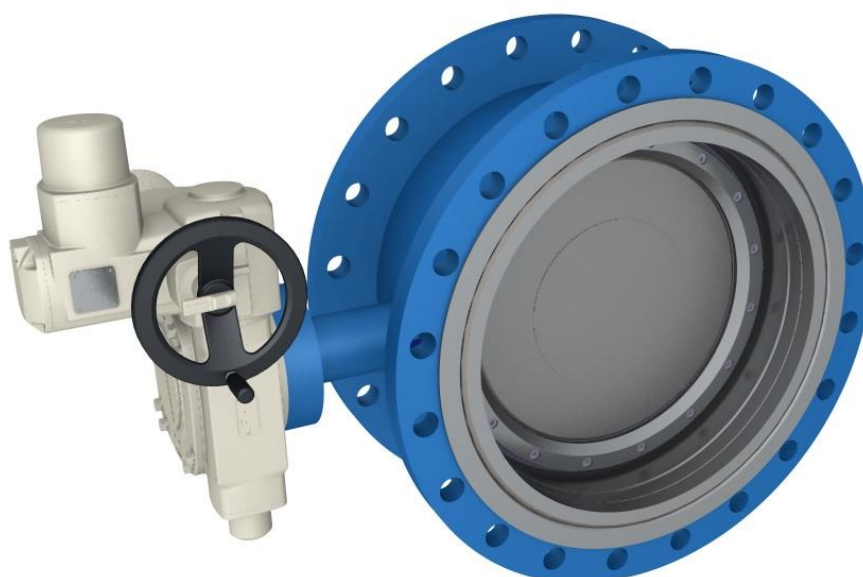


**BUTTERFLY VALVE**  
of carbon steel  
with flanges  
**315 -series**

CONTROL




**Description**

Edition 30-03-2015

The welded butterfly valve 315 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 with flanges is 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	DN 200 – 700
Nominal pressure	PN 25 bar	PN 25 bar
Disk seal	Stainless steel (CS)	PTFE+C (TS)
Closing pressure ( $\Delta P$ )	$\Delta P$ 16 bar or 25 bar	$\Delta P$ 16 bar or 25 bar
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)	max +260°C/ min -40°C	max 180°C / min -40°C
Face-to-face length according to EN 558-1	series 14	
Connection	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.	 0496

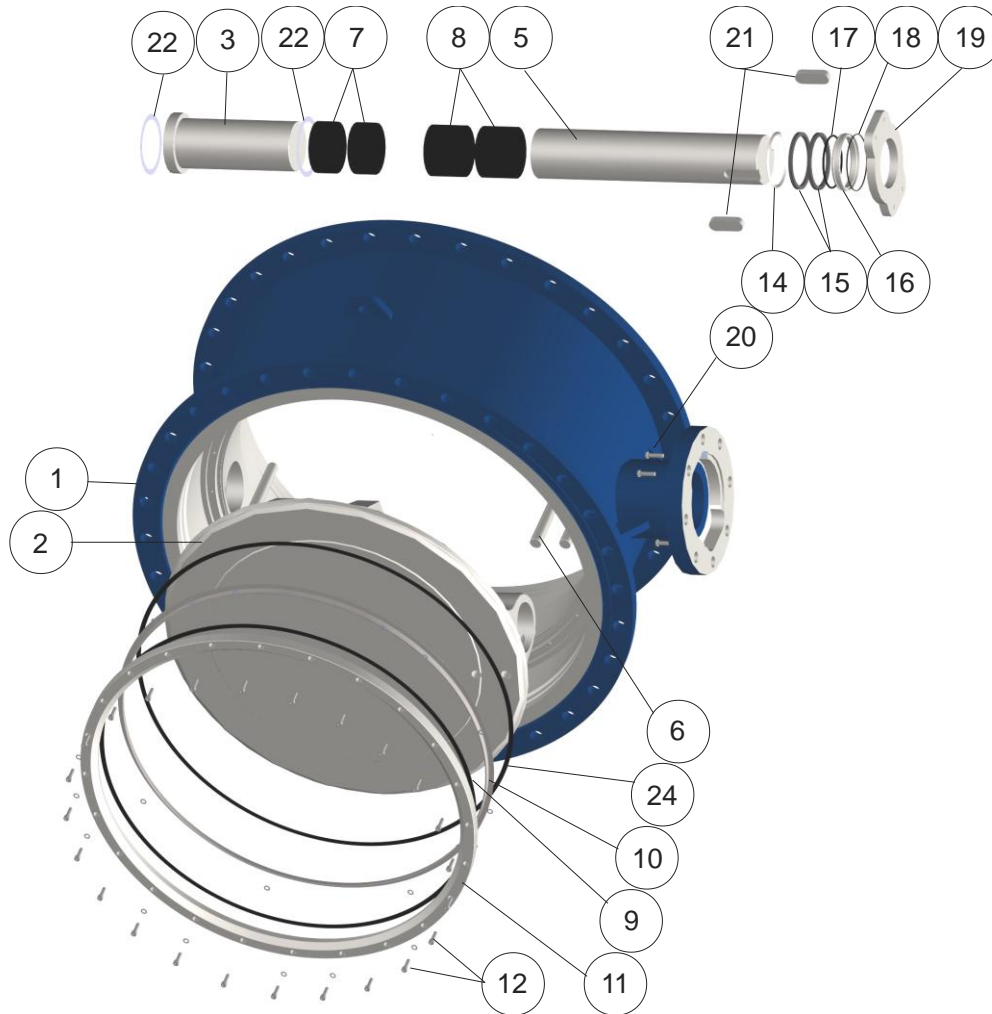
\*) Valves fulfill the structural integrity requirements of the EN488:2011.

\*\*) Wider temperature range is available.

Consult factory for details.



## Exploded view

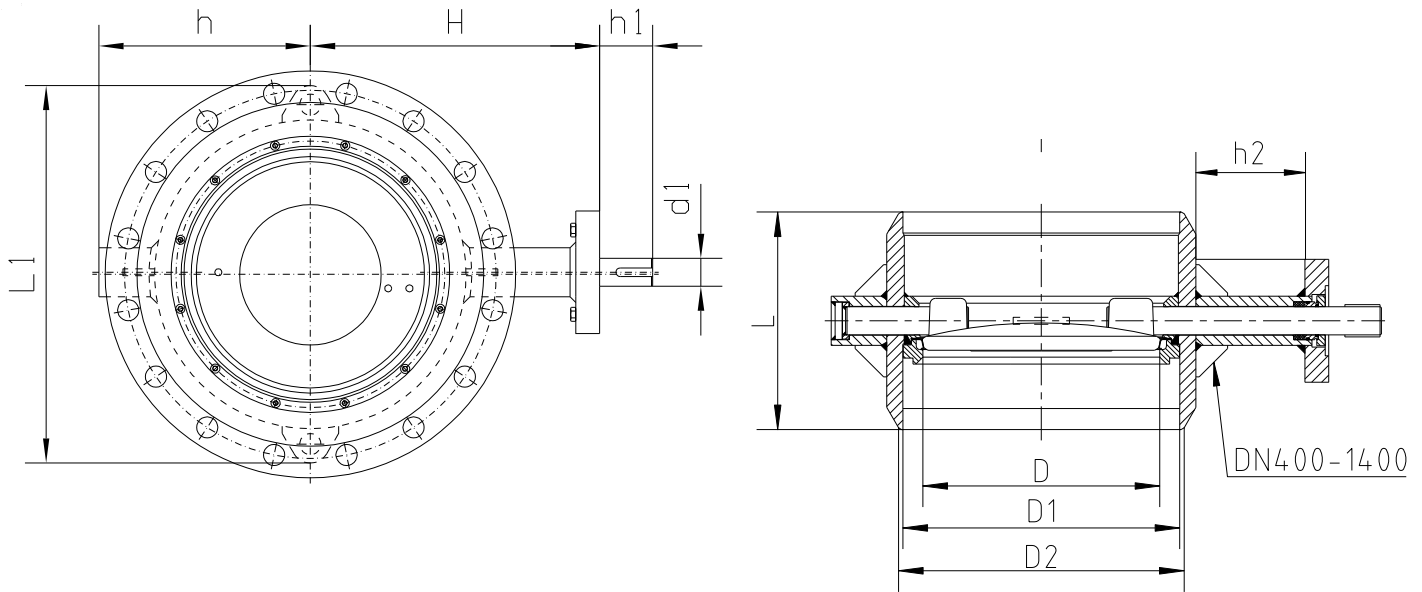


## Parts list and standard materials

Part	Material		
1	Body	Carbon steel EN10028-2 P265GH	
2	Disk	Stainless steel EN10213 1.4408, ASTM A351 CF8M, SS2324	
3	Subshaft	Stainless steel EN10088-3 1.4460 / 1.4418+QT900	
5	Main shaft	Stainless steel EN10088-3 1.4460 / 1.4418+QT900	
6	Pin	Stainless steel EN10088-3 1.4462 / 1.4418+QT900	
7	Subshaft bearing	PTFE on stainless steel net	
8	Stem bearing	PTFE on stainless steel net	
9,24	Shim	Carbon Fiber / Graphite	Graphite for steam version
10	Seat ring	Harm chrome plated stainless steel AISI 316L or PTFE+C	Special material by request
11	Retaining ring	Carbon steel EN10028-2 P265GH	
12	Socket screw	Stainless steel ISO 3506 A4-80	
13	Washer	Stainless steel	
14	Back-up-ring	Stainless steel EN10216-5 1.4404	
15	Box packing	Graphite	
16	Shaft seal bushing	Stainless steel EN10216-5 1.4404	
17,18	O-ring	EPDM / FPM	Not fitted for steam version
19	Gland	Stainless steel EN10028-7 1.4436 / 1.4404	
20	Hexagonal screw	Stainless steel ISO 3506 A4-80	
21	Key	Carbon steel 1.0503 DIN 6885A	
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	67
250	250	187	263.0	193	298	63	30	125	385	F12	83
300	270	238	312.7	229	323	69	35	125	435	F12	101
350	290	286	344.4	255	352	75	40	125	465	F14	145
400	310	337	393.8	300	409	75	40	155	540	F14	179
450	330	386	444.4	326	445	86	50	149	590	F16	237
500	350	437	495.4	351	470	86	50	149	660	F16	295
600	390	483	593.6	376	548	103	60	178	760	F16	468
700	430	582	693.6	440	601	119	70	181	860	F25	571
800	470	682	795.2	490	651	119	70	183	955	F30	701
900	510	775	894.4	575	718	125	90	194	1070	F30	1,189
1000	550	855	994.0	636	764	130	100	183	1200	F30	1,584
1200	630	1054	1195	755	873	160	140	183	1440	F35	2,321

## Operation

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

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



## Operation torque

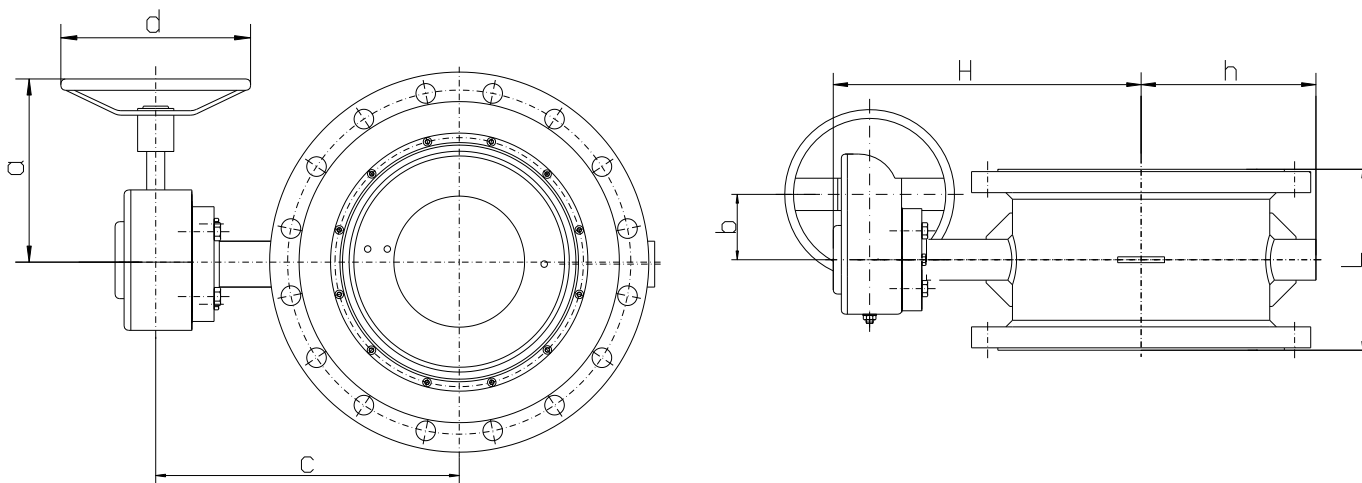
DN		200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400
Nm	CS	240	400	700	1'100	1'600	2'200	3'000	4'200	6'800	10'000	13'000	16'000	24'000	34'000
	TS	190	320	550	850	1'300	1'800	2'400	3'400	5'500	-	-			

\*) 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.



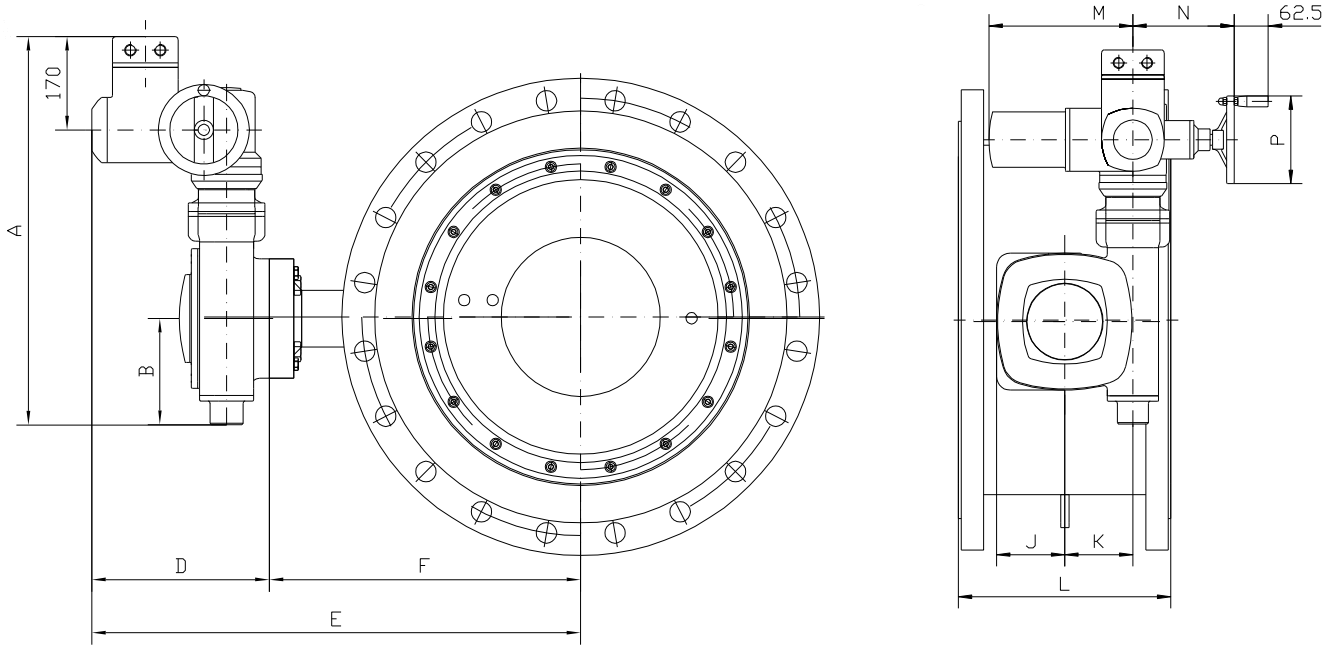
DN	Rotork gear	H	h	a	b	c	d	Weight*, kg
200	AB550N	346	154	220	71	300	200	76
250	AB550N	385	193	255	71	339	300	92
300	AB550N	410	229	255	71	363	300	110
350	AB880N	442	255	291	86	394	400	159
400	AB880N	499	300	291	86	451	400	180
450	AB1950N	566	326	387	130	500	500	269
500	AB1950N	591	351	387	130	525	500	327
600	AB2000N	678	376	382	53	608	500	347
700	AB6800N/SP4	760	440	500	263	660	500	641
800	AB6800N/SP4	810	490	500	263	710	500	771
900	AB6800N/SP6	877	575	546	278	777	500	1270
1000	A200/SP9	942	636	571	384	864	500	1724
1200	A200/SP9	1051	755	571	384	973	600	2461

\* weight of hand wheel is not included



## Electric actuator

The typical solution is with AUMA Norm actuator.

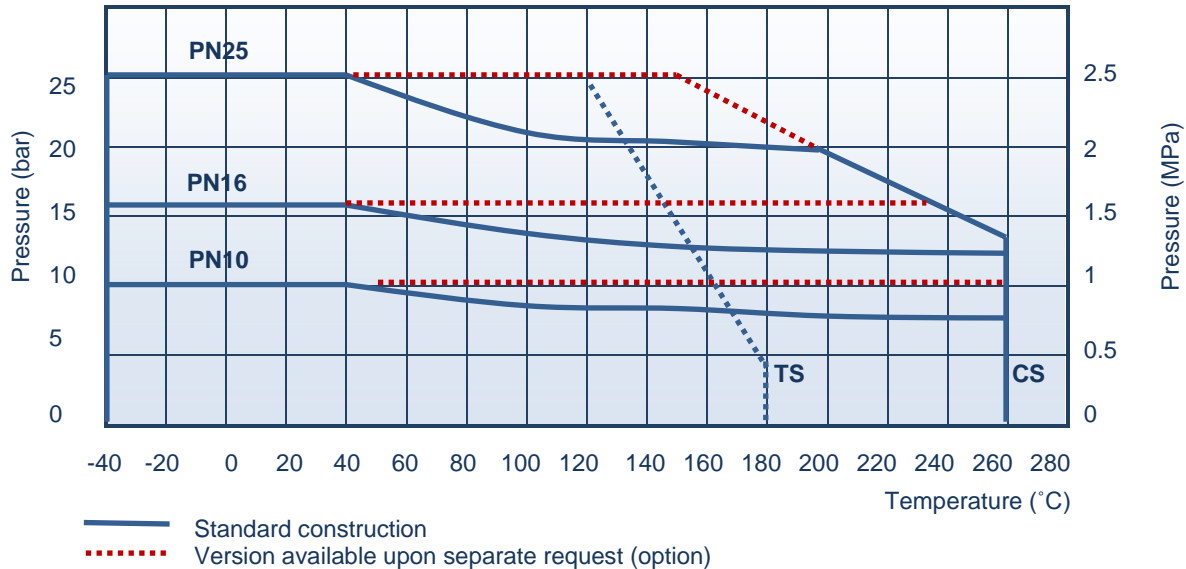


DN	AUMA type	A	B	D	E	G	J	K	L	M	N	P	Weight*, kg
200	SA07.2-GS50.3 – F10	444	96	277	536	154	63	50	230	265	186	140	93
250	SA07.6-GS63.3 – F12	500	127	282	580	193	75	63	250	265	186	160	116
300	SA07.6-GS80.3 – F12	510	132	284	607	229	88	80	270	265	186	160	137
350	SA07.6-GS100.3/VZ4.3 – F14	689	182	312	665	255	105	100	290	265	186	160	202
400	SA07.6-GS100.3/VZ4.3 – F14	689	182	312	721	299	105	100	310	265	186	160	236
450	SA07.6-GS100.3/VZ4.3 – F16	689	182	312	757	326	105	100	330	265	186	160	294
500	SA10.2-GS125.3/VZ4.3 – F16	700	187	322	792	351	125	125	350	282	193	200	362
600	SA10.2-GS125.3/VZ4.3 – F16	700	187	322	870	376	125	125	390	282	193	200	539
700	SA07.6-GS160.3/GZ160.3 – F25	990	337	313	914	440	173	160	430	265	186	160	704
800	SA07.6-GS200.3/GZ200.3 – F30	1131	398	338	989	490	215	200	470	265	186	160	912
900	SA07.6-GS200.3/GZ200.3 – F30	1131	398	338	1056	575	215	200	510	265	186	160	1,400
1000	SA07.6-GS200.3/GZ200.3 – F30	1131	398	338	1145	636	268	250	550	265	186	160	1,795
1200	SA10.2-GS250.3/GZ250.3 - F35	1303	486	381	1254	755	268	250	630	282	193	200	2,689



## Pressure / Temperature Rating

The maximum working pressure ratings of the valve body. 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

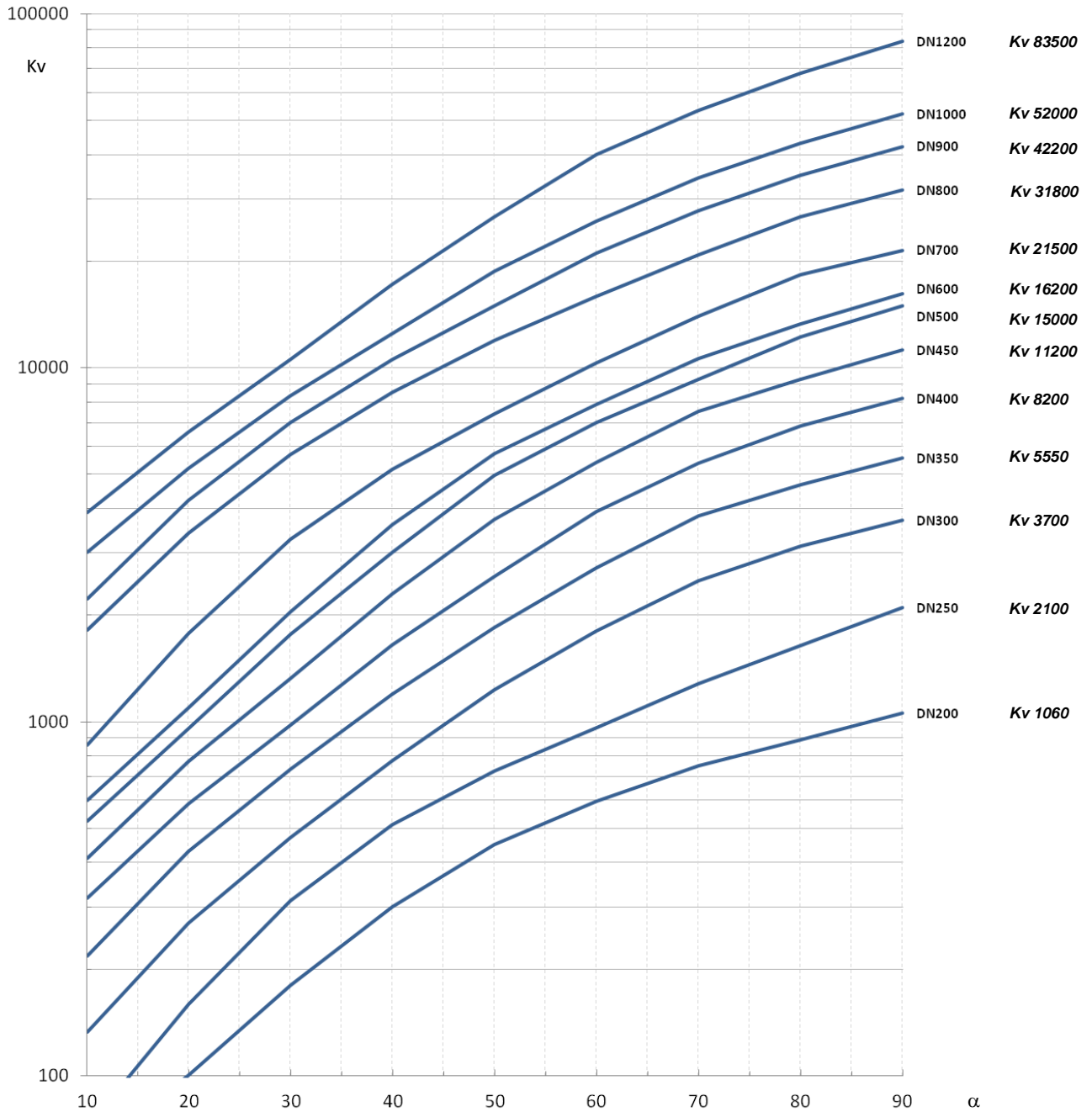
## How to order

		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 (TS) – PTFE+C								
Size DN									
Operation:	(Z) - bare shaft, (M) - manual gear (MF) – universal actuator								
Options	(5) – ΔP = 25 bar (G) – compatibility with GOST flanges								



### 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

$\alpha$  = disc opening angle

$\Delta p$  = pressure difference, bar

$\rho$  = density of liquid, kg/dm<sup>3</sup>

V = flow velocity, m/s

Q = volume flow, m<sup>3</sup>/h

**Flow velocity:**

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