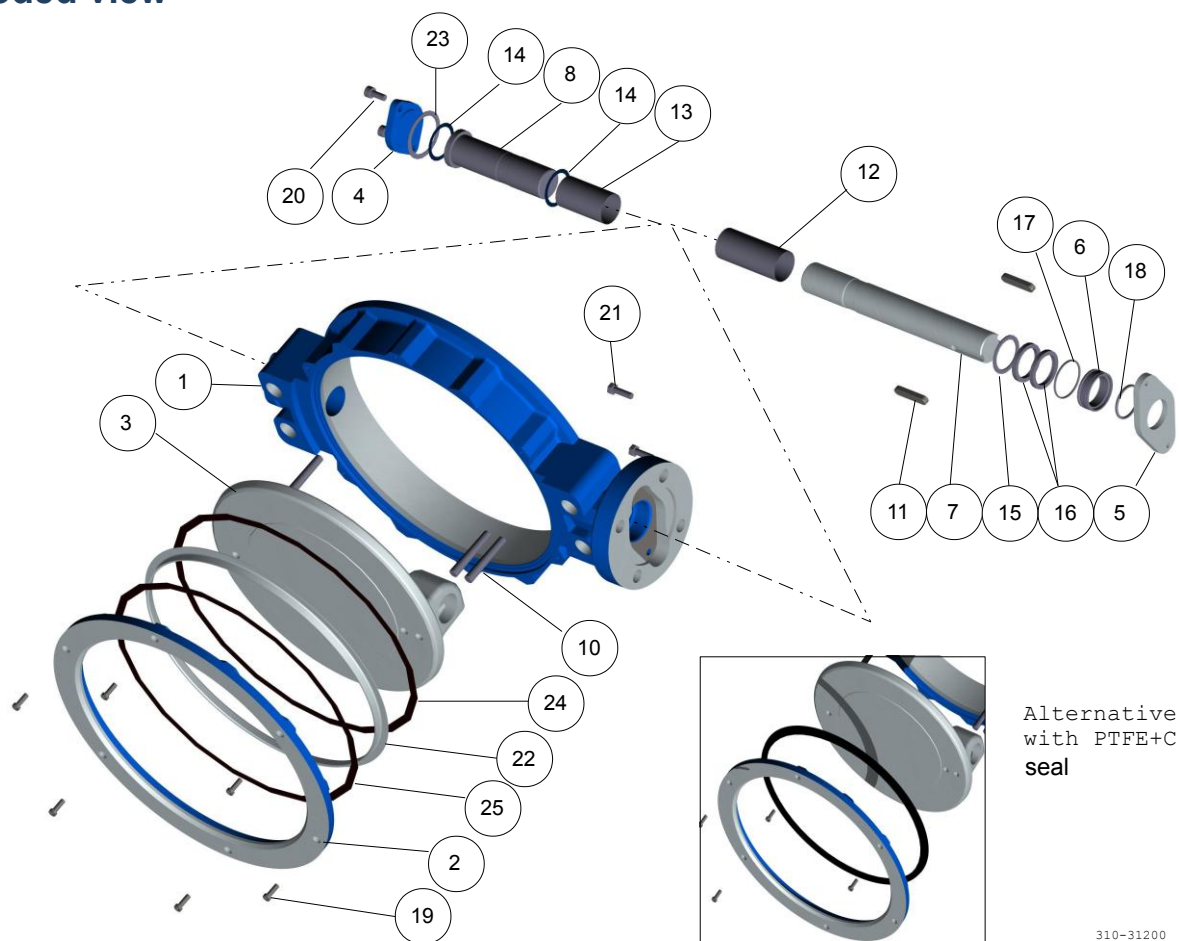
Nominal dimensions:	DN 80 – 800	
Nominal pressure	PN 25 bar	
Disk seal alternatives	Stainless steel (CS)	PTFE+C (TS)
Closing pressure (ΔP)	16 bar – standard 25 bar - option	16 bar – standard 25 bar - option
Tightness class ISO 5208, EN 12266-1	RATE B - standard, RATE A - option	RATE A
Working temperature of liquid media * (version for steam also available)	+260°C -40°C	+180°C -40°C
Connection **	Between neck-type flanges: EN1092-1 Type 11, Facing Type B, PN25, PN16, PN10, ANSI CLASS 150, or GOST12821 (must be specified in order)	
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.	



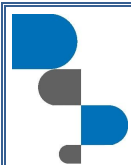
*) Wider temperature range is available.

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

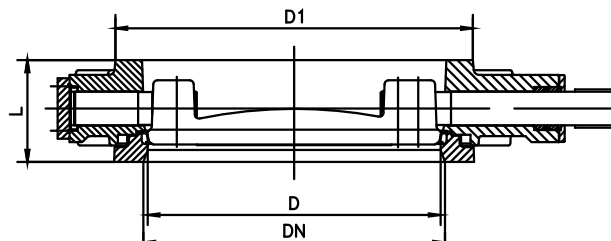
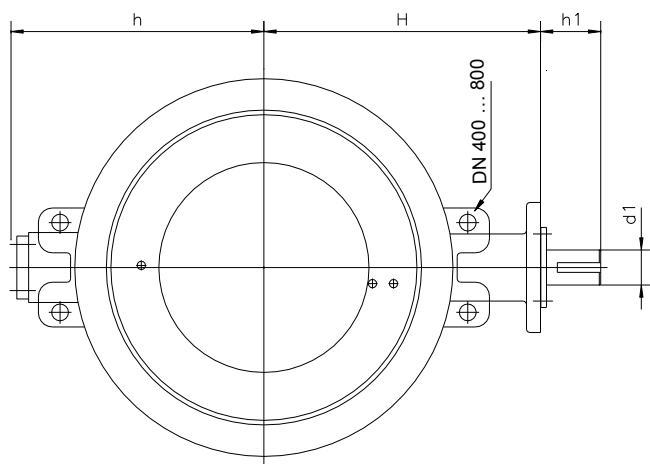
Consult factory for details.

**Exploded view****Parts list and standard materials**

	Part	Material	
1	Body	Cast carbon steel EN10213 GP240GH / ASTM A216 WCB	
2	Counter flange	Carbon steel EN10028-2 P265GH	
3	Disk	Stainless steel EN10213 1.4408, ASTM A351 CF8M, SS2324	
4	Subshaft cover	Stainless steel EN10216-5 1.4436 / 1.4404	
5	Gland	Stainless steel EN10216-5 1.4436 / 1.4404	
6	Shaft seal bushing	Stainless steel EN10216-5 1.4404	
7	Main shaft	Stainless steel EN10088-3 1.4460 / 1.4418+QT900	
8	Subshaft	Stainless steel EN10088-3 1.4460 / 1.4418+QT900	
10	Pins	Stainless steel EN10088-3 1.4462 / 1.4418+QT900	
11	Key	Carbon steel 1.0503 DIN 6885A	
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 EN10216-5 1.4404	
16	Box packing	Graphite	
17,18	O-ring	FPM / EPDM	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 316L or PTFE+C	Special material by request
23	Bottom cover gasket	Carbon Fibre / Graphite	Graphite for steam version
24, 25	Shim	Carbon Fibre / Graphite	Graphite for steam version



Dimensions



DN	L**			D1	D	h	H	h1	d1	Flange ISO5211	Weight, kg	Weight with manual gear, kg		
	310	311	312								311 Bare shaft	310	311	312
80	49	46	64	138	72	114	144	45	15	F07	6.5	7,9	7,6	9,1
100	56	52	64	158	89	131	168	52	20	F07	8	9,5	9,1	10,4
125	64	56	70	188	113	143	179	52	20	F07	9.8	12,0	10,9	12,9
150	70	56	76	212	137	160	199	58	25	F10	14.9	19,1	16,9	20,1
200	71	60	89	268	187	200	224	58	25	F12	25	37,1*	34,8*	41,4*
250	76	68	114	320	238	232	269	63	30	F12	30	42,0*	39,8*	52,7*
300	83	78	114	370	286	275	308	69	35	F14	40.5	59,3*	57,8*	69,9*
350	92	78	127	430	337	303	335	75	40	F14	52	75,3*	69,3*	90,7*
400	–	102	140	482	386	333	380	86	50	F16	86.5	–	122,5*	141,9*
450	–	114	152	530	437	358	408	86	50	F16	117	–	153,0*	172,1*
500	–	127	152	585	483	388	458	103	60	F16	160	–	196,0*	212,1*
600	–	154	178	685	582	448	530	119	70	F25	280	–	354,0*	372,6*
700	–	165	229	785	682	498	602	119	70	F30	318	–	392,0*	453,3*
800	–	190	241	885	775	566	650	125	90	F30	454	–	539,0*	588,7*

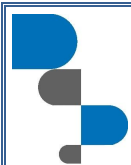
*) weight without hand wheel

**) Face-to-face length according to ISO 5752. EN 558-1 Series 20 DIN3202 K1 (series 311)
 EN 558-1 Series 25 DIN3202 K2 (series 310)
 EN 558-1 Series 16 DIN3202 K3 (series 312)

Operation

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

- bare shaft (not recommended),
- manual gear,
- electric actuator,
- universal actuator MF,
- 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.

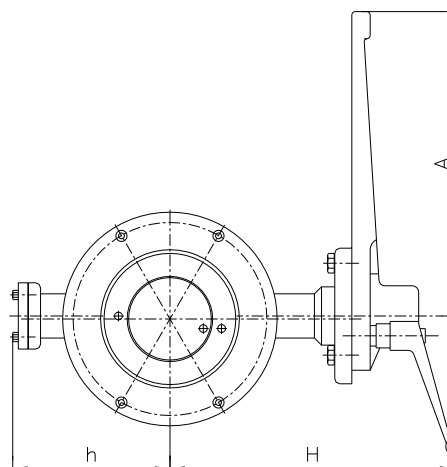
Handlever

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

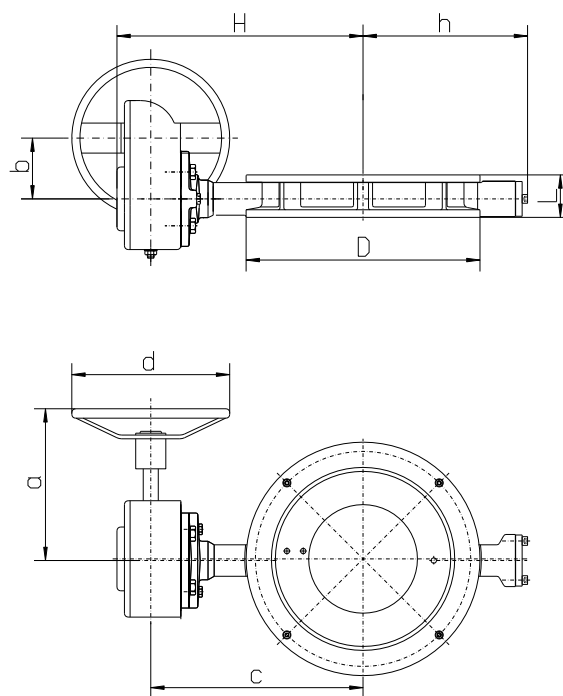


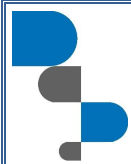
Manual gear

Opening and closing of the valves from the hand wheel.

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

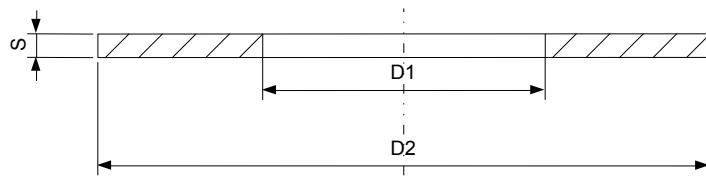
DN	Rotork gear	D	h	H	a	b	c	d
80	AB210-10N	138	114	207	217	200	173	200
100	AB210-10N	158	131	231	217	200	197	200
125	AB210-10N	188	143	242	217	200	208	200
150	AB550N	212	160	287	247	200	240	200
200	AB550N	268	200	312	247	200	265	200
250	AB550N	320	232	357	282	300	310	300
300	AB880N	370	275	401	285	400	350	400
350	AB880N	430	303	428	285	400	377	400
400	AB1950N	482	333	506	387	500	435	500
450	AB1950N	530	358	534	387	500	463	500
500	AB2000N	585	388	578	382	53	522	500
600	AB6800SP4	685	448	689	500	500	589	500
700	AB6800SP4	785	498	761	500	500	661	500
800	AB6800SP6	885	565	809	545	500	709	500





Mounting gasket

Mounting gasket must cover whole valve's contact surfaces.



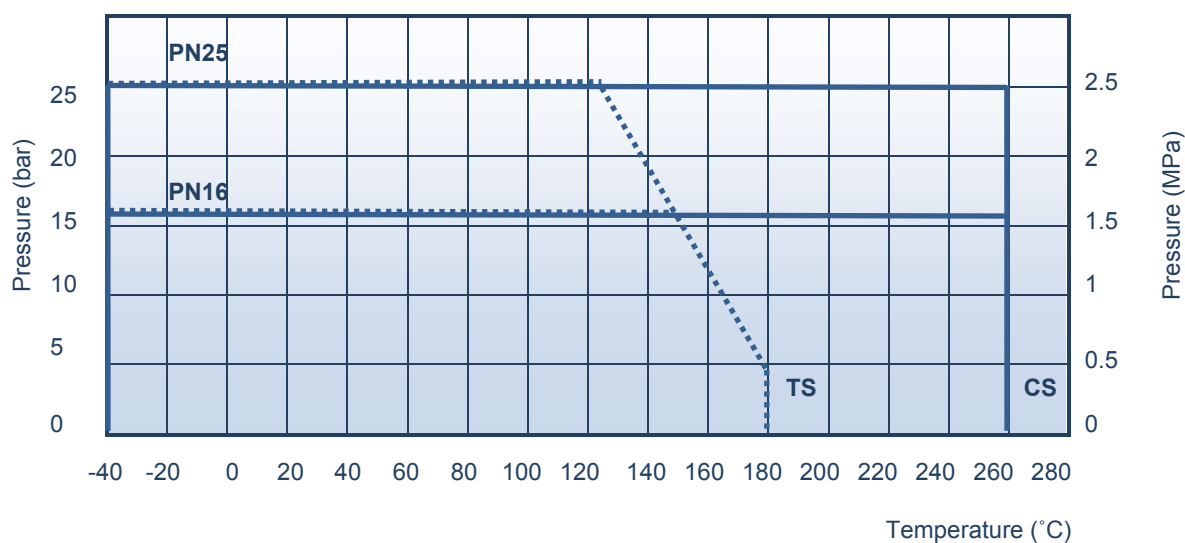
Gasket thickness "S" can be 0.5 – 3.0mm, 2.0mm is recommended.

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
	PN16	142	168	195	225	273	330	385	445	497	557	618	735	805
	PN25	142	168	195	225	285	342	402	458	515	565	625	730	830

D1* - maximum permissible size.

Pressure / Temperature Rating

The maximum working pressure ratings of the valve body





BLUE LINE

BUTTERFLY VALVE wafer type

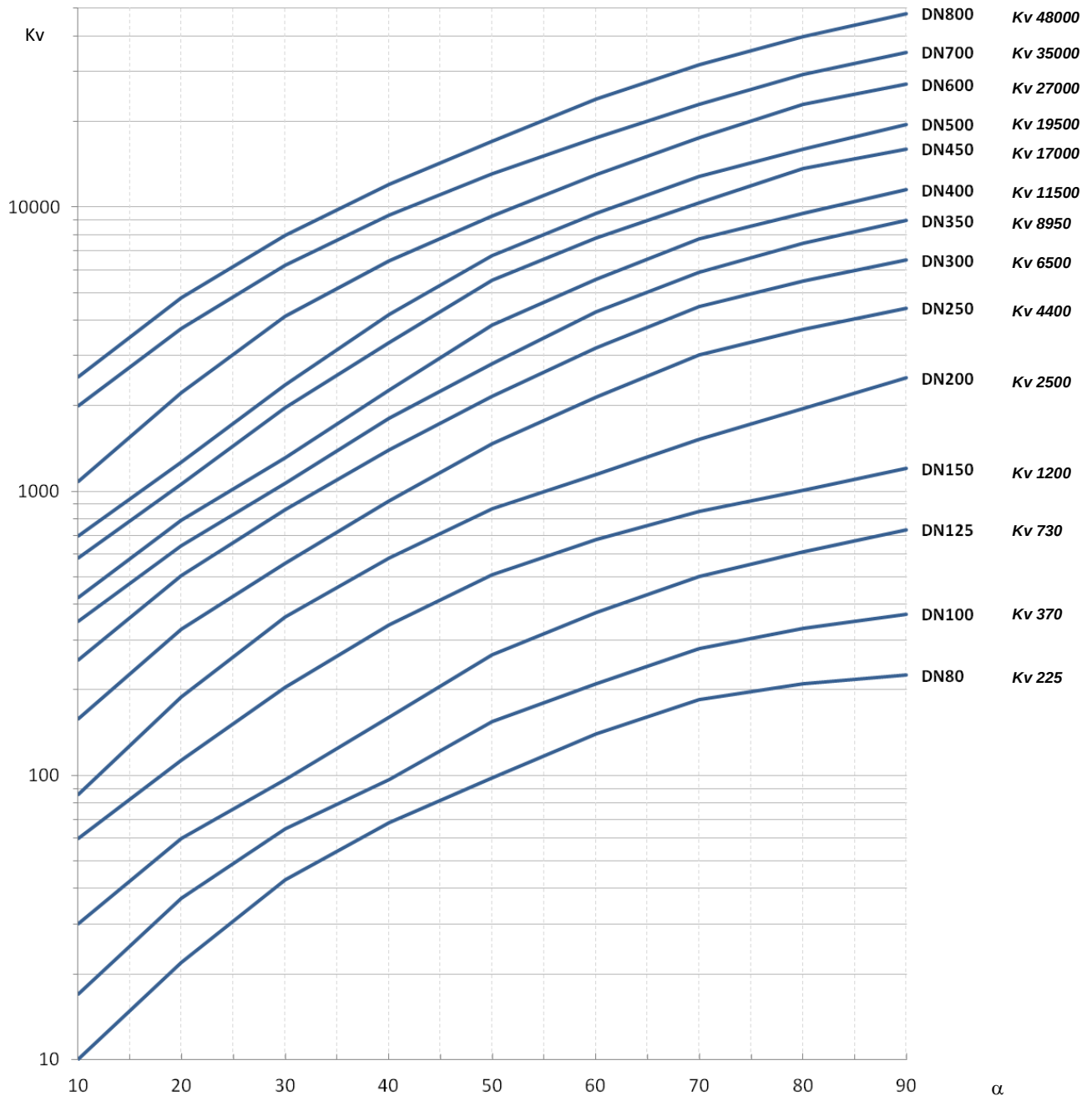
HÖGFORS
Valves

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Flow curves

Indicating typical Kv values.



WATER:

Volume
flow:

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

K_v = KV value – Capacity factor

DN = nominal valve size, mm

α = disc opening angle

Δp = pressure difference, bar

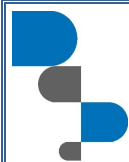
ρ = density of liquid, kg/dm³

V = flow velocity, m/s

Q = volume flow, m³/h

Flow
velocity:

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

**BLUE LINE****BUTTERFLY VALVE**
wafer type **HÖGFORS**
Valves**311 (310 – 312) series**

23-07-2015

How to order

		3	1	1	00	CS	800	M	G
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 (MF) – universal actuator								
	(G) – compatibility with GOST flanges								