

**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
STAINLESS STEEL BODY AND DISC WITH EPDM SEAT**

Wafer butterfly valve TTV excellence range for cold and hot water, sea water, alcohol, sodium hydroxide, demineralized water, mercury, alcalins.

Approval Bureau Veritas marine certificate., 5 years warranty.

Stainless steel body and disc and EPDM seat.

Between flanges PN10/16 or class 150 according to DN.

Compatible with explosive atmosphere, ATEX Zone 1&21 and Zone 2&22 on request.

Handling possible with stainless steel handle, gearbox or, chain gearbox and stem extension.

Thanks to the ISO 5211 plate and the square stem, an actuator can be installed direct on the valve (up to DN400).



Size : DN32 to DN600

Connection : Between flanges PN10/16 and Class 150 (PN20)

Min Temperature : -20°C

Max Temperature : +110°C

Max Pressure : 16 Bars up to DN300

Specifications : Long neck for isolation

Wafer type

Full crossing stem

ISO 5211 direct mounting pad

Materials : Stainless steel CF8M body and disc, EPDM seat

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

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SPECIFICATIONS :

- Long neck for isolation
- ISO 5211 mounting pad
- Wafer type
- Between flanges PN10/16 from DN32/40 to 400 and Class 150 (PN20) from DN40 to 400 (over on request)
- Between flanges PN10 from DN450 to DN 600
- Full crossing stem
- Removable EPDM seat
- Stainless steel disc
- 9 positions lever with locking device up to DN200 , stop in all positions but non lockable from DN250 to 300
- Stem extension 75 mm length (option)
- Square lever 30x30 mm for special key (option)

USE :

- Cold and hot water, sea water, alcohol, sodium hydroxide (concentration 70% max), demineralized water, mercury, alcalins
- Min and max Temperature Ts : - 20°C to + 110°C
- Max Pressure Ps : 16 bars up to DN300, 10 bars over (see graph page 5)

RANGE :

- With lever from DN 32 to DN 300
- IP65 gear box possible (**Ref. 1197**) from DN 32 to DN 600
- IP65 chain gear box (**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 PN10/16 from DN32/40 to 400 and Class 150 (PN20) from DN40 to 400
- Between flanges PN10 from DN450 to DN 600

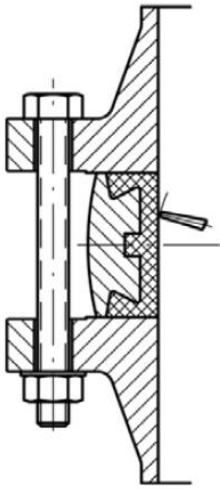
TORQUE VALUES (in Nm with safety coefficient of 30 % included) :

		DN														
	Pressure (Bar)	32/40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
Torque (Nm) with machined disc (on request)	1-5*	2	4	6	8	10	14	15	25	64	118	179	265	353	490	686
	6*	3	5	7	10	12	18	31	55	123	216	333	519	735	931	1372
	10*	6	8	10	14	18	31	59	93	206	330					
Torque (Nm)	16	9	11	20	29	47	82	130	210	360	475					

		DN													
	Pressure (Bar)	350	400	450	500	600	700	750	800	900	1000	1100	1200	1300	1400
Torque (Nm)	10	425	640	1176	1450	2850	4600	5800	7400	11000	13600	14200	16400	17800	19200
On request	16	760	1300	1600	2340	3300									

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MAXIMUM TIGHTENING TORQUES FOR BOLTING FLANGES :



		Maximum torques (Nm)			
		Bolting types	5,6 / A307 Gr.B	8,8 / A193 B7	10,9
Bolting DN	M12 (1/2")	41,16	84,28	117,6	142,1
	M14 (9/16")	66,64	132,3	186,2	225,4
	M16 (5/8")	102,9	205,8	289,1	347,9
	M18 (3/4")	142,1	284,2	396,9	475,3
	M20 (3/4")	196	401,8	568,4	676,2
	M22 (7/8")	259,7	539	764,4	911,4
	M24 (1")	338,1	695,8	980	1176
	M27 (1"1/8)	499,8	1029	1470	1764
	M30 (1"1/4)	666,4	1421	1960	2352

**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
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FLOW COEFFICIENT Kv (m³ / h) :

DN	Opening Angle								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
32-40	3	5	10	16	22	31	36	36	36
50	3	7	15	33	44	48	54	54	54
65	6	10	21	40	57	86	102	102	102
80	7	16	37	56	84	182	246	246	246
100	9	22	51	88	134	187	255	336	336
125	21	33	91	153	232	331	468	560	560
150	45	69	149	281	302	597	822	1015	1072
200	55	131	254	420	631	904	1388	1758	1758
250	64	246	442	710	1056	1522	2128	3096	3096
300	100	275	472	953	1450	2093	2972	4193	4480
350	152	341	766	881	1773	2788	3978	6251	6260
400	182	542	1060	1764	2666	3836	5470	8403	8839
450	227	611	1229	2064	3133	4510	6458	9387	9387
500	342	837	1635	2795	4100	5896	8398	11830	13079
600	432	1143	2286	3833	6187	8369	11916	17917	17917

HEAD LOSS CALCULATIONS :

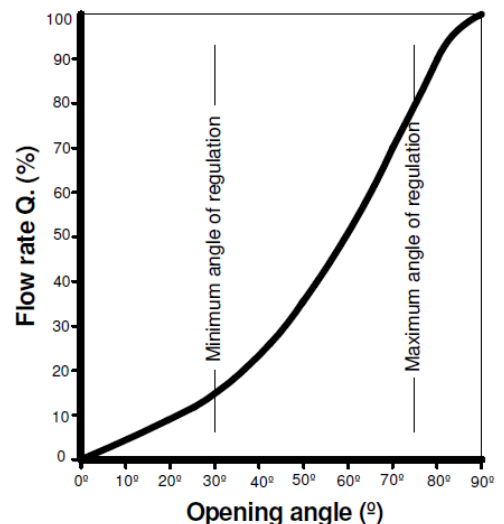
$\Delta p = (Q / Kv)^2 \times SG$

Q : flow in m³/h

Δp : Head loss in bar

SG : Specific gravity (= 1 for water)

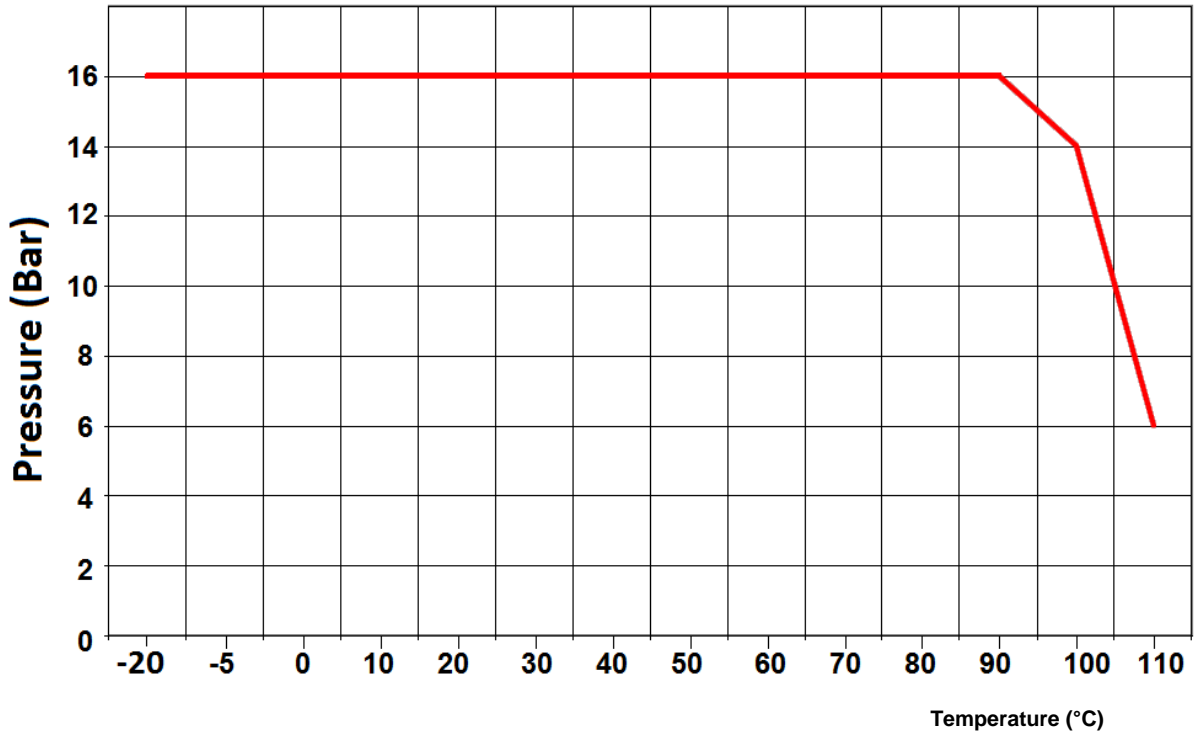
Kv : Volume of water in m³/h, that will flow through a given restriction or valve opening with a pressure drop of 1 bar at 20°C)



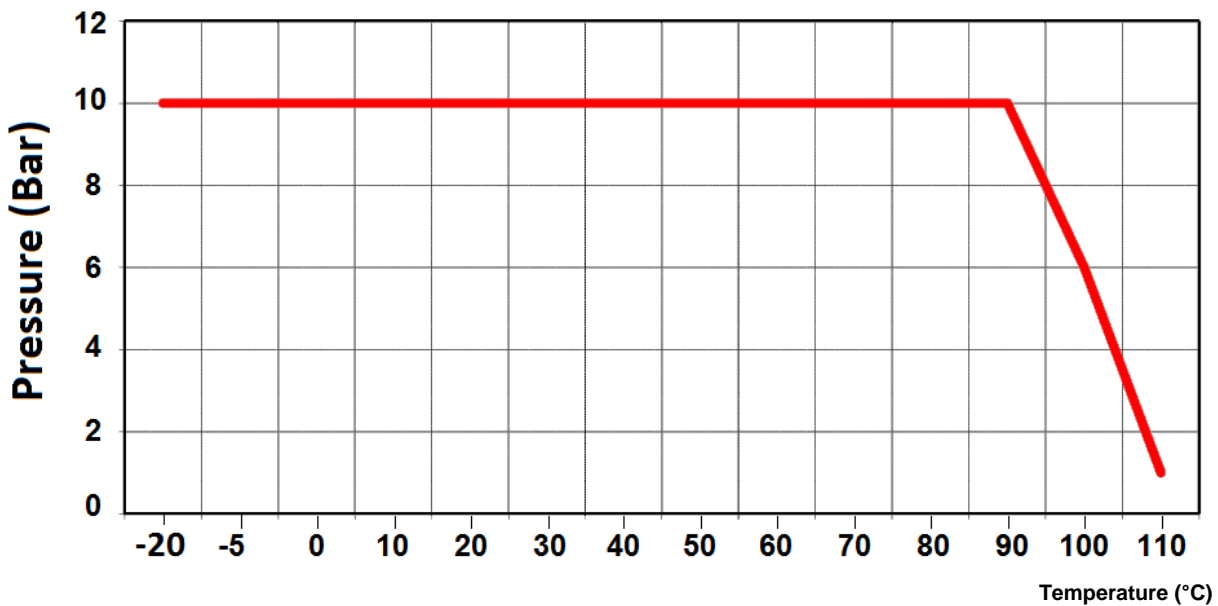
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PRESSURE / TEMPERATURE GRAPH (STEAM EXCLUDED) :

- *Ps 16 BAR DN40-300 :*

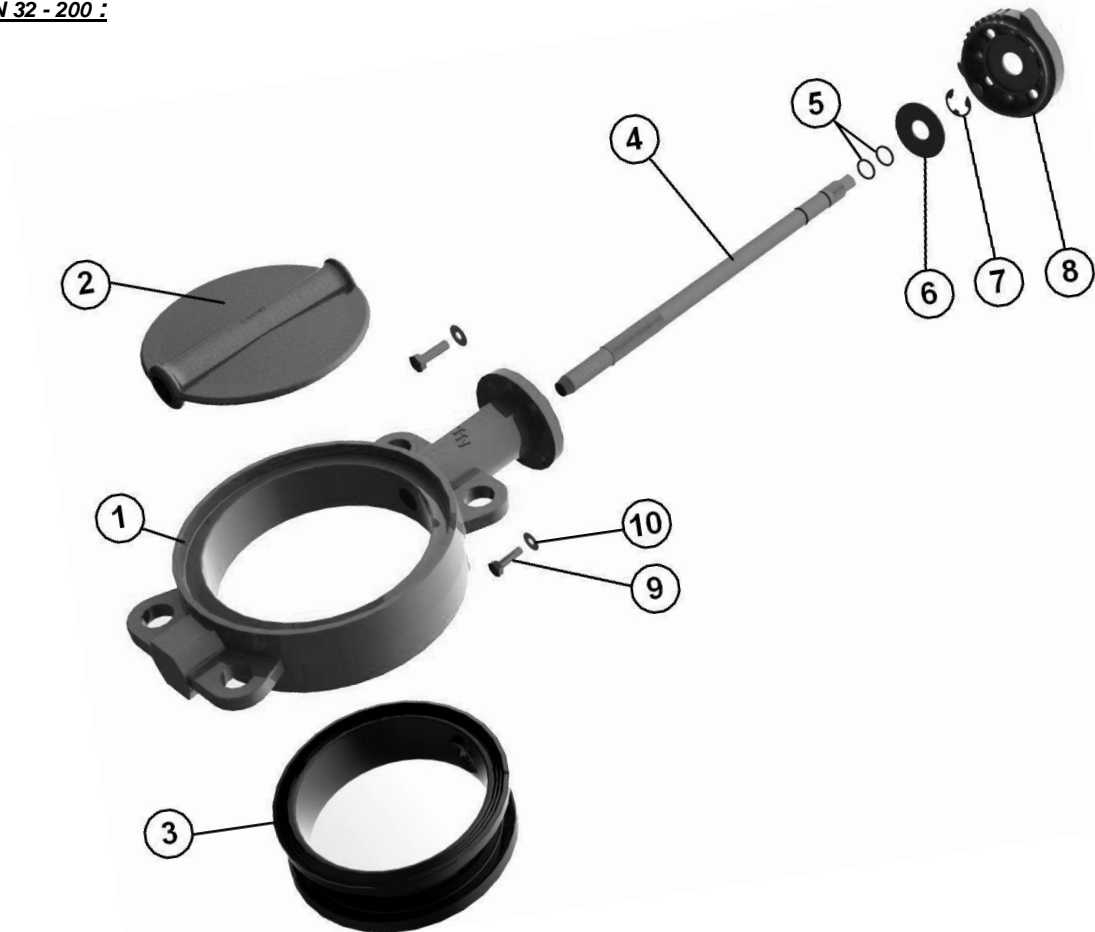


- *Ps 10 BAR DN350-1200 :*



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MATERIALS DN 32 - 200 :



Item	Designation	Materials
1	Body	ASTM A351 CF8M
2	Disc	ASTM A351 C8FM
3	Seat	EPDM
4	Stem	AISI 316
5	O ring	NBR
6	Ring	AISI 316
7	Circlips	AISI 316
8	Plate	ASTM A351 CF8M
9	Plate screw	A4
10	Washer	AISI 316
	Lever	Aluminium ADC10 with epoxy painting 50µ thickness

**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
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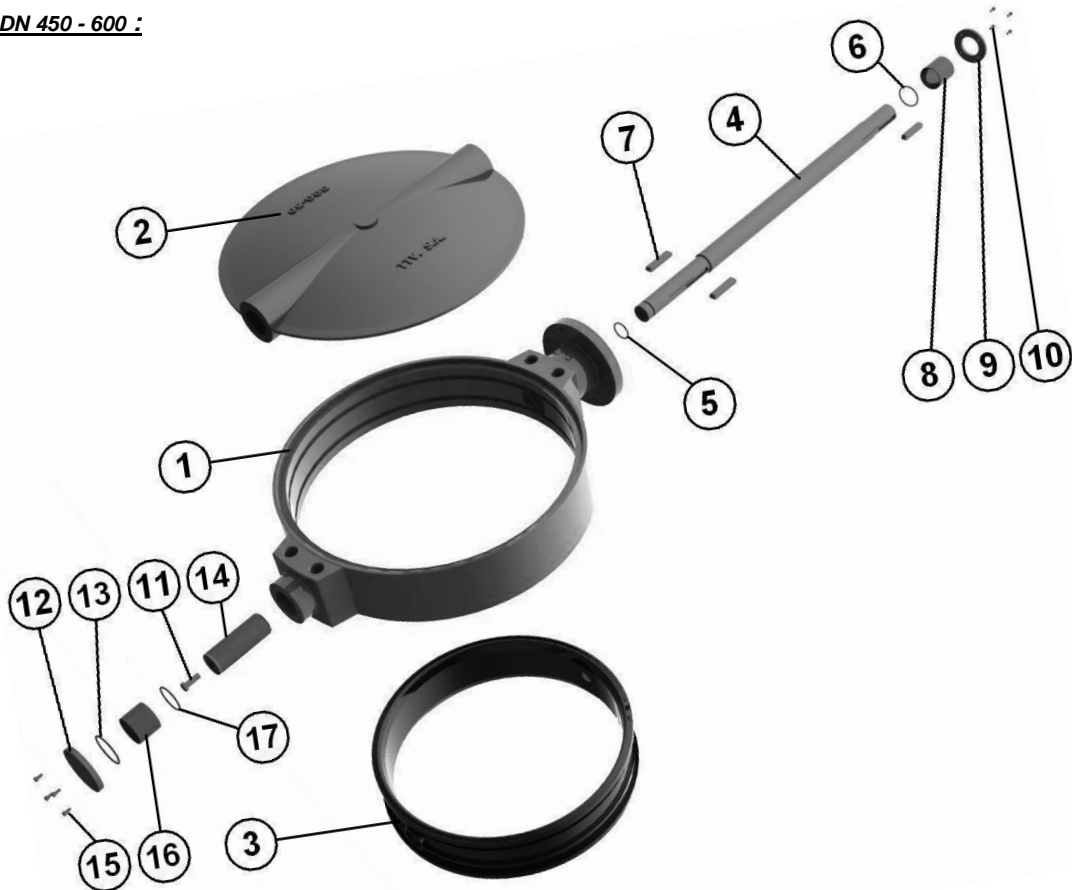
MATERIALS DN 250 - 400 :



Item	Designation	Materials
1	Body	ASTM A351 CF8M
2	Disc	ASTM A351 C8FM
3	Seat	EPDM
4	Stem	AISI 316
5	O ring	NBR
6	Circlips	AISI 316
7	Ring	AISI 316
8	Spring	AISI 316
Lever (up to DN300)		Ductile iron EN GJS-500-7 with epoxy painting 50μ thickness

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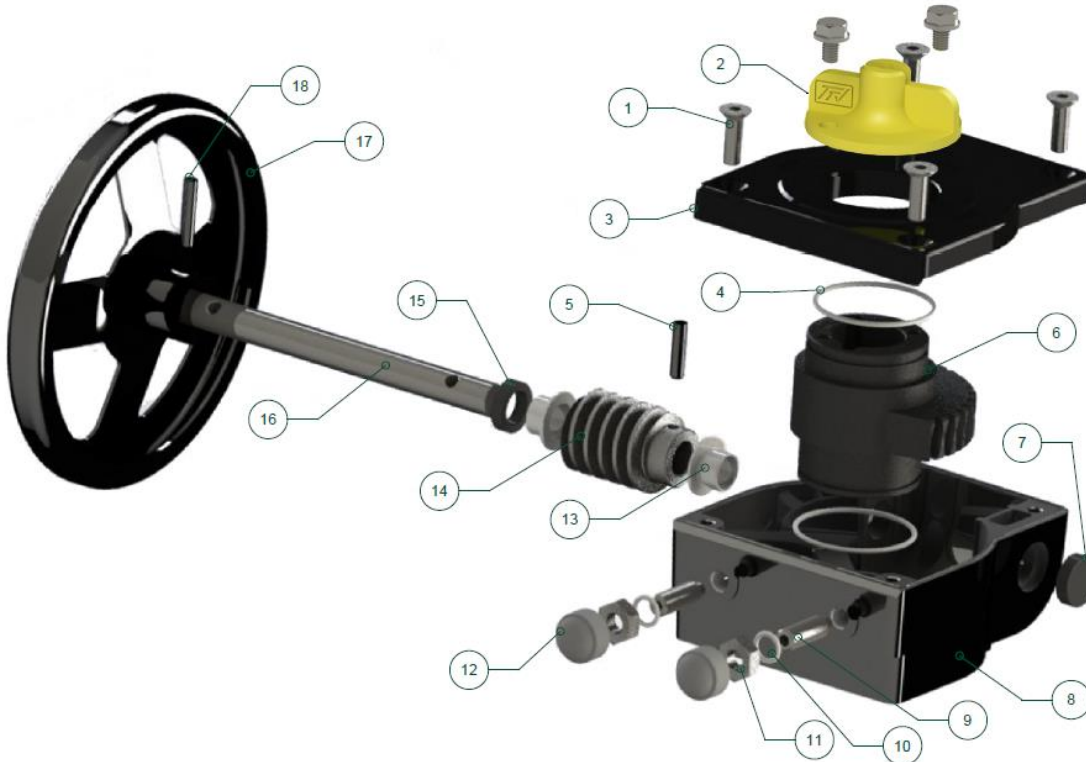
MATERIALS DN 450 - 600 :



Item	Designation	Materials
1	Body	ASTM A351 CF8M
2	Disc	ASTM A351 C8FM
3	Seat	EPDM
4	Stem	AISI 316
5	O ring	NBR
6	O ring	NBR
7	Pin	AISI 316
8	Bushing	BRONZE
9	Ring	AISI 316
10	Screw	A4
11	Screw	A4
12	Cap	AISI 316
13	O ring	NBR
14	Bushing	AISI 316
15	Screw	A4
16	Bushing	BRONZE
17	O ring	NBR

**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
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GEARBOX MATERIALS REF. 1197 :

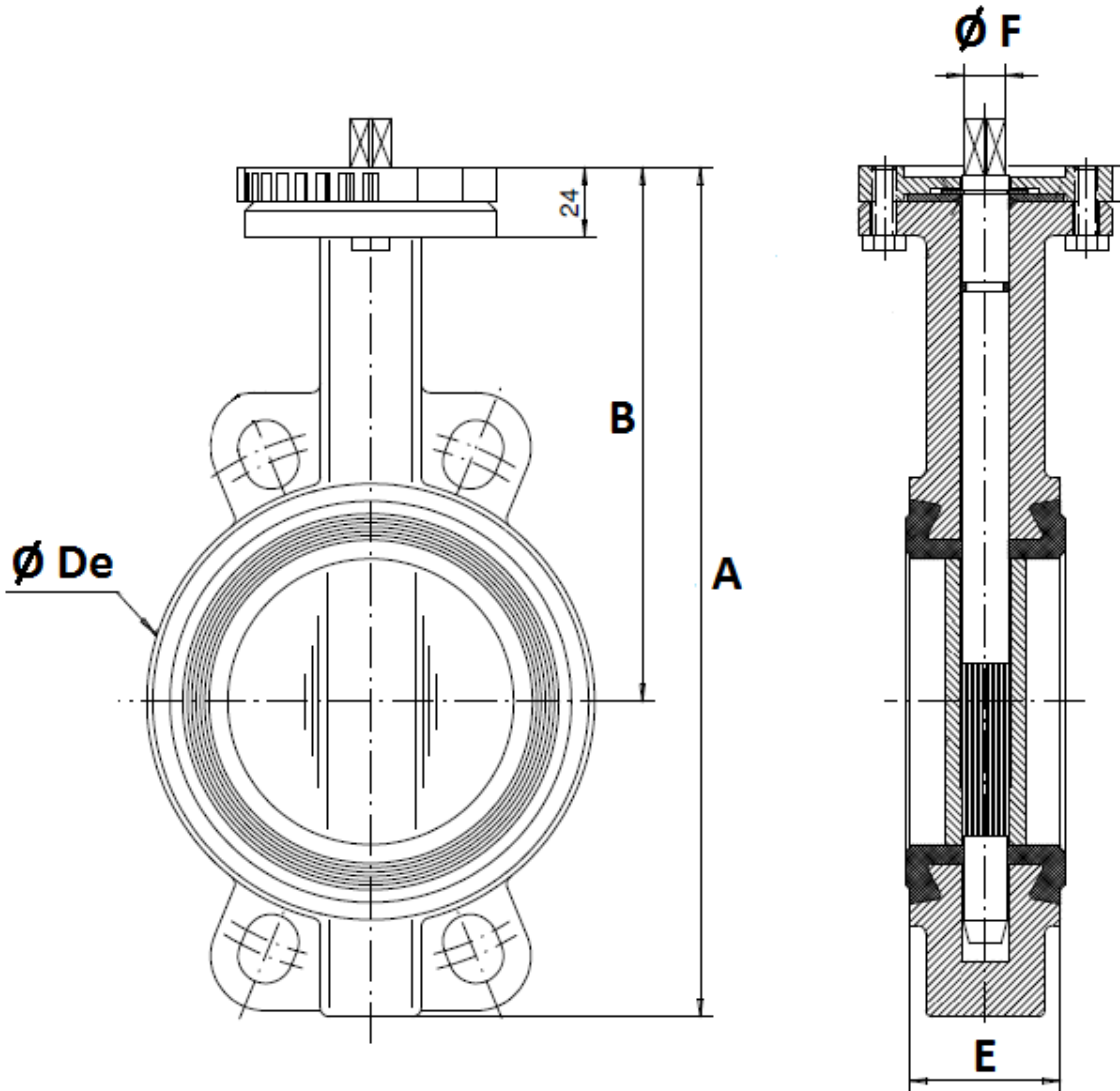


Item	Designation	Materials Ref. 1197
1	Screw	AISI 304
2	Pointer	PVC
3	Bonnet	Aluminium
4	O ring	NBR
5	Pin	Carbon steel
6	Quadrant	Ductile iron EN GJS-400-15
7	Gasket	NBR
8	Body	Aluminium
9	Adjusting bolt	Carbon steel
10	Washer	Galvanized steel
11	Nut	Galvanized steel
12	Cap	NBR 70
13	Bushing	Bronze
14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

**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
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SIZE (in mm) :

- **Valves DN 32 - 200 :**

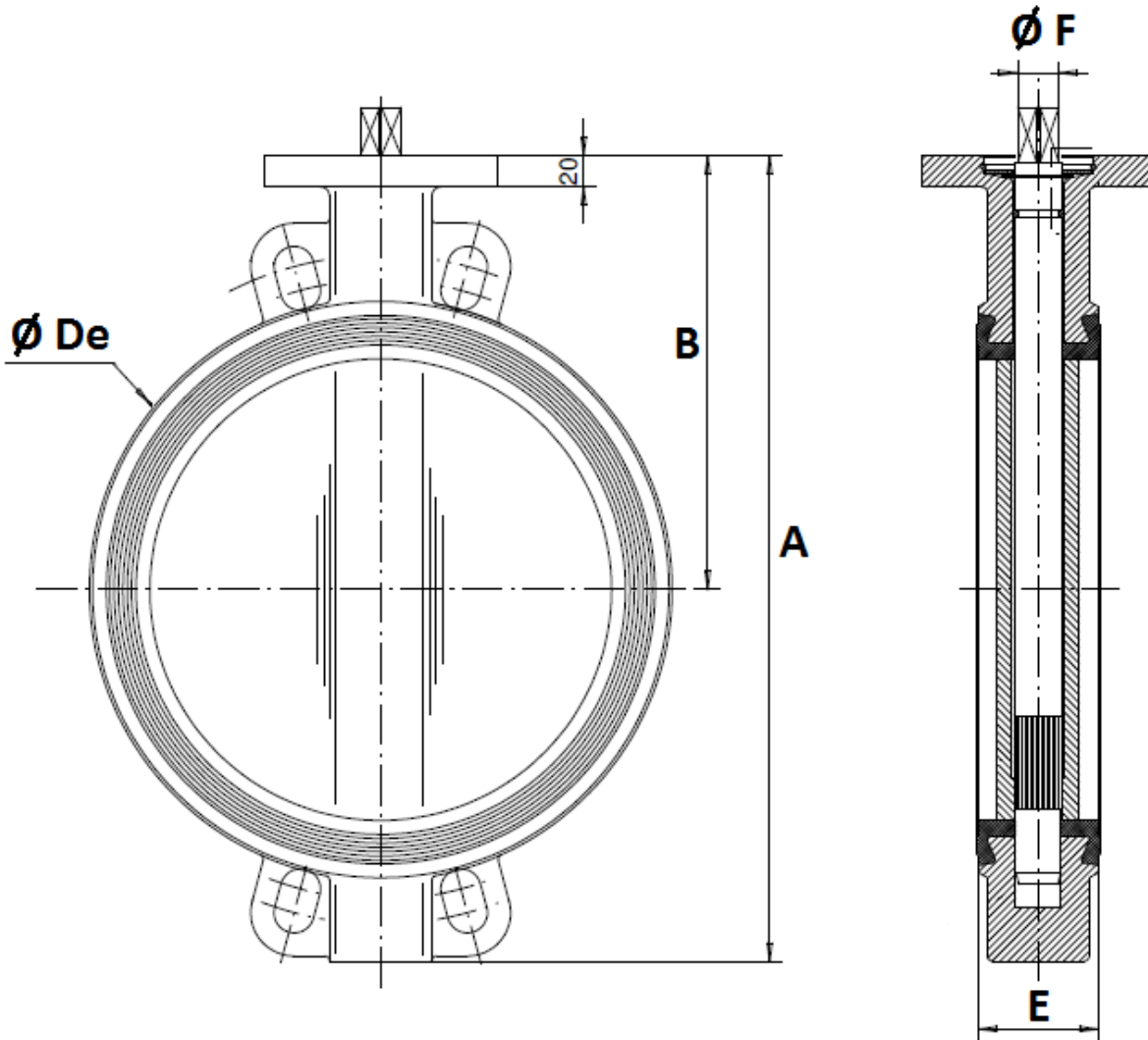


DN	32/40	50	65	80	100	125	150	200
A	206	228	248	265	298	331	349	430
B	140	156	161	169	187	206	215	255
$\varnothing De$	82	102	119	135	155	185	208	270
E	33	43	46	46	52	56	56	60
$\varnothing F$	9.5	9.5	12	14	14	17	17	21
Weight (Kg)	2.46	3.66	4.4	4.6	6	7.6	9.2	14.7

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STAINLESS STEEL BODY AND DISC WITH EPDM SEAT**

SIZE (in mm) :

- **Valves DN 250 -400 :**

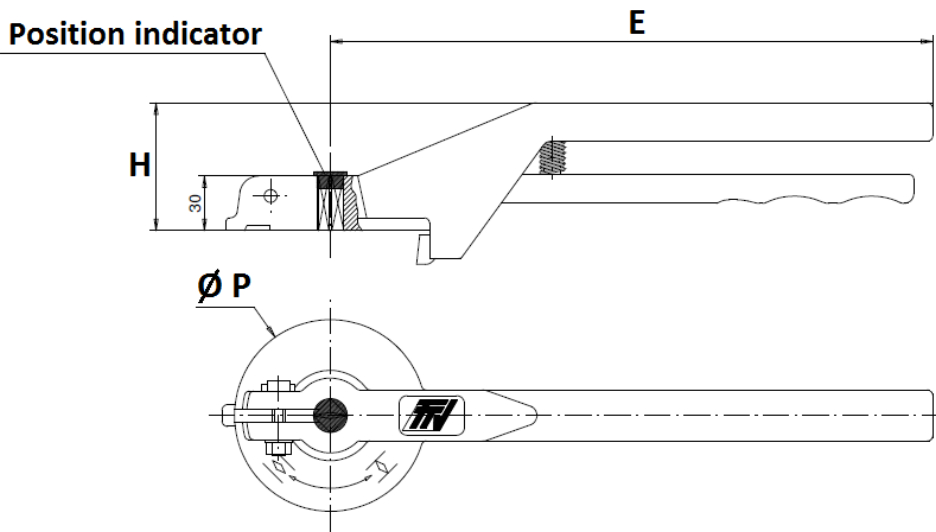


DN	250	300	350	400
A	461	524	570	644
B	248	280	300	340
Ø De	328	381	437	486
E	68	78	78	102
Ø F	23	26.5	26.5	33
Weight (Kg)	24.7	33	39	52

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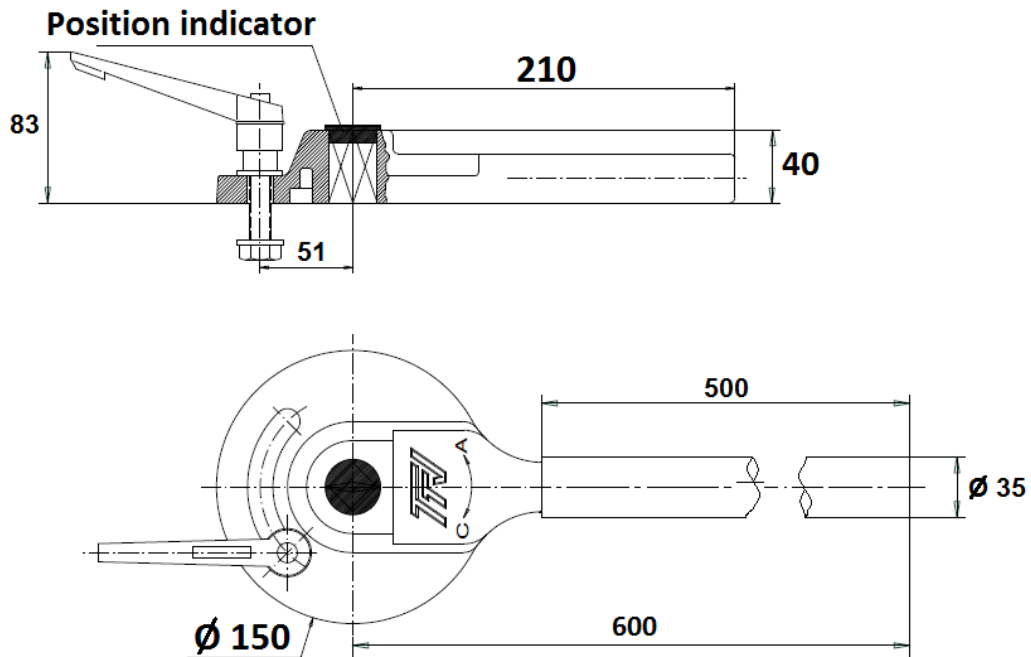
STANDARD LEVERS SIZE (in mm) :

DN 32 – 200 :



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

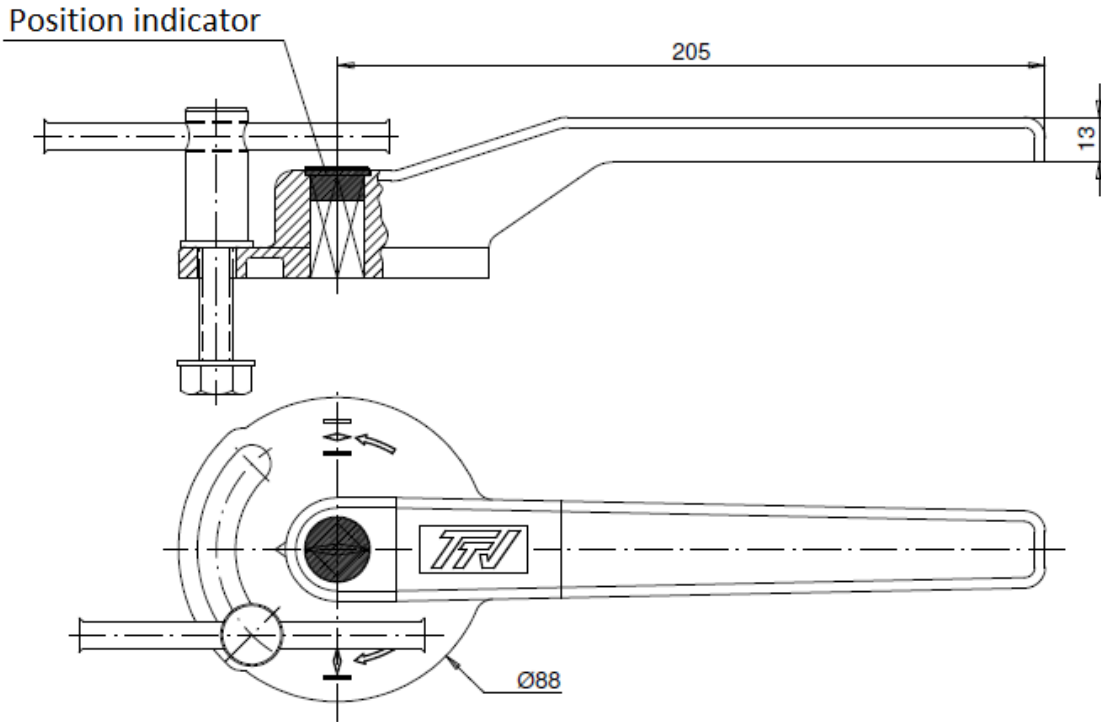
DN 250 – 300 :



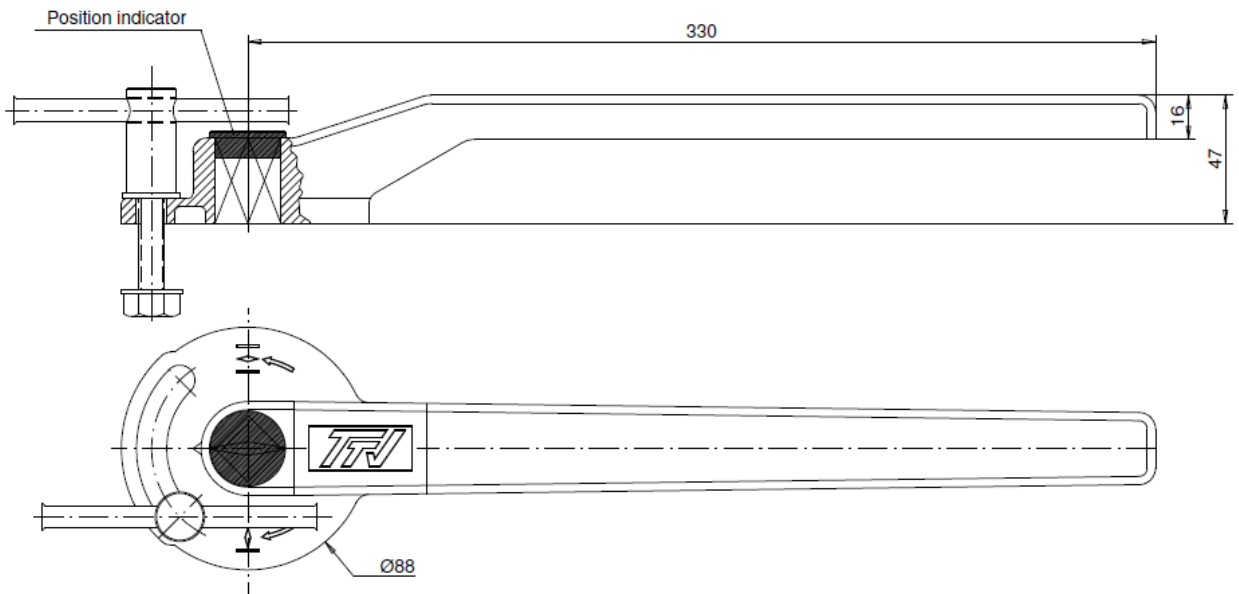
**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
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ASTM A351 CF8M STAINLESS STEEL LEVERS SIZE (in mm) (ON REQUEST) :

DN 40 - 100



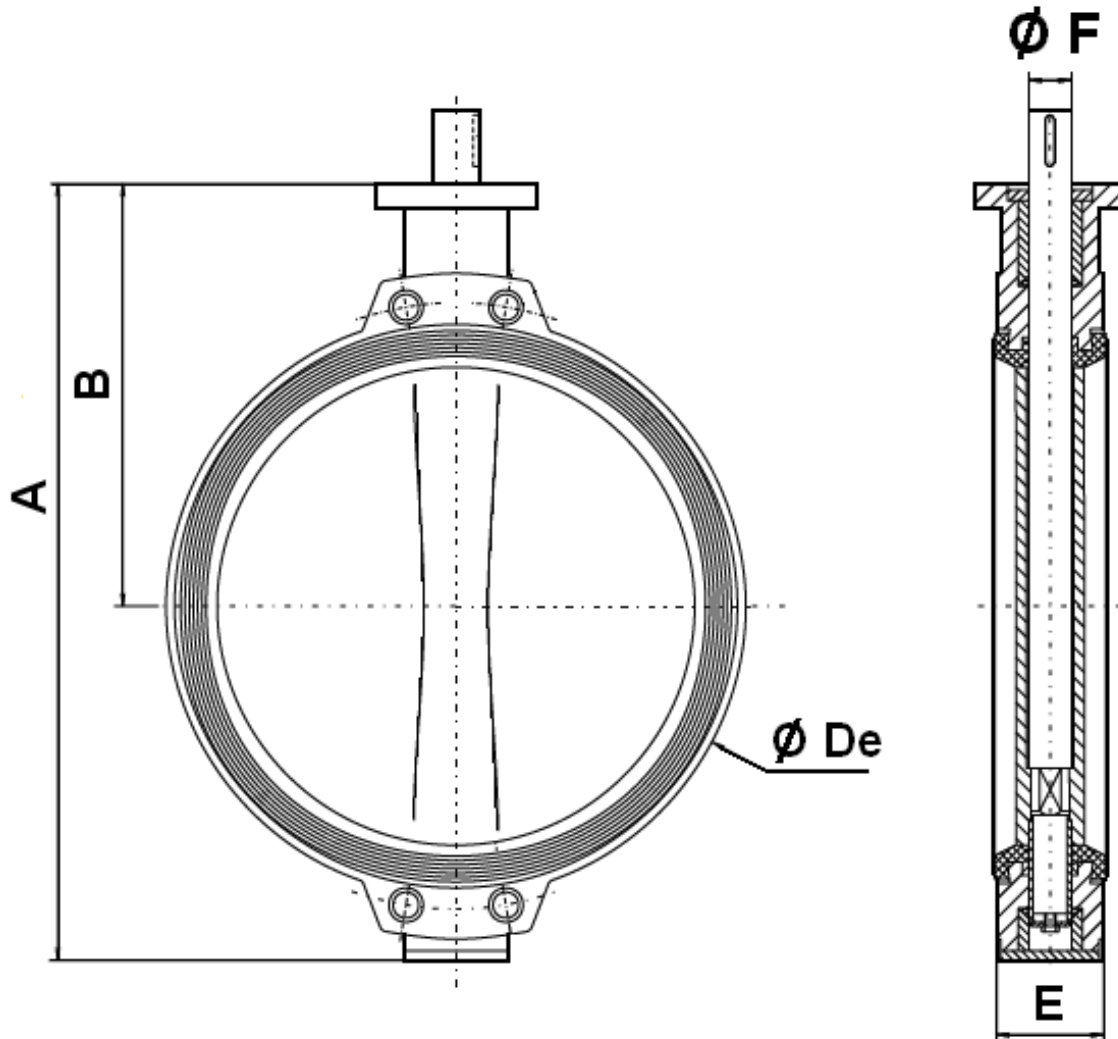
DN 125 - 200



**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
STAINLESS STEEL BODY AND DISC WITH EPDM SEAT**

SIZE (in mm) :

- **Valves DN 450 - 600 :**



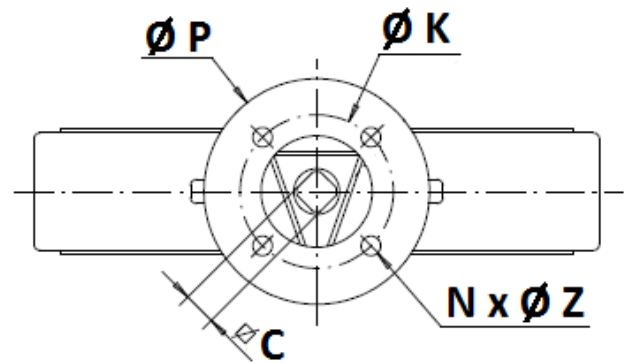
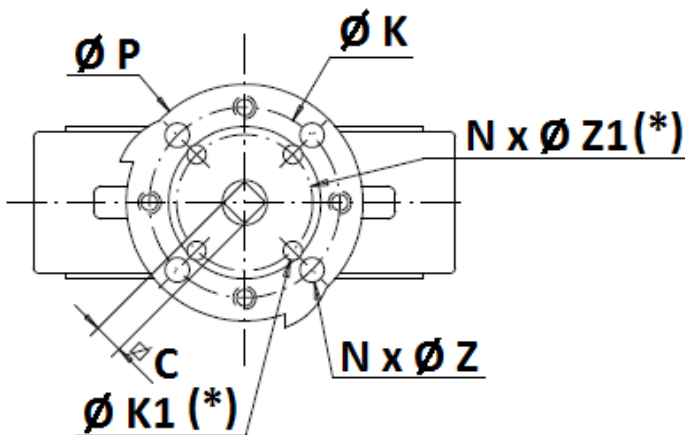
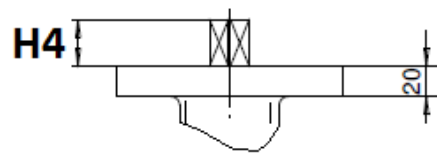
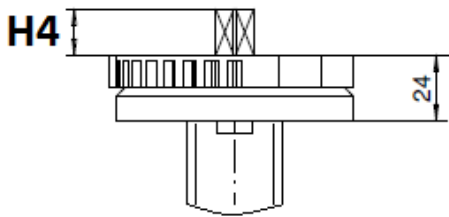
DN	450	500	600
A	738	822	965
B	394	440	507
Ø De	538	595	695
E	114	127	154
Ø F	50	50	60
Ø P	175	175	250
Weight (Kg)	87	117	177

**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
STAINLESS STEEL BODY AND DISC WITH EPDM SEAT**

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

DN 32 – 200

DN250-400

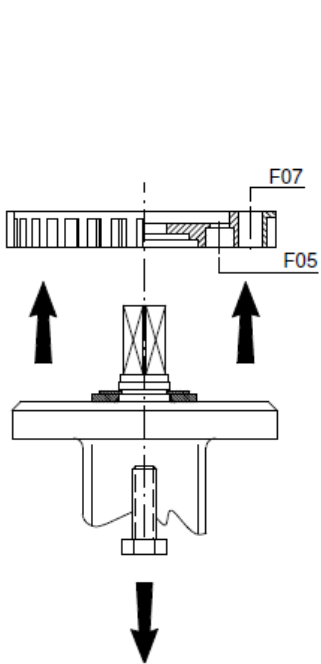


(*) : Only from DN32 to DN100 (see installation with ISO plate F05 next page)

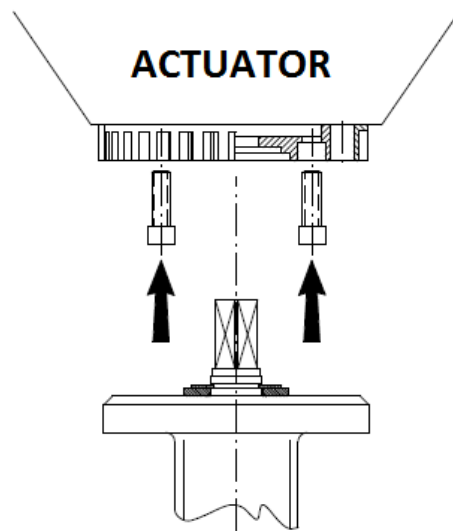
DN	32/40	50	65	80	100	125	150	200	250	300	350	400
H4	14	14	16	16	20	20	20	24	24	24	29	29
C	8	8	9	11	11	14	14	17	19	22	22	27
Ø K	70	70	70	70	70	70	70	70	102	102	140	140
ISO	F07	F07	F07	F07	F07	F07	F07	F07	F10	F10	F14	F14
N x Ø Z	4 x 9	4 x 9	4 x 9	4 x 9	4 x 9	4 x 9	4 x 9	4 x 9	4 x 11	4 x 11	4 x 18	4 x 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	-	-	-	-	-	-	-
Ø P	88	88	88	88	88	105	105	105	150	150	170	170

**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
STAINLESS STEEL BODY AND DISC WITH EPDM SEAT**

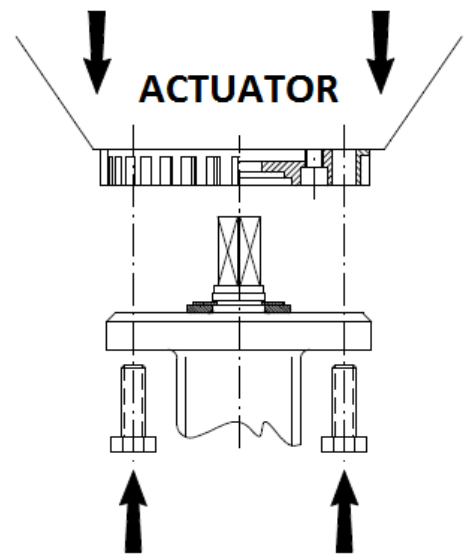
ISO PLATE INSTALLATION FOR DN32-100 ISO F05 :



Unscrew and remove the flange



Screw the flange to the actuator with hexagon socket screws

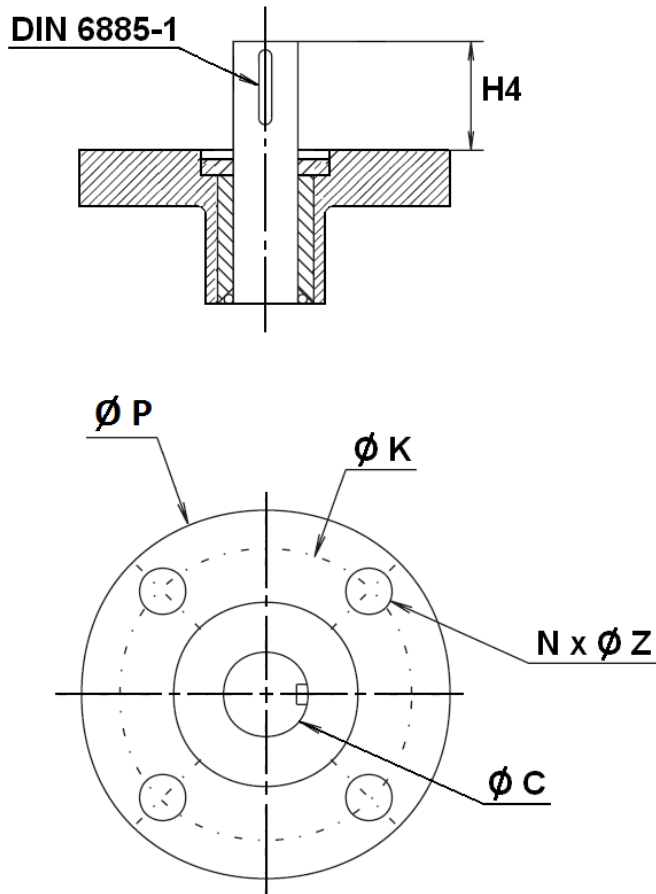


Screw the valve to the flange

**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
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ISO MOUNTING PAD SIZE DN450-600 (in mm) :

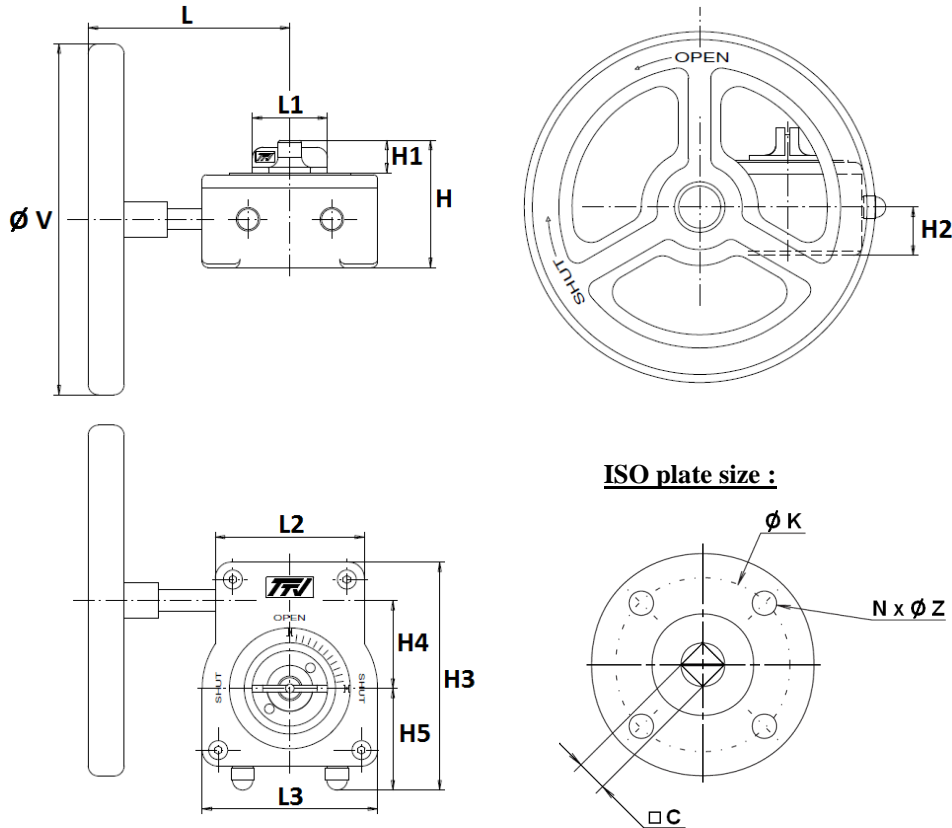
DN 450 - 600



DN	450	500	600
H4	80	80	90
Ø C	50	50	60
Ø K	140	140	165
ISO	F14	F14	F16
N x Ø Z	4 x 18	4 x 18	4 x 22
Ø P	175	175	250

**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
STAINLESS STEEL BODY AND DISC WITH EPDM SEAT**

GEARBOX SIZE REF.1197 DN32-400 (in mm) :

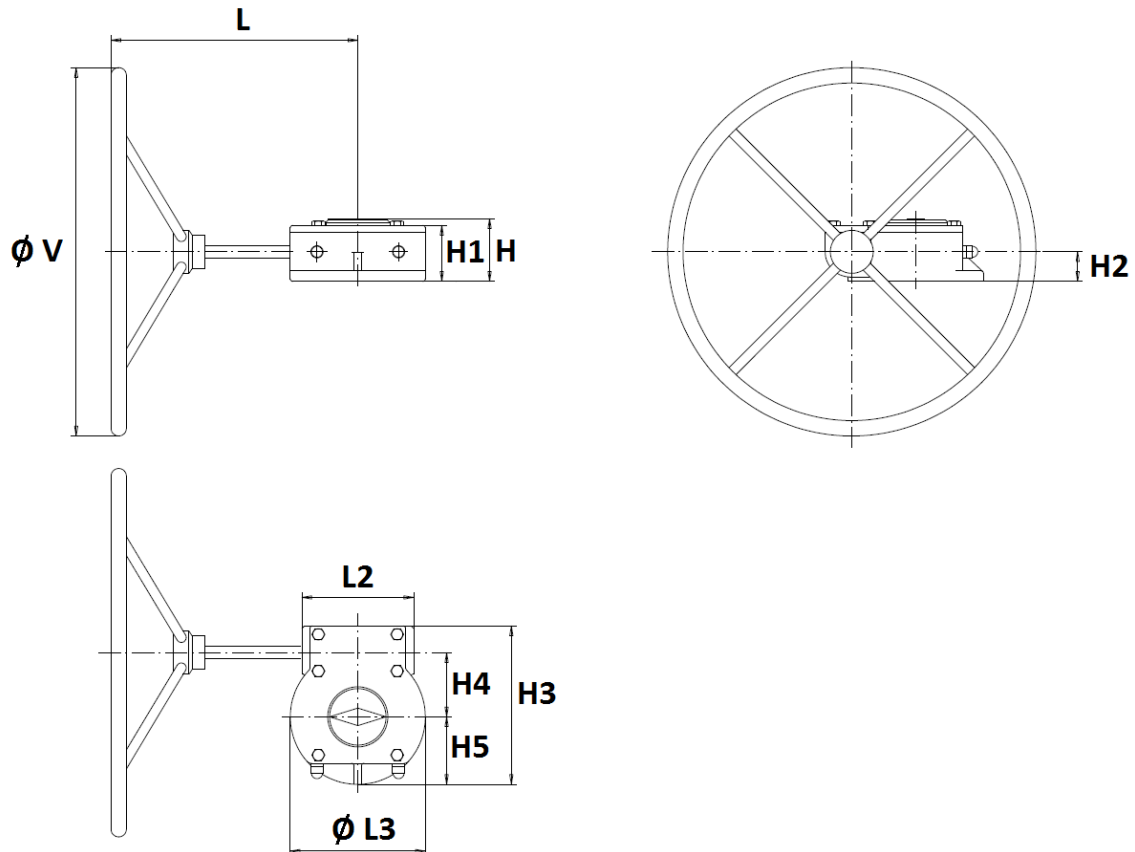


DN	32/50	65	80/100	125/150	200	250	300	350	400
L	115	115	115	115	115	223.5	223.5	325	325
L1	43	43	43	43	43	55	55	75	75
L2	85	85	85	85	85	110	110	150	150
L3	100	100	100	100	100	142	142	185	185
H	73	73	73	73	73	103	103	126	126
H1	19	19	19	19	19	33	33	32	32
H2	27.5	27.5	27.5	27.5	27.5	42	42	51	51
H3	130	130	130	130	130	176	176	224	224
H4	50	50	50	50	50	60	60	80	80
H5	58	58	58	58	58	82	82	98	98
Ø V	140	140	140	200	200	300	300	400	400
C	8	9	11	14	17	19	22	22	27
Ø K	70	70	70	70	70	102	102	140	140
ISO	F07	F07	F07	F07	F07	F10	F10	F14	F14
N x Ø Z	4 x M8	4 x M8	4 x M8	4 x M8	4 x M8	4 x M10	4 x M10	4 x M16	4 x M16
Weight (Kg)	1.35	1.35	1.35	1.75	1.75	4	4	9.5	9.5
Ref.	1197050	1197065	1197100	1197150	1197200	1197250	1197300	1197350	1197400

Sferaco 90 rue du Ruisseau 38297 St Quentin Fallavier Tel: + 33 (0) 474.94.15.90 Fax: + 33 (0) 474.95.62.08 Internet: www.sferaco.fr E-mail: info@sferaco.fr

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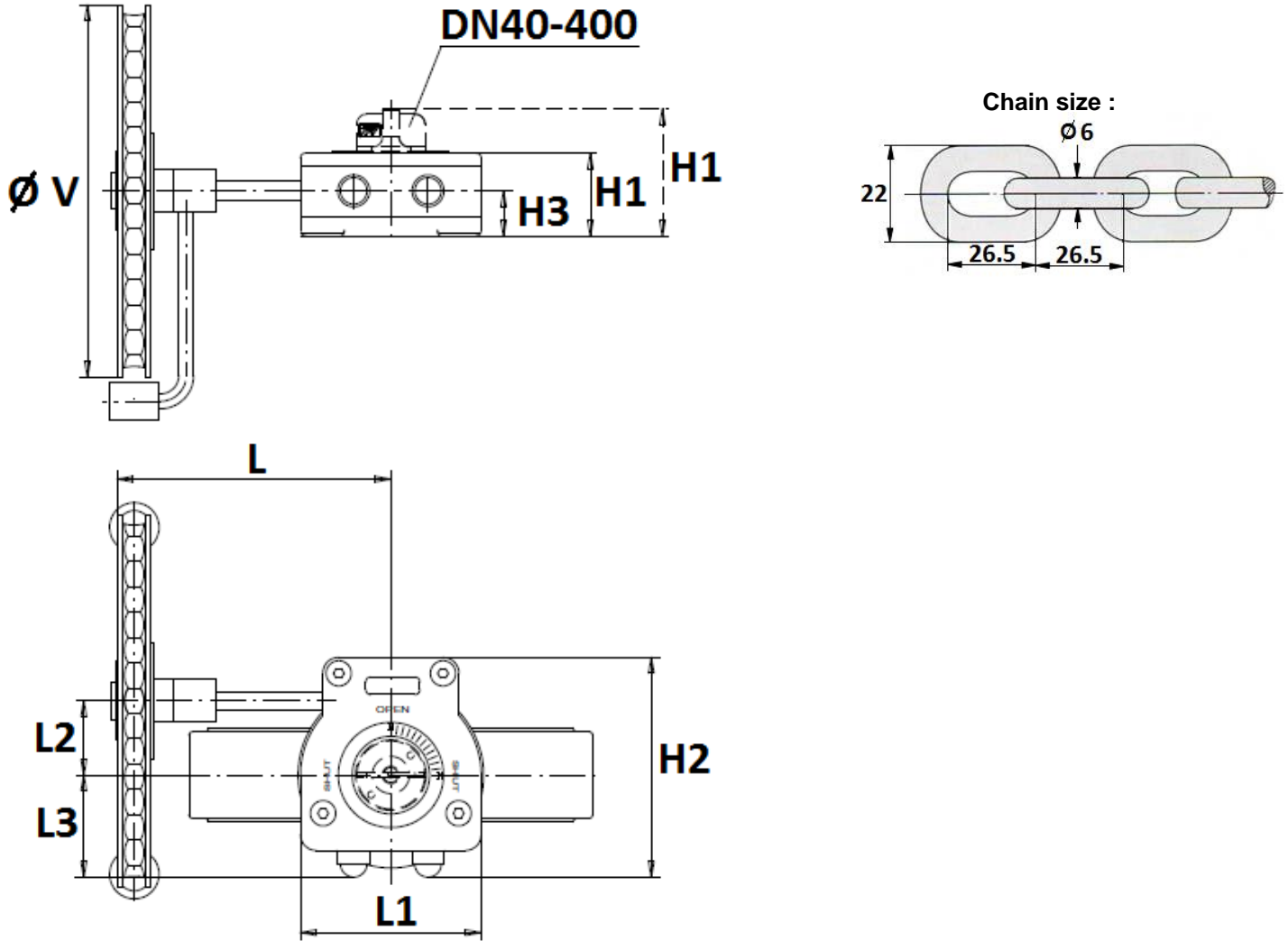
GEARBOX SIZE REF.1197 DN450-600 (in mm) :



DN	450	500	600
L	381	402	447
L2	150	182	194
$\phi L3$	200	220	285
H	93	102	123.4
H1	82	91	109.5
H2	42	48	55
H3	226	258	322.5
H4	86	104.5	130
H5	100	110	142.5
ϕV	600	600	700
Weight (Kg)	18.8	26.8	38.3
Ref.	1197451	1197501	1197601

**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
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CHAIN GEARBOX SIZE REF.1194 (in mm) :



DN	32/50	65	80/100	125/150	200	250	300	350	400	450	500
L	120	120	120	215	215	325	325	331	352	350	365
L1	100	100	100	100	100	142	142	185	185	200	220
L2	50	50	50	50	50	61	61	80	80	86	104.5
L3	56	56	56	56	56	80	80	98	98	100	110
H1	73	73	73	73	73	103	103	126	126	84	91
H2	128	128	128	128	128	175	175	224	224	230	258
H3	27.5	27.5	27.5	27.5	27.5	42	42	51	51	42	48
Ø V	160	160	160	210	210	300	300	400	400	500	500
Weight (Kg)	2.35	2.35	2.35	2.75	2.75	6.8	6.8	14.3	14.3	26.2	33.7
Ref.	1194050	1194065	1194100	1194150	1194200	1194250	1194300	1194350	1194400		



**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
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GEARBOX SPECIFICATIONS :

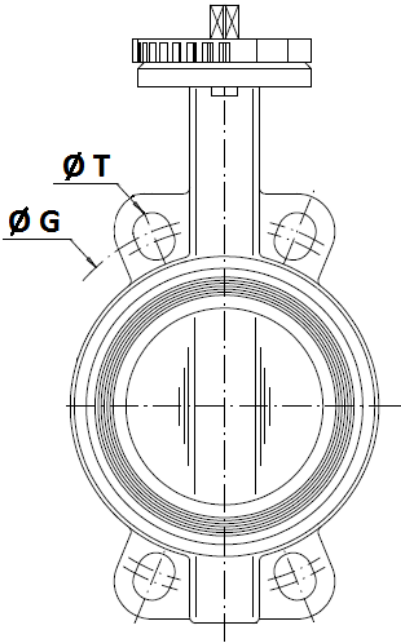
DN	32/50	65	80/100	125/150	200	250	300	350
Ref.	1197050	1197065	1197100	1197150	1197200	1197250	1197300	1197350
Ratio factor	37 : 1	37 : 1	37 : 1	37 : 1	37 : 1	36 : 1	36 : 1	50 : 1
Turns number for closing / opening	9.25	9.25	9.25	9.25	9.25	9	9	12.5
Input torque (Nm)	9	9	9	9	9	18.5	18.5	32
Output torque (Nm)	250	250	250	250	250	500	500	1200

DN	400	450	500	600
Ref.	1197400	1197451	1197501	1197601
Ratio factor	50 : 1	38 : 1	55 : 1	52 : 1
Turns number for closing / opening	12.5	9.5	13.75	13
Input torque (Nm)	32	56.8	64	115.4
Output torque (Nm)	1200	1620	2640	4500

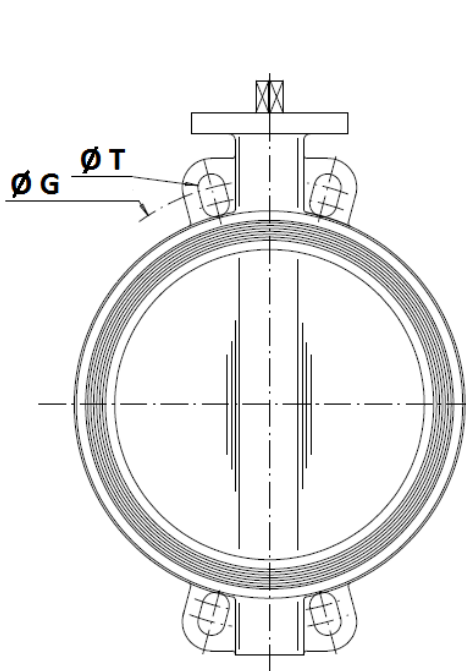
**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
STAINLESS STEEL BODY AND DISC WITH EPDM SEAT**

BETWEEN FLANGES SIZE (in mm) :

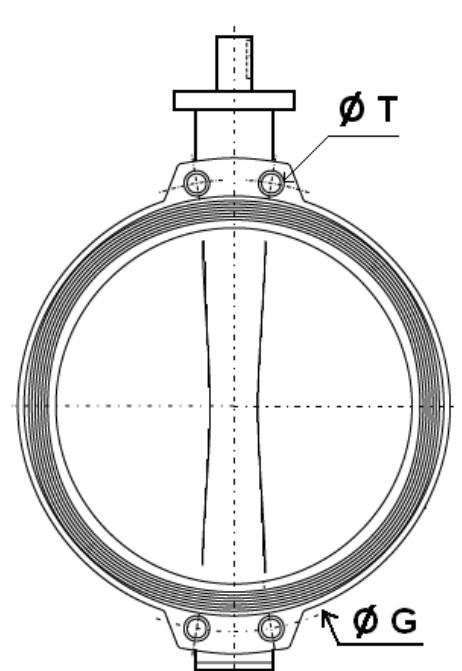
DN 32-200



DN250 – 400



DN450-600



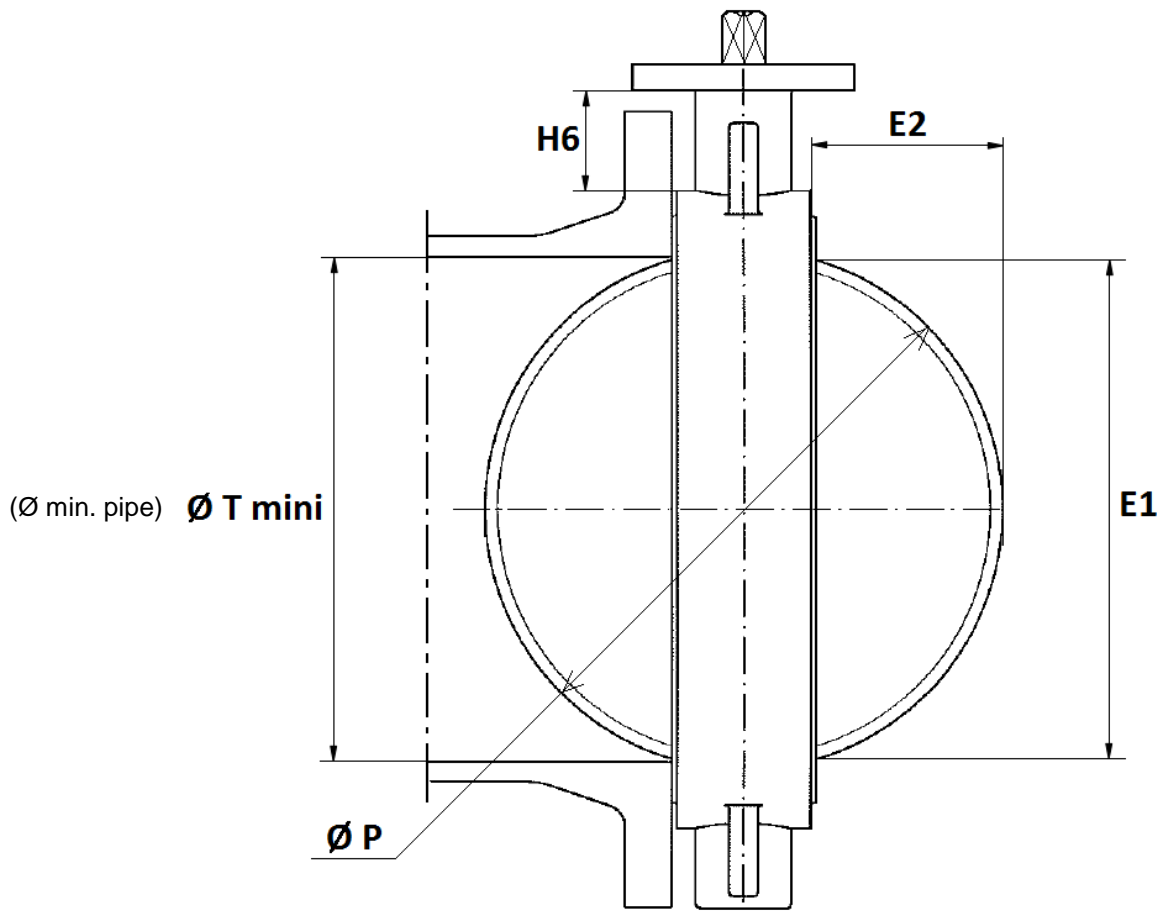
	DN (mm)	32	40	50	65	80	100	125	150	200	250	300	350	400
	NPS (")	1"1/4	1"1/2	2"	2"1/2	3"	4"	5"	6"	8"	10"	12"	14"	16"
PN10	Ø G	100	110	125	145	160	180	210	240	295	350	400	460	515
	Ø T	18	18	18	18	18	18	18	23	23	23	23	23	27
PN16	Ø G	100	110	125	145	160	180	210	240	295	355	410	470	525
	Ø T	18	18	18	18	18	18	18	23	23	27	27	27	30
Class 150	Ø G	88.9	98.5	120.6	139.7	152.4	190.5	215.9	241.3	298.5	362	431.8	476.3	539.8
	Ø T	16	16	19	19	19	19	23	23	23	26	26	29	29

	DN (mm)	450	500	600
	NPS (")	18"	20"	24"
PN10	Ø G	565	620	725
	Ø T	M24	M24	M27
PN16	Ø G	585	650	770
	Ø T	M27	M30	M33
Class 150	Ø G	577.9	635	749.3
	Ø T (BSW)*	1 1/8"	1 1/8"	1 1/4"
	Ø T (Metric)	M30	M30	M33

* Threaded BSW on standard, on request metric threaded for Class 150

**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
STAINLESS STEEL BODY AND DISC WITH EPDM SEAT**

NECK AND DISC SIZE (in mm) :

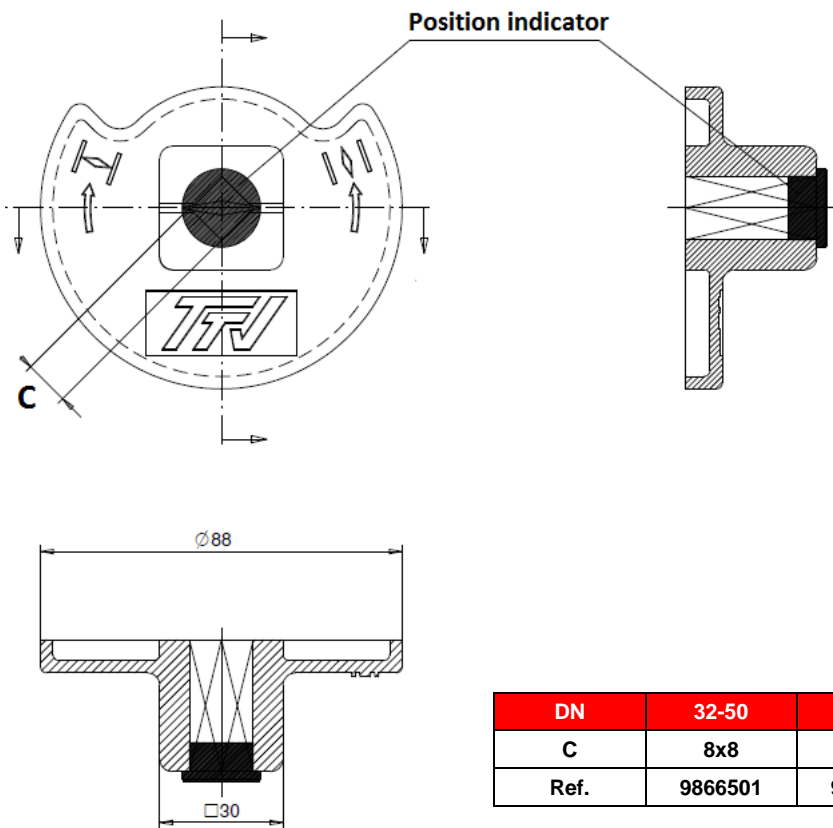


DN	32/40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
E1	23	24.5	46	65	85	109	136	188	238	289	331	385	424	479	575
E2	3.5	3.5	9.5	17	24	33.5	45.5	69	90	110.5	131	148	162.5	184	221
H6	76	82	80	80	88	93	89	99	71	76	69	80	96	119	127
Ø T mini	26	27.5	49	68	88	112	139	191	241	292	334	388	427	482	578
Ø P	40	50	65	80	100	123	147	198	248	299	340	398	439	495	596

**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
STAINLESS STEEL BODY AND DISC WITH EPDM SEAT**

SIZE (in mm) :

- **Square lever for special key (30x30 mm) :**



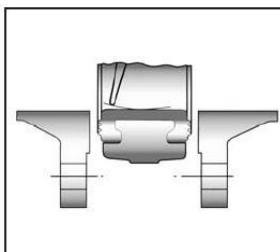
DN	32-50	65	80-100	125-150	200
C	8x8	9x9	11x11	14x14	17x17
Ref.	9866501	9866502	9866503	9866504	9866505

**CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
STAINLESS STEEL BODY AND DISC WITH EPDM SEAT**

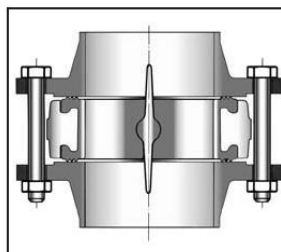
STANDARDS :

- Manufacturer certified ISO 9001:2015
- Designing according to ISO 10631 and EN 593
- DIRECTIVE 2014/68/EU : CE N° 0038 or N°0094
Risk Category III module H
- Certificate 3.1 on request
- Pressure tests according to EN 12266-1, Rate A
- 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 series 4
 - DIN 3202 part 3, series K1
 - API 609 Table 1 up to DN600
 - ASME B16.10 Table 8 column 3 up to DN350, column 4 from DN400 to 600
- ATEX Group II Category 2 G/2D Zone 1 & 21 Zone 2 & 22 (on request)
- The valves are suitable for use in a safety instrumented system up to SIL 2 in low demand mode. Under consideration of the minimum required hardware fault tolerance HFT= 1 the valves may be used in a redundant architecture up to SIL 3.
- Approval certificate **Marine BUREAU VERITAS on request**

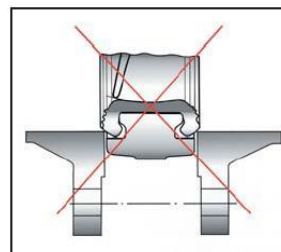
INSTALLATION INSTRUCTIONS :



Half open valve introduction



**Complete opened disc valves
when screw tightening**



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.