INDUSTRIAL VALVE SOLUTION
MIX FLOW
Grupa Baltina www.mixflow.com.pl

BUTTERFLY VALVES PTFE SEATED BVTT / BLTT
Pmax: 16÷6 bar | PN10/16 | DN40 – DN600

Series BVTT – Wafer | BLTT – Lug

Max working pressure

type	DN	Pmax	disc	vacuum	Flanges
Wafer	DN040	16bar	inox	Y	PN 10-16 • A150
Wafer Lug	DN050÷200	16bar	inox	Y	PN 10-16 • A150
Wafer Lug	DN050÷200	16bar	inox+PTFE	N	PN 10-16 • A150
Wafer Lug	DN250÷300	10bar	inox	Y	PN 10-16 • A150
Wafer Lug	DN250÷300	10bar	inox+PTFE	N	PN 10-16 • A150
Wafer Lug	DN350÷400	10bar	inox	Y	PN 10-16 • A150
Wafer Lug	DN350÷400	10bar	inox+PTFE	N	PN 10-16 • A150
Wafer Lug	DN500÷600	6bar	inox	Y	PN 10-16 • A150
Wafer Lug	DN500÷600	6bar	inox+PTFE	N	PN 10-16 • A150



Design:

EN 593 ~ EN 736 ~ EN 12516 ~ EN 1092
ISO 5211 ~ DIN 3337 ~ API 609
PED 2014/68/EU - Mod. H

Face to face:

DIN EN 558 Series 20 ~ ISO 5752 Series 20
BS-5155 Series 4 ~ MSS-SP67
API 609 cat. A ~ NFE 29305-1

Testing:

EN 12266-1 Rate A (supersedes DIN 3230)
ISO 5208 Rate A ~ API 598

Tag:

EN 19 ~ MSS SP-25



The thickness of the PTFE body seat varies from 2,5 to 3 mm depending on the position



All valves are supplied with a metallic label in compliance with PED directive.

SIL safety integrity level

0497 [PED]

II 2GD Ex h X
X (see ATEX accompanying instructions)

TÜV TA-Luft

TYPE APPROVAL

BODY

material	references	standard coating	lug	wafer
Ductile iron (wafer, lug)	EN-GJS 400-15 (GS400)	Epoxy RAL 5009	50-600	40-600
Carbon steel (wafer only)	EN 1.0619 (ASTM A216-WCB)	Epoxy RAL 9005	-	50-600
Stainless steel (wafer only)	EN 1.4408 (ASTM A351 CF8M)	-	-	50-600

DISC

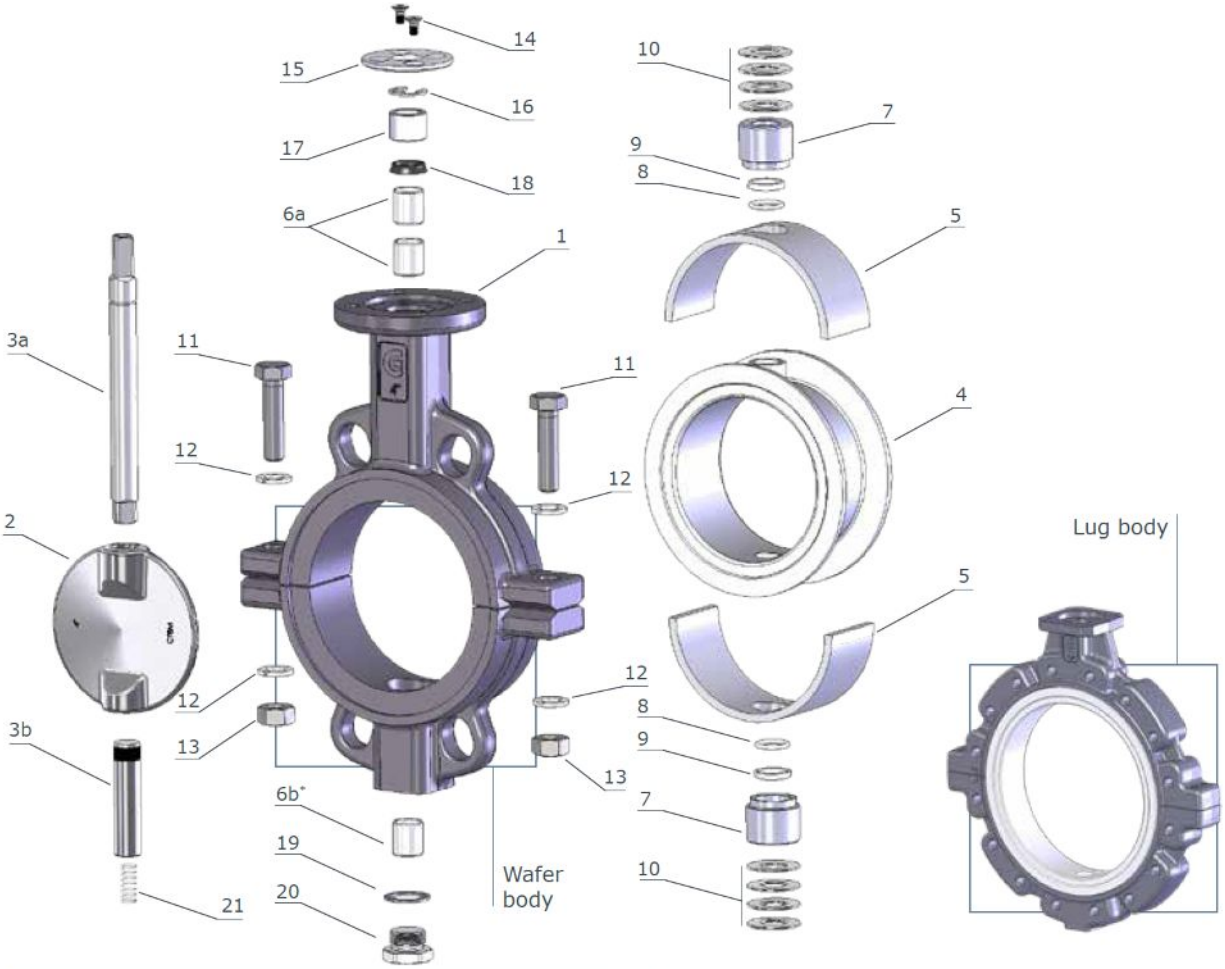
material	references	standard coating	coating on request	DN
Stainless steel	EN 1.4408 (ASTM A351 CF8M)	-	HALAR®	40-600
Stainless steel	A747 CB7Cu-1 + PTFE	PTFE	-	50-600
Hastelloy®	EN 2.4602 (ASTM A494 CX2MW)	-	-	40-600
Super Duplex	EN 1.4469 (A890 Gr. 5A)	-	-	40-600

BODY SEAT

ref.	designation	trade name	working temp.	appications
PTFE	polytetrafluorethylene	TEFLON®	-55°C / +200°C	acids, foods, solvents

On request can be supplied other materials as: LCB, Hastelloy, Uranus, Alloy, SuperDuplex, Special steels.
Coating on request: Halar®, Chenisil®, PFA

Construction PN 10 – 16 – ANSI 150
BVTT DN40 – 300 [1" 1/2 – 12"] | BLTT DN50 – 300 [2" – 12"]
Disc stainless steel EN 1.4408~CF8M (A316)

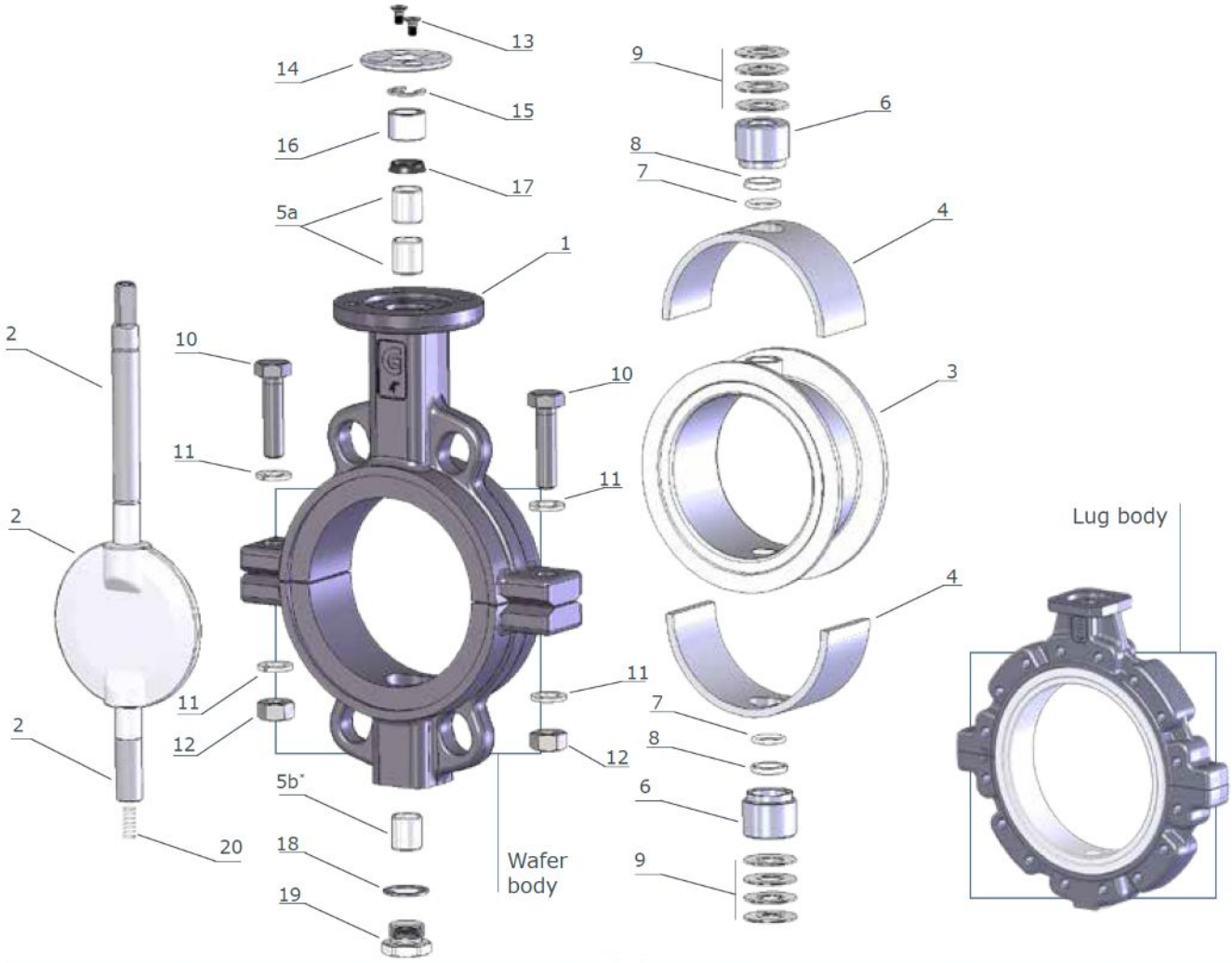


item	q.ty	part	material
1	1	body	• EN-GJS400-15 (GS400) • EN 1.069~ A216-WCB (wafer only) • A351-CF8M (wafer only)
2	1	disc	• A351 - CF8M (AISI 316) • HALAR® (on request)
3a	1	upper shaft	• EN 1.4401~ AISI 316
3b	1	lower shaft	• EN 1.4401~ AISI 316
◇4	1	body seat	• PTFE
◇5	1	elastic support	• silicon
6a	2	bush upper shaft	• steel + PTFE
6b *	1*	bush lower shaft	• steel + PTFE
7	2	housing	• EN 1.4401~ AISI 316
◇8	2	O. Ring	• FEP + FKM (VITON®)
◇9	2	C. Ring	• PTFE
10	2	springs set	• steel

*only DN200/300 ◇ parts included in spare kit

item	q.ty	part	material
11	2	screw	• 8.8 zinc plated steel • A4~A316 (body CF8M)
12	4	washer	• 8.8 zinc plated steel • A4~A316 (body CF8M)
13	2	screw nut	• 8.8 zinc plated steel • A2~304 (body CF8M)
14	2	screw	• 10.9 zinc plated steel • A4~A316 (body CF8M)
15	1	upper flange	• IXEF (DN 50/150) • aluminium (DN 200/300)
16	1	stop ring	• steel
◇17	1	upper bush	• PFTE
◇18	1	O.Ring	• FKM (VITON®)
19	1	plug packing	• aluminium • PTFE (body CF8M)
20	1	threaded plug	• zinc plated steel • 1.4401~A316 (body CF8M)
21	1	spring	• 1.4401~A316 (antistatic device)

Construction PN 10 – 16 – ANSI 150
BVTT DN50 – 300 [2" – 12"] | BLTT DN50 – 300 [2" – 12"]
Disc A747 CB7Cu-1 +PTFE

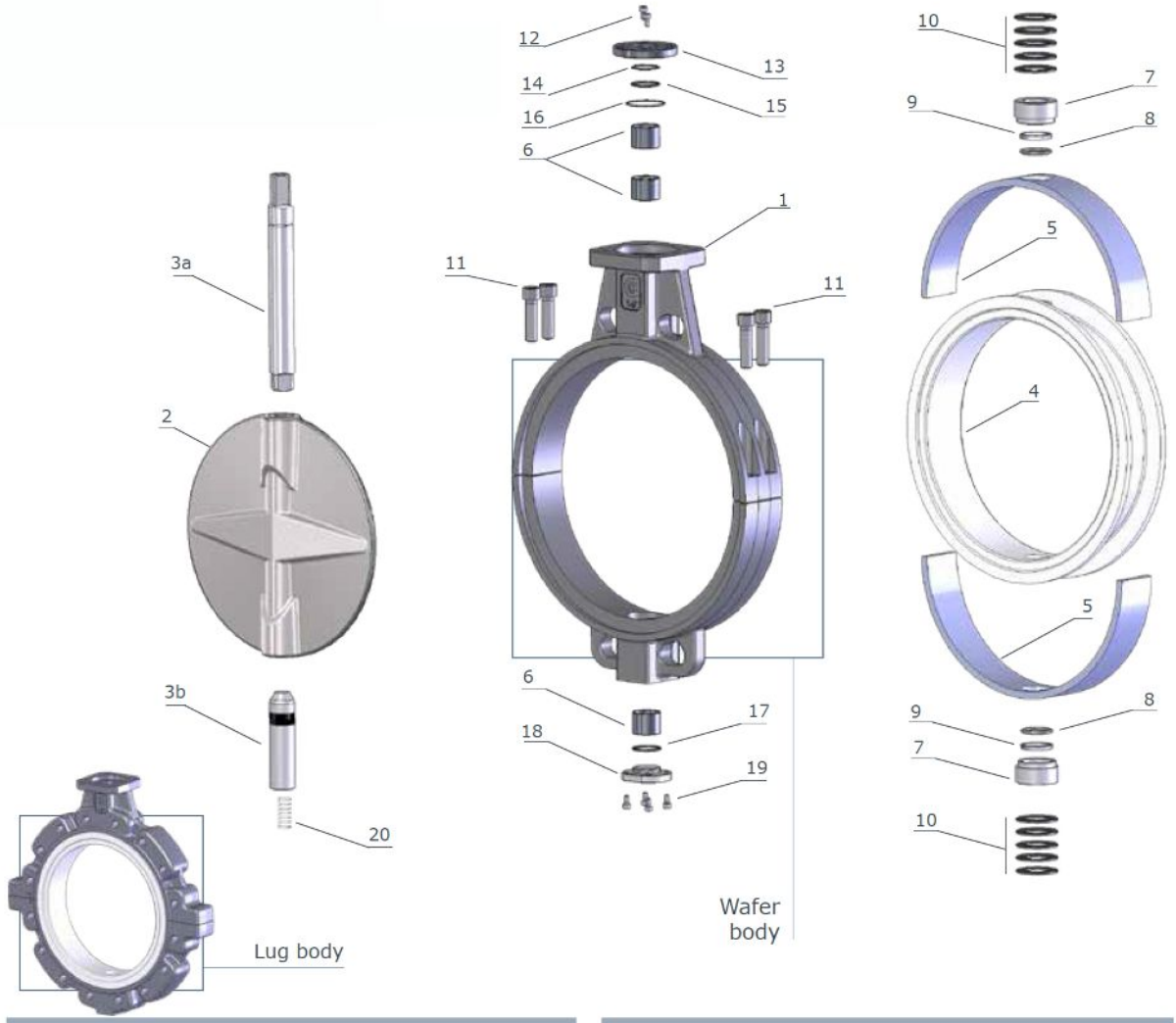


item	q.ty	part	material
1	1	body	• EN-GJS400-15 (GS400) • EN 1.069~ A216-WCB (wafer only) • A351-CF8M (wafer only)
◇2	1	disc - shafts	• A747 CB7Cu-1 + PTFE
◇3	1	body seat	• PTFE
◇4	1	elastic support	• silicon
5a	1	bush upper shaft	• steel + PTFE
5b*	1	bush lower shaft	• steel + PTFE
6	2	housing	• EN 1.4401~A316
◇7	1*	O. Ring	• FEP + FKM (VITON®)
◇8	2	C. Ring	• PTFE
9	2	springs set	• steel
10	2	screw	• 8.8 zinc plated steel • A4~A316 (body CF8M)

item	q.ty	part	material
11	2	washer	• 8.8 zinc plated steel • A4~A316 (body CF8M)
12	2	screw nut	• 8.8 zinc plated steel • A2~304 (body CF8M)
13	4	screw	• 8.8 zinc plated steel • A2~316 (body CF8M)
14	2	upper flange	• IXEF (DN 50/150) • aluminium (DN 200/300)
15	2	stop ring	• steel
◇16	1	upper bush	• PFTE
◇17	1	O.Ring	• FKM (VITON®)
18	1	plug packing	• aluminium • PTFE (body CF8M)
19	1	threaded plug	• zinc plated steel • 1.4401~A316 (body CF8M)
20	1	spring	• 1.4401~A316 (antistatic device)

*only DN200/300 ◇ parts included in spare kit

Construction PN 10 – 16 – ANSI 150
BVTT DN350 – 600 [14"– 24"] | BLTT DN350 – 600 [14"– 24"]
Disc stainless steel EN 1.4408~CF8M (A316)

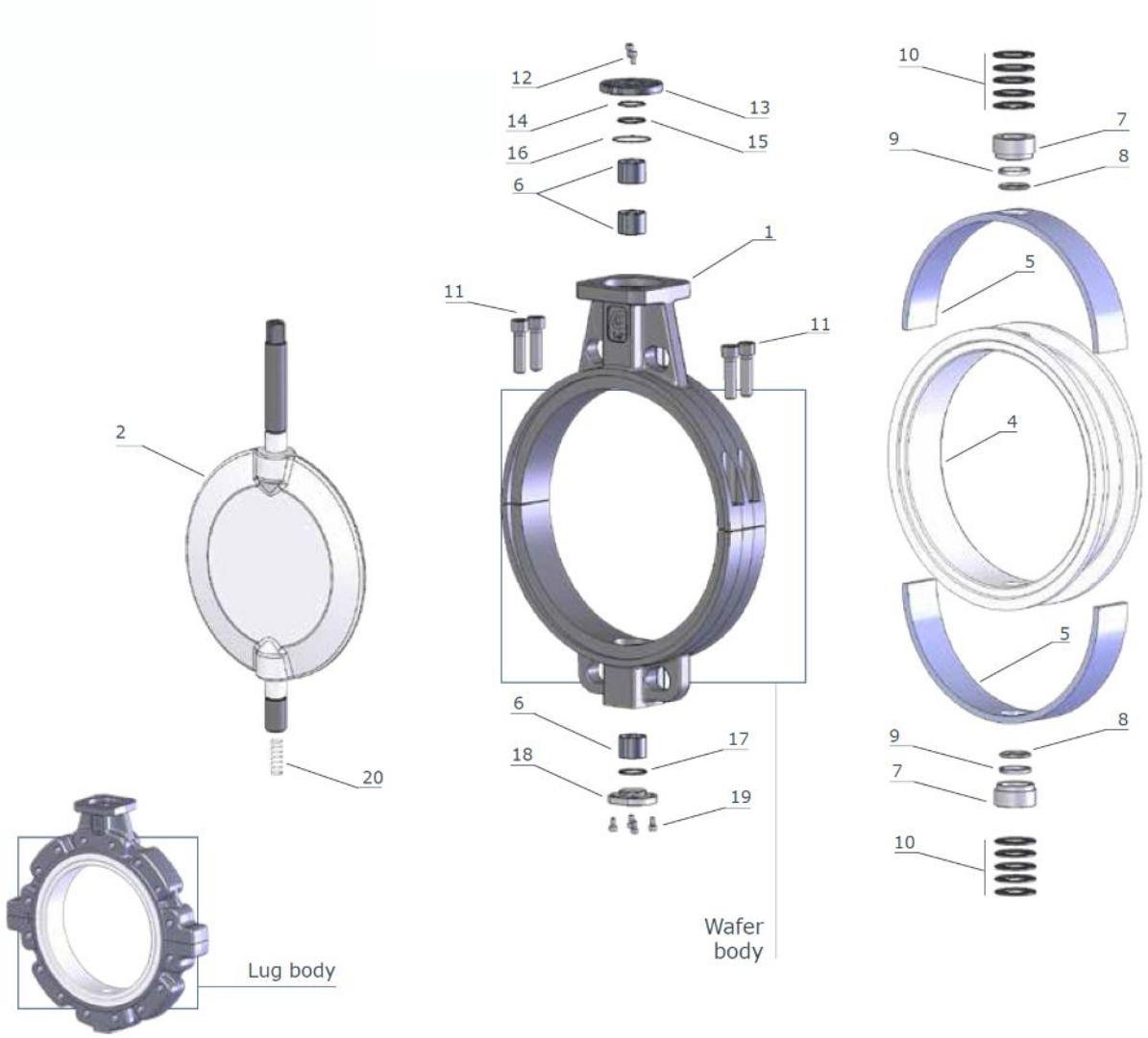


item	q.ty	part	material
1	1	body	• EN-GJS400-15 (GS400) • EN 1.069~ A216-WCB (wafer only) • EN 1.4408~CF8M (A316) wafer only
2	1	disc	• EN 1.4408~CF8M (A316) • HALAR® (on request)
3a	1	upper shafts	• EN 1.4401~AISI 316
3b	1	lower shafts	• EN 1.4401~AISI 316
◇4	1	body seat	• PTFE
◇5	1	elastic support	• silicon
6	3	bush shaft	• A105 + PTFE
7	2	housing	• EN 1.4401~ AISI 316
◇8	2	O. Ring	• FEP + FKM (VITON®)
◇9	2	C. Ring	• PTFE
10	2	springs set	• steel
11	4	screw	• 8.8 zinc plated steel • A4~A316 (body CF8M)

item	q.ty	part	material
12	2	screw	• 8.8 zinc plated steel • A4~A316 (body CF8M)
13	1	upper flange	• zinc plated steell • 1.4401~A316 (body CF8M)
◇14	1	O.Ring	• FKM (VITON®)
15	1	stop ring	• steel
◇16	1	O.Ring	• FKM (VITON®)
◇17	1	O.Ring	• FKM (VITON®)
18	1	lower flange	• zinc plated steel • 1.4401~A316 (body CF8M)
19	4	screw	• 8.8 zinc plated steel • A4~A316 (body CF8M)
20	1	spring	• 1.4401~A316 (antistatic device)

◇ parts included in spare kit

Construction PN 10 – 16 – ANSI 150
BVTT DN350 – 600 [14"– 24"] | BLTT DN350 – 600 [14"– 24"]
Disc A747 CB7Cu-1 +PTFE



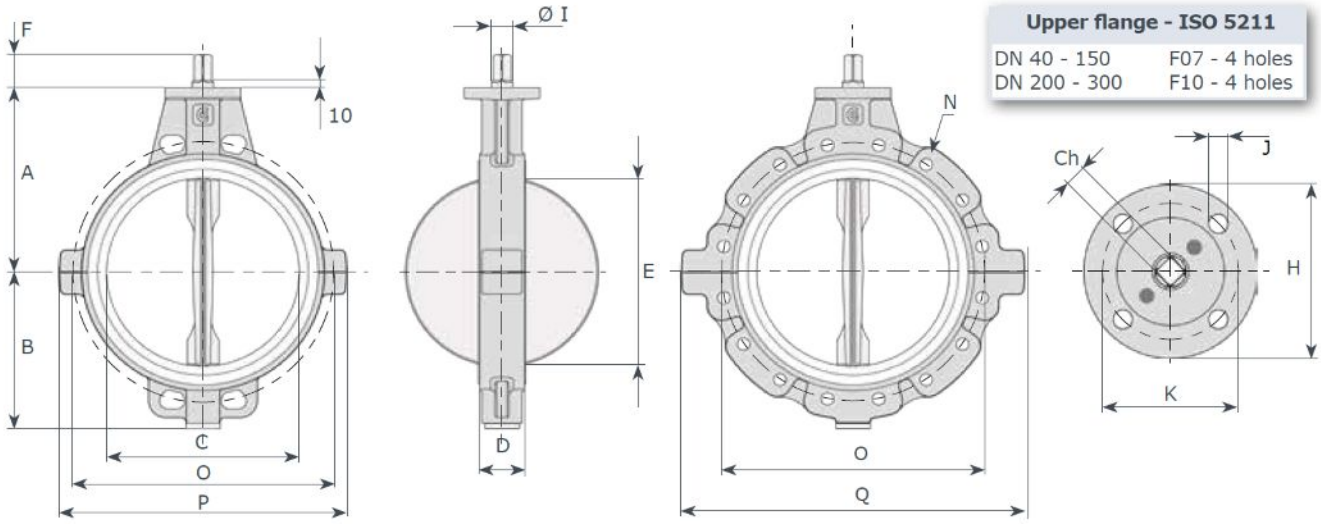
item	q.ty	part	material
1	1	body	• EN-GJS400-15 (GS400) • EN 1.069~ A216-WCB (wafer only) • EN 1.4408~CF8M (A316) wafer only
2	1	disc	• A747 CB7Cu-1 + PTFE
◇4	1	body seat	• PTFE
◇5	1	elastic support	• silicon
6	3	bush shaft	• A105 + PTFE
7	2	housing	• EN 1.4401~ AISI 316
◇8	2	O. Ring	• FEP + FKM (VITON®)
◇9	2	C. Ring	• PTFE
10	2	springs set	• steel
11	4	screw	• 8.8 zinc plated steel • A4~A316 (body CF8M)

item	q.ty	part	material
12	2	screw	• 8.8 zinc plated steel • A4~A316 (body CF8M)
13	1	upper flange	• zinc plated steel • 1.4401~A316 (body CF8M)
◇14	1	O.Ring	• FKM (VITON®)
15	1	stop ring	• steel
◇16	1	O.Ring	• FKM (VITON®)
◇17	1	O.Ring	• FKM (VITON®)
18	1	lower flange=	• zinc plated steel • 1.4401~A316 (body CF8M)
19	4	screw	• 8.8 zinc plated steel • A4~A316 (body CF8M)
20	1	spring	• 1.4401~A316 (antistatic device)

◇ *parts included in spare kit*

BUTTERFLY VALVES PTFE SEATED BVTT / BLTT
Pmax: 16÷6 bar | PN10/16 | DN40 – DN600

Dimensions

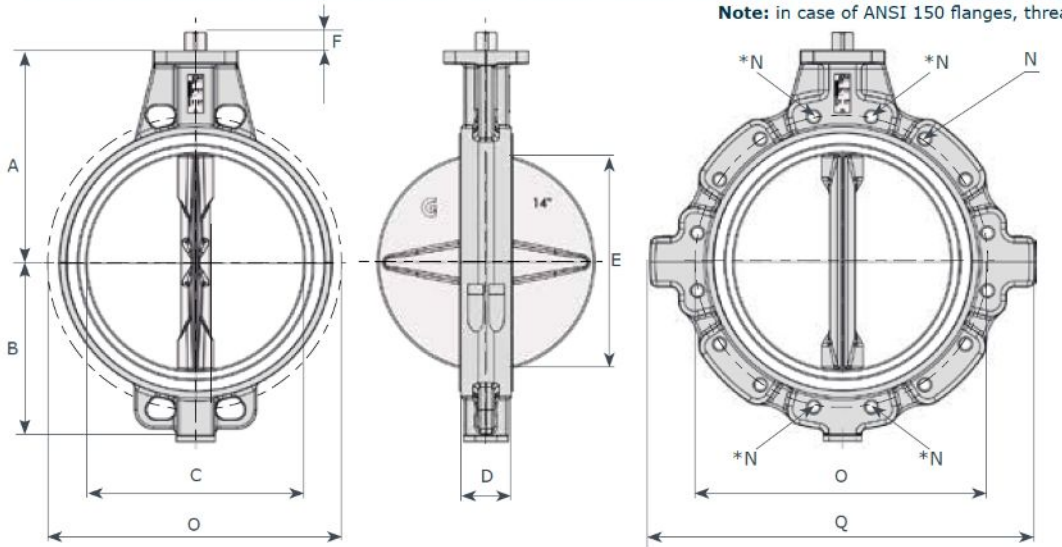


Upper flange - ISO 5211

DN 40 - 150	F07 - 4 holes
DN 200 - 300	F10 - 4 holes

															PN 10			PN 16			ANSI 150			Kg.	
DN	"	A	B	C	D	E	F	Ø I	Ch	H	K	J	P	Q	N	n.	O	N	n.	O	N	n.	O	wafer	lug
40	1 1/2	130	75	49	33	36	34	14	11	90	70	9	-	-	M16	4	110	M16	4	110	M14	4	98.4	3	-
50	2	138	81	55	43	35	34	14	11	90	70	9	165	165	M16	4	125	M16	4	125	M16	4	120.7	3.4	3.9
65	2 1/2	144	98	68	46	50	34	14	11	90	70	9	186	186	M16	8	145	M16	8	145	M16	4	139.7	4.1	4.7
80	3	158	110	81	46	67	34	14	11	90	70	9	196	242	M16	8	160	M16	8	160	M16	4	152.4	4.4	7.6
100	4	173	128	101	52	87	34	16	11	90	70	9	220	270	M16	8	180	M16	8	180	M16	8	190.5	6.8	8.4
125	5	186	140	126	56	113	34	18	14	90	70	9	250	297	M16	8	210	M16	8	210	M20	8	215.9	8.8	11.2
150	6	202	155	150	56	140	34	18	14	90	70	9	278	321	M20	8	240	M20	8	240	M20	8	241.3	10.5	12.9
200	8	240	190	200	60	191	38	22	17	125	102	11	355	420	M20	8	295	M20	12	295	M20	8	298.5	15.2	25.0
250	10	270	220	250	68	241	38	30	22	125	102	11	398	472	M20	12	350	M24	12	355	M22	12	362.0	24.5	30.0
300	12	300	247	298	78	289	38	30	22	125	102	11	455	540	M20	12	400	M24	12	410	M22	12	431.8	32.0	45.0

Note: in case of ANSI 150 flanges, threading can be ANSI B1.1 UNC2B



***Note:** WAFER bodies DN600 have 4 holes N threaded as relevant LUG version

Upper flange ISO 5211

DN350-400	F12-4 fori
DN500	F14/16 - 4 fori
DN600	F16-4 fori

DN	"	A	B	C	D	E	F	Ø I	Ch	H	K	J	Q	PN10			PN16			ANSI150			kg.	
														N	n.	O	N	n.	O	N	n.	O	wafer	lug
350	14	330	280	341	78	332	28	35	27	150	125	14	600	M20	16	460	M24	16	470	M24	12	476.3	54	73
400	16	355	305	390	102	376	28	40	27	150	125	14	690	M24	16	515	M27	16	525	M27	16	539.8	68	104
500	20	422	366	485	127	479	37	45	36	210	140/165	18/22	820	M24	20	620	M30	20	650	M27	20	635.0	149	179
600	24	495	460	595	154	575	47	60	46	210	165	22	940	M27	20	725	M33	20	770	M33	20	749,3	215	310

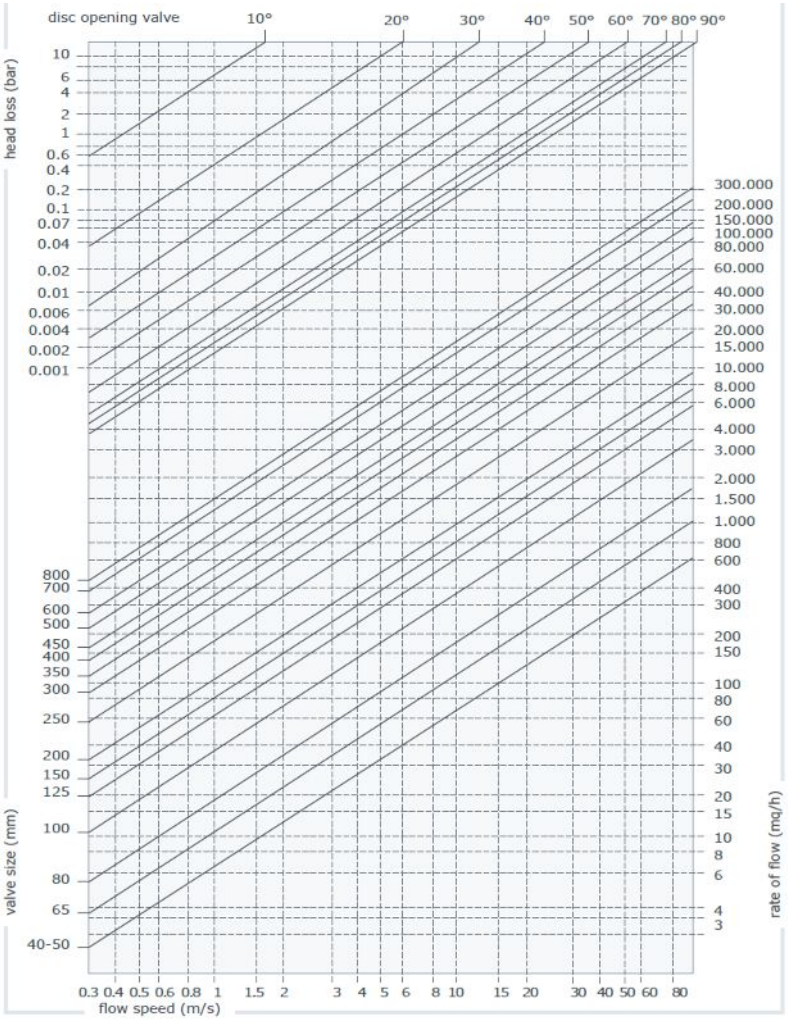
BUTTERFLY VALVES PTFE SEATED BVTT / BLTT
Pmax: 16÷6 bar | PN10/16 | DN40 – DN600

Torque values - Nm | safety factor excluded

disc: EN 1.4408~CF8M (A316) fluid H_2O - 20°C working pressure BAR													
DN	0	6	10	16	DN	0	6	10	16	DN	0	6	10
40	5	9	13	20	125	65	70	85	100	350	400	450	550
50	13	16	19	28	150	60	65	94	105	400	700	800	1000
65	20	28	35	38	200	128	153	188	250	500	980	1250	-
80	35	45	52	65	250	190	232	296	-	600	1805	2470	-
100	40	60	70	75	300	214	296	366	-	-	-	-	-

disc: St. Steel + PTFE fluid H2O - 20°C working pressure BAR													
DN	0	6	10	16	DN	0	6	10	16	DN	0	6	10
40	-	-	-	-	125	50	60	75	85	350	500	540	590
50	14	16	18	25	150	60	70	90	100	400	750	850	1030
65	16	20	23	28	200	122	145	180	219	500	950	1240	-
80	26	40	49	55	250	180	220	280	-	600	1950	2550	-
100	35	51	62	66	300	205	280	350	-	-	-	-	-

Head losses



Formulae for calculation of rate flow

Liquids: $Q = \dfrac{KV}{\sqrt{\dfrac{PS}{\Delta P}}}$

- Q rate of flow (m^3/h)
- PS specific gravity (water=1)
- ΔP pressure drop (bar)

Gas: $Q = 28.5 \dfrac{KV}{\sqrt{\dfrac{PS}{P_2 \cdot \Delta P}}}$

- Q rate of flow (m^3/h)
- PS specific gravity (air=1)
- ΔP pressure drop (bar) (less than 1/2 inlet pressure)
- P_2 outlet pressure

Steam: $Q = 22.5 \cdot KV \cdot \sqrt{P_2 \cdot \Delta P}$

- Q rate of flow (Kg/h)
- ΔP pressure drop (bar) (less than 1/2 inlet pressure)
- P_2 outlet pressure

Calculation of the rate of flow equivalent to H_2O:

$$Qe = Q \sqrt{\frac{d}{1000}}$$

For different liquid, gas or steam head losses are determined by equivalent water rate of flow, as follows:

- Qe equivalent water flow *(mc/l o l/s)*
- Q fluid flow *(mc/l o l/s)*
- d fluid specific gravity *(Kg/mc)*

BUTTERFLY VALVES PTFE SEATED BVTT / BLTT
Pmax: 16÷6 bar | PN10/16 | DN40 – DN600

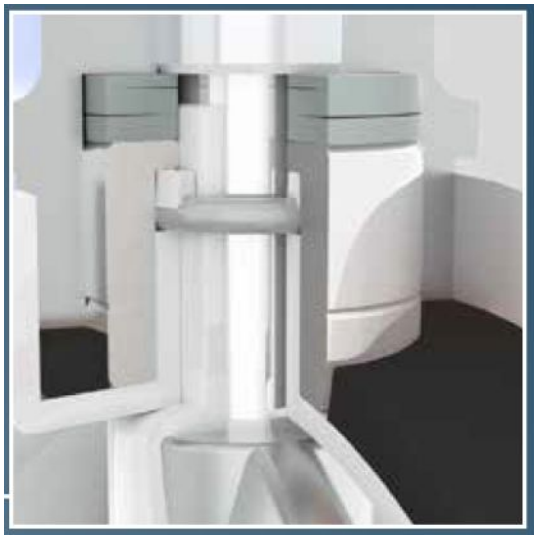
Values KV (CV = 1,16 KV)

angle	40/50	65	80	100	125	150	200	250	300	350	400	500	600
5°	-	-	-	-	-	-	-	-	-	53	68	106	207
10°	-	-	-	-	-	-	-	21	49	123	161	246	629
15°	0,2	0,6	1,8	2,4	4,2	5,6	14	80	188	228	299	457	1168
20°	0,9	2,5	5,2	9,5	15	23	110	156	280	315	412	630	2010
25°	3	6,1	12	22	38	61	125	225	354	457	597	914	2735
30°	6,1	11	21	39	69	112	211	310	381	661	863	1320	5080
35°	9,9	18	33	60	105	166	303	433	521	890	1162	1778	6254
40°	15	27	49	88	148	228	405	591	742	1184	1547	2366	9700
45°	21	38	68	121	199	303	528	774	987	1552	2028	3102	11581
50°	29	51	91	159	262	394	679	988	1252	2008	2620	4010	15000
55°	39	68	119	207	338	505	863	1247	1571	2548	3318	5090	17765
60°	53	90	156	269	434	641	1085	1591	2059	3225	4202	6442	22200
65°	72	121	209	357	565	820	1364	2065	2807	3983	5196	7957	26077
70°	92	161	283	487	768	1097	1788	2715	3744	5195	6775	10377	34500
75°	109	209	381	662	1059	1507	2425	3625	4935	6964	9084	13912	39546
80°	115	240	457	815	1303	1861	3043	4768	6831	9301	12142	18578	47560
85°	115	253	502	906	1457	2008	3642	4890	8230	10280	13408	20533	52566
90°	116	257	508	925	1492	2168	3838	5010	9233	10792	14082	22024	56381

DETAILS



Belleville washers ensure the sealing in the upper plane of the disc. Furthermore a double packing consisting in a FEP coated FKM O Ring and a PTFE C-ring will avoid any leakage along the shaft.



In the TT-valve series the PTFE lining covers the shaft beyond the FEP coated FKM O Ring so that the fluid never contacts the metal core of the disc.

INDUSTRIAL VALVE SOLUTION
MIX FLOW
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