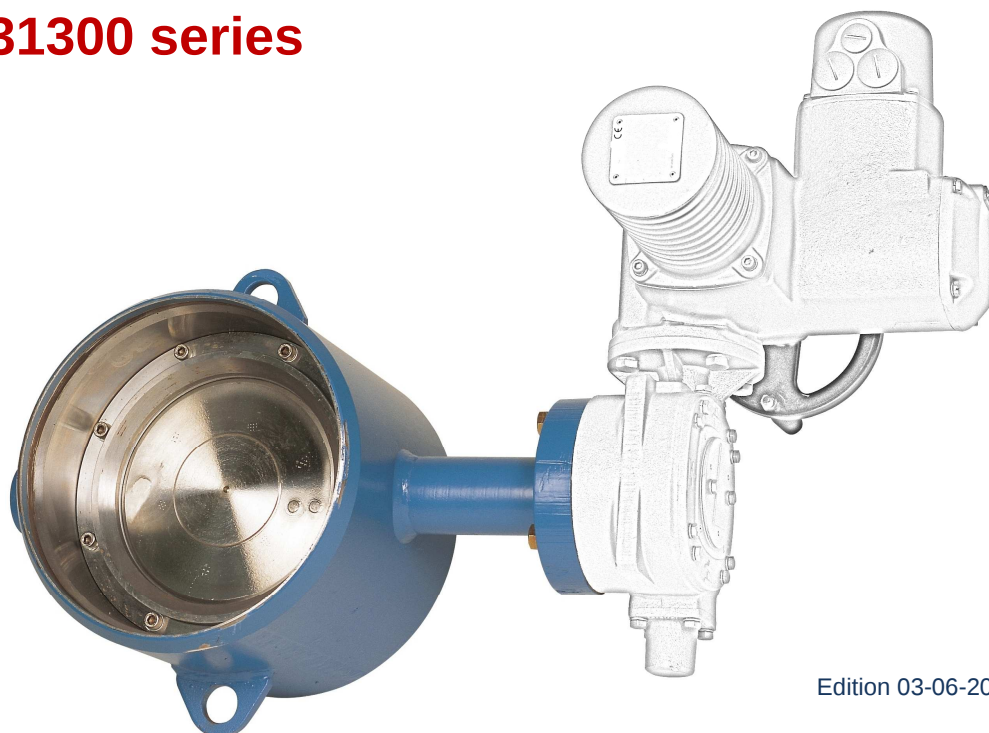


BUTTERFLY VALVE of carbon steel with welded ends **31300 series**



Edition 03-06-2009

Operation

The welded butterfly valve 31300 is specially designed for district heating and district cooling. 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 weld ends is carbon steel. The double eccentric disc and shafts are made of stainless steel. Replaceable seat ring is also 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 - 1400
Nominal pressure	PN 16bar or 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 – 1400 max + 260°C/ min -20°C
Face-to-face length according to EN 558-1	series 14
Connection	Weld end: The pipe according to standard DIN or GOST
Safety	Conform to the requirements of the Council Directive 97/23/EC on Pressure Equipment, marking: Class: gas, group 1.  0575

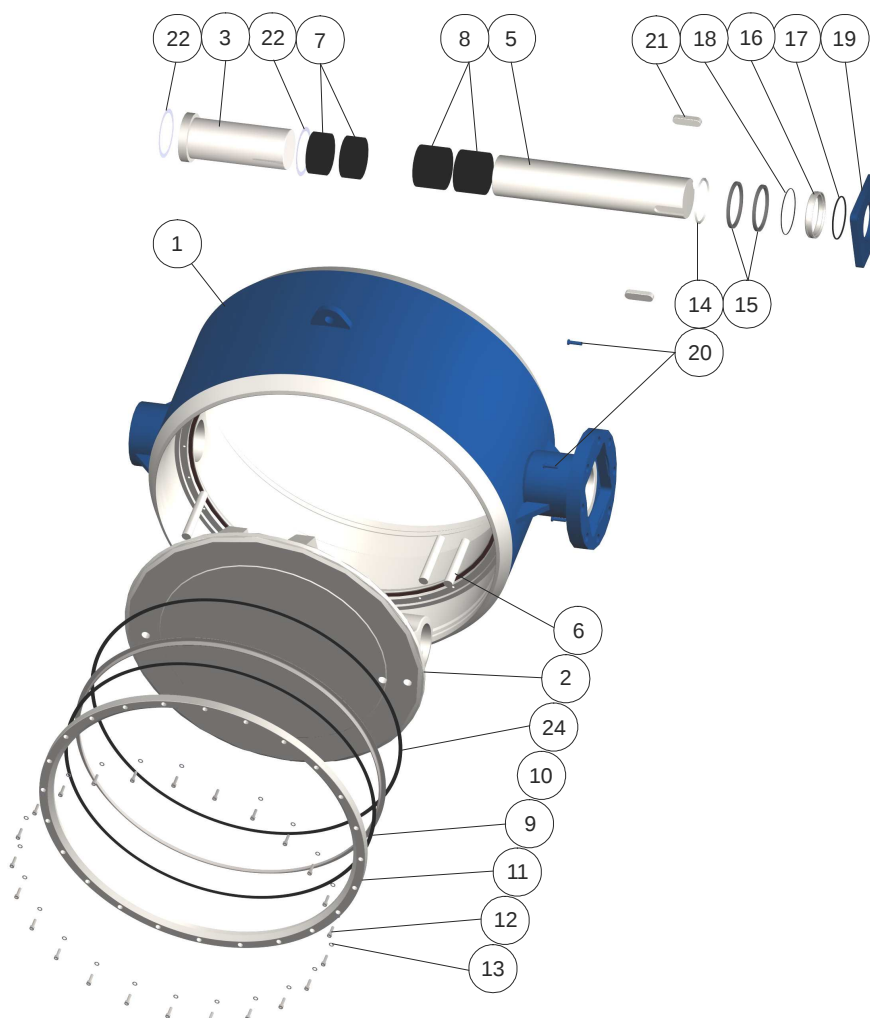
*) Option with Rate A is available also.

**) Wider temperature range is available.

Consult factory for details.

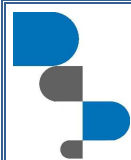


Exploded view

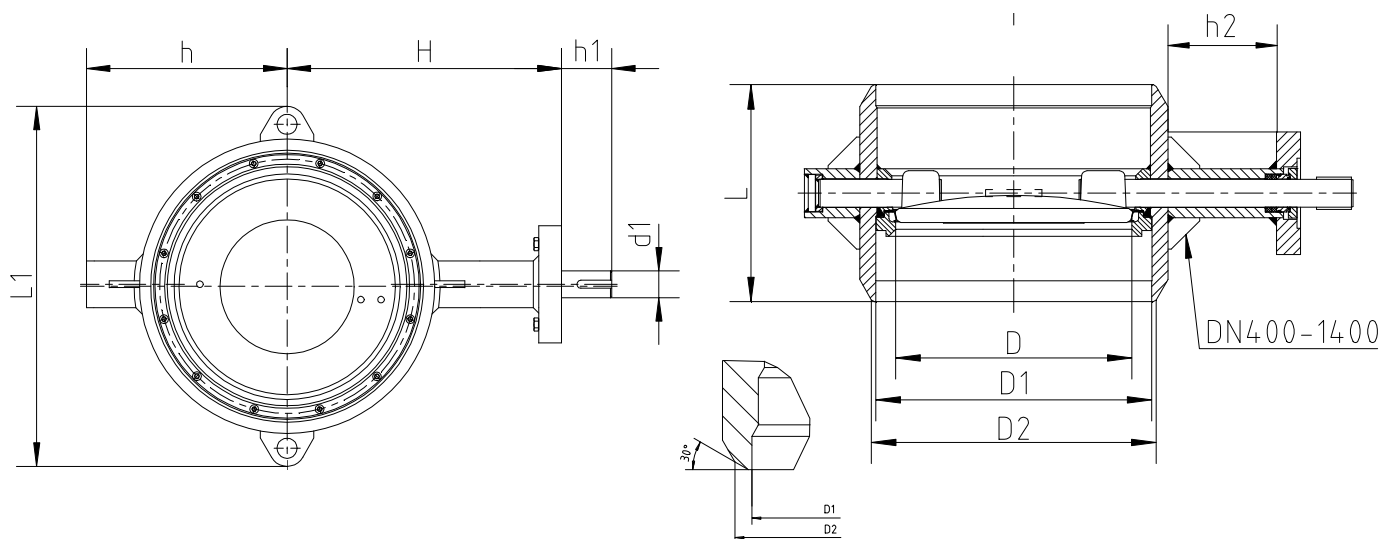


Parts list and standard materials

	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	
5	Main shaft	Stainless steel EN 10088-3 1.4460	
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	
11	Retaining ring	Carbon steel P265GH	
12, 13	Socket screw and washer	Stainless steel ISO 3506 A4-80	
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	Absent in version for steam
19	Gland	Stainless steel 1.4436	
20	Hexagonal screw	Stainless steel ISO 3506 A4-80	
21	Key	Carbon steel	
22	Bearing plate	PTFE on stainless steel net	

**BLUE LINE****BUTTERFLY VALVE**
with welded ends**31300 series**

03-06-2009

Dimensions

DN	L	D	DIN end		GOST end		h	H	h1	d1	h2	L1	Flange ISO5211	Weight, kg
			D1	D2	D1	D2								
200	230	138	210	219	210	219	154	259	58	25	115	233	F10	42
250	250	187	263	273	263	273	193	298	63	30	125	385	F12	49
300	270	238	313	324	313	324	229	323	69	35	125	435	F12	62
350	290	286	344	356	365	377	255	352	75	40	125	465	F14	91
400	310	337	394	406	414	426	300	409	75	40	155	540	F14	115
450	330	386	444	457	-	-	326	445	86	50	163	590	F16	159
500	350	437	495	508	514	530	351	470	86	50	163	660	F16	188
600	390	483	594	610	616	630	376	548	103	60	186	760	F16	319
700	430	582	694	711	704	720	440	601	119	70	186	860	F25	429
800	470	682	795	813	804	820	490	651	119	70	187	955	F30	518
900	510	775	894	914	902	920	575	718	125	90	200	1070	F30	909
1000	550	855	994	1016	1000	102	636	764	130	100	183	1200	F30	1'098
1200	630	1054	1195	1220	1195	1220	755	873	160	140	182	1440	F35	2'288
1400	710	1237	1392	1420	1392	1420	912	1018	180	170	206	1770	F40	2'810

Actuating

According to customer's needs the butterfly valve is delivered with:

- 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

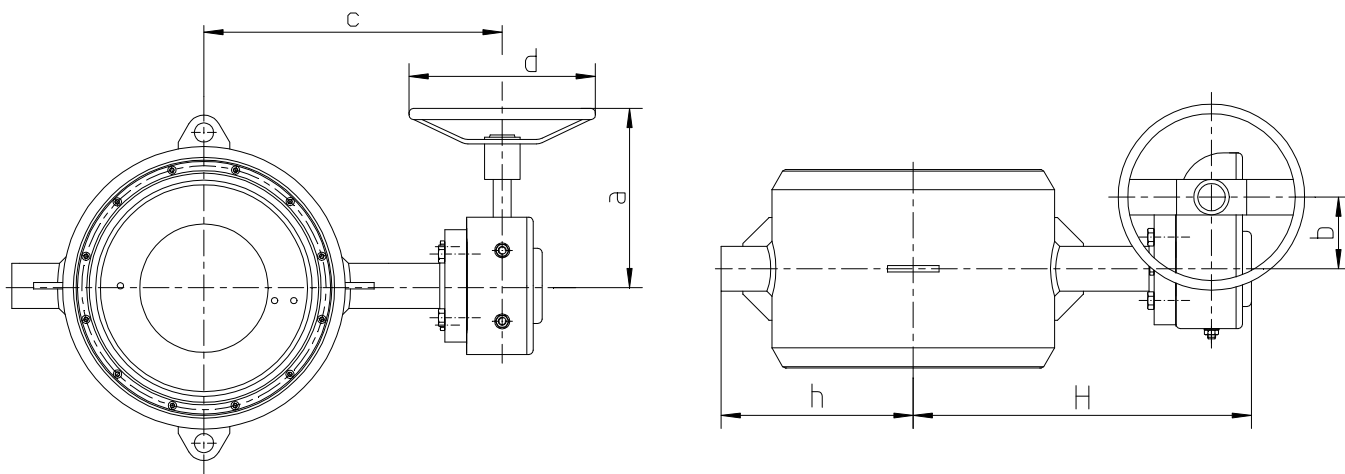
*) the operation torque for steam is the same as for liquid but one size bigger.



Manual gear.

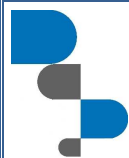
Opening and closing of the valves from the handwheel.

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	203	50
250	379	193	247	67	340	305	57
300	417	229	264	90	373	305	70
350	446	255	264	90	402	305	107
400	503	300	264	90	459	305	131
450	573	326	405	138	500	500	190
500	576	351	362	123	520	457	219
600	675	376	387	154	598	457	350
700	761	440	505	181	687	457	485
800	811	490	505	181	737	457	574
900	887	575	592	237	792	457	975
1000	942	636	615	431	807	500	1290
1200	1051	755	615	431	962	600	2'480
1400	1218	912	755	450	1158	700	3'210

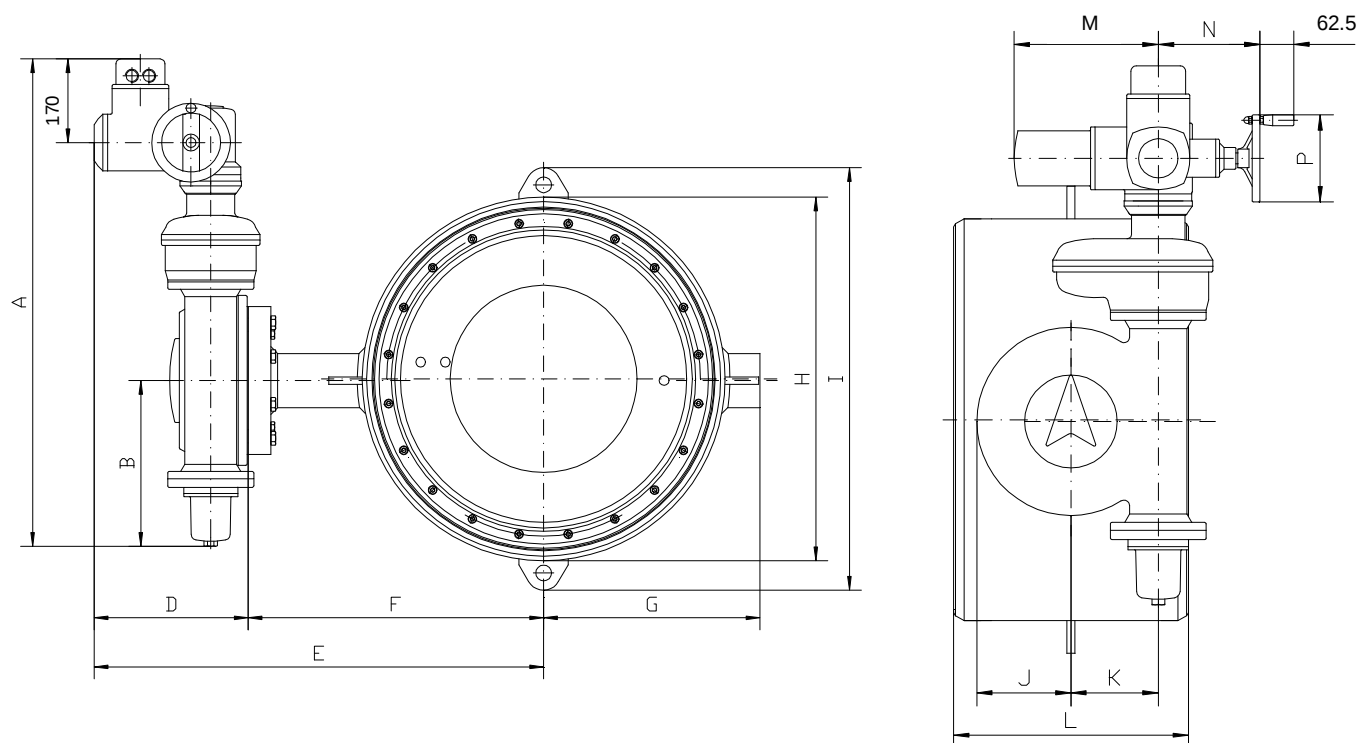
* weight of hand wheel not included



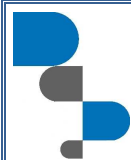
Electrical actuator.

Högfors valve can be equipped with the electrical actuator of any known brand.

The typical solution is with AUMA Norm actuator.

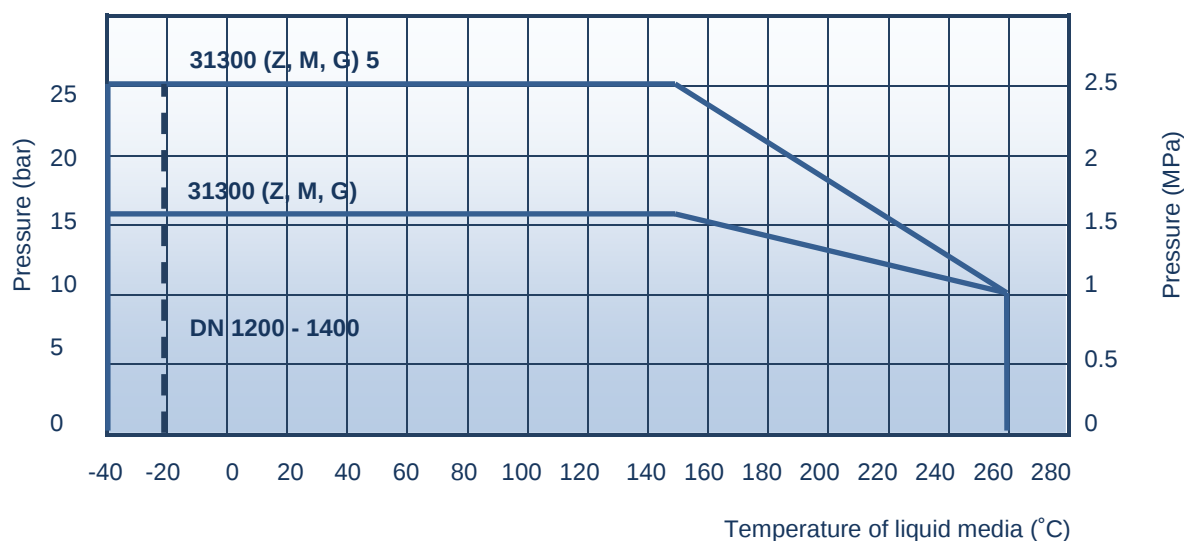


DN	AUMA type	A	B	D	E	F	G	H	J	K	L	M	N	P
200	SA07.1-GS50.3 – F10	444	96	277	536	259	154	233	63	50	230	265	186	140
250	SA07.5-GS63.3 – F12	500	127	282	580	298	193	284	75	63	250	265	186	160
300	SA07.5-GS80.3 – F12	510	132	284	607	323	229	334	88	80	270	265	186	160
350	SA07.5-GS100.3/VZ4.3 – F14	689	182	312	665	353	255	389	105	100	290	265	186	160
400	SA07.5-GS100.3/VZ4.3 – F14	689	182	312	721	409	299	440	105	100	310	265	186	160
450	SA07.5-GS100.3/VZ4.3 – F16	689	182	312	757	445	326	490	105	100	330	265	186	160
500	SA07.5-GS125.3/VZ4.3 – F16	689	187	312	782	470	351	540	125	125	350	265	186	160
600	SA07.5-GS125.3/VZ4.3 – F16	689	187	312	860	548	376	638	125	125	390	265	186	160
700	SA07.5-GS160.3/GZ160.3 – F25	990	337	313	914	601	440	738	173	160	430	265	186	160
800	SA07.5-GS200.3/GZ200.3 – F30	1131	398	338	989	651	490	835	215	200	470	265	186	160
900	SA07.5-GS200.3/GZ200.3 – F30	1131	398	338	1056	718	575	946	215	200	510	265	186	160
1000	SA07.5-GS200.3/GZ200.3 – F30	1131	398	338	1145	764	636	1060	268	250	540	265	186	160
1200	SA10.1-GS250.3/GZ250.3 – F35	1303	486	381	1254	873	755	1279	268	250	630	282	193	200
1400	SA10.1-GS315/GZ30.1 – F40	1487	550	399	1417	1018	912	1492	340	315	710	282	193	200



Pressure / Temperature Rating.

The max pressure difference depends on the working temperature



Product codes

		Maximum Closing pressure (ΔP)			
		16bar		25 bar	
	Weld end standard	DIN	GOST	DIN	GOST
bare shaft	DN 200 – 300, 1200 - 1400	31300CS__Z	31300CS__Z	31300CS__Z5	31300CS__Z5
	DN 350 – 1000	31300CS__Z	31300CS__ZG	31300CS__Z5	31300CS__ZG5
manual gear	DN 200 – 300, 1200 - 1400	31300CS__M	31300CS__M	31300CS__M5	31300CS__M5
	DN 350 – 1000	31300CS__M	31300CS__MG	31300CS__M5	31300CS__MG5
		For steam on special order. Code number: 31301CS__			

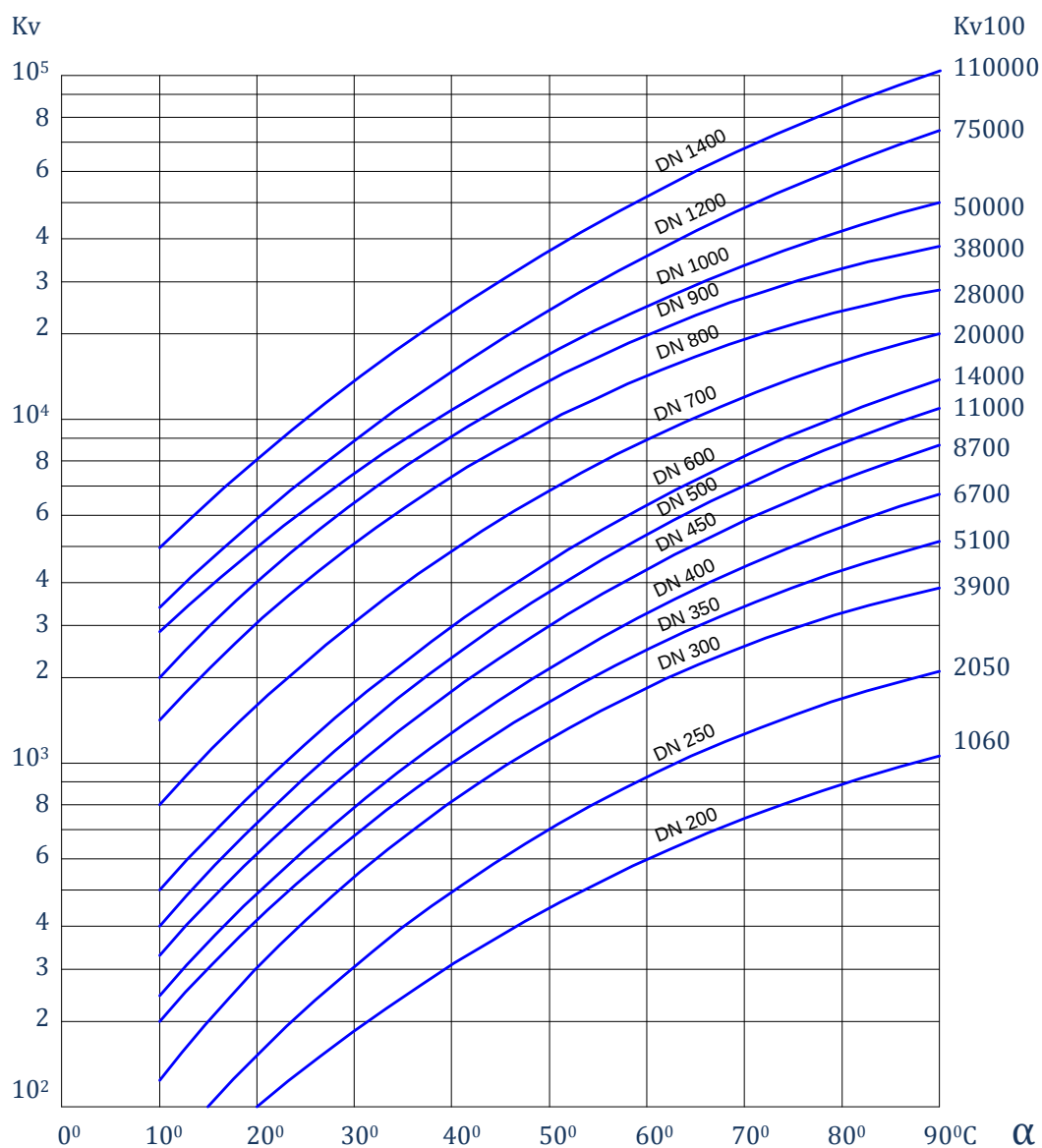
How to order

		3	1	3	00	CS	800	M	G5
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									
Actuation:	(Z) - bare shaft, (M) - manual gear								
Customization	(G) – GOST weld end, (5) – ΔP = 25 bar								



The control curves

The curves indicate the regulating values of the valve at different opening angles.



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/m³

V – flow velocity m/s

Q – volume flow m³/h