

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

**armat**  
spol. s r.o.  
MADE OF STAINLESS ...



BUREAU  
VERITAS



**Lloyd's  
Register**

PED 97/23/CE



Reinforced lug from DN200 to DN1400



- Size :** DN 32 to 1400 mm
- Ends :** Between flanges PN10/16
- Min Temperature :** - 10°C ( with EPDM seat )
- Max Temperature :** + 110°C ( with EPDM seat )
- Max Pressure :** 16 Bars up to DN300
- Specifications :** Long neck for isolation  
Lug type  
Full crossing stem  
ISO 5211 mounting pad

**Materials :** Ductile iron EN GJS 500-7 body

\*the installation defects and wear defects are not covered by the guarantee

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

**SPECIFICATIONS :**

Long neck for isolation  
 ISO 5211 mounting pad  
 Lug type ( reinforced Lug from DN200 to DN1400 )  
 Between flanges PN10  
 On request, between flanges PN16 or Class 150 (PN20)  
 Full crossing stem  
 Removable seat  
 Stainless steel disc up to DN100  
 Ductile iron black rilsan coated disc +/- 300 µ over DN100 for 1160 type  
 Ductile iron epoxy coated disc +/- 40 µ from DN125 to 300, ductile iron black rilsan coated disc +/- 300 µ over for 1162 type  
 9 positions lever with locking device up to DN200, stop in all positions but non lockable from DN250 to 300  
 Rilsan coated body color RAL 5024 , 250-300 microns thickness  
 Stem extension 75 mm length ( option )  
 Square lever 30x30 mm for special key ( option )

**USE :**

Fluids : Depending of the seat  
 For temporary using, can be used at the end of the pipe ( 6 bars max )  
 Min and max Temperature Ts : Depending of the seat  
 Max Pressure Ps : 16 bars up to DN300 , 10 bars over

**RANGE :**

With lever from DN 32 to DN 300  
 Naked stem from DN 350 to DN1400  
 IP65 Gear box possible ( **Ref. 1197** ) from DN 32 to DN 1400  
 IP65 chain gear box possible ( **Ref. 1194** ) from DN 32 to DN 500  
 On request, stem extension with special length ( **Ref. 98665** )  
 On request, CF8M stainless steel handle and bolting **Ref. 9831250-9831264**

**ENDS:**

Between flanges PN10 ( on request PN16 or Class 150 PN20 )

**TORQUE VALUES ( in Nm with safety coefficient of 30 % included ) at 16 Bars :**

DN	32/40	50	65	80	100	125	150	200	250	300
Torque ( Nm )	9	11	20	29	47	82	130	210	360	475

**TORQUE VALUES ( in Nm with safety coefficient of 30 % included ) at 10 Bars :**

DN	350	400	450	500	600	700	750	800	900	1000	1100	1200	1300	1400
Torque ( Nm )	640	1176	1450	2150	2850	4600	5800	7400	11000	13600	14200	16400	17800	19200

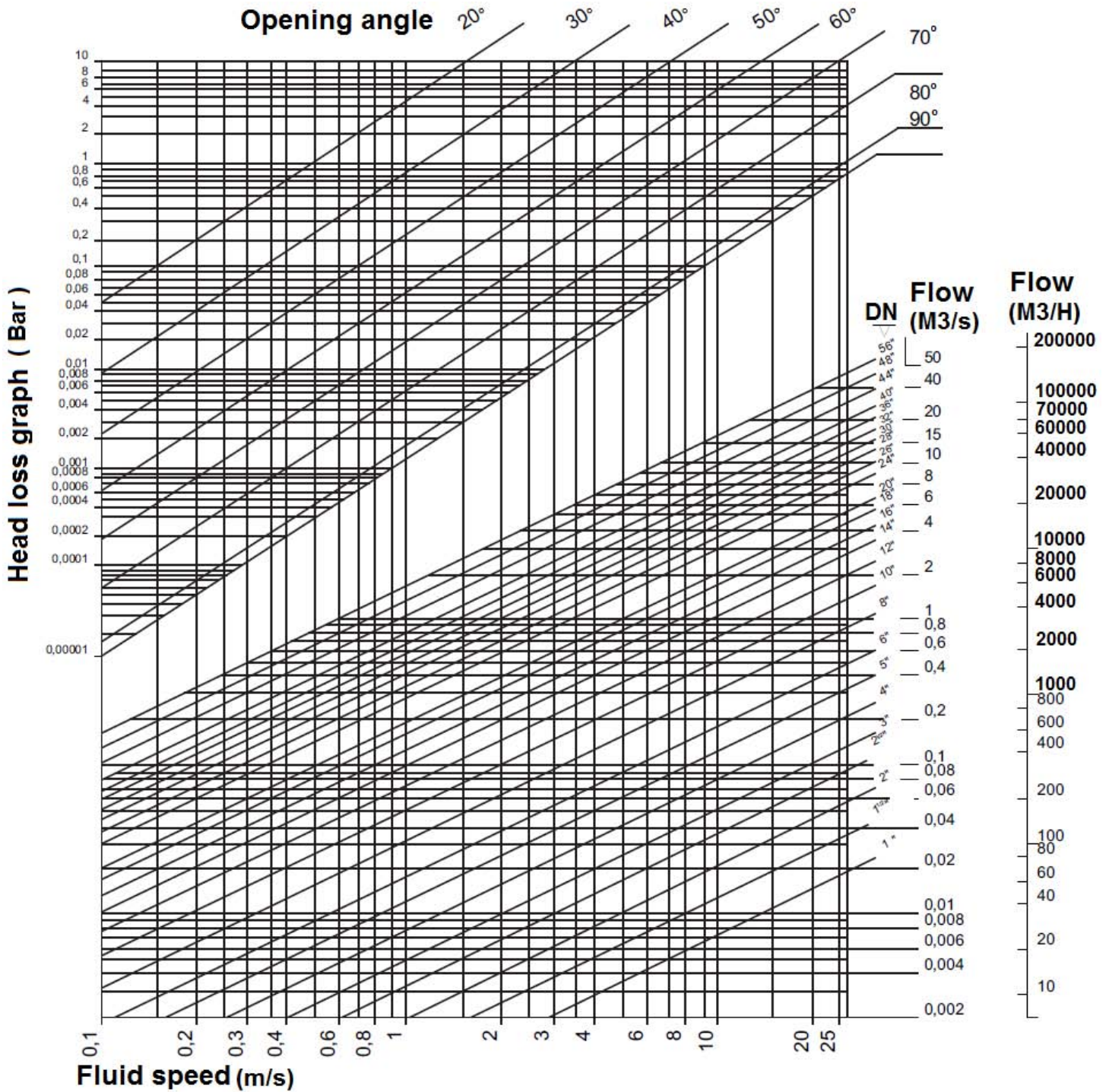
**FLOW COEFFICIENT Kvs ( m<sup>3</sup> / h ) :**

DN	32/40	50	65	80	100	125	150	200	250	300	350	400
Kvs ( m <sup>3</sup> /h )	70	109	200	334	551	901	1427	2383	3825	5659	8177	10659

DN	450	500	600	700	800	900	1000	1200	1300	1400
Kvs ( m <sup>3</sup> /h )	12562	16021	22737	32443	43263	53873	64407	97341	119770	129808

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

HEAD LOSS GRAPH :



**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

**COMPATIBILITY :**

Types	Seat	Min/Max Temperature	Applications	Not Advisable
<b>1160</b>	EPDM	-10°C + 110°C	Cold and hot water	Hydrocarbon, steam, gas, acids, oil, freon
<b>1162</b>	NBR	-10°C + 90°C	Non aromatic hydrocarbon, fuel, water, natural gas, grease, oil, compressed air, glycol	Gas in atmospheric condition, petrol, premium gasoline, acetone, acetic acid and solvent
<b>1163</b>	EPDM	-10°C + 110°C	Cold and hot water, sea water, alcohol, hydroxyd of soda, demineralized water, mercury, alcalins	Hydrocarbon, steam, gas, acids, oil, Freon
<b>1164</b>	FKM	-5°C + 180°C	Acids, grease, hydrocarbon, petrol, premium gasoline, Argon, glycerin, oil, carbon dioxide, biogas	Steam and hot water ( 130°C max), freon, amoniac, acetylene
<b>1168</b>	White NBR	-10°C + 90°C	Oil, grease	Gas in atmospheric condition, petrol, premium gasoline, acetone, acetic acid and solvent

The above information are given with sincerity and are result of a long experience. Each case is particular and they can not engage our responsibility. We advise to proceed with real condition use trials.

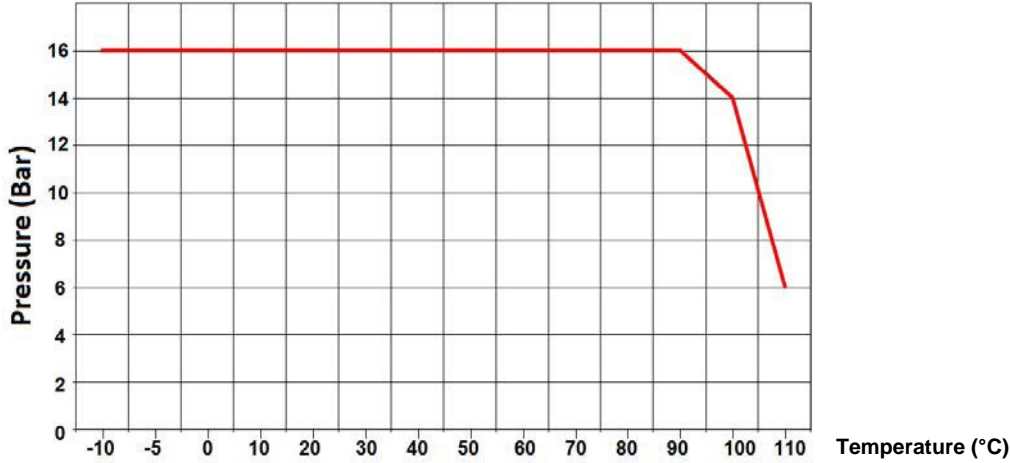
**OTHER MODELS ON REQUEST :**

BODY	STEM	DISC	SEAT	HANDLING
Cast iron EN GJL-250	SS 420	Cast iron EN GJL-250	EPDM	Aluminium lever
Ductile iron EN GJS-500-7	SS 304	Ductile iron ENGJS-500-7	EPDM HT	S.S. lever
ASTM A216 WCB	SS 316	ASTM A216 WCB	NBR	Square
SS 304	Hastelloy	SS 304	FKM	Gear box
ASTM A351 CF8M	Other alloy	ASTM A351 CF8M	Hypalon®	S.S. gear box
Bronze aluminium		S.S. polish	Silicone	Chain gear box
Aluminium		Aluminium	Silicone food	Electric
Bronze		Cupro aluminium	Silicone steam	Pneumatic
Other alloy		Bronze	White NBR	Stem extension on request
Special		Uranus B6	Carbox. NBR	
Coated		Monel	Natural rubber	
Dry cleaned		Inconel	Neoprene	
Special painting		Hastelloy	Nordel	
		Duplex	Glued seat	
	Halar coated	Vulcanized		

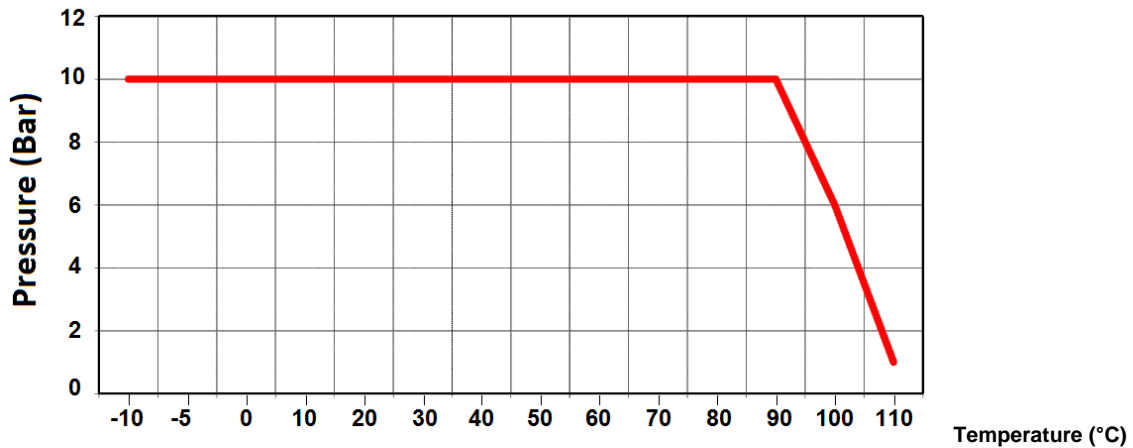
**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

PRESSURE / TEMPERATURE GRAPH (STEAM EXCLUDED) :

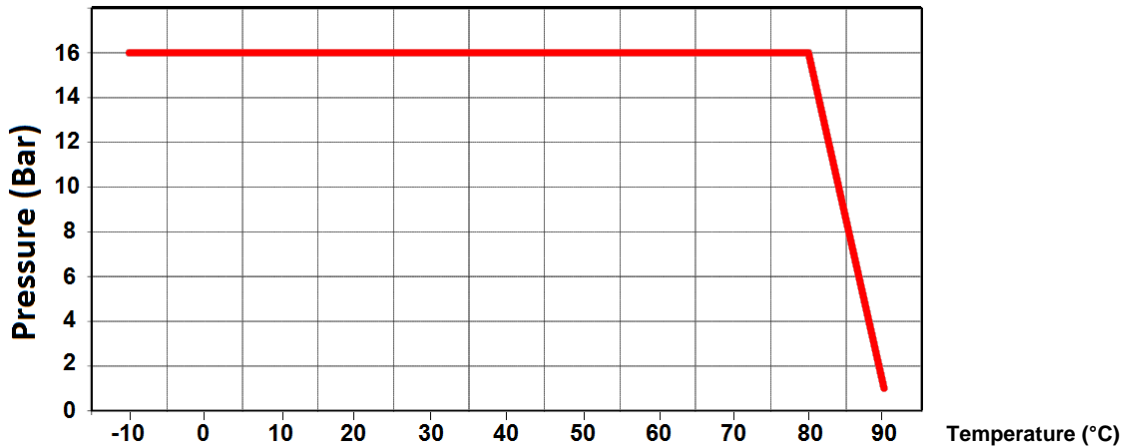
EPDM seat for Ps 16 BAR DN40-300 :



EPDM seat for Ps 10 BAR DN350-1200 :



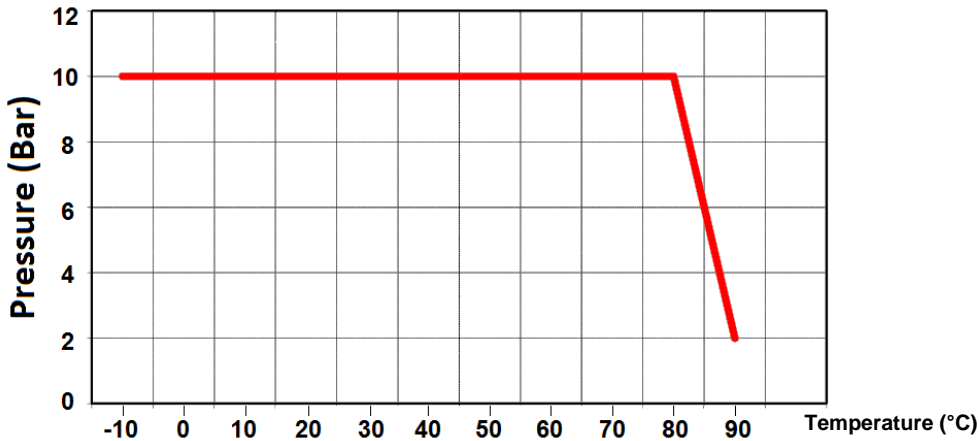
NBR seat for Ps 16 BAR DN40-300 :



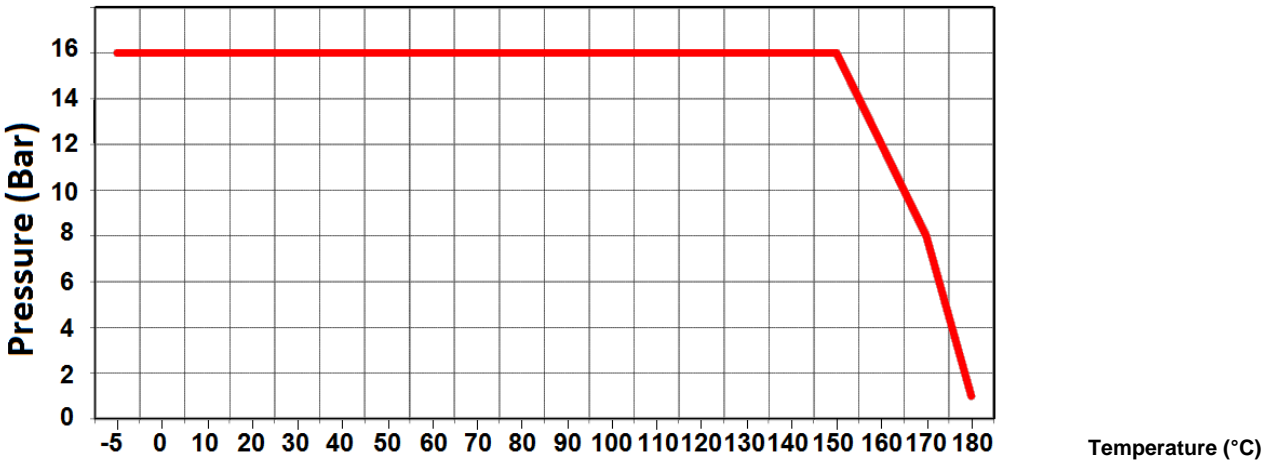
**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

PRESSURE / TEMPERATURE GRAPH (STEAM EXCLUDED) :

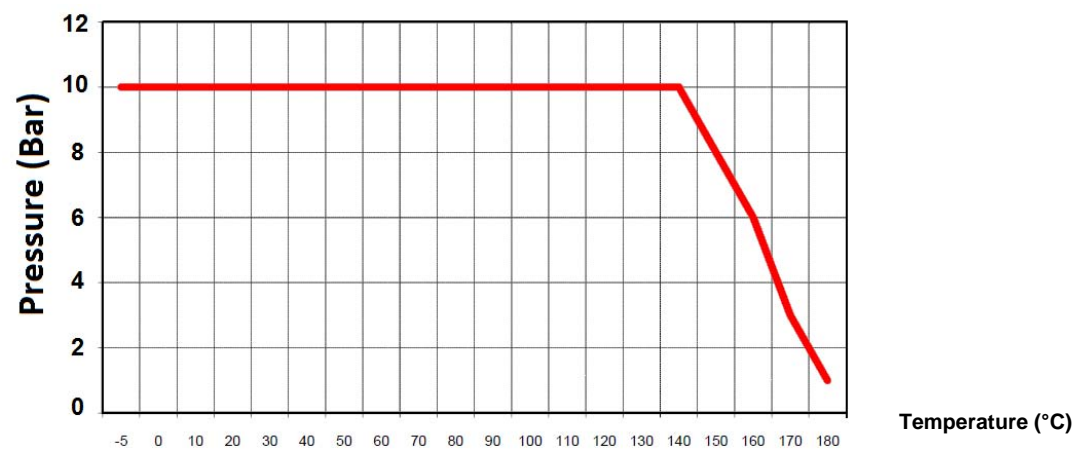
*NBR seat for Ps 10 BAR DN350-1200 :*



*FKM seat for Ps 16 BAR DN40-300 :*

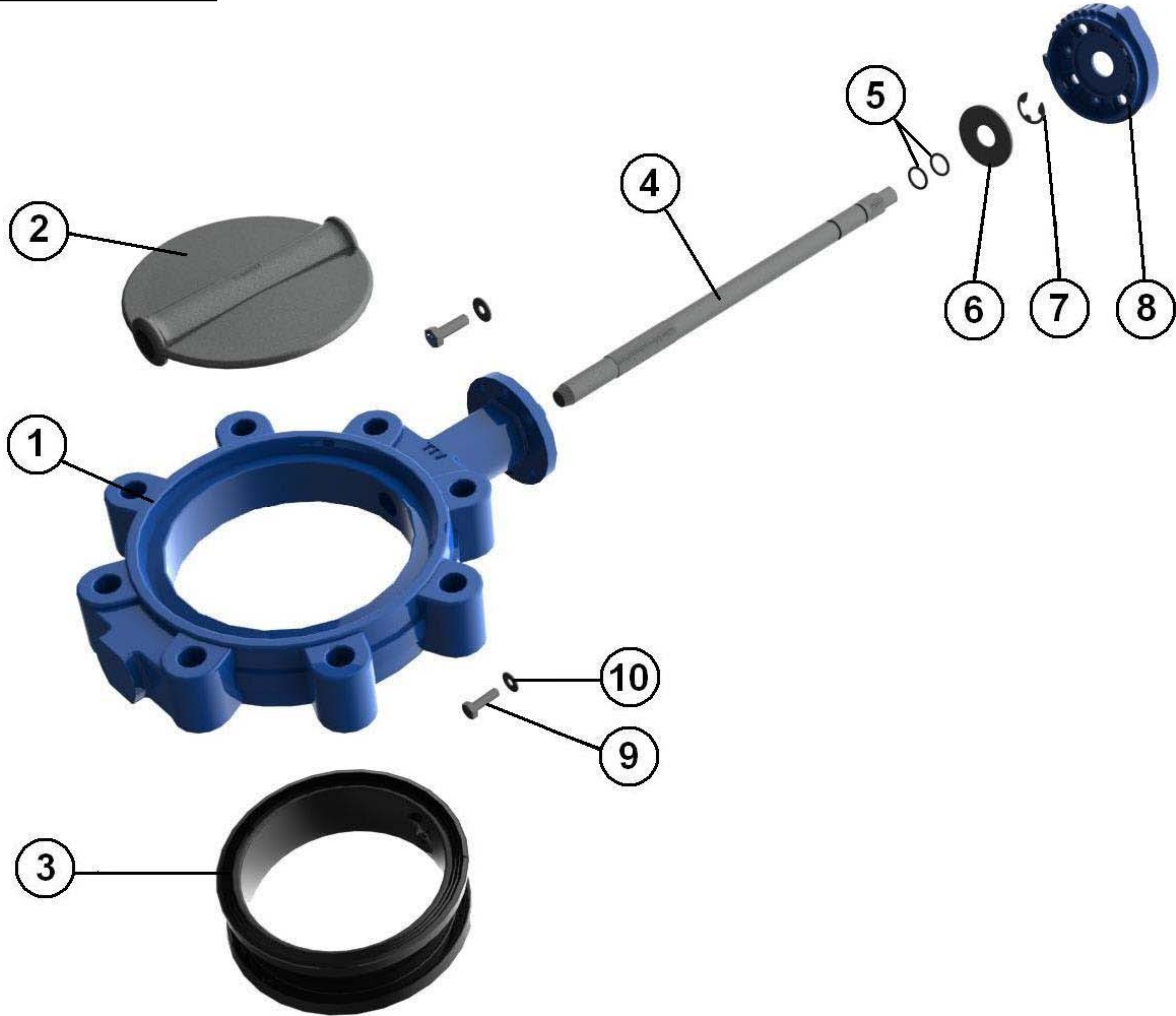


*FKM seat for Ps 10 BAR DN350-1200 :*



**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

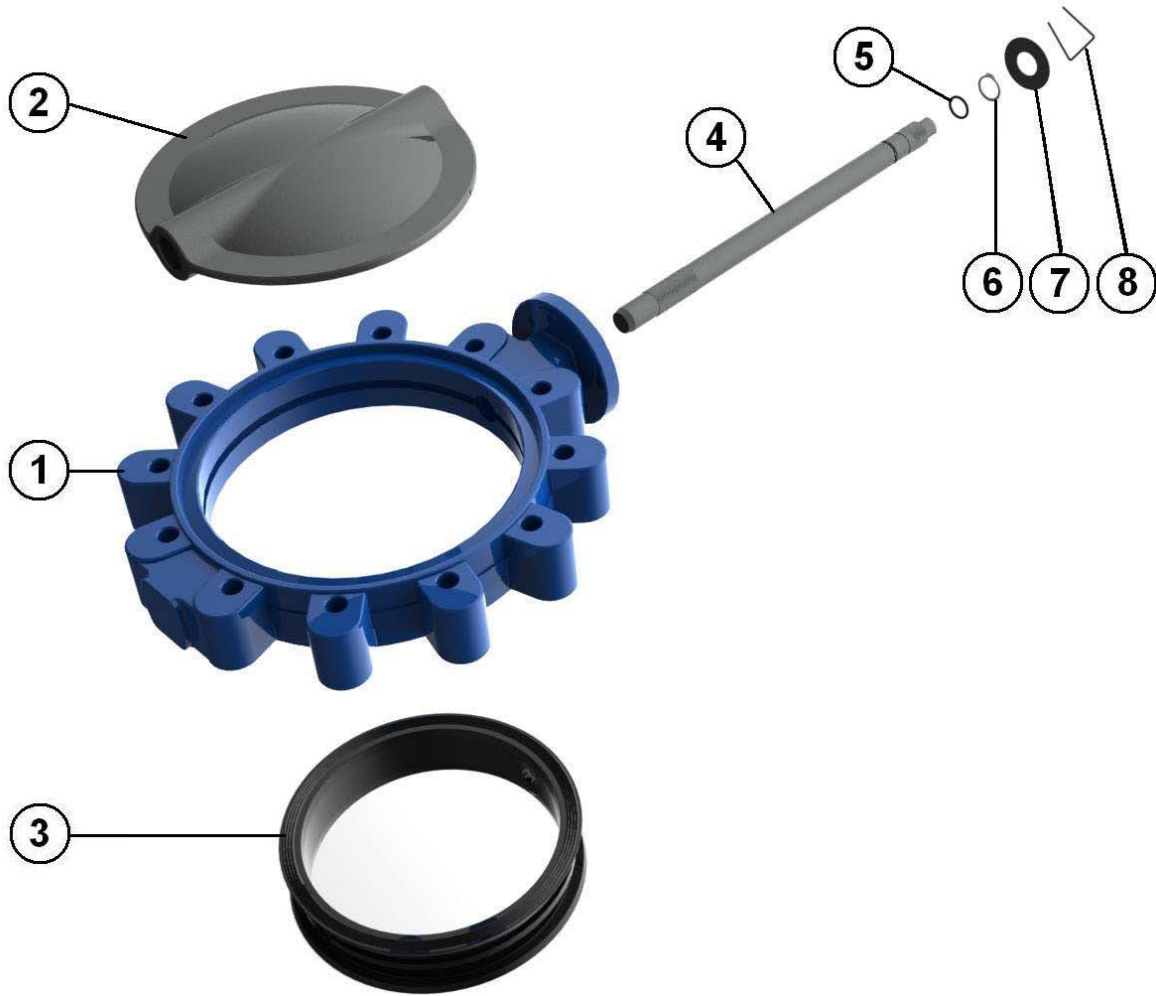
MATERIALS DN 32 - 200 :



Item	Designation	Materials				
		1160	1162	1163	1164	1168
1	Body	Ductile iron EN GJS-500-7				
2	Disc DN32-100	ASTM A351 CF8M				
2	Disc DN125-200	EN GJS 500-7	EN GJS 500-7	ASTM A351 CF8M		
3	Seat	EPDM	NBR	EPDM	FKM	White NBR
4	Stem	SS 420	SS 420	SS 304	SS 304	SS 304
5	O ring	EPDM	NBR	EPDM	FKM	NBR
6	Ring	Steel	Steel	Steel	Steel	Steel
7	Circlips	Steel	Steel	Steel	Steel	Steel
8	Plate	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
9	Plate screw	5.6	5.6	5.6	5.6	5.6
10	Washer	Steel	Steel	Steel	Steel	Steel
	Lever	Aluminium ADC10 with epoxy painting 50µ thickness				

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

MATERIALS DN 250 - 400 :

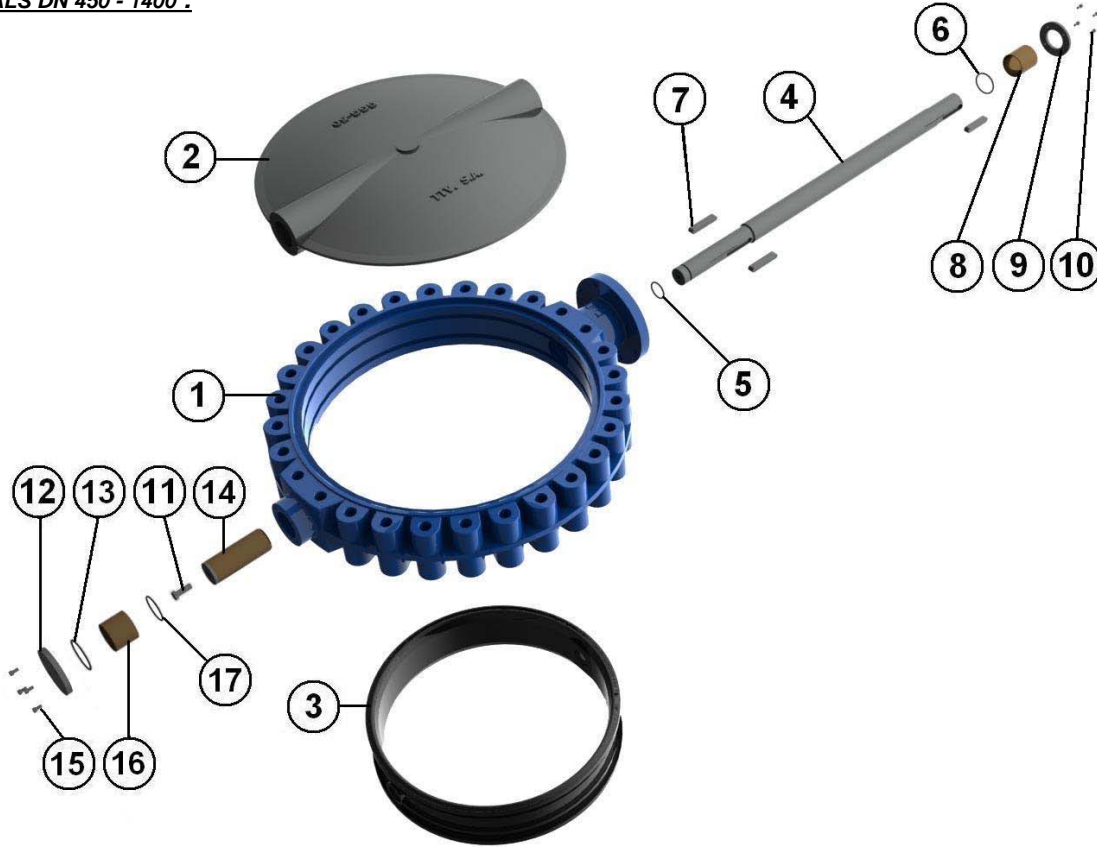


Item	Designation	Materials				
		1160	1162	1163	1164	1168
1	Body	Ductile iron EN GJS-500-7				
2	Disc	ENGJS500-7	ENGJS500-7	ASTM A351 CF8M		
3	Seat	EPDM	NBR	EPDM	FKM	White NBR
4	Stem	SS 420	SS 420	SS 304	SS 304	SS 304
5	O ring	EPDM	NBR	EPDM	FKM	NBR
6	Circlips	Steel	Steel	Steel	Steel	Steel
7	Ring	Steel	Steel	Steel	Steel	Steel
8	Spring	Steel	Steel	Steel	Steel	Steel
Lever ( up to DN300 )		Ductile iron EN GJS-500-7 with epoxy painting 50µ thickness				



**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

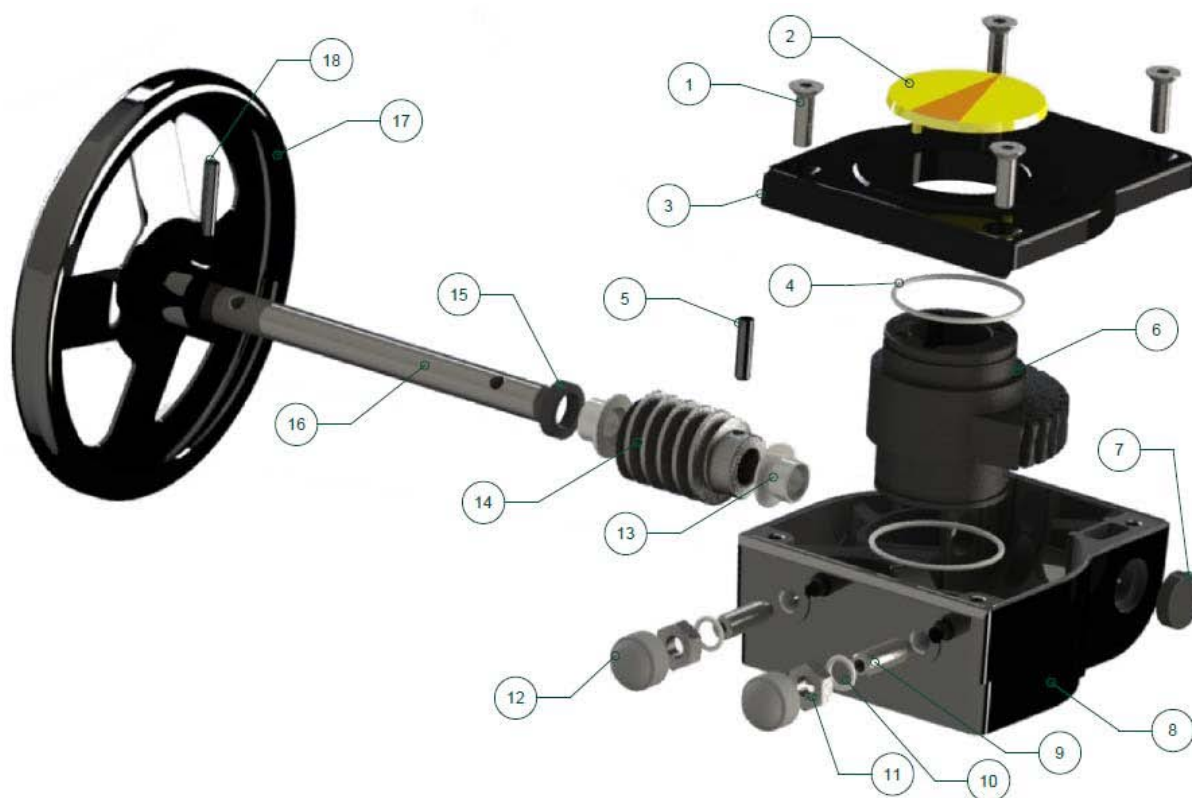
MATERIALS DN 450 - 1400 :



Item	Designation	Materials				
		1160	1162	1163	1164	1168
1	Body	Ductile iron EN GJS-500-7				
2	Disc	ENGJS500-7	ENGJS500-7	ASTM A351 CF8M		
3	Seat	EPDM	NBR	EPDM	FKM	White NBR
4	Stem	SS 420	SS 420	SS 304	SS 304	SS 304
5	O ring	EPDM	NBR	EPDM	FKM	NBR
6	O ring	EPDM	NBR	EPDM	FKM	NBR
7	Pin	ST - 60	ST - 60	ST - 60	ST - 60	ST - 60
8	Socket	BRONZE	BRONZE	BRONZE	BRONZE	BRONZE
9	Ring	F1110	F1110	F1110	F1110	F1110
10	Screw	5.6	5.6	5.6	5.6	5.6
11	Screw	5.6	5.6	5.6	5.6	5.6
12	Cap	F1110	F1110	F1110	F1110	F1110
13	O ring	EPDM	NBR	EPDM	FKM	NBR
14	Socket	F1110	F1110	F1110	F1110	F1110
15	Screw	5.6	5.6	5.6	5.6	5.6
16	Socket	BRONZE	BRONZE	BRONZE	BRONZE	BRONZE
17	O ring	EPDM	NBR	EPDM	FKM	NBR

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

GEARBOX MATERIALS REF. 1197 :

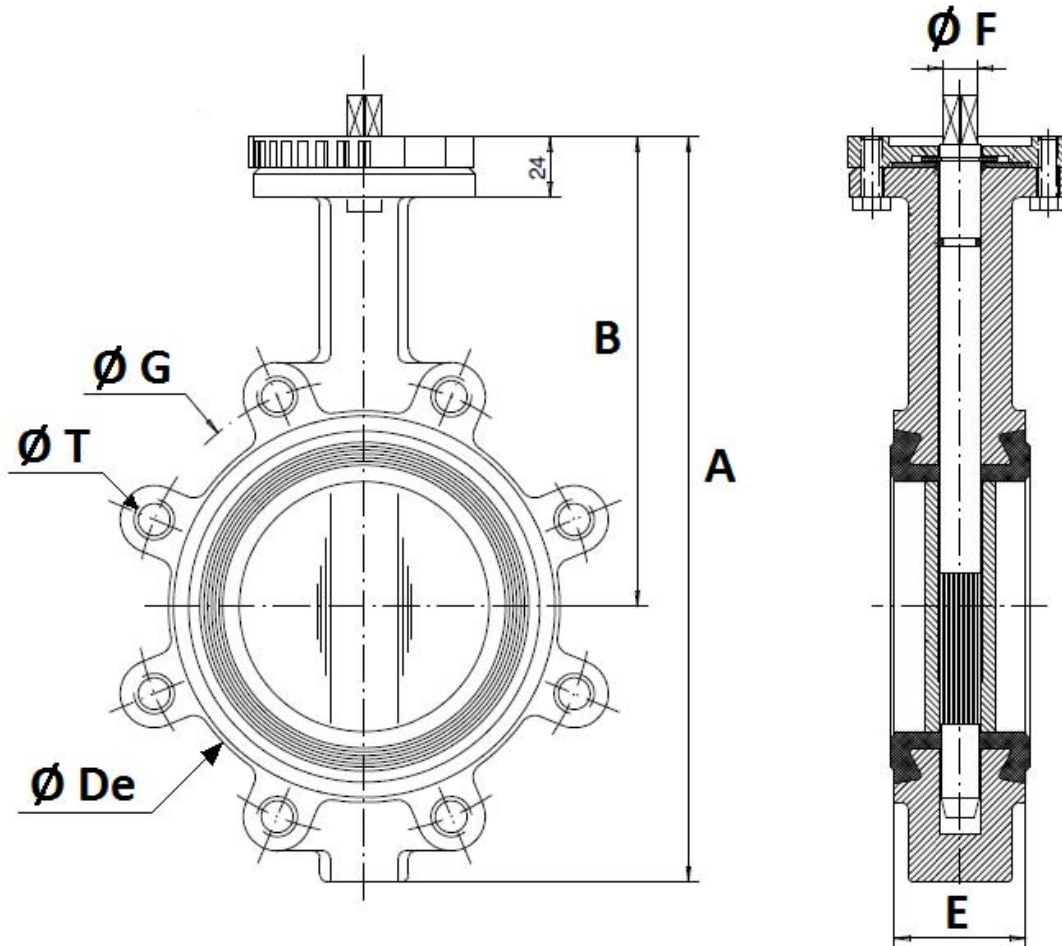


Item	Designation	Materials Ref. 1197
1	Screw	SS 304
2	Pointer	Polypropylene
3	Bonnet	Aluminium
4	O ring	NBR
5	Pin	Carbon steel
6	Quadrant	Ductile iron EN GJS-400-15
7	Gasket	NBR
8	Body	Aluminium
9	Adjusting bolt	Carbon steel
10	Washer	Galvanized steel
11	Nut	Galvanized steel
12	Cap	NBR 70
13	Bushing	Bronze
14	Worm	Carbon steel 45
15	Gasket	NBR
16	Stem	Carbon steel 45
17	Handwheel	Carbon steel
18	Pin	Carbon steel

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

SIZE PN16 ( in mm ) :

Valves DN 32 - 150 :

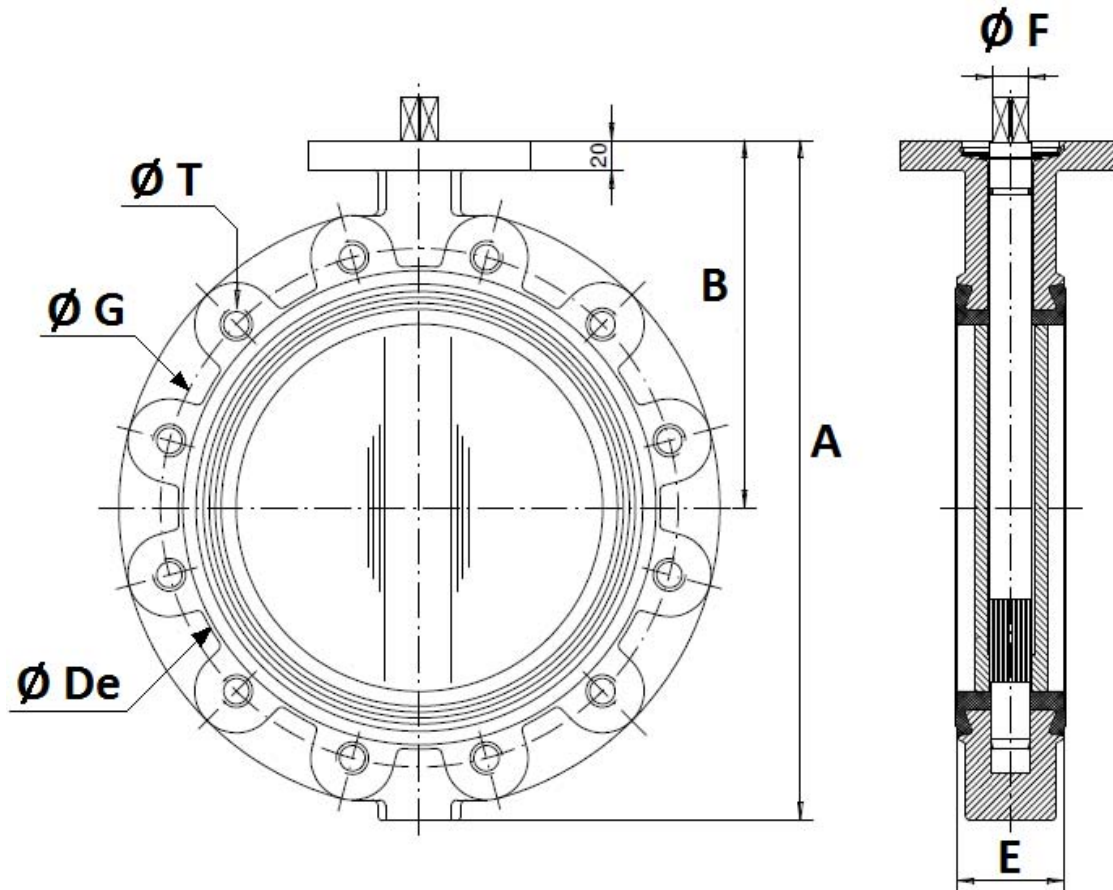


DN	32/40	50	65	80	100	125	150
A	205	226	246	259	295	325	352
B	140	156	161	169	187	206	215
Ø De	83	102	115	136	157	192	220
E	33	43	46	46	52	56	56
Ø F	9.5	9.5	12	14	14	17	17
Ø G	100/110	125	145	160	180	210	240
Ø T	4xM16	4xM16	4xM16	8xM16	8xM16	8xM16	8xM20
Weight (Kg)	2.7	4.1	4.7	6.1	7.9	10.9	11.85

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

SIZE PN10 ( in mm ) :

Valves DN 200 - 400 :

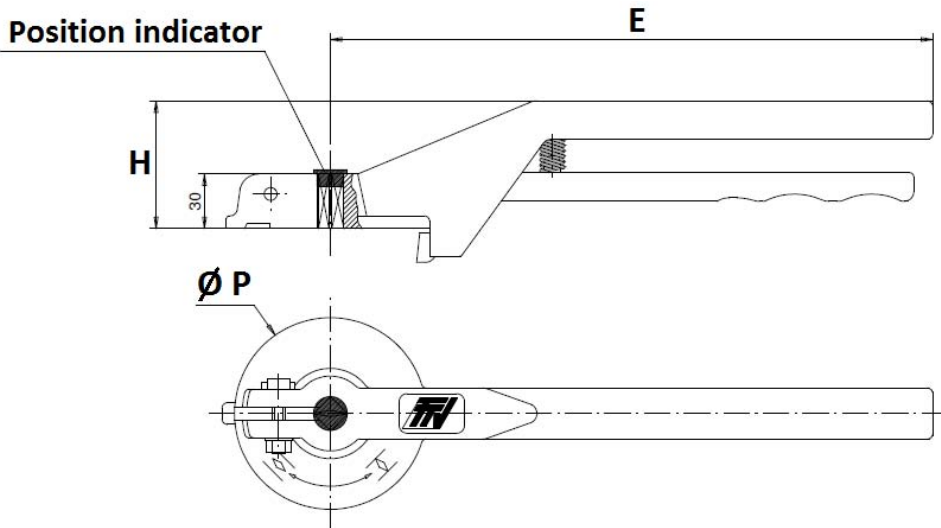


DN	200	250	300	350	400
A	422	460	523	570	644
B	255	248	280	300	340
$\varnothing De$	275	329	378	436	487
E	60	68	78	78	102
$\varnothing F$	21	23	26.5	26.5	33
$\varnothing G$	295	350	400	460	515
$\varnothing T$	8xM20	12xM20	12xM20	16xM20	16xM24
Weight (Kg)	18.5	31.8	47.80	53	77

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

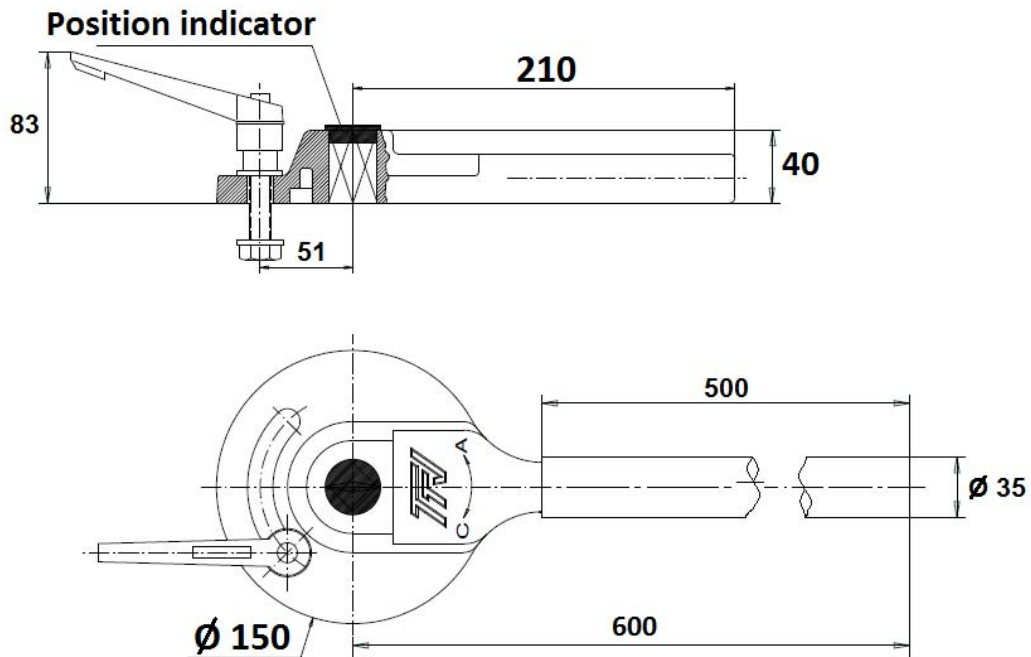
STANDARD LEVERS SIZE ( in mm ) :

**DN 32 – 200 :**



DN	32-100	125-200
E	205	330
H	57	70
Ø P	88	105

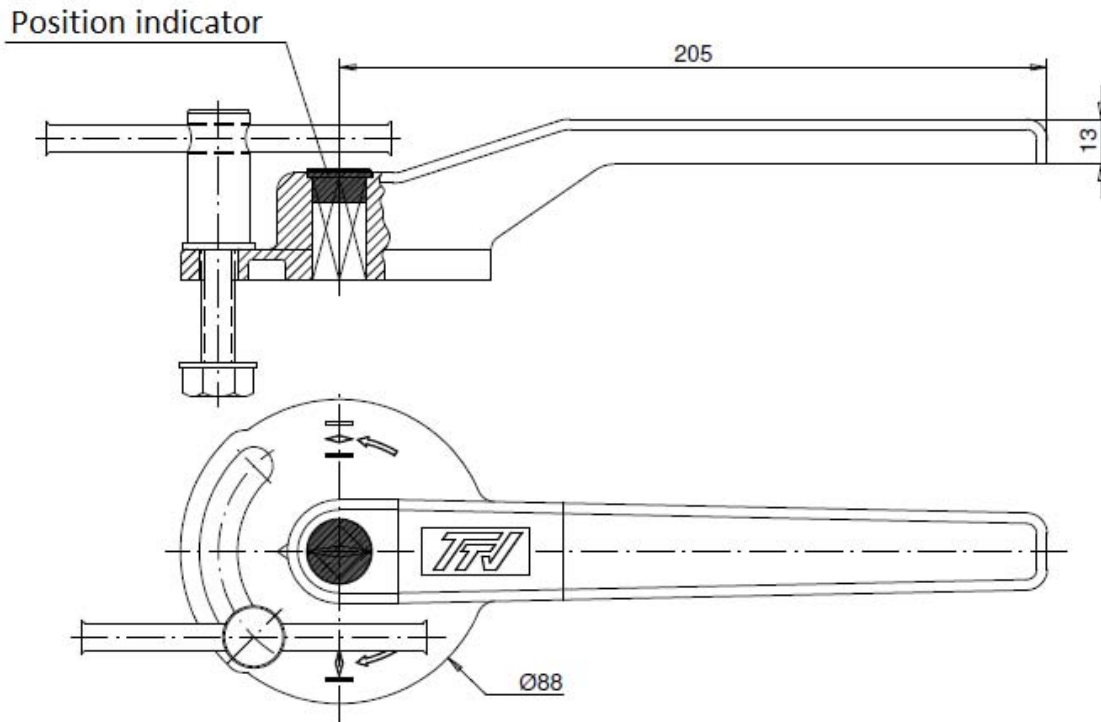
**DN 250 – 300 :**



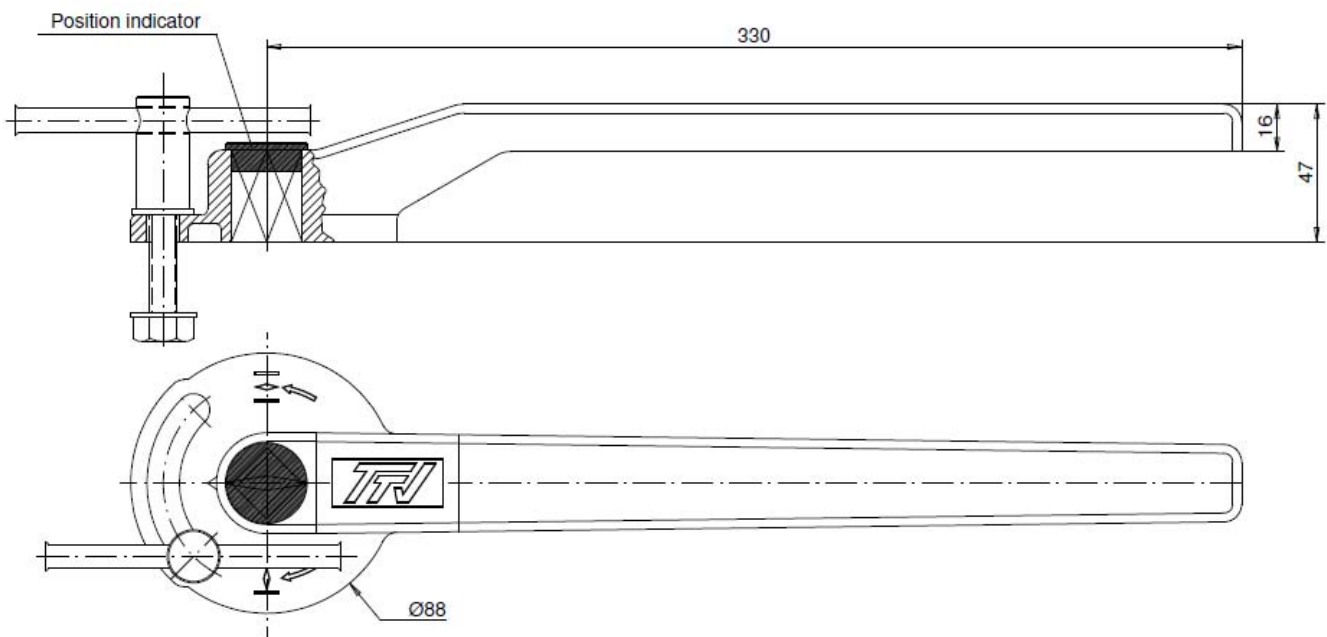
**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

ASTM A351 CF8M STAINLESS STEEL LEVERS SIZE ( in mm ) ( ON REQUEST ) :

**DN 40 - 100**



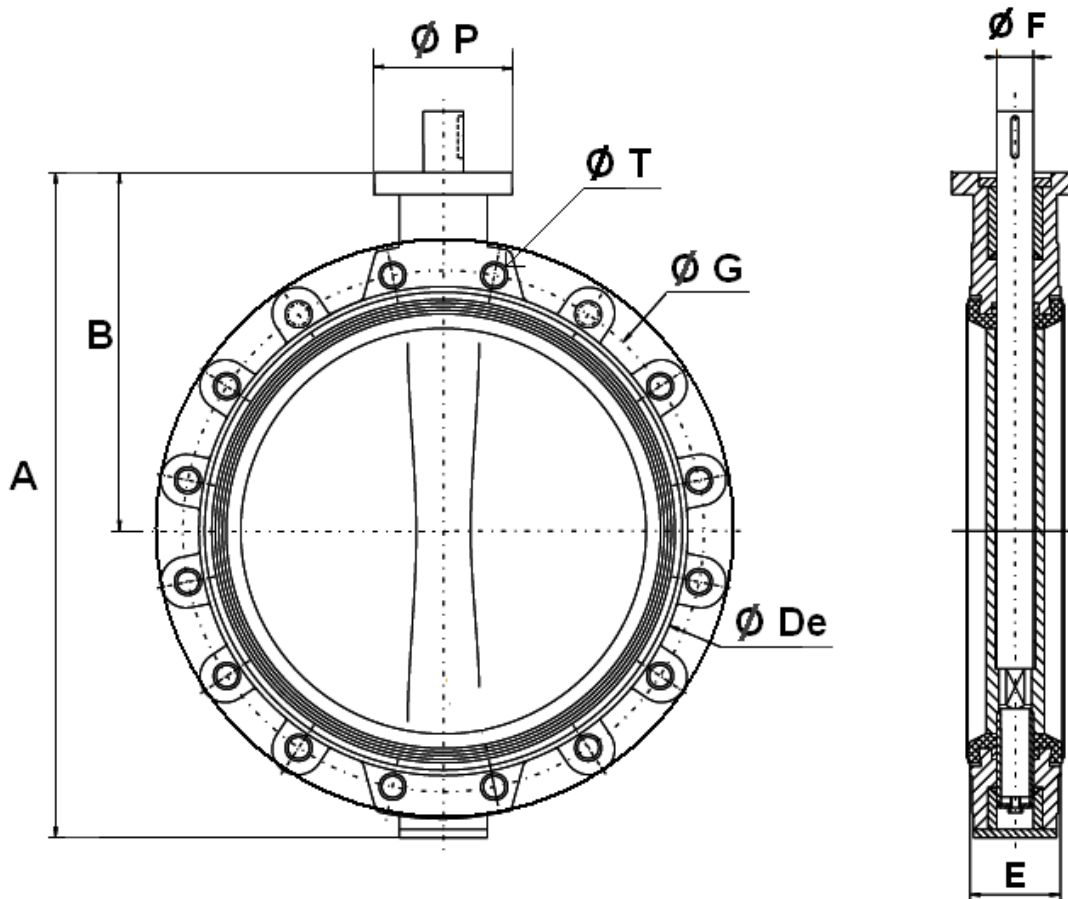
**DN 125 - 200**



**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

SIZE PN10 ( in mm ) :

Valves DN 450 - 1400 :

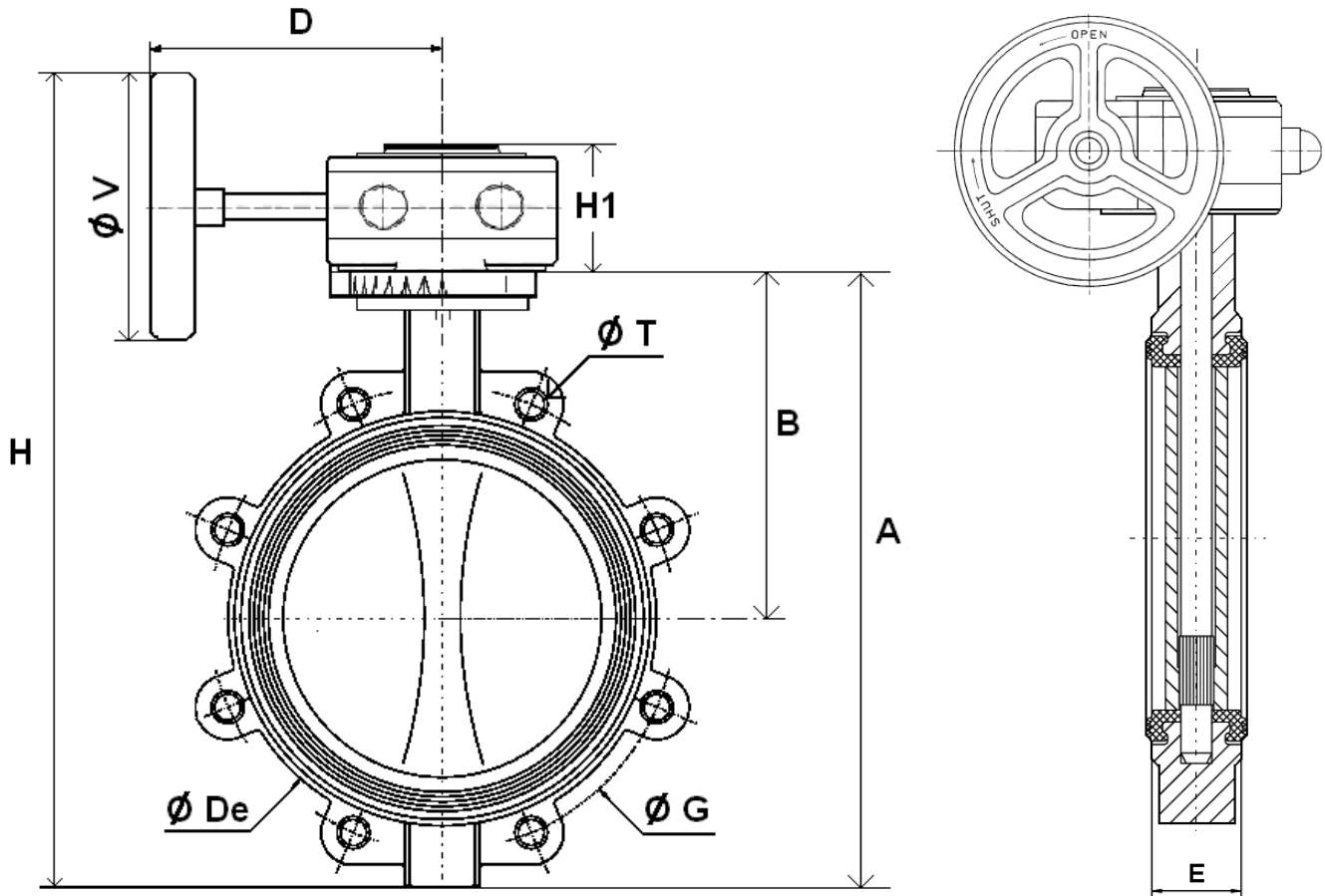


DN	450	500	600	700	750	800	900	1000	1100	1200	1300	1400
A	738	822	965	1100	1150	1248	1325	1457	1580	1720	1910	1990
B	394	440	507	575	600	655	685	754	815	873	1005	1025
Ø De	538	593	695	804	860	911	1010	1124	1225	1330	1460	1530
E	114	127	154	165	190	190	203	216	216	254	360	360
Ø F	50	50	60	60	65	65	80	80	80	100	120	120
Ø G	565	620	725	840	900	950	1050	1160	1270	1380	-	1590
Ø P	175	175	250	300	300	300	300	300	300	300	350	350
Ø T	20xM24	20xM24	20xM27	24xM27	24xM30	24xM30	28xM30	28xM33	32xM33	32xM36	-	36xM39
Weight (Kg)	110	135	210	290	360	450	550	760	1020	1460	2330	2450

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

SIZE PN10 ( in mm ) :

Valves with gear box DN 32 - 400 :



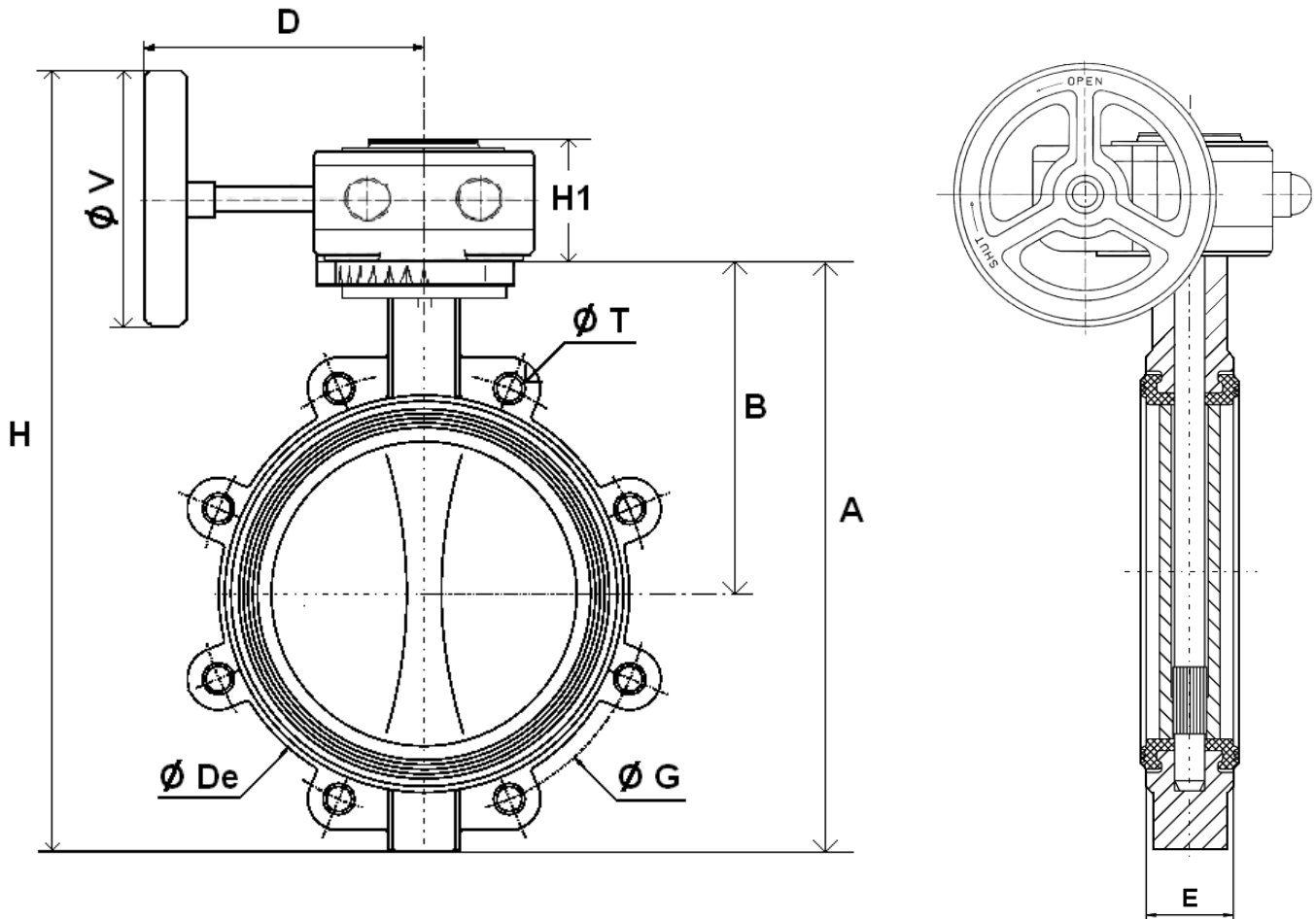
DN	32/40	50	65	80	100	125	150	200	250	300	350	400
A	205	226	246	259	295	325	352	422	460	523	570	644
B	140	156	161	169	187	206	215	255	248	280	300	340
$\phi De$	83	102	115	136	157	192	220	275	329	378	436	487
D	120	120	120	120	120	136	136	136	223	223	345	345
E	33	43	46	46	52	56	56	60	68	78	78	102
H	303	322	339	354	392	455	482	566	648	710	829	909
H1	58	58	58	58	58	58	58	58	74	74	98	98
$\phi G$	100/110	125	145	160	180	210	240	295	350	400	460	515
$\phi T$	4xM16	4xM16	4xM16	8xM16	8xM16	8xM16	8xM20	8xM20	12xM20	12xM20	16xM20	16xM24
$\phi V$	140	140	140	140	140	200	200	200	300	300	400	400
Weight ( Kg )	4.05	5.45	6.05	7.45	9.25	12.65	13.6	20.25	35.8	51.8	62.5	86.5



**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

SIZE PN10 ( in mm ) :

Valves with gear box DN 450 - 1400 :

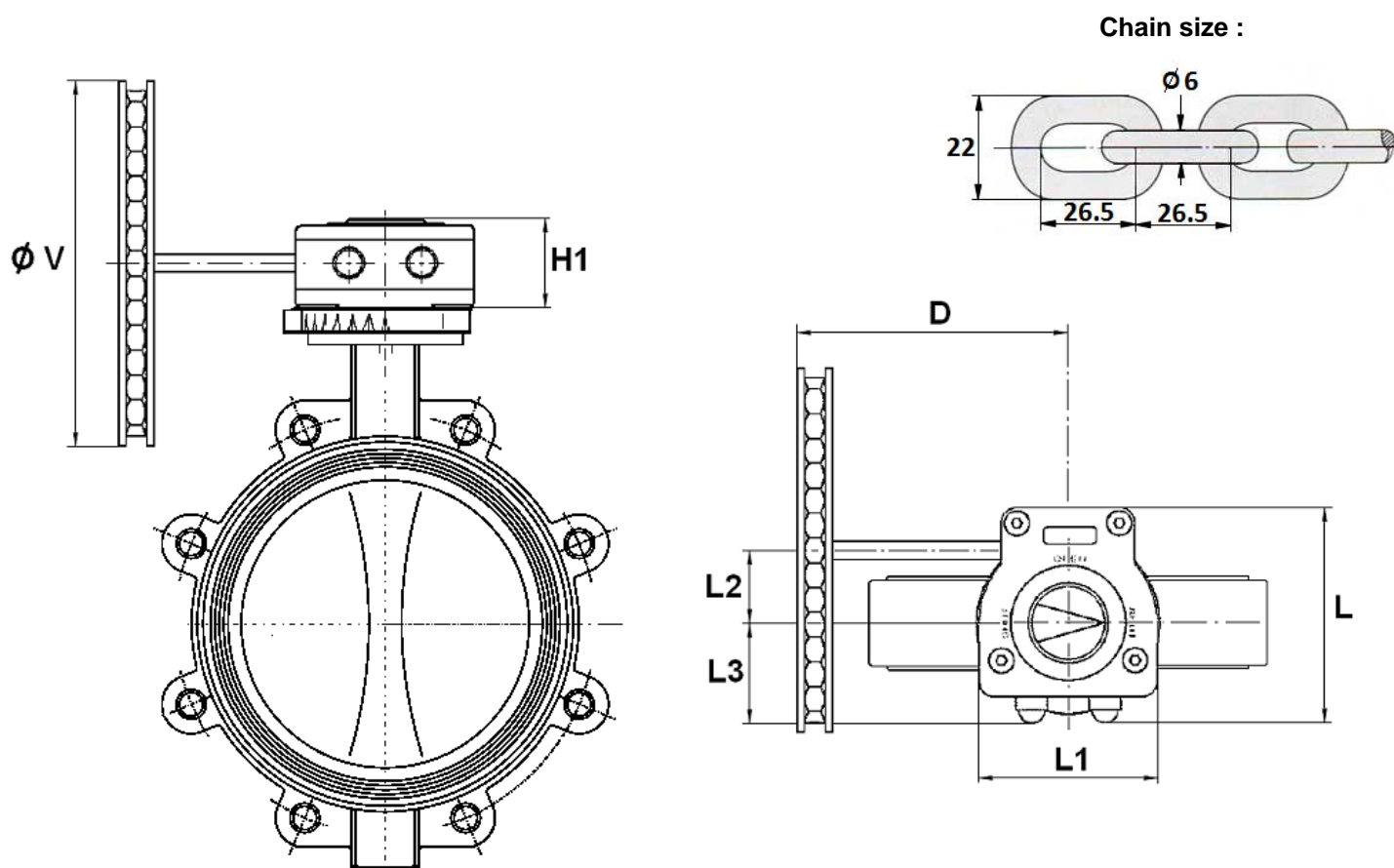


DN	450	500	600	700	750	800	900	1000	1100	1200	1300	1400
A	738	822	965	1100	1150	1248	1325	1457	1580	1720	1910	1990
B	394	440	507	575	600	655	685	754	815	873	1005	1025
Ø De	538	593	695	804	860	911	1010	1124	1225	1330	1460	1530
D	364	386	421	440	440	438	492	492	492	550	605	605
E	114	127	154	165	190	190	203	216	216	254	360	360
H	1083	1171	1376	1409	1459	1657	1688	1820	1943	2178	2260	2429
H1	90	98	122	117	117	117	125	125	125	115	178	178
Ø G	565	620	725	840	900	950	1050	1160	1270	1380	-	1590
Ø T	20xM24	20xM24	20xM27	24xM27	24xM30	24xM30	28xM30	28xM33	32xM33	32xM36	-	36xM39
Ø V	600	600	700	500	500	700	600	600	600	800	700	700
Weight ( Kg )	128.8	161.8	248.3	339	409	501.3	624.8	834.8	1094.8	1546.5	2562	2682

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

SIZE PN10 ( in mm ) :

Valves with chain gear box :



DN	32/40	50	65	80	100	125	150	200	250	300	350	400	450	500
D	120	120	120	120	120	126	126	126	214	214	331	331	350	365
H1	58	58	58	58	58	58	58	58	74	74	98	98	90	98
L	128	128	128	128	128	128	128	128	175	175	224	224	232	267
L1	100	100	100	100	100	100	100	100	142	142	185	185	204	227
L2	50	50	50	50	50	50	50	50	61	61	80	80	86	104.5
L3	56	56	56	56	56	56	56	56	80	80	98	98	100	110
$\varnothing V$	160	160	160	160	160	210	210	210	300	300	400	400	500	500
Weight (Kg)	5.05	6.45	7.05	8.45	10.25	13.65	14.6	21.25	38.6	54.6	67.3	91.3	136.2	168.7

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**
**GEARBOX SPECIFICATIONS :**

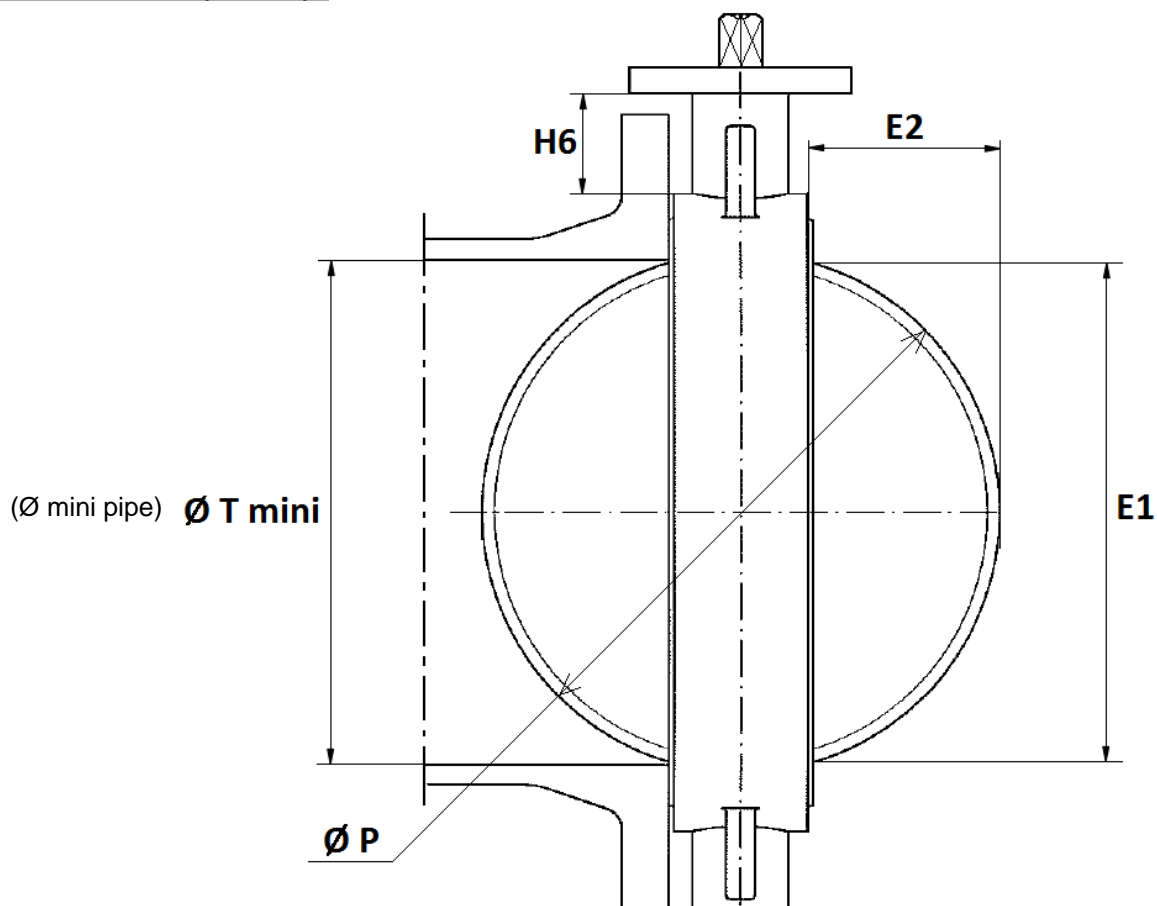
DN	32/50	65	80/100	125/150	200	250	300	350
Ref.	1197050	1197065	1197100	1197150	1197200	1197250	1197300	1197350
Ratio factor	37 : 1	37 : 1	37 : 1	37 : 1	37 : 1	36 : 1	36 : 1	50 : 1
Turns number for closing / opening	9.25	9.25	9.25	9.25	9.25	9	9	12.5
Input torque (Nm)	12.5	12.5	12.5	12.5	12.5	23	23	50
Output torque (Nm)	300	300	300	300	300	675	675	1310

DN	400	450	500	600	700	800	900	1000
Ref.	1197400	1197451	1197501	1197601	1197700	1197800	-	-
Ratio factor	50 : 1	38 : 1	55 : 1	52 : 1	208 : 1	208 : 1	312 : 1	312 : 1
Turns number for closing / opening	12.5	9.5	13.75	13	52	52	78	78
Input torque (Nm)	50	86	96	160	65	65	80	80
Output torque (Nm)	1310	1620	2640	4160	6800	6800	12500	12500

DN	1200	1300	1400
Ratio factor	702 : 1	720 : 1	720 : 1
Turns number for closing / opening	175.5	180	180
Input torque (Nm)	50	91	91
Output torque (Nm)	17000	32000	32000

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

NECK AND DISC SIZE ( in mm ) :



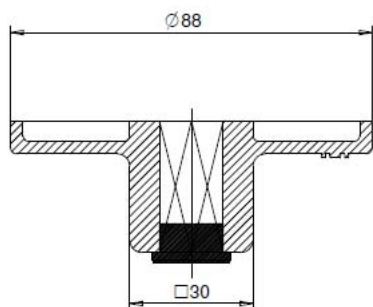
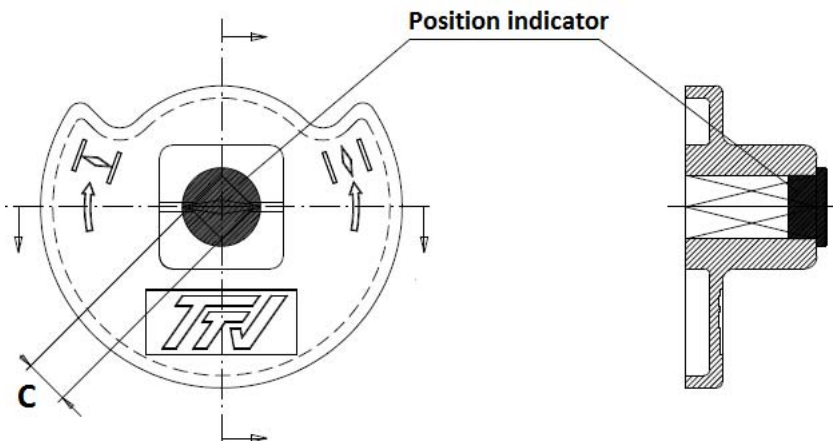
DN	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
E1	23	24.5	46	65	85	109	136	188	238	289	331	385	424	479	575
E2	3.5	3.5	9.5	17	24	33.5	45.5	69	90	110.5	131	148	162.5	184	221
H6	76	82	80	80	88	93	89	99	71	76	69	80	96	119	127
Ø T mini	26	27.5	49	68	88	112	139	191	241	292	334	388	427	482	578
Ø P	40	50	65	80	100	123	147	198	248	299	340	398	439	495	596

DN	700	750	800	900	1000	1100	1200	1300	1400
E1	680	721	777	850	957	1052	1146	1261	1368
E2	267.5	278	305	335.5	382.5	429	460	475.5	527.5
H6	148	140	170	150	162	175	176	240	228
Ø T mini	683	724	780	853	960	1055	1149	1264	1371
Ø P	700	746	800	874	981	1074	1174	1311	1415

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

SIZE ( in mm ) :

Square lever for special key ( 30x30 mm ) :



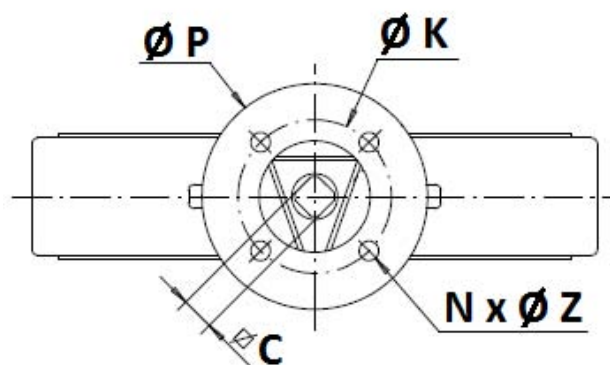
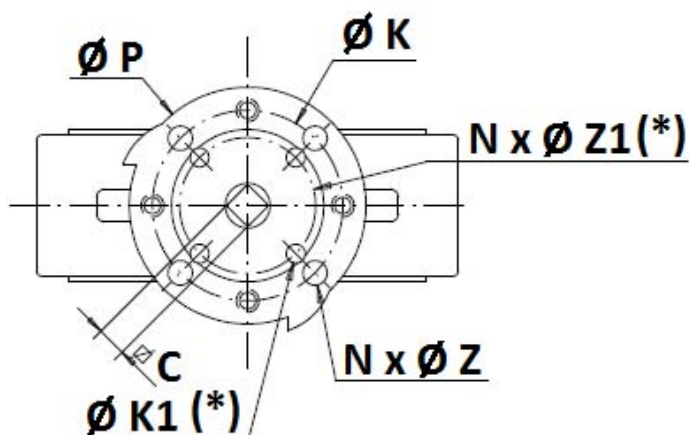
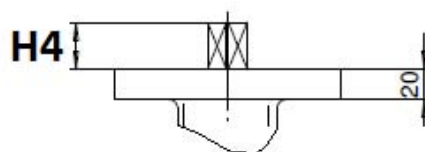
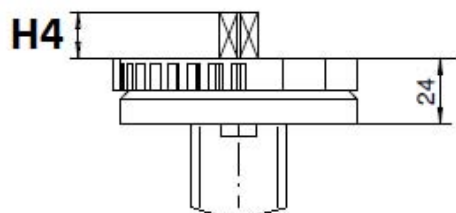
DN	32-50	65	80-100	125-150	200
C	8x8	9x9	11x11	14x14	17x17

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

ISO MOUNTING PAD SIZE DN32-400 ( in mm ) :

**DN 32 – 200**

**DN250-400**



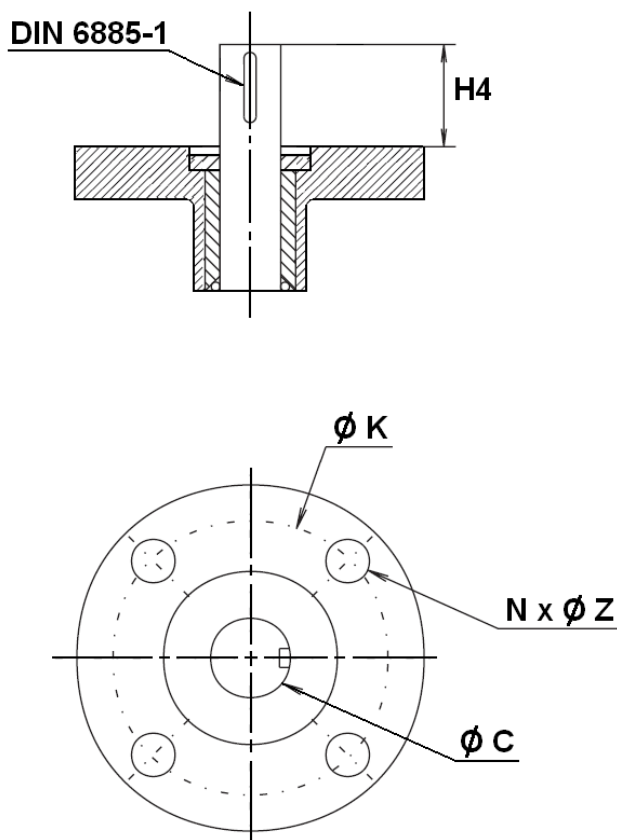
(\*) : Only from DN32 to DN100

DN	32/40	50	65	80	100	125	150	200	250	300	350	400
H4	14	14	16	16	20	20	20	24	24	24	29	29
C	8	8	9	11	11	14	14	17	19	22	22	27
Ø K	70	70	70	70	70	70	70	70	102	102	140	140
ISO	F07	F07	F07	F07	F07	F07	F07	F07	F10	F10	F14	F14
N x Ø Z	4 x 9	4 x 9	4 x 9	4 x 9	4 x 9	4 x 9	4 x 9	4 x 9	4 x 11	4 x 11	4 x 18	4 x 18
Ø K1	50	50	50	50	50	-	-	-	-	-	-	-
ISO 1	F05	F05	F05	F05	F05	-	-	-	-	-	-	-
N x Ø Z1	4 x 7	4 x 7	4 x 7	4 x 7	4 x 7	-	-	-	-	-	-	-

**LUG BUTTERFLY VALVE EXCELLENCE RANGE**

ISO MOUNTING PAD SIZE DN450-1400 ( in mm ) :

**DN 450 - 1400**



DN	450	500	600	700	750	800	900	1000	1100	1200	1300	1400
H4	80	80	90	90	110	110	110	110	110	110	120	120
ø C	50	50	60	60	65	65	80	80	80	100	120	120
ø K	140	140	165	254	254	254	254	254	254	254	298	298
ISO	F14	F14	F16	F25	F25	F25	F25	F25	F25	F25	F30	F30
N x ø Z	4 x 18	4 x 18	4 x 22	8 x 18	8 x 18	8 x 18	8 x 18	8 x 18	8 x 18	8 x 18	8 x 22	8 x 22

## LUG BUTTERFLY VALVE EXCELLENCE RANGE

### STANDARDS :

Fabrication according to ISO 9001:2008

Designing according to ISO 10631

DIRECTIVE 97/23/CE : CE N° 0038

Risk Category III module H

Pressure tests according to ISO 5208, A class

Between flanges according to EN 1092-1 PN10/16

ISO 5211 mounting pad

Length according to ISO 5752 short series 20, EN 558 series 20 ( NF 29305 ), BS 5155 Wafer short/medium, DIN 3202 part 3, series K1

ATEX Group II Category 2 G/2D Zone 1 & 21 Zone 2 & 22 ( optional marking )

French water agreement **A.C.S. N° 13 ACC LY 404** for types :

- **1160** from **DN32** to **100** and from **DN350** to **600**
- **1163** from **DN32** to **600**

Approval certificate **Marine BUREAU VERITAS**, N° 14087/C0 BV from DN32 to 1000

OTAN agreement ( N° 286B )

**ADVICE :** Our opinion and our advice are not guaranteed and SFERACO shall not be liable for the consequences of damages. The customer must check the right choice of the products with the real service conditions.

## INSTALLATION INSTRUCTIONS

### GENERAL GUIDELINES :

Ensure that the valves to be used are appropriate for the conditions of the installation (type of fluid, pressure and temperature).

Be sure to have enough valves to be able to isolate the sections of piping as well as the appropriate equipment for maintenance and repair.

Ensure that the valves to be installed are of correct strength to be able to support the capacity of their usage.

**Installation of all circuits should ensure that their function can be automatically tested on a regular basis (at least two times a year).**



## LUG BUTTERFLY VALVE EXCELLENCE RANGE

### INSTALLATION INSTRUCTIONS :

**Before installing the valves, clean and remove any objects from the pipes** (in particular bits of sealing and metal) which could obstruct and block the valves.

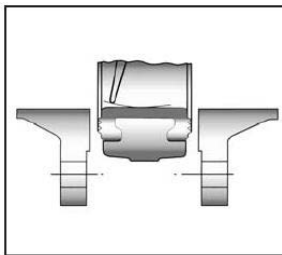
**Ensure that both connecting pipes either side of the valve (upstream and downstream) are aligned (if they're not, the valves may not work correctly).**

**Make sure that the two sections of the pipe (upstream and downstream) match, the valve unit will not absorb any gaps. Any distortions in the pipes may affect the tightness of the connection, the working of the valve and can even cause a rupture. To be sure, place the kit in position to ensure the assembling will work.**

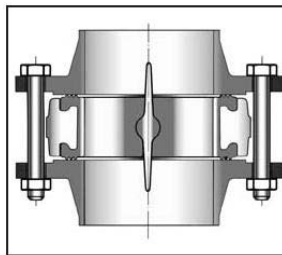
**If sections of piping do not have their final support in place, they should be temporarily fixed. This is to avoid unnecessary strain on the valve.**

The valve must be inserted between flanges with disc half opened but the disc must not overpass the valve thickness. Position the bolts to keep centered the valve. Then open fully the valve and tighten the bolts.

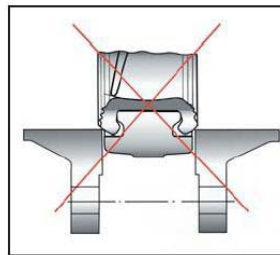
**See graph under.**



Half open valve introduction



Complete opened disc valves when screw tightening



Tighten the bolts in cross.

The disc must move easily inside the pipe.

Valves must be opened during cleaning operation.

Tests must be done with a cleaned pipe.

Tests must be done with opened valve. Test pressure must not be higher than the valve specification according to ISO 5208.

Then open slowly the valve.

**Do not mount butterfly valves with stainless steel pressed collars and turning flanges without strias.**

**And not on flat face flanges without strias ( example : painted cast iron fittings )**

### MAINTENANCE :

We recommend to operate fully the valve 1 to 2 times per year.

During maintenance operation, ensure that the pipe isn't under pressure, that there's no fluid in the pipe and that the valve is isolated. If there's a fluid in the pipe, evacuate it. Ensure that there are no risks due to the temperature or the fluid ( like acids ). If the fluid is corrosive, inert the installation before maintenance operation.