

ECCENTRIC BUTTERFLY VALVES

HIGH PERFORMANCE



Soft seat, metal seat and fire-safe seat HIGH PERFORMANCE butterfly valves. The valves are manufactured according ISO 9001 Quality Assurance and is designed and tested to meet or exceed the most general industrial standards and are a result of a long time experience in the design and manufacturing of valves.

Wafer-Lug and Double flange design for bi-directional dead-end service acc PN10/16 and Ansi 150 ratings.

The double eccentric offset assure a low operation torque and easy replaceable liner system without bolts. The S96, S97 and S98 valves have a Disc stopper to prevent Disc over travel.

The Disc design gives a maximum flow and minimum resistance and creates max. Cv values. The outside diameter of the Disc is polished for max. valve life time.

The one piece stem design gives higher strength and lower valve torque.

The V-Packing are designed to give max. resistance to pressure both low and high pressures. Special packings like Grafoil are available for high temperature applications and are standard on our fire safe design valves and on our metal to metal valves.

All valves are tested according International standards like API 598-MSS SP 61-BS 6755 and Ansi B 16.104.

HIGH PERFORMANCE BUTTERFLY VALVE

- Soft Seat Design
- Metal Seat Design
- Fire-Safe Seat Design

FEATURES

- A wide range of applications from vacuum to very high pressure service, and from low to very high temperature service. Suitable for any severe process
- Excellent control characteristics
- Bubble-tight shut-off capability

APPLICATION

- Oil refining
- Petrochemical process
- Chemical process
- Pulp and paper process
- Sugar refining
- Coal and mining process
- Power plants
- Steel plants
- Desalination process
- Marine service

MANUAL OPERATORS

- Levers type HP-1
- ALFA Gearboxes in Ductile Cast Iron GGG40
- ALFA Gearboxes in Stainless Steel 316

PNEUMATIC ACTUATORS

- Double Acting type DA and Spring Return Actuators type SR

ELECTRIC ACTUATORS

- Series from 160 Nm to max. 9000 Nm.



VALVE SIZE

From DN 50 (2") up to DN 400 (16")
Larger sizes on request

END CONNECTION

Wafer
Lug
Double Flange

FLANGES

JIS B 2211-5K and BB 2212-10K
ANSI B 16.5 - Class 150 and 300
DIN 2501 PN-10 and 16

FACE TO FACE

EN 558-1
ISO 5752
API 609 A
BS 5155

TOPFLANGE

ISO 5211

TIGHTNESS

PTFE-R Seat - DIN 3230-BO (Rate 1)
Inconel Seat - DIN 3230-BN (Rate 1)

DIFFERENTIAL PRESSURE

DN 50 until DN 400 max. 25 bar

VACUUM

0 bar absolute

TEMPERATURE

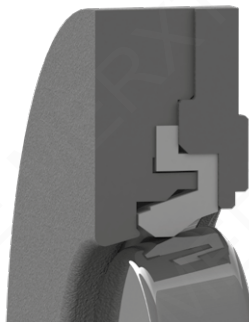
From -50°C up to +450 °C

MAX W.P

PN10 / PN16 and Class 150 / PN 20
JIS 10K / 16K

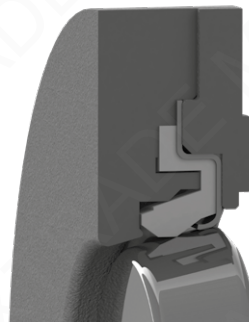
MAX FLUID VELOCITY AT MAX W.P

4 m/s for liquids
50 m/s for clean gases



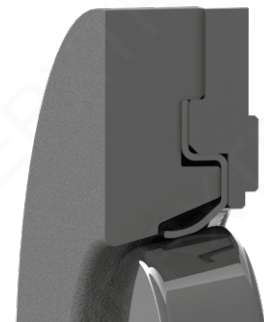
SOFT SEAT

Elasticity of the PTFE or PTFE(R) seat and fluid pressure assures perfect "bubble tight" sealing.



FIRE SAFE SEAT

After a fire when the PTFE seat has burned away, the supplementary metal sealing seat activates automatically and prevent from excessive flop.

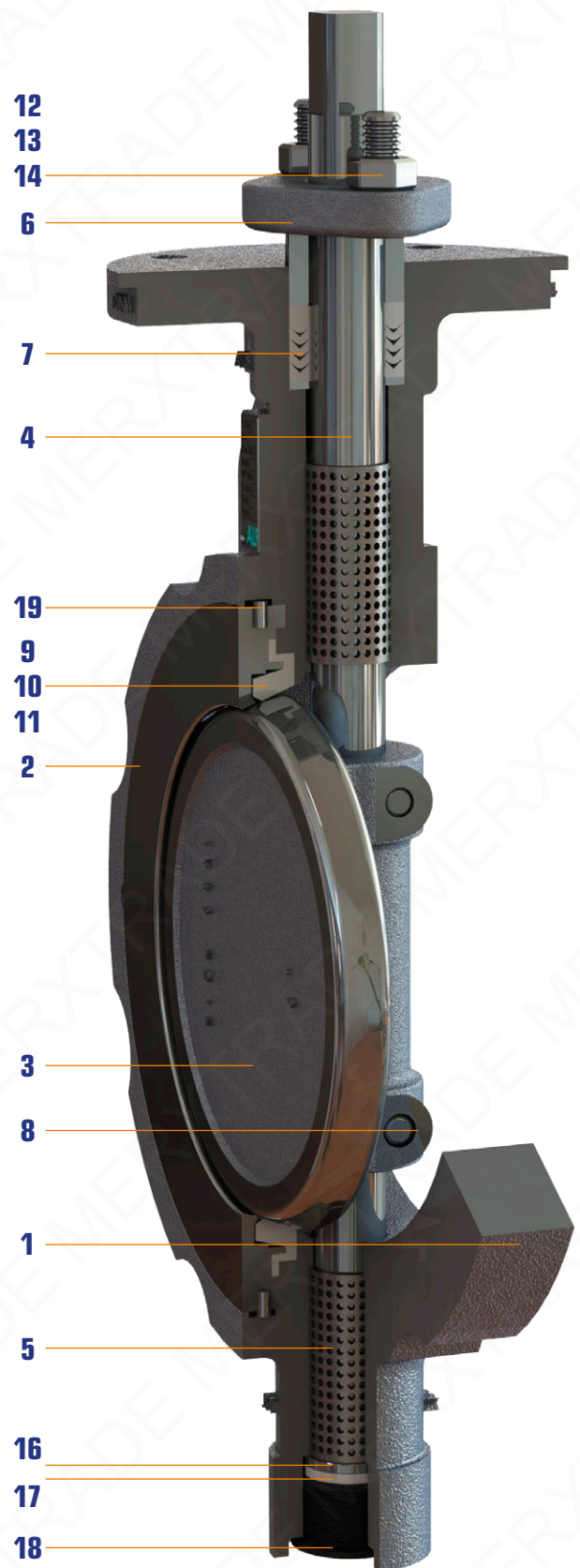


METAL SEAT

This version offers very high sealing capability with an unusually low leakage rate.

MATERIALS

ITEM NO.	DESCRIPTION	MATERIAL NO.	MATERIAL	ASTM
01	BODY			
	Ductile Cast Iron	GGG40	0,704	A536
	Carbon Steel	GS-C25N	1,0619	A216WCB
	Stainless Steel	G-X5CrNiMo19-1102	1,4408	CF8M
02	SEAT CLAMPING RING			
	Steel	St37-2	10.037	283-C
	Stainless Steel	X5CrNiMo 17-12-2	1,4401	316
03	DISC			
	Stainless Steel	G-X5CrNiMo19-1102	1,4408	CF8M
04	SHAFT			
	Stainless Steel	X4CrNiMo 16-5-1	1,4418	
05	BUSH BOARING			
	Stainless Steel	X5CrNiMo 17-12-2	1,4401/PTFE	316
06	GLAND SLEEVE			
	Stainless Steel	G-X5CrNiMo19-1102	1,4408	CF8M
07	GASKET GLAND			
	Stainless Steel	G-X5CrNiMo19-1102	1,4408	CF8M
08	TAPER PIN			
	Stainless Steel	X4CrNiMo 16-5-1	1,4418	
09	SEALING SEAT			
	PTFE-R	PTFE Compound		
	Inconel	Inconel 625		
10	GASKET			
	PTFE-R			
	Graphite			
11	GASKET RING			
	Stainless Steel	X4CrNiMo 16-5-1	1,4418	
12	GLAND BOLT			
	Stainless steel A4-70	A2-70	1,4301	
13	SPRING WASHER			
	Stainless steel A4-70	A2-70	1,4301	
14	NUT			
	Stainless steel A4-70	A2-70	1,4301	
15	LOCK RING			
	Stainless Steel	X4CrNiMo 16-5-1	1,4418	
16	DISTANCE RING			
	Stainless Steel	X4CrNiMo 16-5-1	1,4418	
17	SEALING RING			
	PTFE-R			
	Graphite			
18	BOTTUM PLUG			
	Stainless Steel			
19	LOCK PIN			
	Stainless Steel	X4CrNiMo 16-5-1	1,4418	

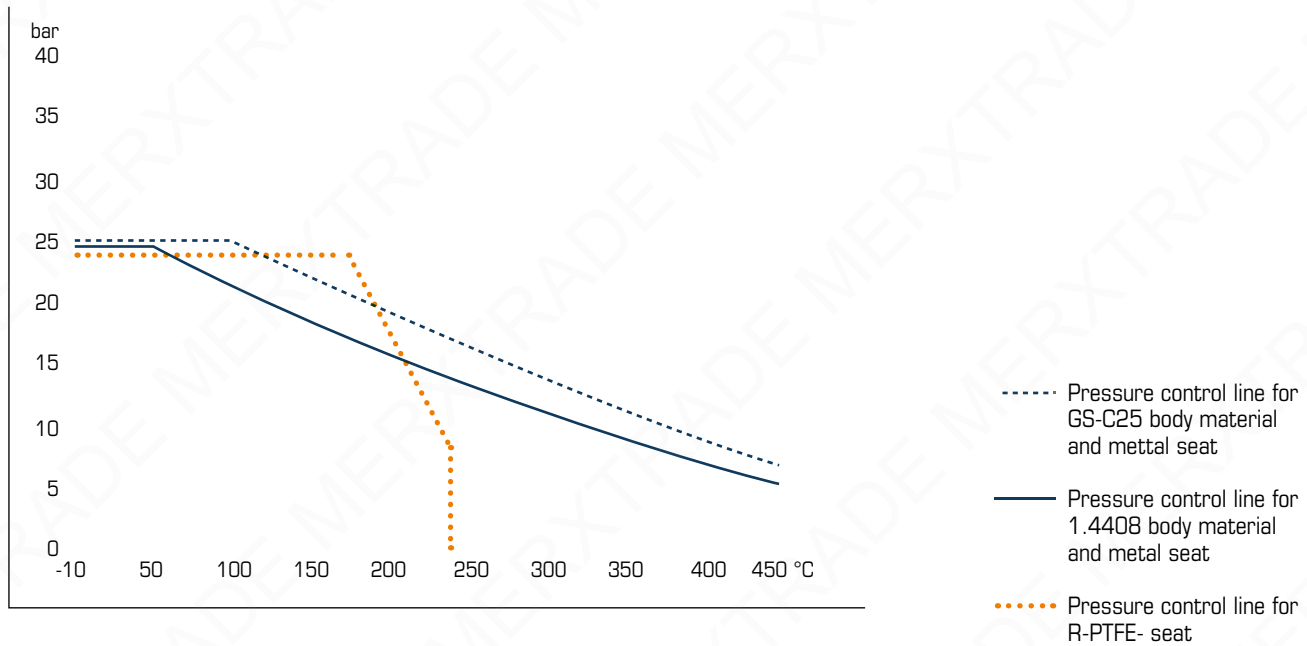


TORQUE - HIGH-PERFORMANCE BUTTERFLY VALVE

DN	SOFT SEAT (N.M)			FIRE SAFE SEAT (N.M)			METAL SEAT (N.M)		
	10 BAR	16 BAR	25 BAR	10 BAR	16 BAR	25 BAR	10 BAR	16 BAR	25 BAR
50	17	20	23	22	26	38	28	34	48
65	27	30	33	32	39	55	35	44	61
80	28	35	42	36	46	71	44	52	72
100	40	48	63	60	70	90	72	80	96
125	53	63	75	70	95	145	90	115	176
150	85	95	125	90	100	180	136	160	240
200	180	220	240	200	280	340	280	344	404
250	290	350	430	350	465	660	404	496	688
300	384	500	660	540	770	980	592	800	1024
350	550	670	920	710	830	1080	790	1050	1150
400	900	1050	1350	1100	1250	1700	1224	1792	2320

K_v-VALUES - HIGH-PERFORMANCE BUTTERFLY VALVE

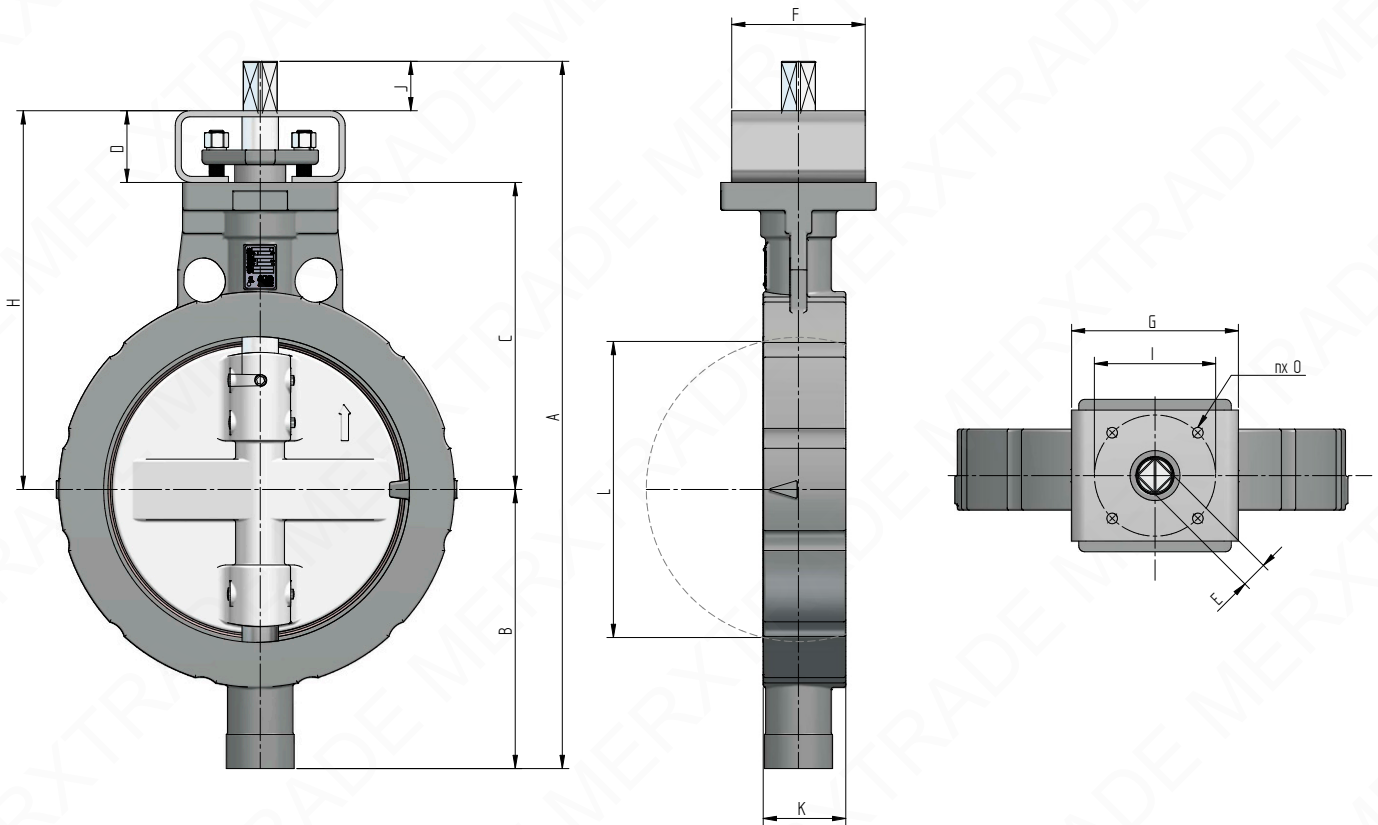
PRESSURE / TEMPERATURE DIAGRAM



OPENING ANGLE

DN (mm)	Size (in)	20 °	30 °	40 °	50 °	60 °	70 °	80 °	90 °
50	2	1,3	6	15	18	19	21	22	23
65	2,5	1,5	7	18	22	23	24	25	25
80	3	7	30	50	68	82	97	113	115
100	4	22	60	97	119	164	199	223	251
125	5	45	100	152	195	256	346	452	493
150	6	63	109	162	250	391	588	814	845
200	8	96	168	301	509	742	1107	1581	1747
250	10	264	458	682	980	1421	2083	2882	2889
300	12	397	625	956	1368	1938	2778	3794	3940
350	14	460	720	1100	1650	2500	3400	4800	5400
400	16	550	870	1250	2000	3200	4800	6800	8080

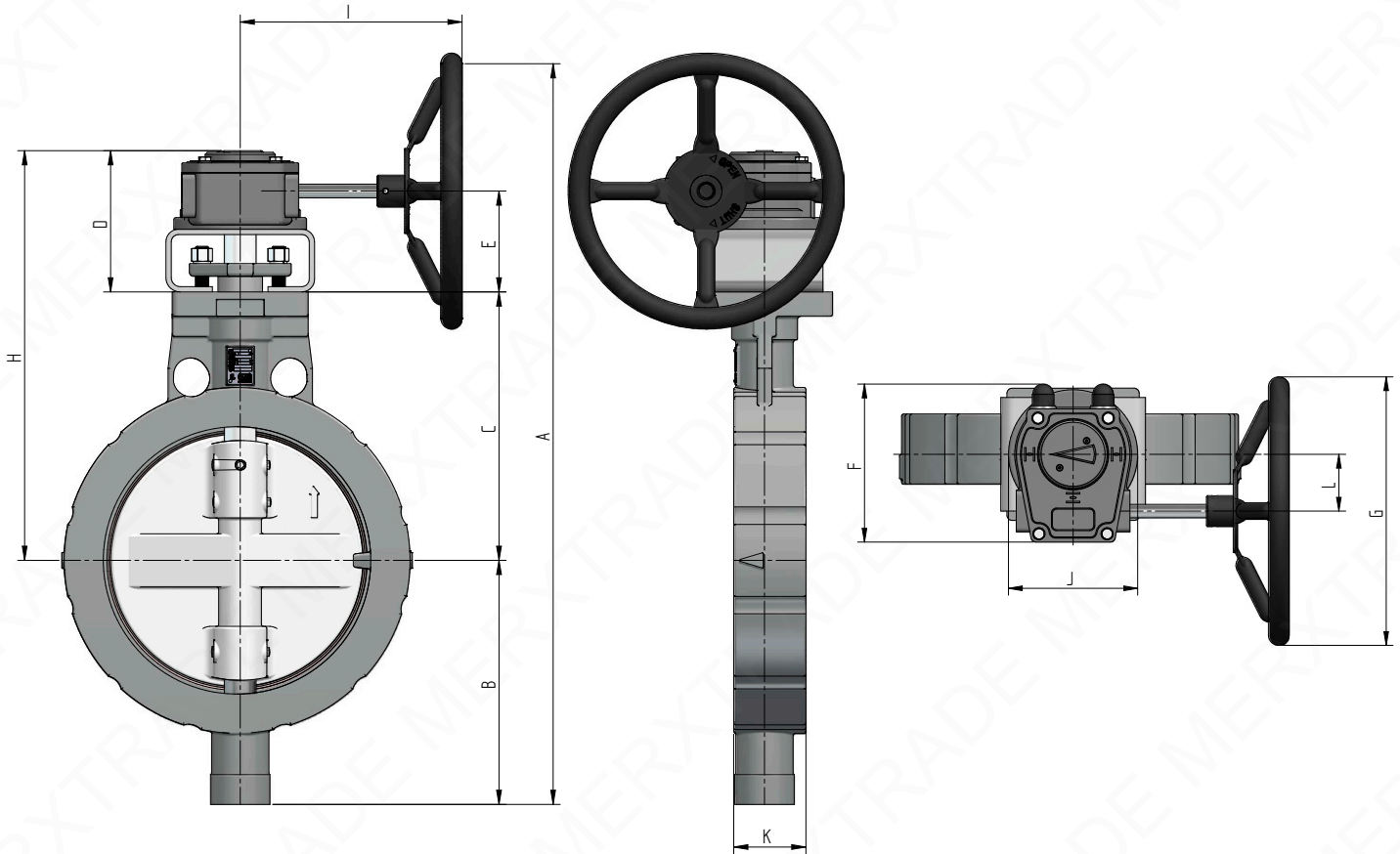
WAFER



BARE SHAFT

DN	A	B	C	D	E	F	G	H	K	I	J	L	Weight ± kg
50	269	91	108	45	12	70	90	153	43	F05-F07	25	44	4,7
65	294	101	123	45	12	70	90	168	46	F05-F07	25	61	5,6
80	310	107	133	45	12	70	90	178	46	F05-F07	25	74	6,2
100	340	115	155	45	12	70	90	200	52	F05-F07	25	93	7,7
125	398	155	173	45	17	100	110	218	56	F07-F10	25	119	12
150	417	164	183	45	17	100	110	228	56	F07-F10	25	138	14,5
200	503	195	218	55	19	120	140	273	60	F12	35	190	23
250	568	230	253	55	22	120	140	303	68	F12	35	239	34
300	638	260	278	60	27	140	160	338	78	F10-F12-F14	40	277	51
350	731	308	318	60	30	140	160	378	92	F10-F12-F14	45	330	72
400	808	354	354	60	30	140	160	394	102	F10-F12-F14	60	374	109

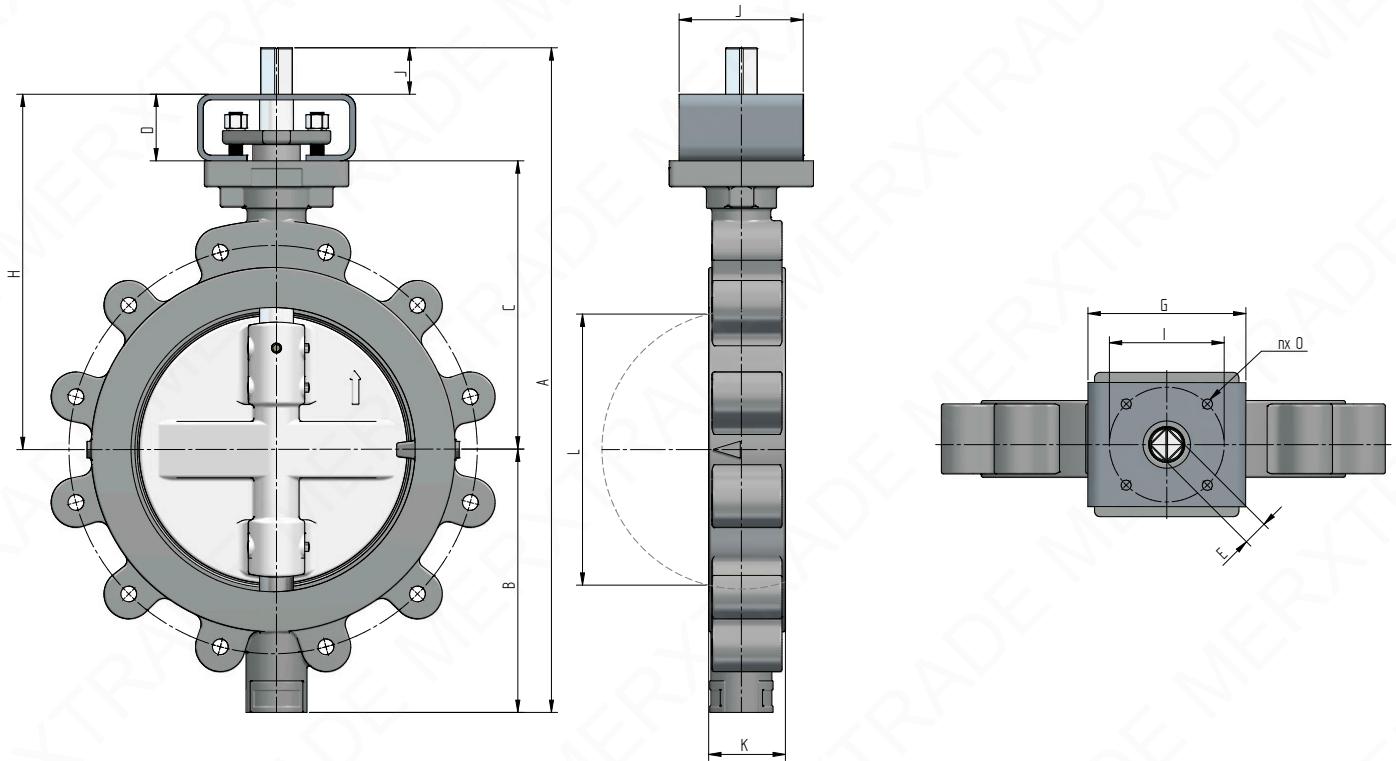
WAFER TYPE GEARBOX



GEARBOX

DN	A	B	C	D	E	F	G	H	K	I	J	L	Weight ± kg
50	326	91	108	110	77	115	100	218	43	141	88	45	7,7
65	351	101	123	110	77	115	100	233	46	141	88	45	8,6
80	367	107	133	110	77	115	100	240	46	141	88	45	9,2
100	397	115	155	110	77	115	100	265	52	141	88	45	10,7
125	480	155	173	110	77	115	150	283	56	151	88	45	16
150	499	164	183	110	77	115	150	293	56	151	88	45	18,5
200	629	195	218	129	91	148	250	347	60	200	110	55	28
250	699	230	253	129	91	148	250	382	68	200	110	55	39
300	796	260	278	156	108	200	300	434	78	273	148	71	63
350	884	308	318	156	108	200	300	474	92	273	148	71	84
400	1019	354	354	164	111	241	400	518	102	271	110	86	129

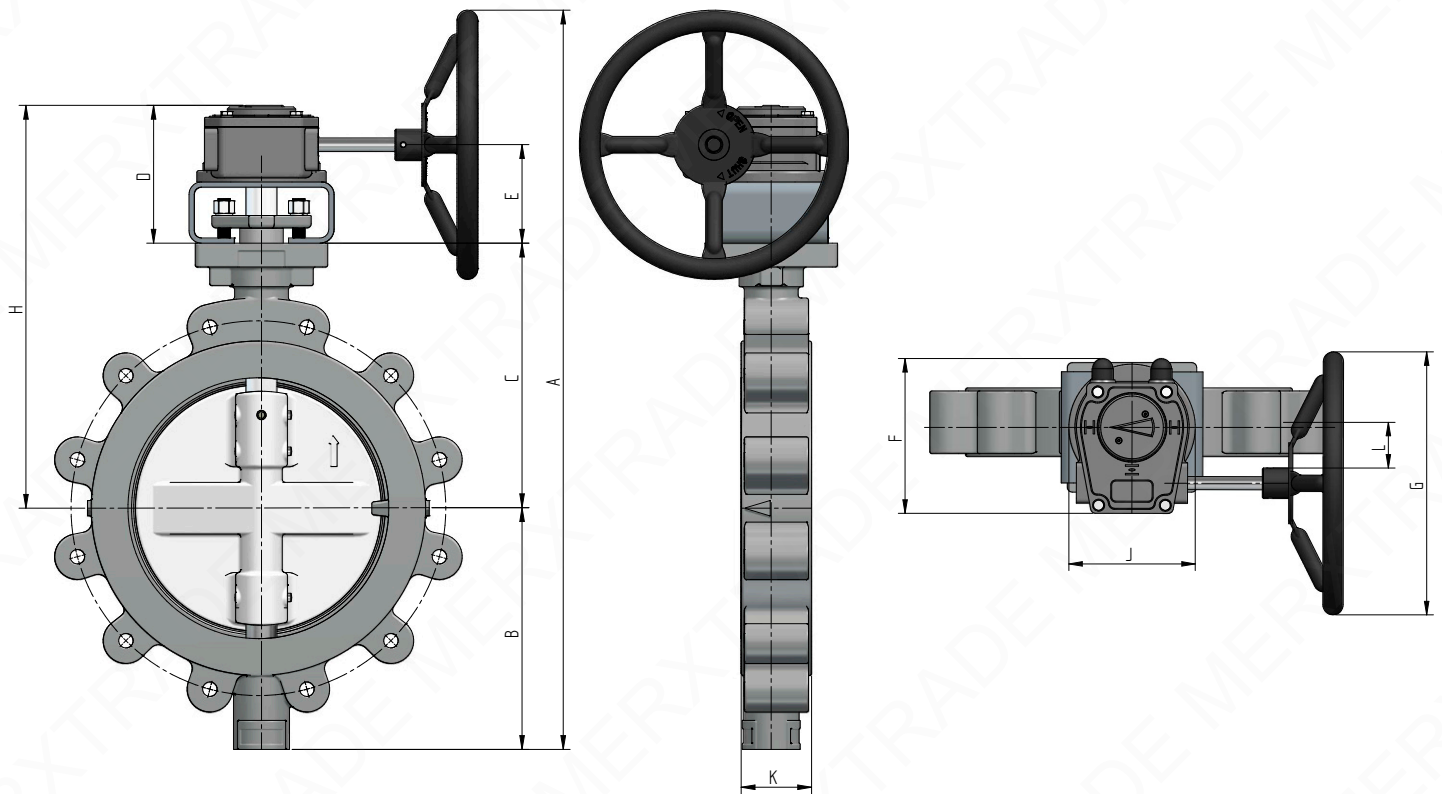
LUG TYPE



BARE SHAFT

DN	A	B	C	D	E	F	G	H	K	I	J	L	Weight ± kg
50	269	91	108	45	12	70	90	153	43	F05-F07	25	44	6,5
65	294	101	123	45	12	70	90	168	46	F05-F07	25	61	7
80	310	107	133	45	12	70	90	178	46	F05-F07	25	74	8,7
100	340	115	155	45	12	70	90	200	52	F05-F07	25	93	10,5
125	398	155	173	45	17	100	110	218	56	F07-F10	25	119	15
150	417	164	183	45	17	100	110	228	56	F07-F10	25	138	18
200	503	195	218	55	19	120	140	273	60	F12	35	190	26
250	568	230	253	55	22	120	140	303	68	F12	35	239	44
300	638	260	278	60	27	140	160	338	78	F10-F12-F14	40	277	68
350	731	308	318	60	30	140	160	378	92	F10-F12-F14	45	330	98
400	808	354	354	60	30	140	160	394	102	F10-F12-F14	60	374	125

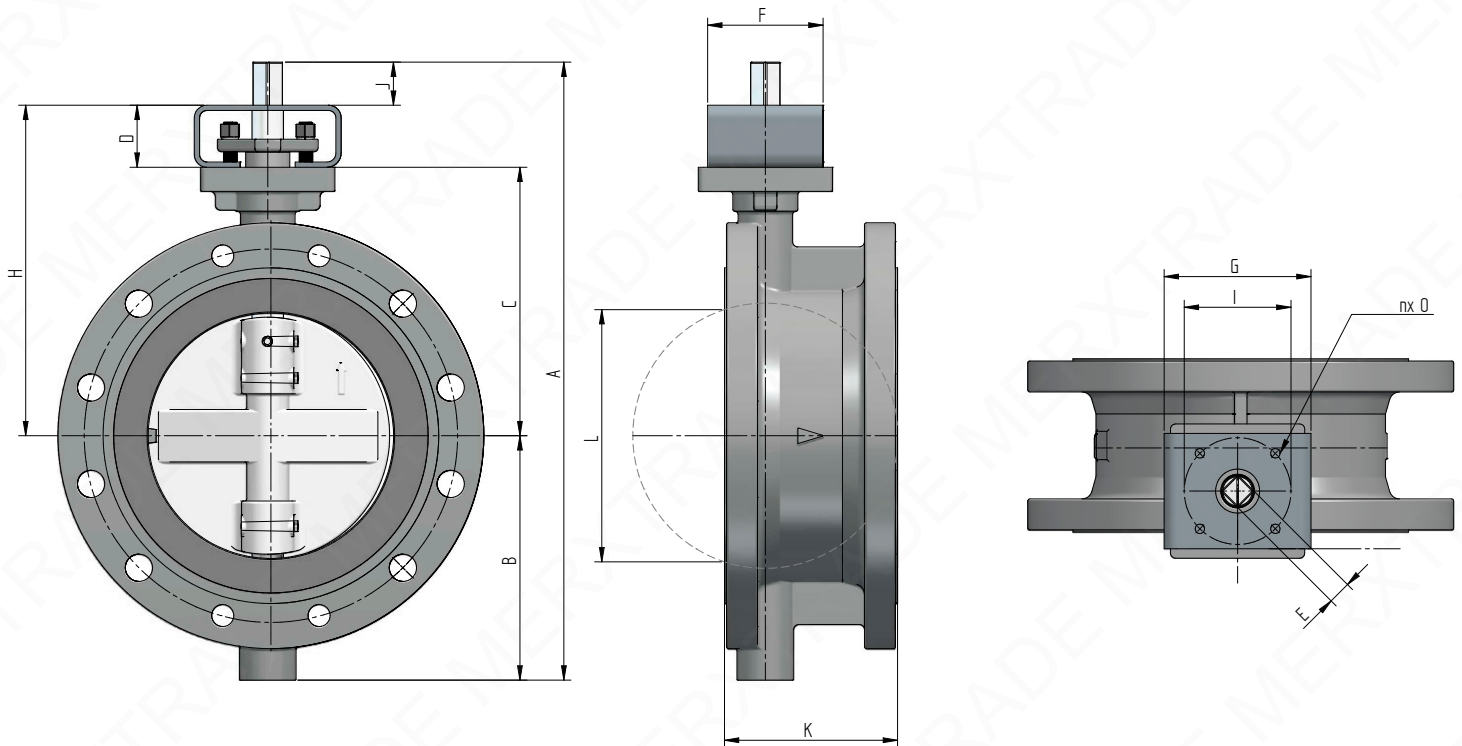
LUG TYPE



GEARBOX

DN	A	B	C	D	E	F	G	H	K	I	J	L	Weight ± kg
50	326	91	108	110	77	115	100	218	43	141	88	45	9,5
65	351	101	123	110	77	115	100	233	46	141	88	45	10
80	367	107	133	110	77	115	100	240	46	141	88	45	11,7
100	397	115	155	110	77	115	100	265	52	141	88	45	13,5
125	480	155	173	110	77	115	150	283	56	151	88	45	19
150	499	164	183	110	77	115	150	293	56	151	88	45	22
200	629	195	218	129	91	148	250	347	60	200	110	55	31
250	699	230	253	129	91	148	250	382	68	200	110	55	49
300	796	260	278	156	108	200	300	434	78	273	148	71	80
350	884	308	318	156	108	200	300	474	92	273	148	71	110
400	1019	354	354	164	111	241	400	518	102	271	110	86	145

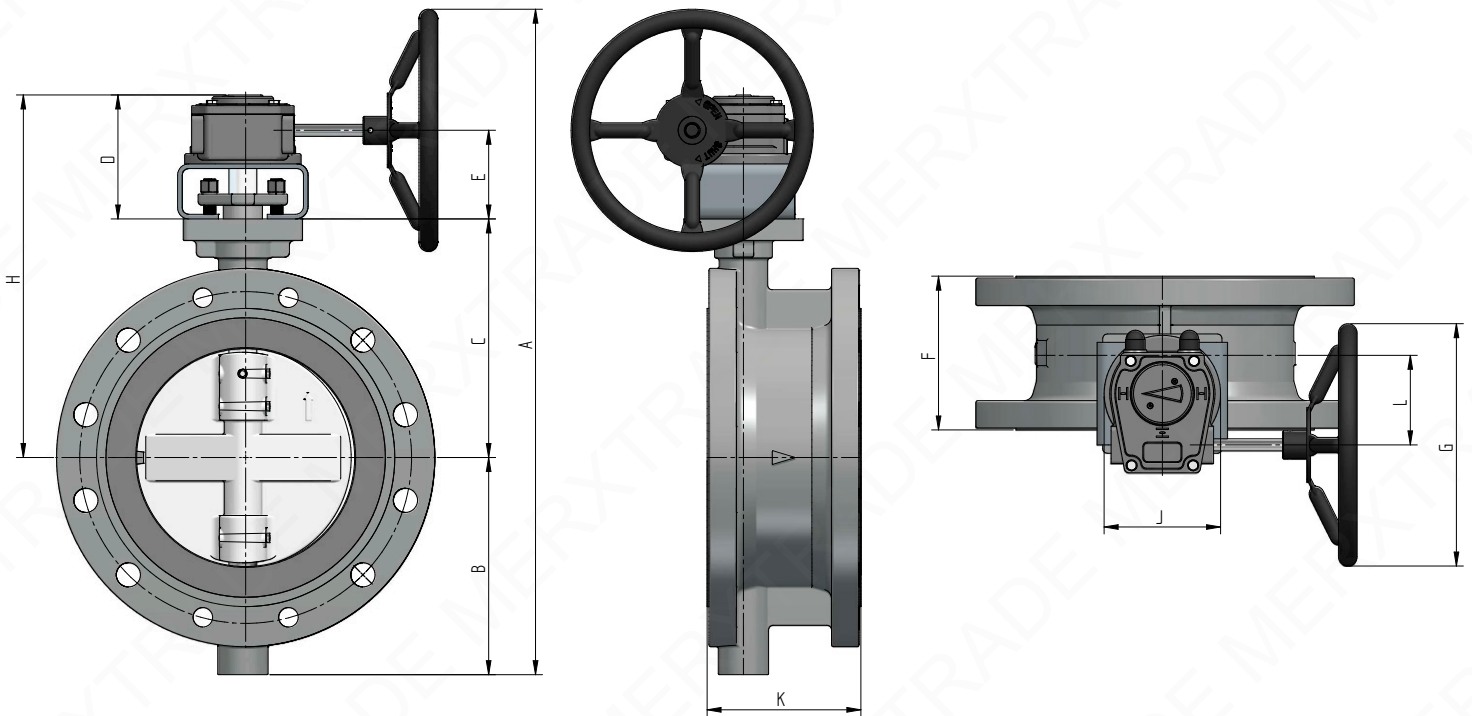
DOUBLE FLANGED TYPE



BARE SHAFT

DN	A	B	C	D	E	F	G	H	K	I	J	L	Weight ± kg
50	269	91	108	45	12	70	90	153	108	F05-F07	25	29	11
65	294	101	123	45	12	70	90	168	112	F05-F07	25	50	13
80	310	107	133	45	12	70	90	178	114	F05-F07	25	67	15
100	340	115	155	45	12	70	90	200	127	F05-F07	25	87	18
125	398	155	173	45	17	100	110	218	140	F07-F10	25	111	23
150	417	164	183	45	17	100	110	228	140	F07-F10	25	132	29
200	503	195	218	55	19	120	140	273	152	F12	35	183	39
250	568	230	253	55	22	120	140	303	165	F12	35	230	57
300	638	260	278	60	27	140	160	338	178	F10-F12-F14	40	270	81
350	731	308	318	60	30	140	160	378	190	F10-F12-F14	45	318	113
400	808	354	354	60	30	140	160	394	216	F10-F12-F14	60	360	150

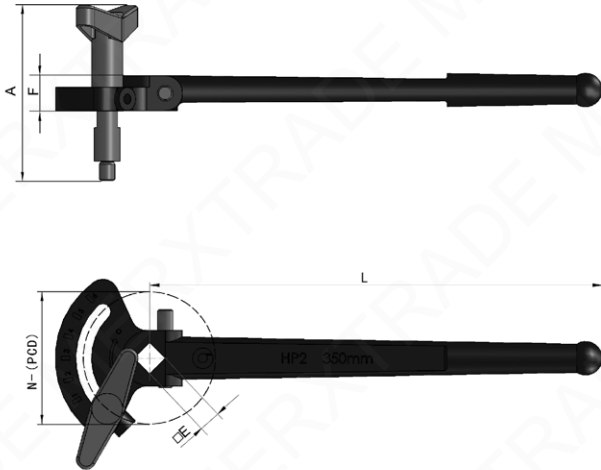
DOUBLE FLANGED TYPE



GEARBOX

DN	A	B	C	D	E	F	G	H	K	I	J	L	Weight ± kg
50	326	91	108	110	77	115	100	218	108	141	88	45	13
65	351	101	123	110	77	115	100	233	112	141	88	45	15
80	367	107	133	110	77	115	100	240	114	141	88	45	17
100	397	115	155	110	77	115	100	265	127	141	88	45	20
125	480	155	173	110	77	115	150	283	140	151	88	45	26
150	499	164	183	110	77	115	150	293	140	151	88	45	32
200	629	195	218	129	91	148	250	347	152	200	110	55	44
250	699	230	253	129	91	148	250	382	165	200	110	55	62
300	796	260	278	156	108	200	300	434	178	273	148	71	99
350	884	308	318	156	108	200	300	474	190	273	148	71	131
400	1019	354	354	164	111	241	400	518	216	271	110	86	186

HANDLEVERS - SERIES HP



DN	E	F	L	A	N	H1	L	LEVER TYPE
40	12	25	280	115,5	70	HP 1-100	43	90
50	12	25	280	115,5	70	HP 1-100	46	90
65	12	25	280	115,5	70	HP 1-100	46	90
80	12	25	280	115,5	70	HP 1-100	52	90
100	12	25	280	115,5	70	HP 1-100	56	125

APPROVALS - QA

Quality assurance system

The butterfly valves are designed and manufactured in accordance with ISO 9001/EN 29001 and module H of the European legislation for Pressure Equipment Directive.

Type approvals

The butterfly valves are approved for applications in a number of market areas by international classifications societies. The most important ones are listed in the following table.

MARKET AREA

- Ship building
- Fire safe
- General approval confirming for standard compliance

TYPE APPROVALS

- Lloyds RS
- American Bureau of Shipping
- According API 607 5th edition
- EN 593
- API 609

Material inspection certificates

Valve parts, eg body, disc, can be supplied on request with inspection certificates of the material supplier (foundry) according EN 10204, 3.1 subject to material type. Other specifications are possible.

Testing inspection certificates

All valves are pressure and functional tested after assembly according to internal quality procedures which comply with international standards. Inspection certificates according EN 10204, 3.1, 3.2 can be submitted on request.