



BUTTERFLY VALVE WAFER TYPE of carbon steel **311 (310 - 312) series PN40**



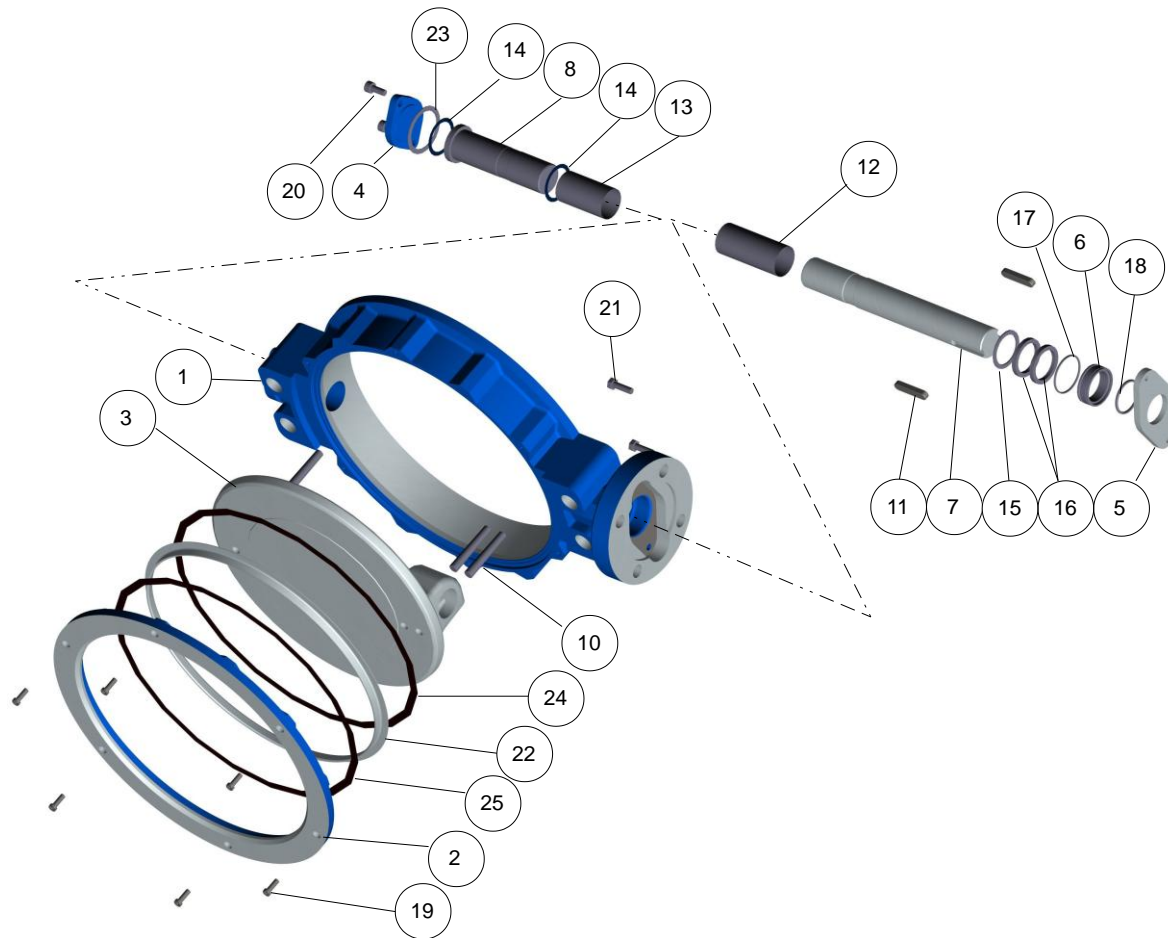
Description

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. The direction of the flow pressure is shown by the arrow. 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 - 200
Nominal pressure	PN 40bar
Disk seal alternatives	Stainless steel (CS)
Closing pressure (ΔP)	40 bar
Tightness class ISO 5208, EN 12266-1	RATE B - standard, RATE A - option
Working temperature of liquid media * (version for steam also available)	+260°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, Type B, PN40, PN25, PN16, PN10, ANSI CLASS 150. Size of assembly gasket in accordance to SFS 4378, DIN 2690. See page 6/9
Safety	Conform to the requirements of the Council Directive 97/23/EC on Pressure Equipment, marking: Class: gas, group 1.   Explosion-proof (EX) 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.

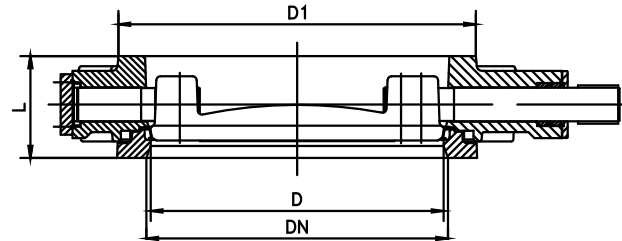
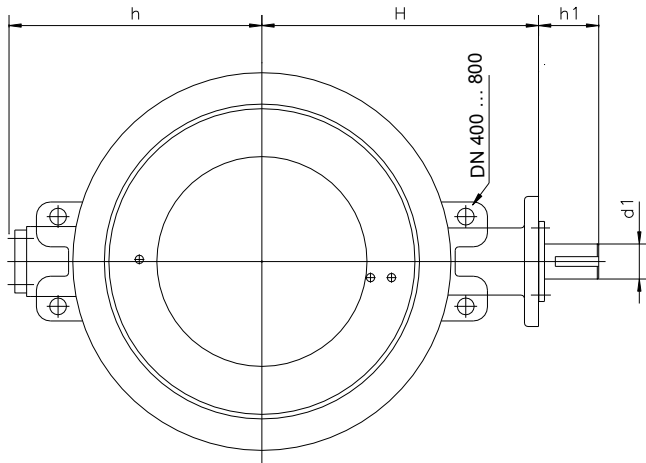
*) Wider temperature range is available.

**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	Special material by request
23	Bottom cover gasket	Carbon Fibre	Graphite for steam version
24, 25	Shim	Carbon Fibre	Graphite for steam version



Dimensions



DN	L			D1	D	h	H	h1	d1	Flange ISO5211	Weight, kg			
	310	311	312								311 Bare shaft	310	311	312
80	49	46	64	138	72	114	144	45	15	F07	5,2	9,8*)	9,5*)	10,0*)
100	56	52	64	158	89	131	168	52	20	F07	6,8	11,5*)	11,1*)	12,3*)
125	64	56	70	188	113	143	179	52	20	F07	8,8	13,6*)	13,1*)	14*)
150	70	56	76	212	137	160	199	58	25	F10	12,5	24,6*)	22,5*)	24*)
200	71	60	89	268	187	200	224	58	25	F12	18,5	31*)	28,5*)	35*)

*) with manual gear

Operation

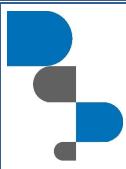
Högfors valves can be equipped with an actuator to your specification.

- manual gear,
- electric actuator,
- pneumatic or hydraulic actuator.

Operation torque

DN	80	100	125	150	200
Torque* ,	135	180	250	285	505

*) for steam duty use the next size up.

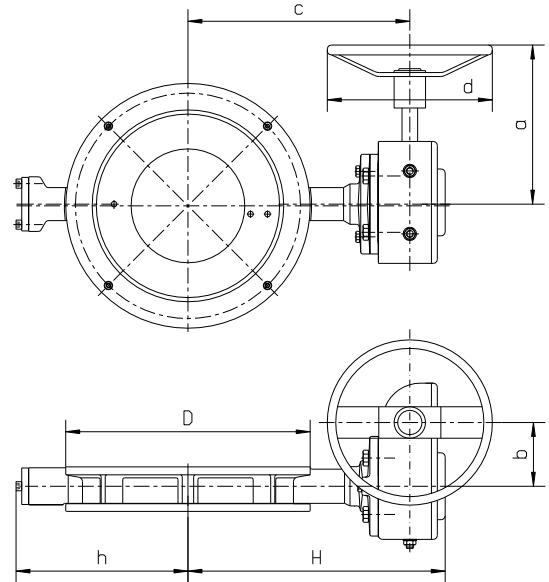


Manual gear

Opening and closing of the valves from the handwheel.

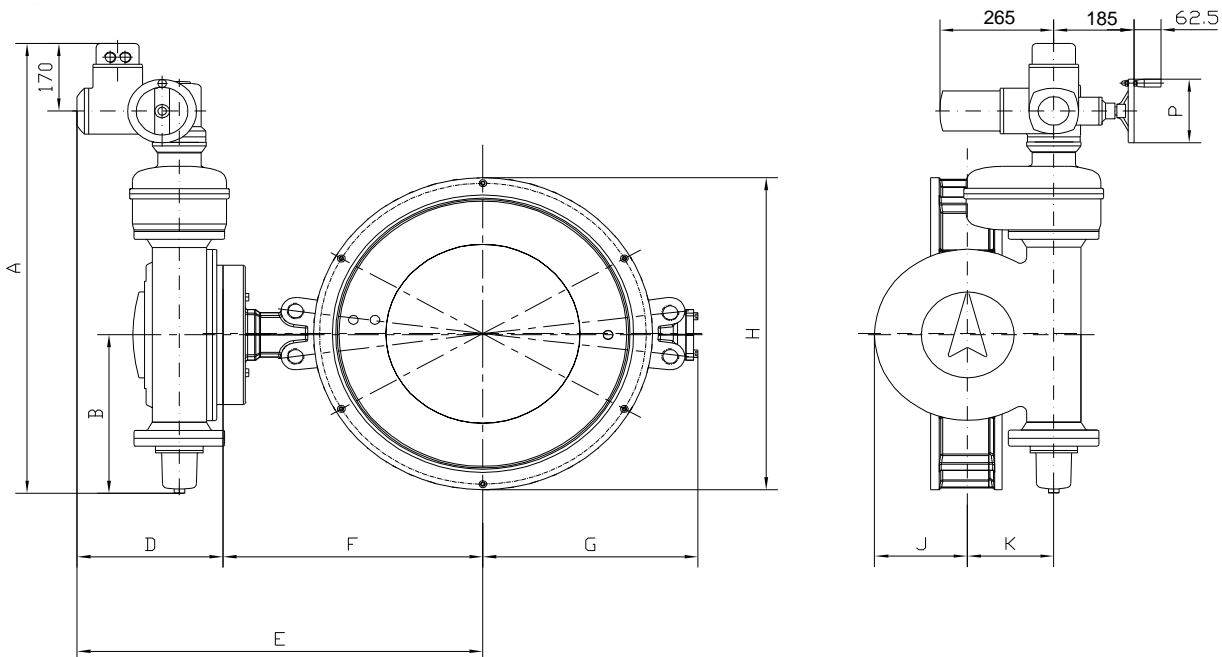
The position of disc can be seen on a position indicator on top of the gear.

DN	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

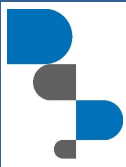


Electric actuator

The typical solution is 311 series valve with AUMA Norm actuator.

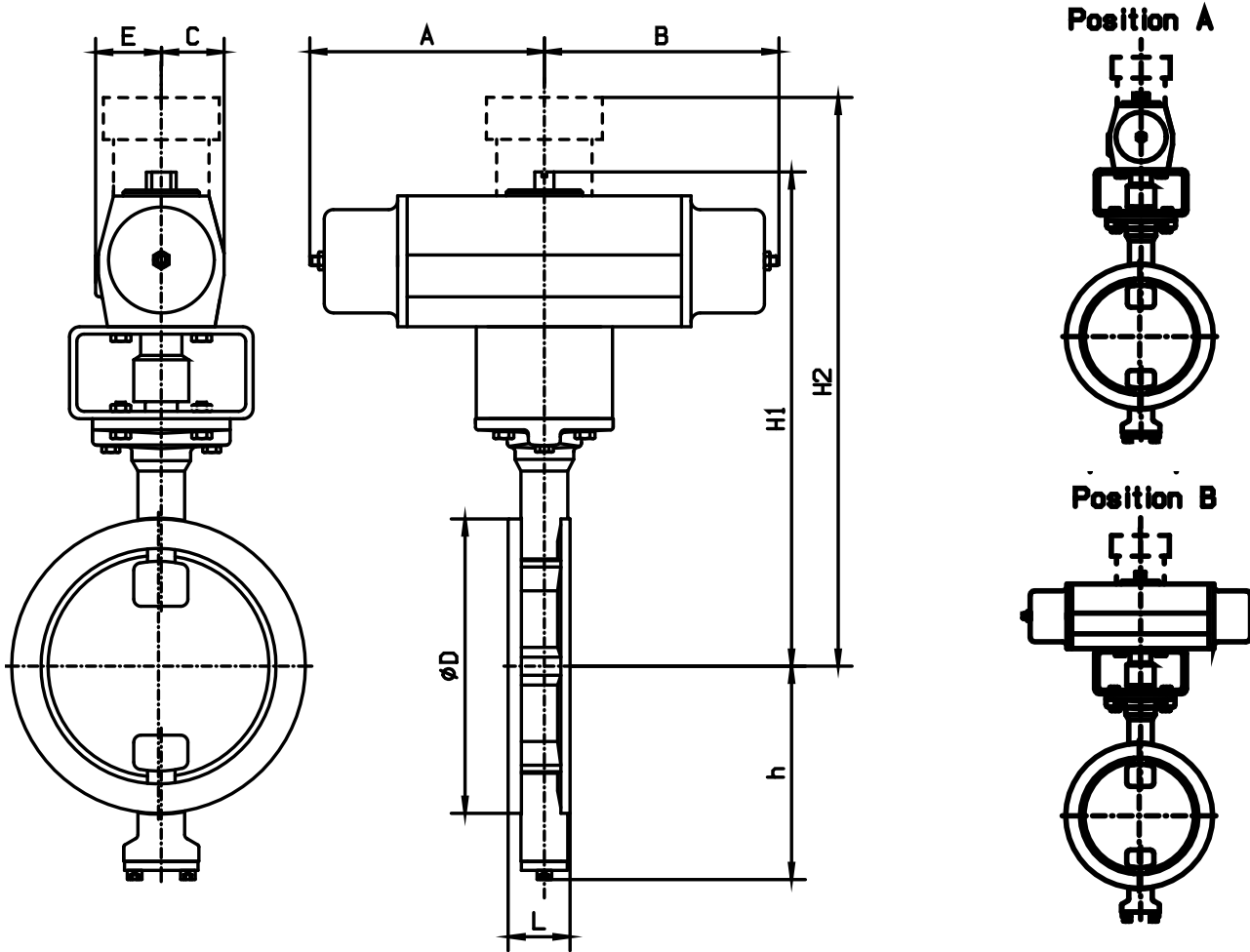


DN	AUMA type	A	B	D	E	F	G	H	J	K	P
80	SA07.1-GS50.3 – F07	444	96	269	413	144	114	138	52	40	140
100	SA07.1-GS50.3 – F07	444	96	269	437	168	131	158	52	40	140
125	SA07.1-GS50.3 – F07	444	96	269	448	179	143	188	52	40	140
150	SA07.1-GS50.3 – F10	444	96	277	476	199	160	212	63	50	140
200	SA07.5-GS63.3 – F12	500	127	282	506	224	200	268	75	63	160



Pneumatic actuator

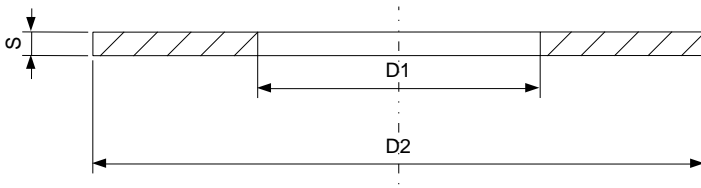
The typical combination of valve with Remote Control spring return actuator.



DN	RC model	ØD	L			E	C	h	H1	A	B
			310	311	312						
80	RC260-SR	138	49	46	64	75	69	114	389	285	285
100	RC260-SR	158	56	52	64	75	69	131	413	285	285
125	RC260-SR	188	64	56	70	75	69	143	424	285	285
150	RC260-SR	212	70	56	76	75	69	160	474	285	285
200	RC270-SR	268	71	60	89	110	110	200	612	145	510



Mounting gasket



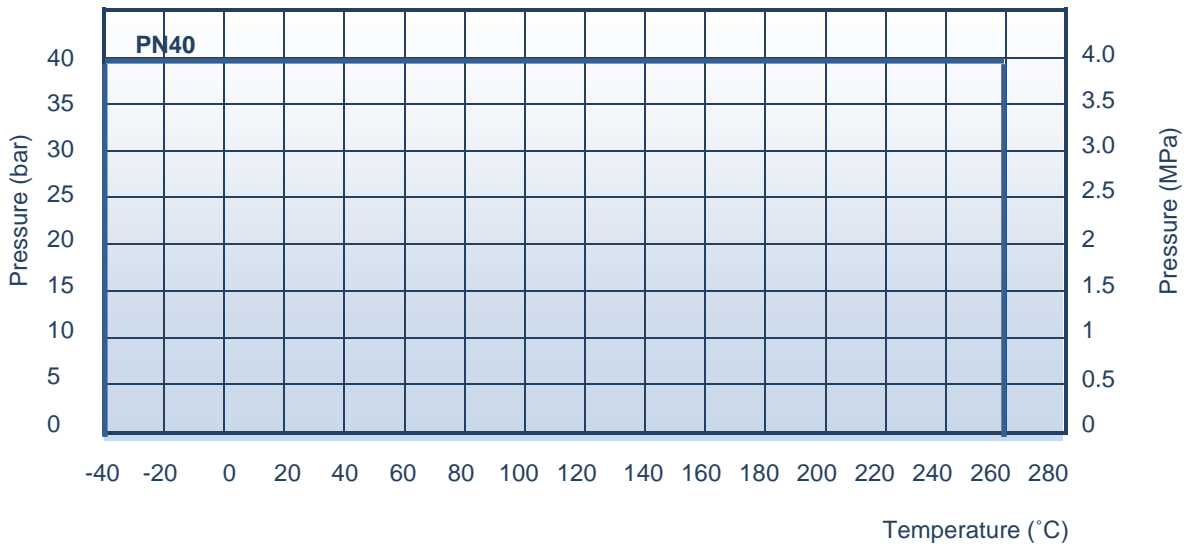
Gasket thickness "S" can be 0.5 – 3.0mm, 2.0mm is recommended.

PN40 DN	80	100	125	150	200
D1*(mm)	90	115	141	169	220
D2*(mm)	142	168	195	225	292

D1* - maximum permissible size.

Pressure / Temperature Rating

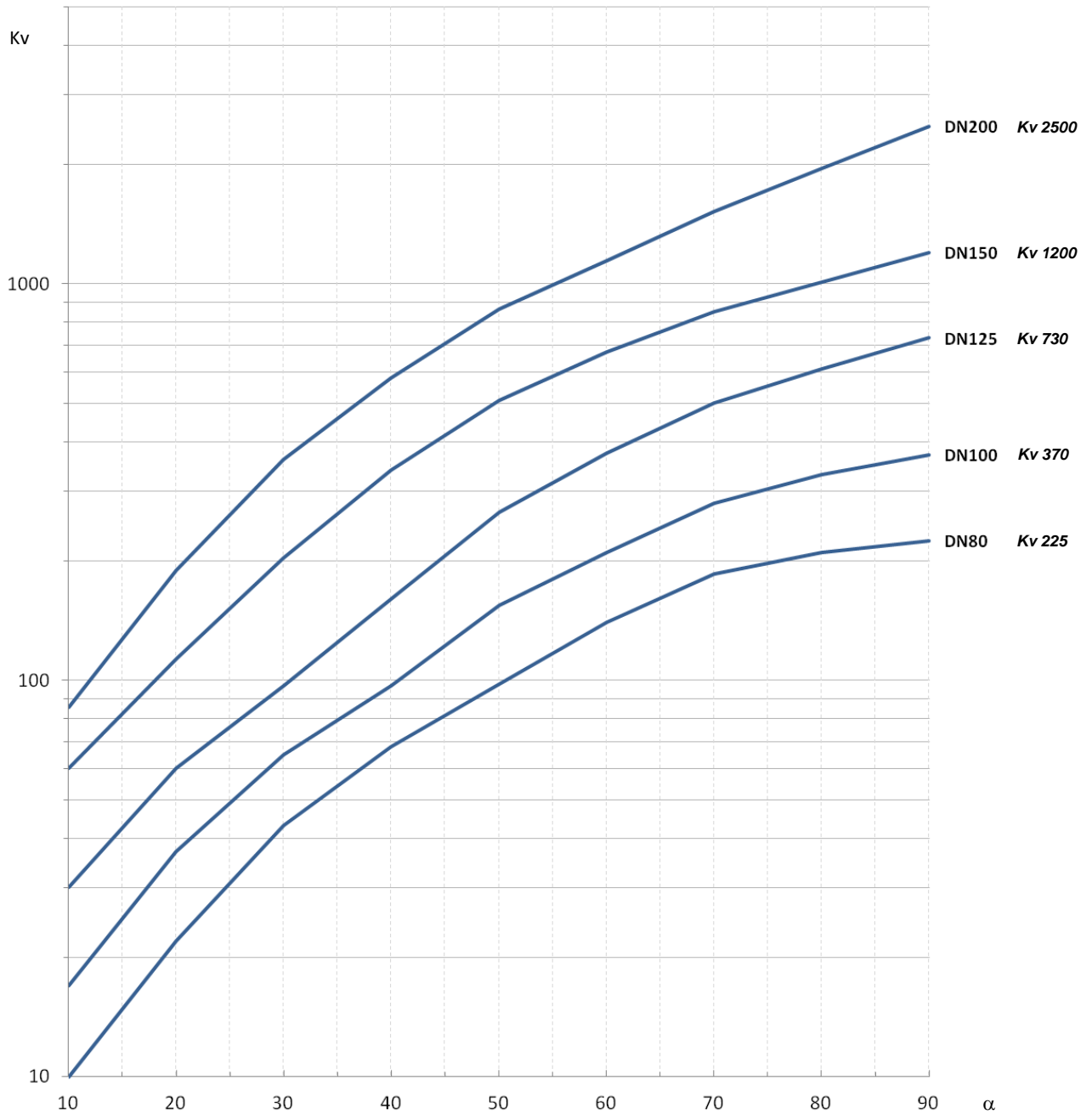
The maximum working pressure ratings of the valve body





Flow curves

Indicating typical Kv values.



WATER:

Volume flow:

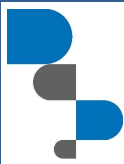
$$Q = K_v \sqrt{\frac{\Delta p}{\rho}}$$

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



Valves

311 (310 – 312) series PN40

23-07-2015

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							