PA Ventiler AB
EN DEL AV BEIJERTECH

ISO 9001 : 2015 BUREAU VERITAS Certification

REF. 202

CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

Wafer butterfly valve TTV excellence range for acids, grease, hydrocarbon, petrol, premium gasoline, Argon, glycerin, oil, carbon dioxide, biogas.
Not advisable for steam and hot water (130°C max), freon, amoniac, acetylene.
Approval Bureau Veritas marine certificate., 10 years warranty.
Ductile iron EN GJS-500-7 body, stainless steel disc and FKM 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).

BUREAU VERITAS Marine & Offshore Division

Certificate 3.1

Lloyd's Register PED/2014/68/UE

WARRANTY 10 years MANUFACTURE *

SIL3



Size : DN32/40 to DN1400
Connection : Between flanges PN10/16 and Class 150 (PN20)
Min Temperature : -5°C
Max Temperature : +180°C
Max Pressure : 16 Bars up to DN300
Specifications : Long neck for isolation
Wafer type
Full crossing stem
ISO 5211 direct mounting pad

Materials : Ductile iron GJS 500-7 body, FKM 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)
- Betwwen flanges PN10 from DN450 to DN 1400
- Full crossing stem
- Removable FKM seat, dovetail type above DN40
- Stainless steel disc
- 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 : Acids, grease, hydrocarbon, petrol, premium gasoline, Argon, glycerin, oil, carbon dioxide, biogas
- Not advisable : Steam and hot water (130°C max), freon, amoniac, acetylene
- Min and max Temperature Ts : From -5°C to + 180°C
- Max Pressure Ps : 16 bars up to DN300 , 10 bars over (see graphs page 5)

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 (**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**

CONNECTION :

- Between flanges PN10/16 from DN32/40 to 400 and Class 150 (PN20) from DN40 to 400
- Between flanges PN10 from DN450 to DN 1400

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

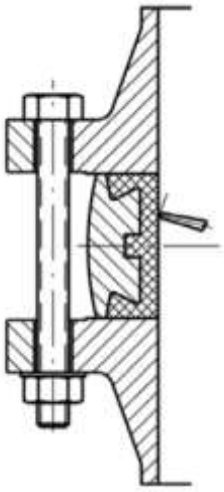
		DN														
	Pressure (Bar)	**32/40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**600**
Torque (Nm) with machined disc (on request)	1-5*	2	4	6	8	10	14	15	25	64	118	179	265	353	490	686
	6*	3	5	7	10	12	18	31	55	123	216	333	519	735	931	1372
	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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DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

MAXIMUM TIGHTENING TORQUES FOR BOLTING FLANGES :



		Maximum torques (Nm)			
	Bolting types	5,6 / A307 Gr.B	8,8 / A193 B7	10,9	12,9
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

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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
700	573	1569	3178	5359	8153	11770	16830	26139	26667
750	619	1947	3585	6361	9239	13359	19142	28298	31312
800	723	2167	4148	7008	10674	15426	22085	36080	35850
900	758	2434	4916	8280	12582	18142	25757	39127	39127
1000	1297	3282	6429	10701	16159	23266	33166	51427	51427
1100	1622	3682	7459	12441	19495	29186	36539	64101	68797
1200	1792	4612	9151	15308	23204	33449	41355	69264	76584
1300	2378	5293	10736	17255	28441	41241	53171	71746	84294
1400	2608	6343	12117	21341	31568	45727	65609	75811	117171
1600	3215	6869	14229	25493	35968	56628	77558	86501	137335

HEAD LOSS CALCULATIONS :

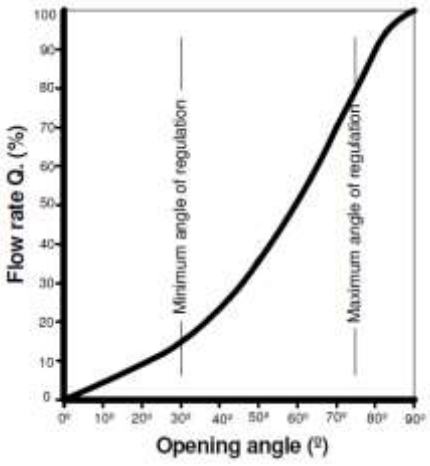
Δp = (Q / Kv)² x SG

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)

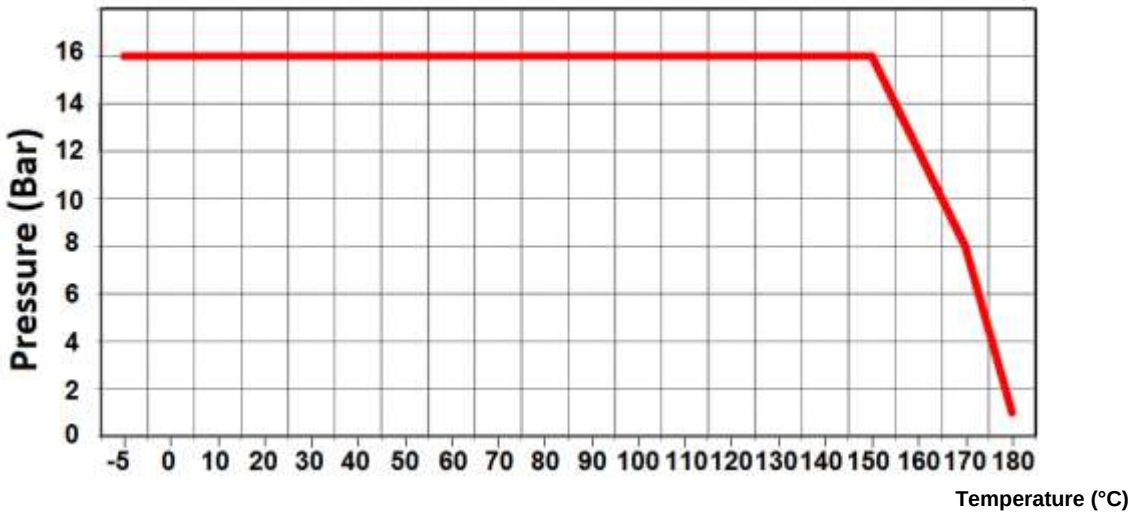


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CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

PRESSURE / TEMPERATURE GRAPH (STEAM EXCLUDED) :

- ***Ps 16 BAR DN40-300 :***



- ***Ps 10 BAR DN350-1200 :***



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CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
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REPAIRABILITY :



SEAT **DISC** **STEM** **HANDLE**









	DN	40	50	65	80	100	125	150	200	250	300
Seat	Ref.	9865133	9865124	9865125	9865126	9865127	9865128	9865129	9865130	9865131	9865132
Disc	Ref.	9865020	9865021	9865022	9865023	9865024	9865025	9865026	9865027	9865028	9865029
Stem	Ref.	9865040	9865041	9865042	9865043	9865044	9865045	9865046	9865047	9865048	9865049
Handle	Ref.	9831331		9831332	9831333		9831334		9831335	9831336	9831337

	DN	350	400	450	500
Disc	Ref.	9865212	9865213	9865214	9865215

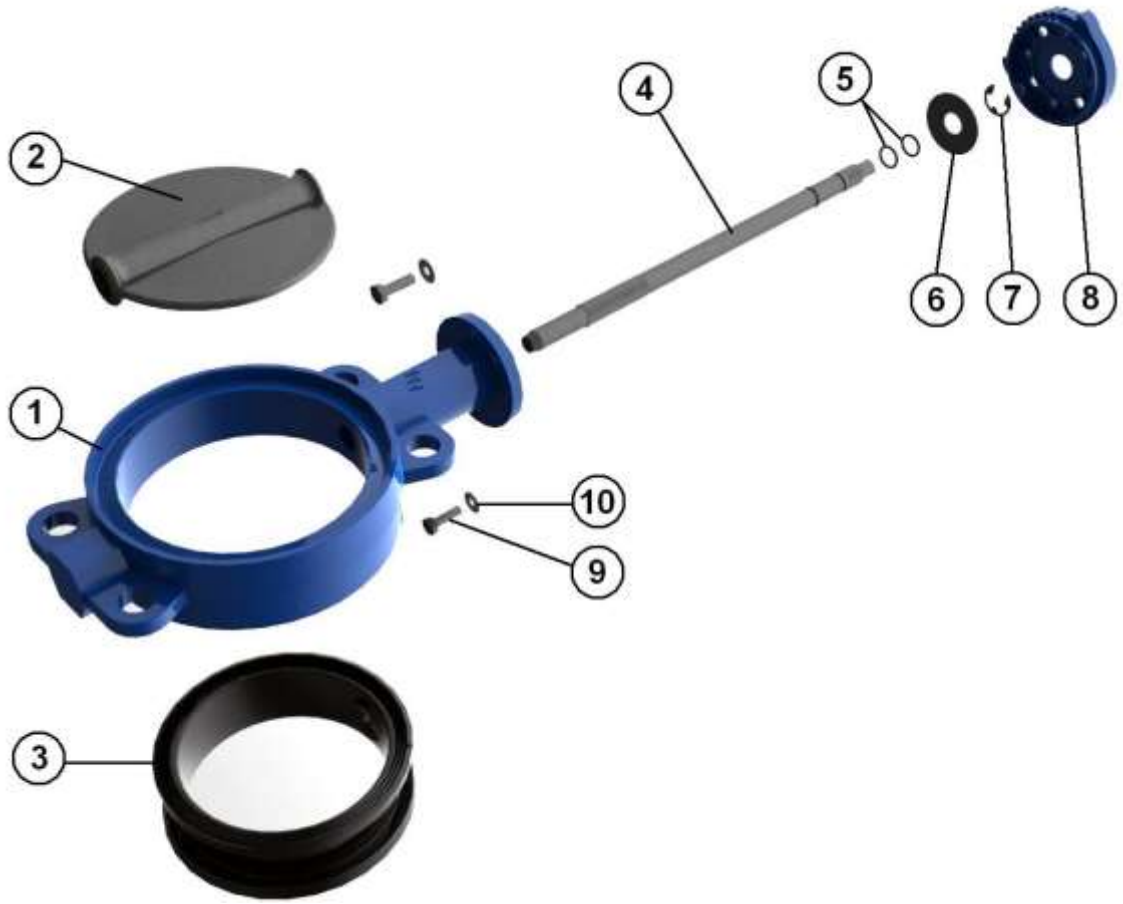
Information provided as an indication and subject to possible modification

PA Ventiler AB
EN DEL AV BEIJERTECH

REF. 1154

CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

MATERIALS DN 32 - 200 :

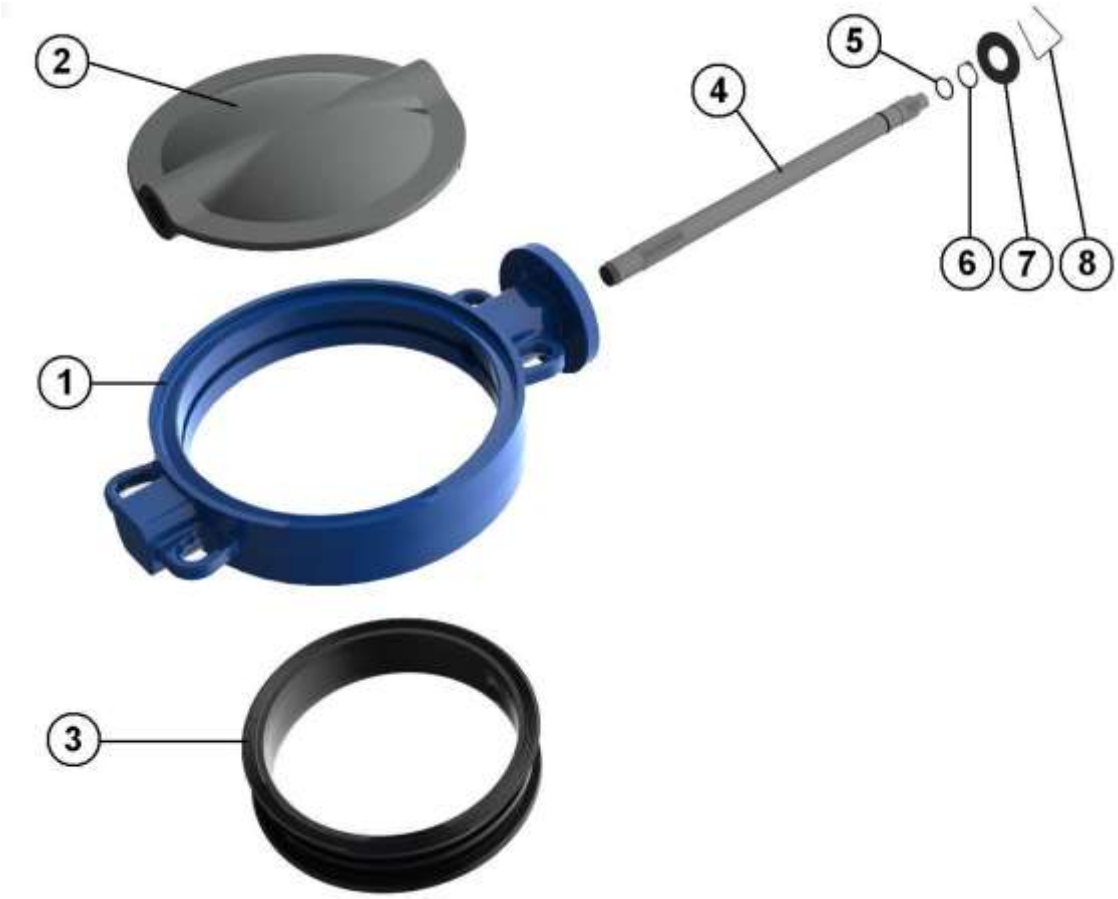


Item	Designation	Materials
1	Body	Ductile iron EN GJS-500-7 rilsan coated color RAL 5024 250-300 µ thickness
2	Disc	ASTM A351 CF8M
3	Seat	FKM
4	Stem	AISI 304
5	O ring	FKM
6	Ring	Steel
7	Circlips	
8	Plate	Aluminium
9	Plate screw	5.6
10	Washer	Steel
	Lever	Aluminium ADC10 with epoxy painting 50µ thickness

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CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

MATERIALS DN 250 - 400 :

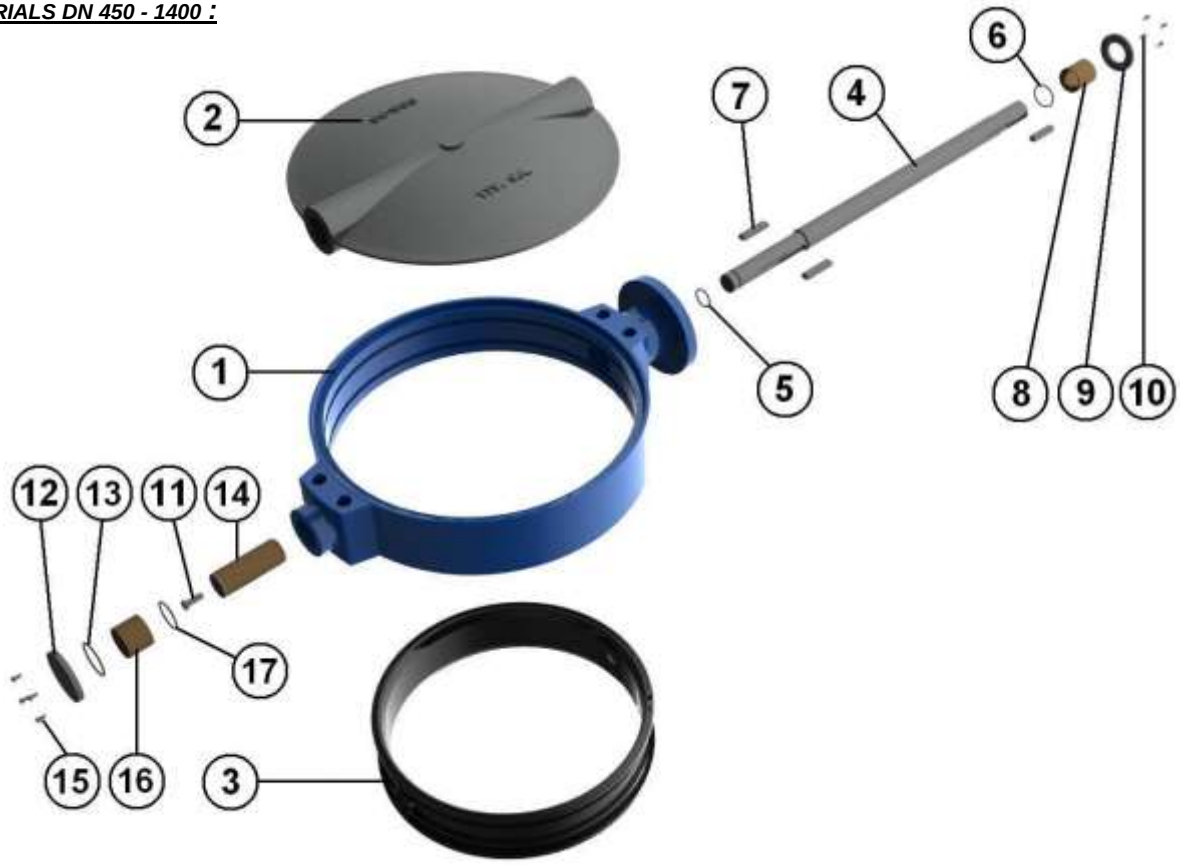


Item	Designation	Materials
1	Body	Ductile iron EN GJS-500-7 rilsan coated color RAL 5024 250-300 µ thickness
2	Disc	ASTM A351 CF8M
3	Seat	FKM
4	Stem	AISI 304
5	O ring	FKM
6	Circlips	Steel
7	Ring	
8	Spring	
Lever (up to DN300)		Ductile iron EN GJS-500-7 with epoxy painting 50µ thickness

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CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

MATERIALS DN 450 - 1400 :



Item	Designation	Materials
1	Body	Ductile iron EN GJS-500-7 rilsan coated color RAL 5024 250-300 µ thickness
2	Disc	ASTM A351 CF8M
3	Seat	FKM
4	Stem	AISI 304
5	O ring	FKM
6	O ring	FKM
7	Pin	ST – 60
8	Socket	BRONZE
9	Ring	F1110
10	Screw	5.6
11	Screw	5.6
12	Cap	F1110
13	O ring	FKM
14	Socket	F1110
15	Screw	5.6
16	Socket	BRONZE
17	O ring	FKM

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CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

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

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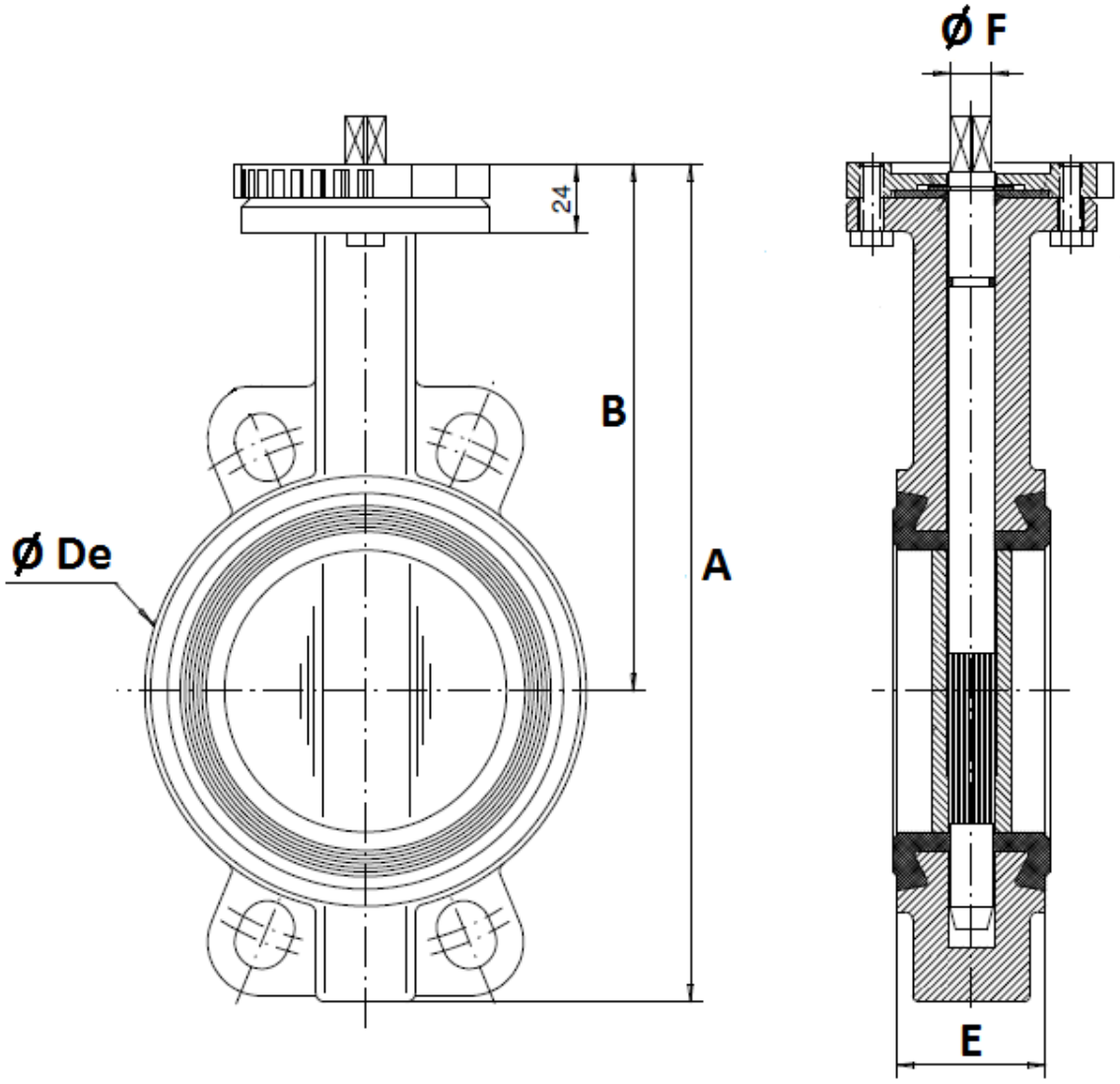
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CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

SIZE (in mm) :

- **Valves DN 32 - 200 :**



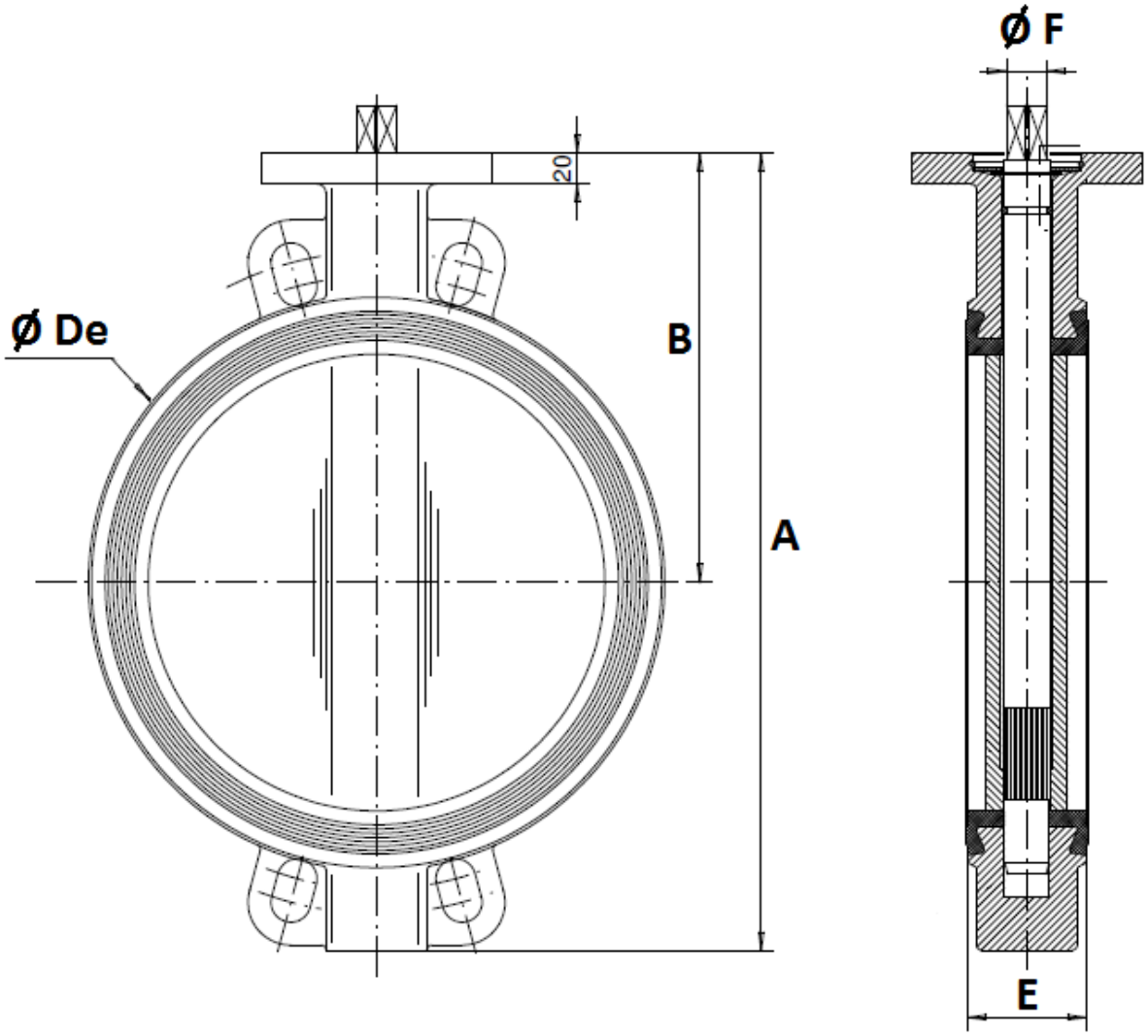
DN	32/40	50	65	80	100	125	150	200
A	206	228	248	265	298	331	349	430
B	140	156	161	169	187	206	215	255
Ø De	82	102	119	135	155	185	208	270
E	33	43	46	46	52	56	56	60
Ø F	9.5	9.5	12	14	14	17	17	21
Weight (Kg)	2.46	3.66	4.4	4.6	6	7.6	9.2	14.7

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CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

SIZE (in mm) :

- **Valves DN 250 -400 :**



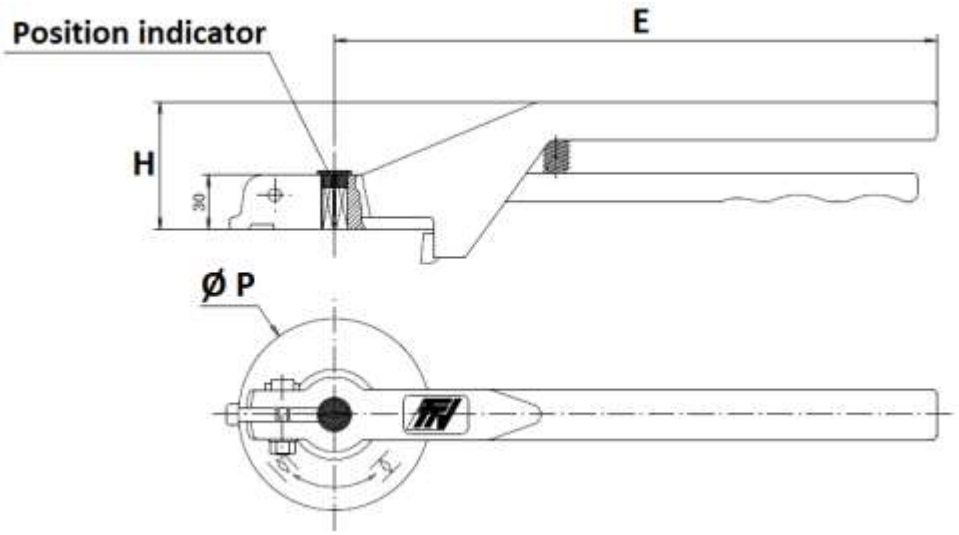
DN	250	300	350	400
A	461	524	570	644
B	248	280	300	340
Ø De	328	381	437	486
E	68	78	78	102
Ø F	23	26.5	26.5	33
Weight (Kg)	24.7	33	39	52

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DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

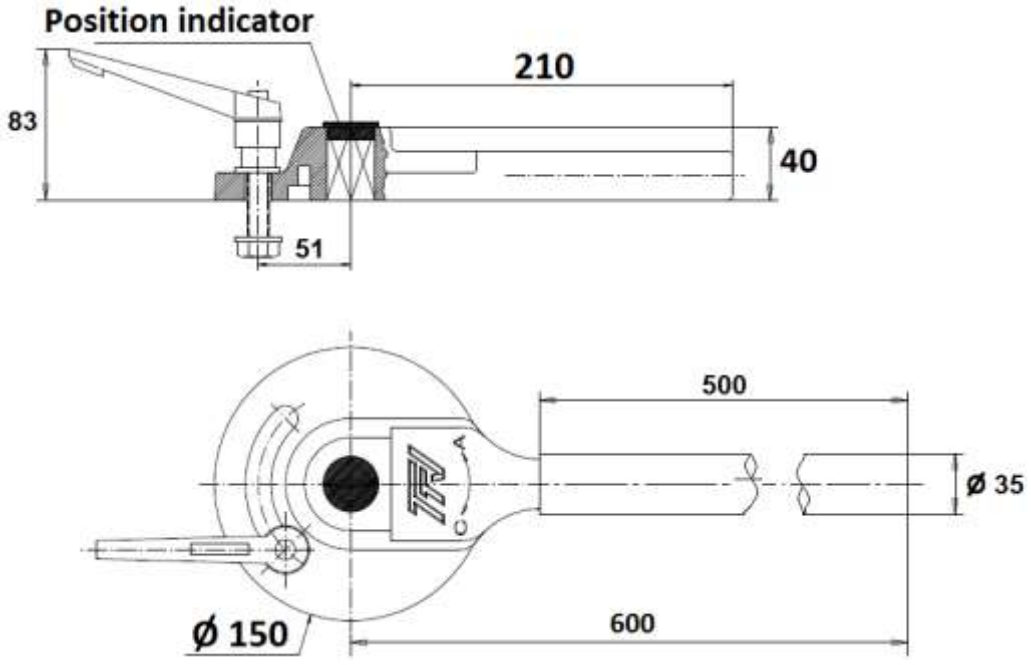
STANDARD LEVERS SIZE (in mm) :

DN 32 – 200 :



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

DN 250 – 300 :

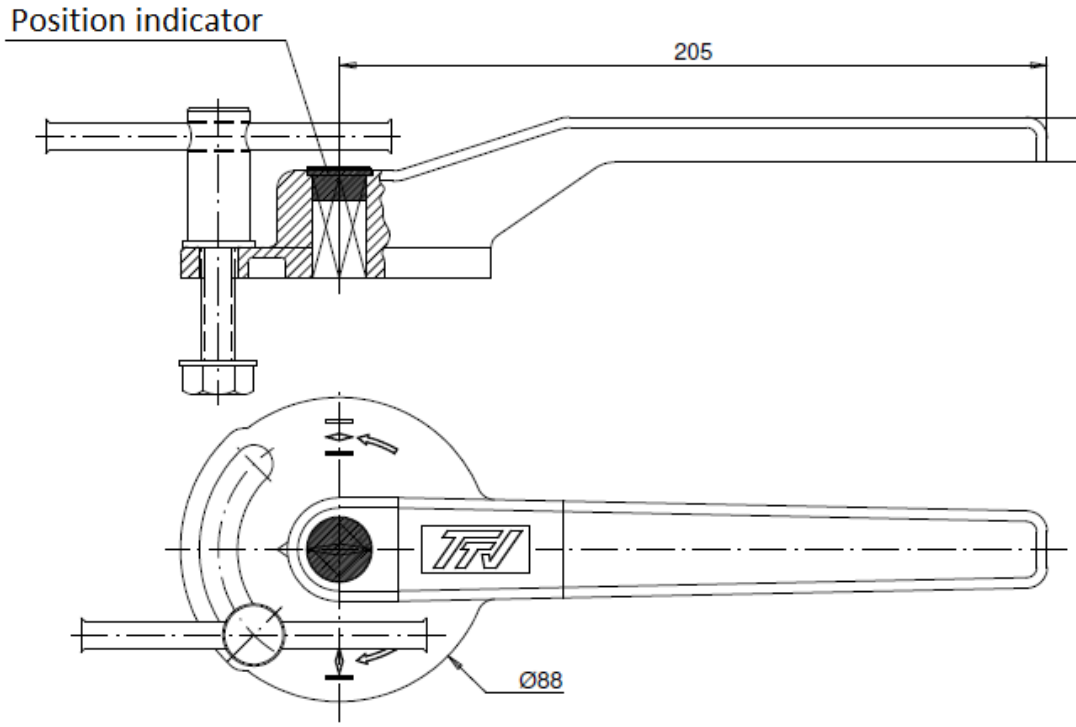


Information provided as an indication and subject to possible modification

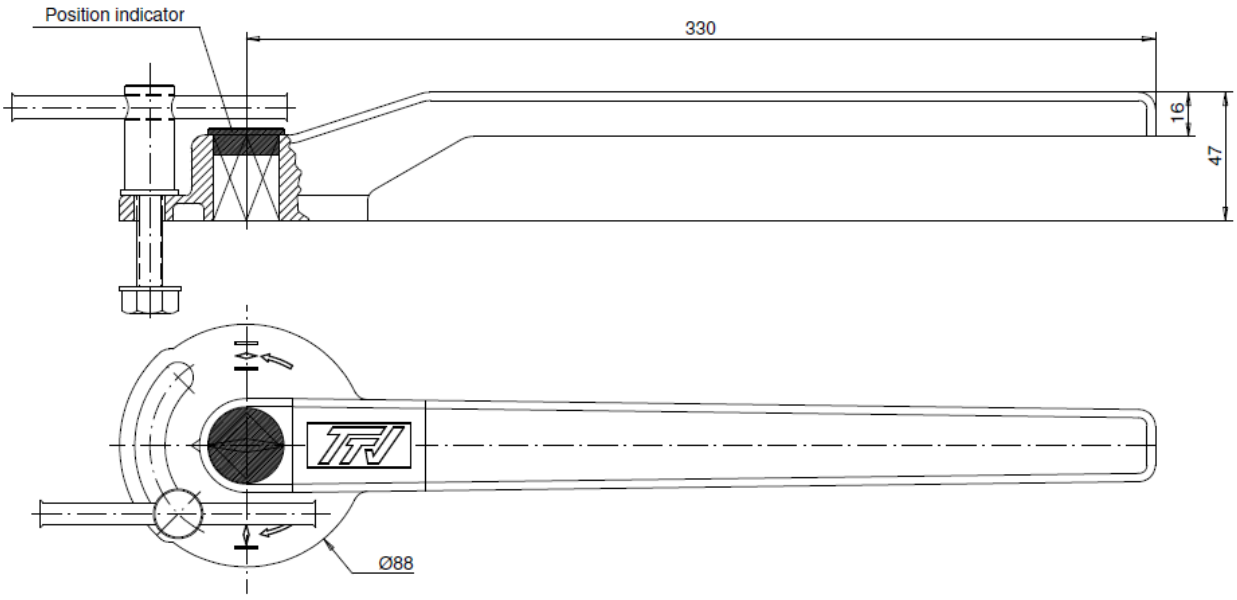
CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

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

DN 40 - 100



DN 125 - 200

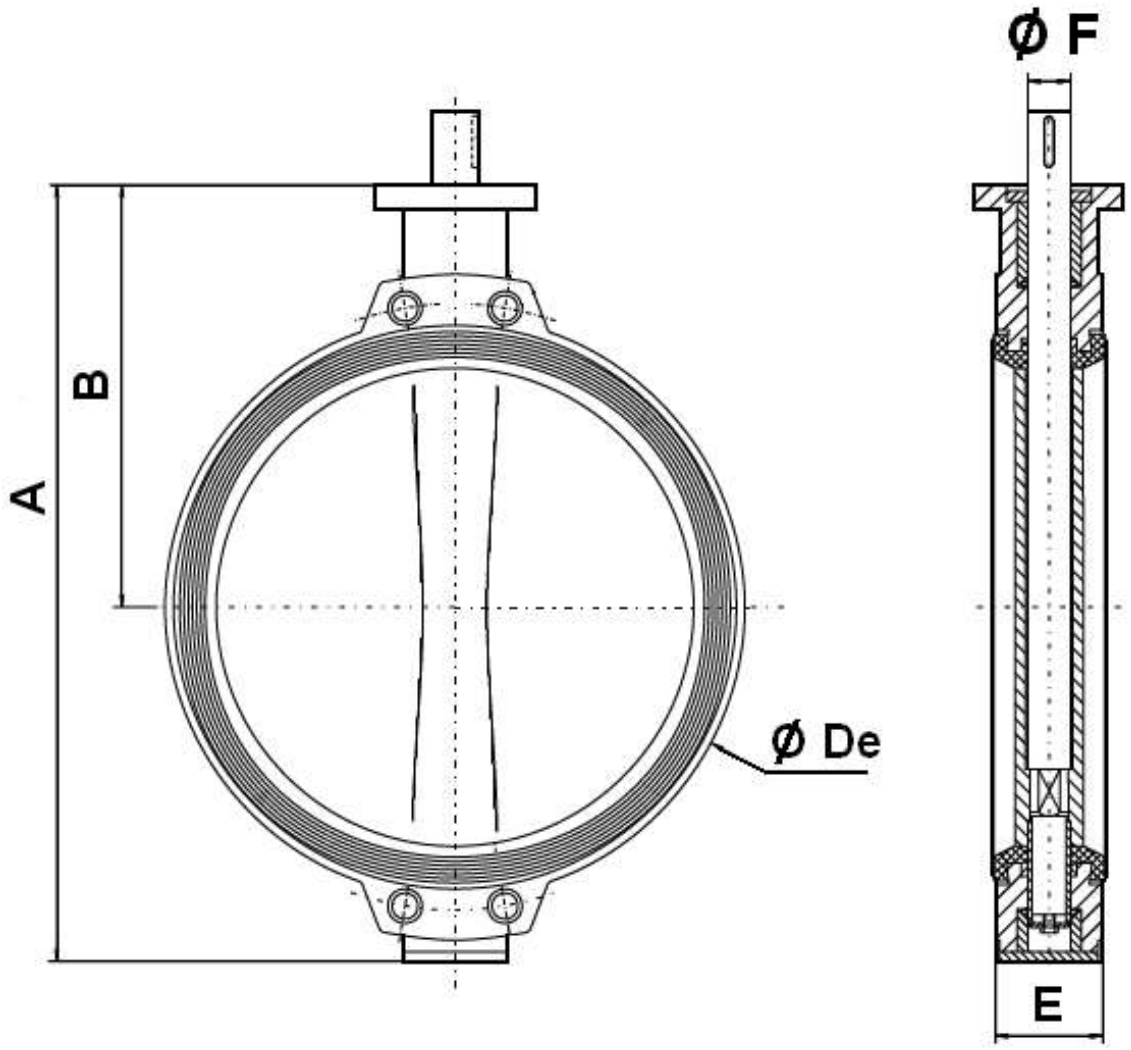


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CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
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SIZE (in mm) :

- **Valves DN 450 - 1400 :**



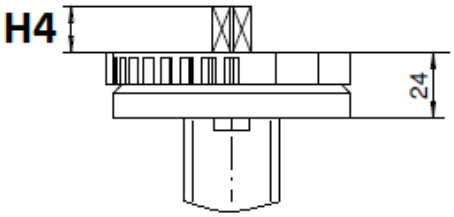
DN	450	500	600	700	750	800	900	1000	1100	1200	1300	1400
A	738	822	965	1100	1150	1248	1325	1457	1580	1720	1910	1990
B	394	440	507	575	600	655	685	754	815	873	1005	1025
Ø De	538	595	695	804	860	911	1010	1124	1225	1330	1460	1530
E	114	127	154	165	190	190	203	216	216	254	360	360
Ø F	50	50	60	60	65	65	80	80	80	100	120	120
Weight (Kg)	87	117	177	258	296	330	505	661	840	1020	1650	1900

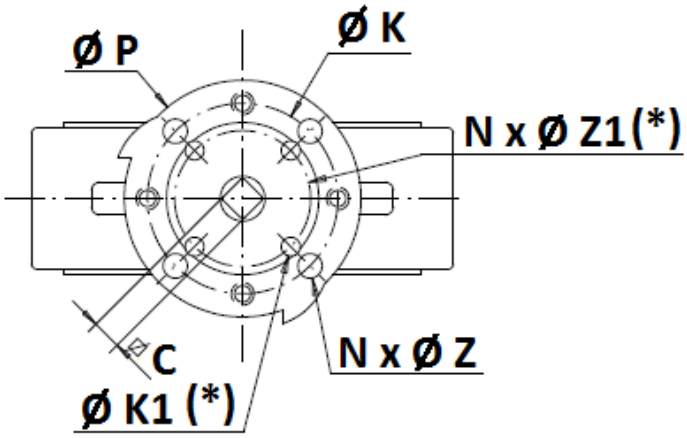
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DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

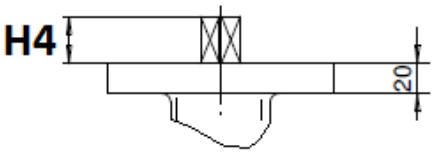
ISO MOUNTING PAD SIZE DN32-400 (in mm) :

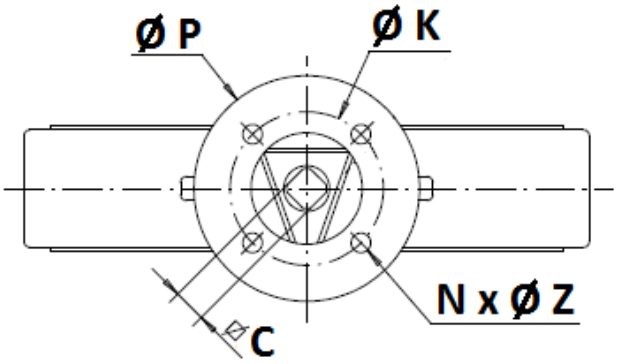
DN 32 – 200





DN250-400





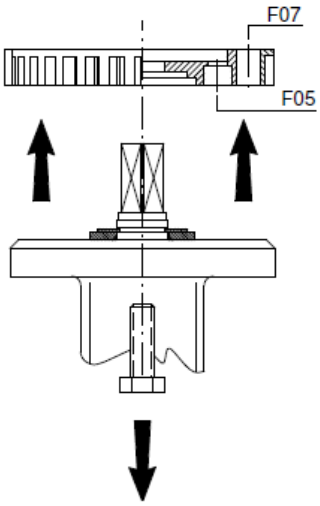
(*) : Only from DN32 to DN100 (see installation with ISO plate F05 next page)

DN	32/40	50	65	80	100	125	150	200	250	300	350	400
H4	14		16		20			24			29	
C	8		9	11		14		17	19	22		27
Ø K	70								102		140	
ISO	F07								F10		F14	
N x Ø Z	4 x 9								4 x 11		4 x 18	
Ø K1	50					-						
ISO 1	F05											
N x Ø Z1	4 x 7											
Ø P	88					105			150		170	

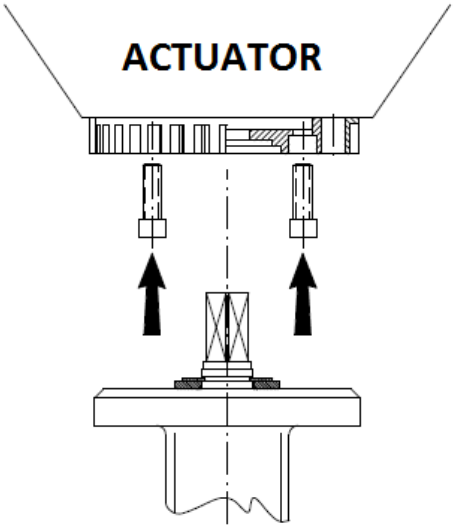
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DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

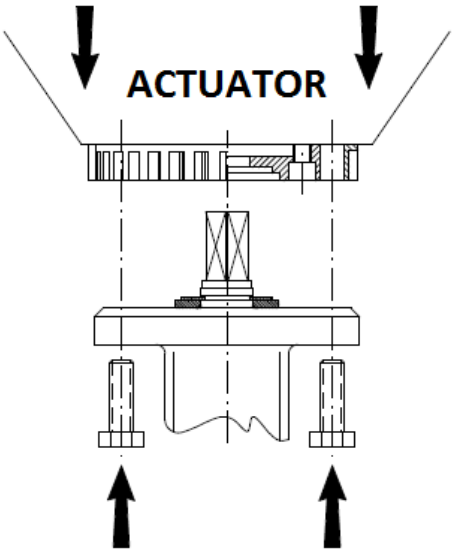
ISO PLATE INSTALLATION FOR DN32-100 ISO F05 :



Unscrew and remove the flange



Screw the flange to the actuator with hexagon socket screws



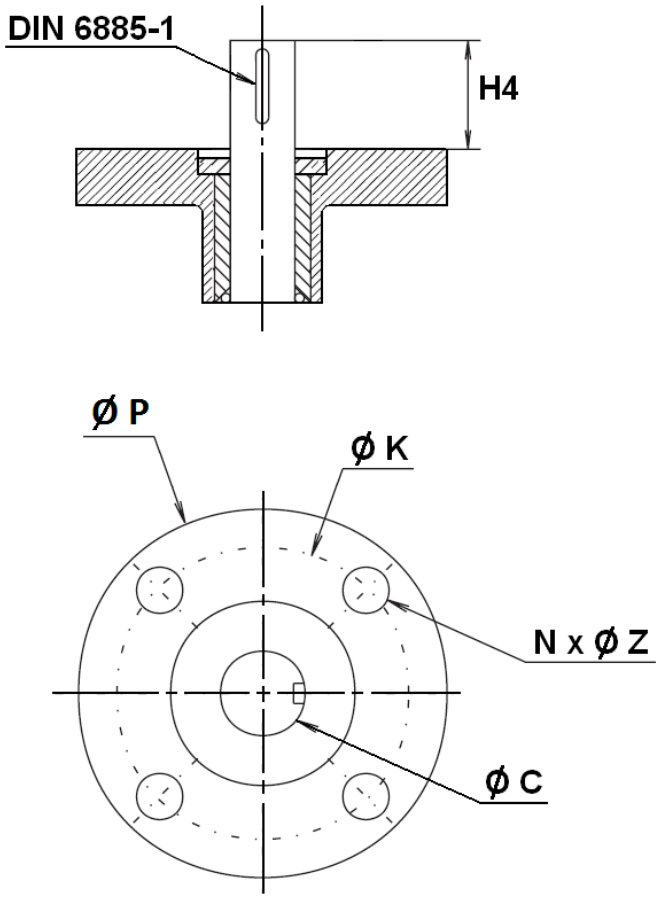
Screw the valve to the flange

Information provided as an indication and subject to possible modification

CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

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

DN 450 - 1400



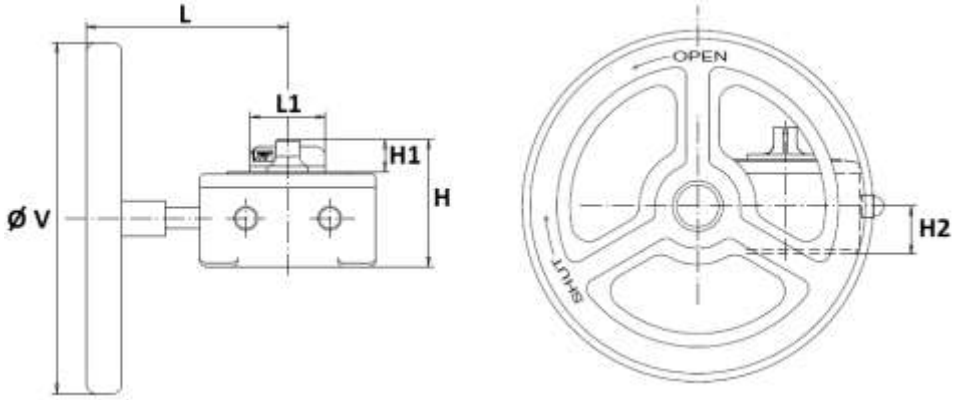
DN	450	500	600	700	750	800	900	1000	1100	1200	1300	1400
H4	80		90		110						120	
Ø C	50		60		65		80			100	120	
Ø K	140		165	254							298	
ISO	F14		F16	F25							F30	
N x Ø Z	4 x 18		4 x 22	8 x 18							8 x 22	
Ø P	175		250	300							350	

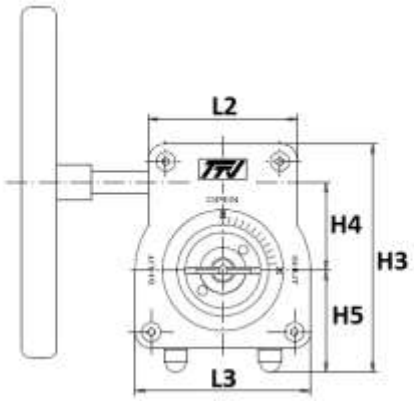
Information provided as an indication and subject to possible modification

REF. 202

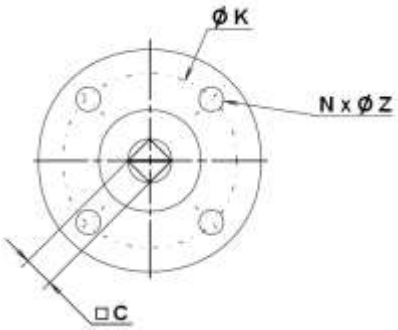
CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

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





ISO plate size :

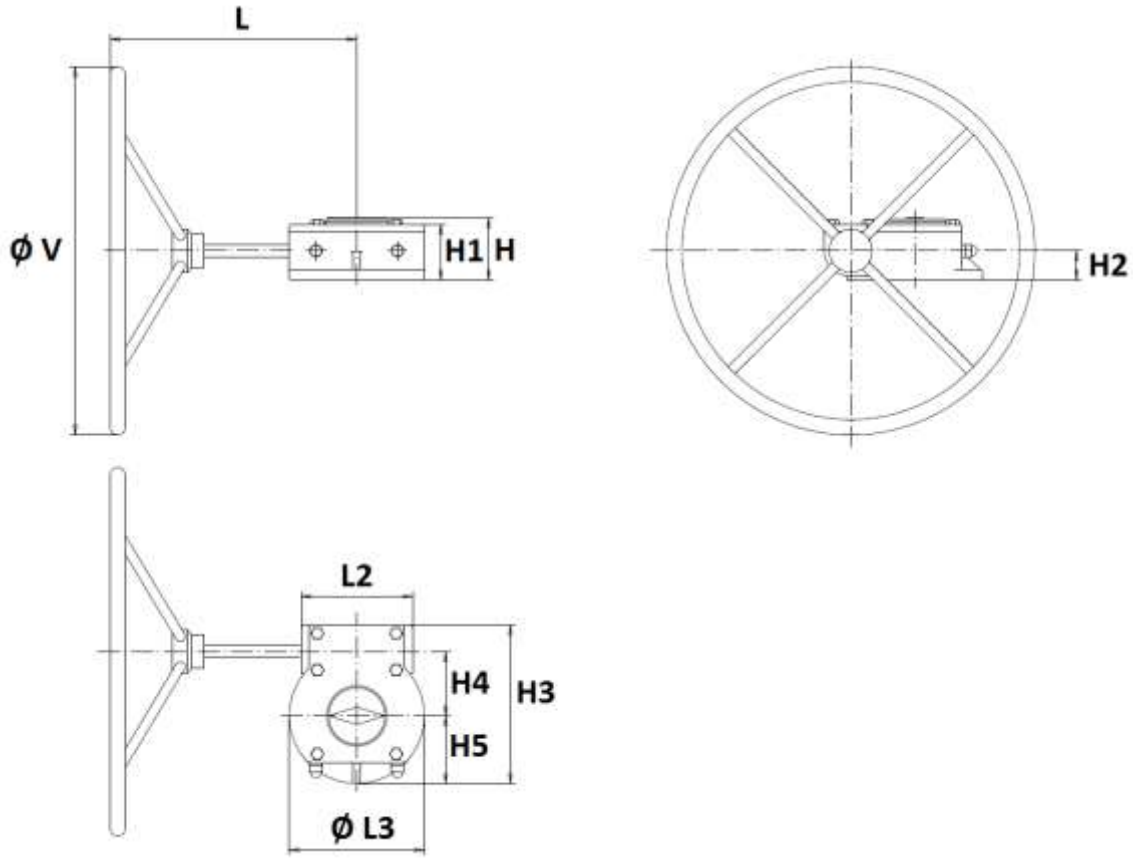


DN	32/50	65	80/100	125/150	200	250	300	350	400
L	115	115	115	115	115	223.5	223.5	325	325
L1	43	43	43	43	43	55	55	75	75
L2	85	85	85	85	85	110	110	150	150
L3	100	100	100	100	100	142	142	185	185
H	73	73	73	73	73	103	103	126	126
H1	19	19	19	19	19	33	33	32	32
H2	27.5	27.5	27.5	27.5	27.5	42	42	51	51
H3	130	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

Information provided as an indication and subject to possible modification

CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

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

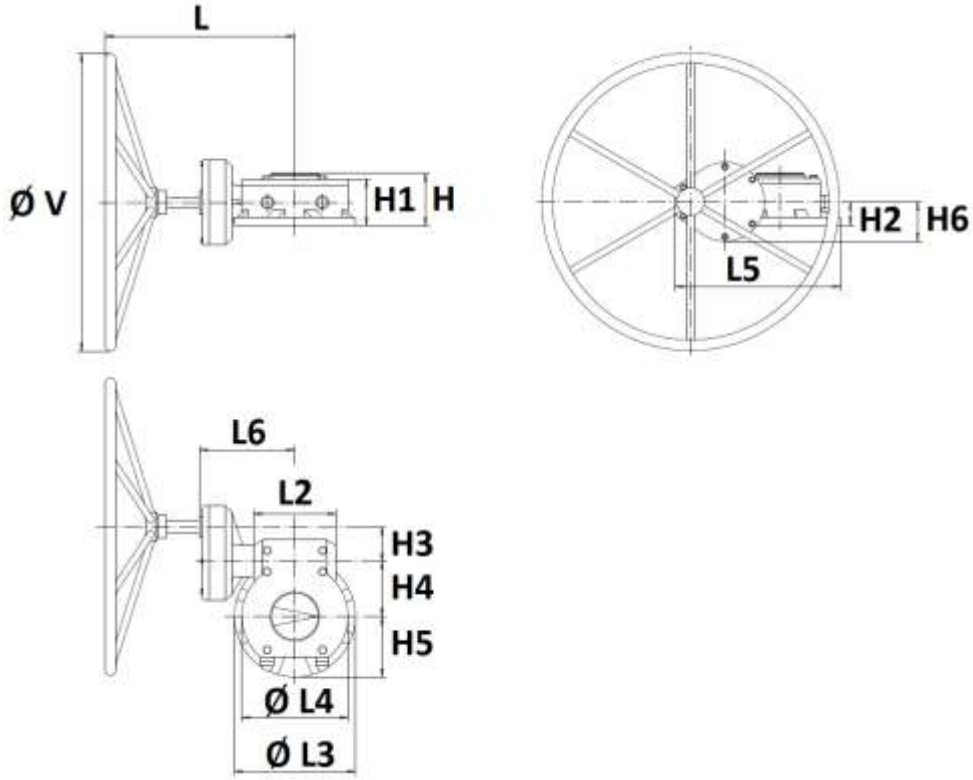


DN	450	500	600
L	381	402	447
L2	150	182	194
Ø L3	200	220	285
H	93	102	123.4
H1	82	91	109.5
H2	42	48	55
H3	226	258	322.5
H4	86	104.5	130
H5	100	110	142.5
Ø V	600	600	700
Weight (Kg)	18.8	26.8	38.3
Ref.	1197451	1197501	1197601

Information provided as an indication and subject to possible modification

CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

GEARBOX SIZE REF.1197 DN700-1200 (in mm) :



DN	700	750	800	900-1100	1200
L	447	447	447	500	556
L2	194	194	194	300	324
Ø L3	285	285	285	370	370
Ø L4	250	250	250	370	370
L5	389.5	389.5	389.5	469	574
H	123.4	123.4	123.4	138.9	139
H1	109.5	109.5	109.5		
H2	55	55	55	59	59
H3	81	81	81	81	175
H4	130	130	130	182	182
H5	142.5	142.5	142.5	170	170
H6	93	93	93	93	90
Ø V	500	500	700	600	800
Weight (Kg)	49	49	49	75	87
Ref.	1197700		1197800		

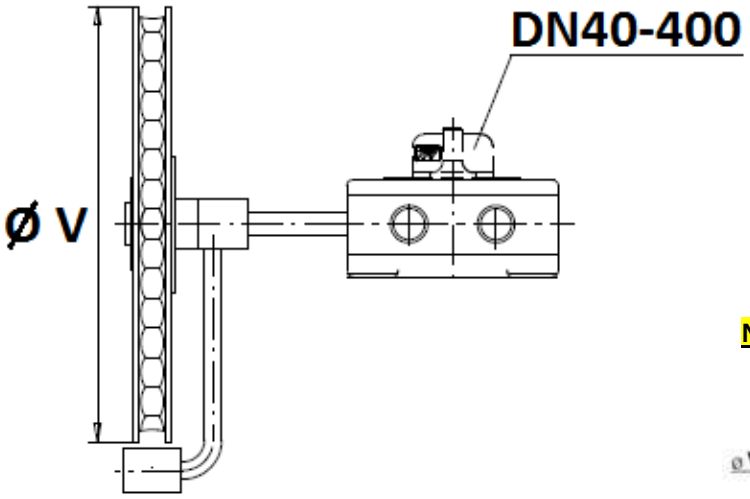
Information provided as an indication and subject to possible modification

PA Ventiler AB
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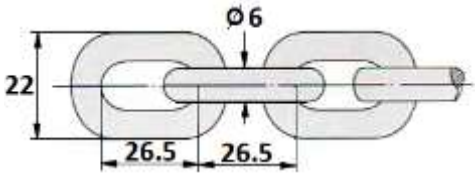
REF. 202

CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

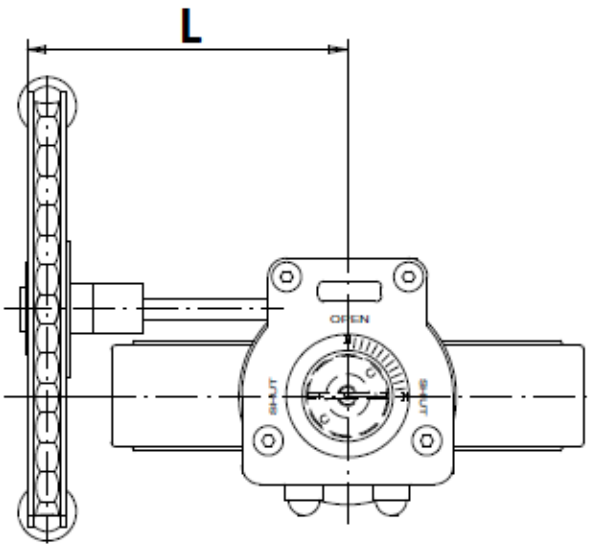
CHAIN GEARBOX SIZE REF.1194 (in mm) :

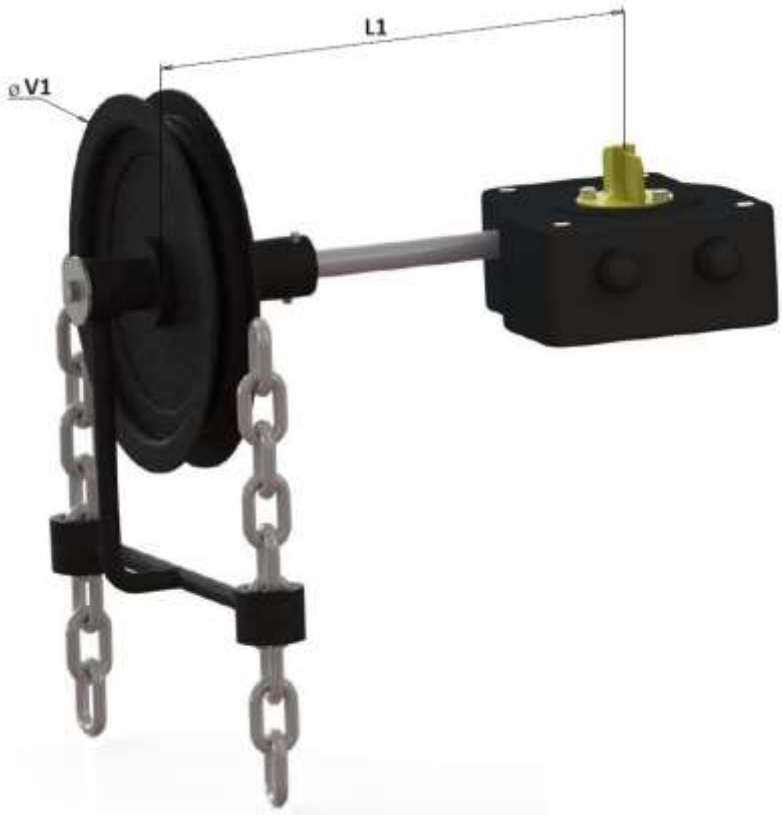


Chain size :



NEW TYPE (MODIFICATION IN PROGRESS) :





DN	32/50	65	80/100	125/150	200	250	300	350	400	450	500
L	120			215		325		331	352	350	365
L1	110					250		300			
Ø V	160			210		300		400		500	500
Ø V1											
Weight (in 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		

Information provided as an indication and subject to possible modification

PA Ventiler AB
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REF. 202

CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

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	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)	32	56.8	64	115.4	43.6	43.6	53.4	53.4
Output torque (Nm)	1200	1620	2640	4500	6800	6800	12500	12500

DN	1200
Ratio factor	702 : 1
Turns number for closing / opening	175.5
Input torque (Nm)	32.3
Output torque (Nm)	17000

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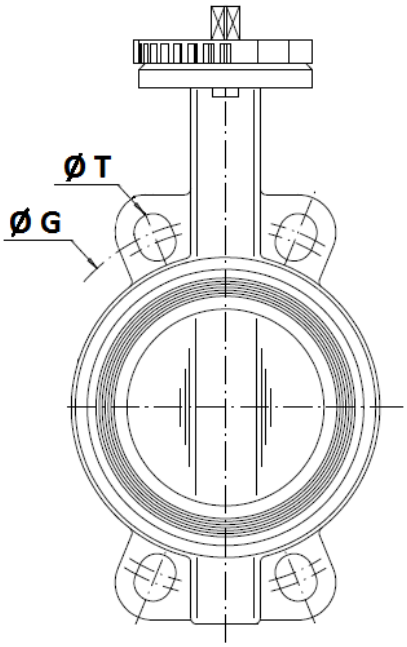
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REF.202

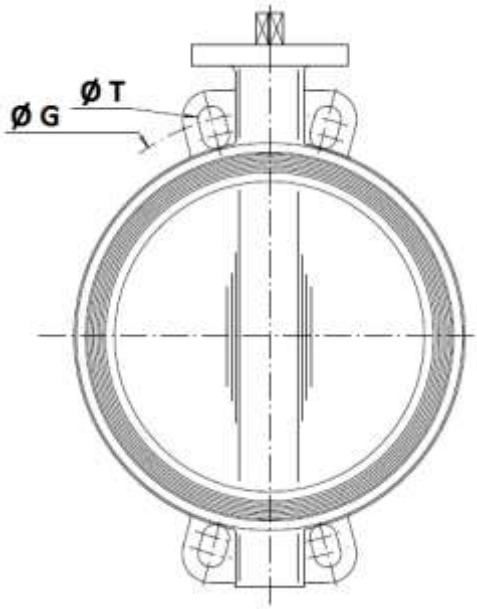
CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

BETWEEN FLANGES SIZE (in mm) :

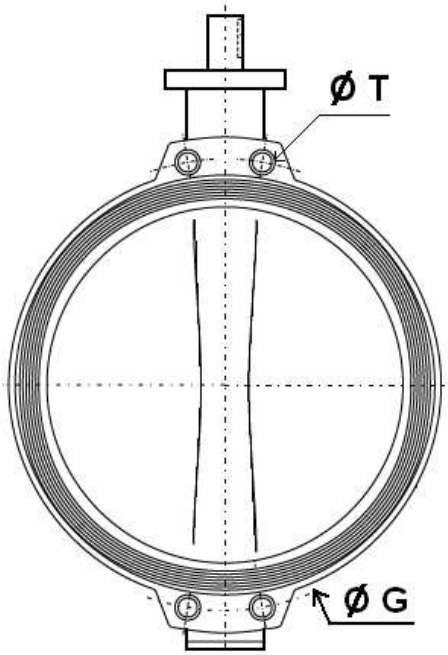
DN 32-200



DN250 – 400



DN450-1400



	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	700	750	800	900	1000	1100	1200	1300	1400
	NPS (")	18"	20"	24"	28"	30"	32"	36"	40"	44"	48"	52"	56"
PN10	Ø G	565	620	725	840	900	950	1050	1160	1270	1380	-	1590
	Ø T	M24	M24	M27	M27	M30	M30	M30	M33	M33	M36	-	M39
PN16	Ø G	585	650	770	840	900	950	1050	1170	1270	1390	-	1590
	Ø T	M27	M30	M33	M33	M33	M36	M36	M39	M39	M45	-	M45
Class 150	Ø G	577.9	635	749.3	863	914	978	1086	1200	1314	1422	1537	1651
	Ø T (BSW)*	1 1/8"	1 1/8"	1 1/4"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 3/4"	1 3/4"
	Ø T (Metric)	M30	M30	M33	M33	M33	M39	M39	M39	M39	M39		

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

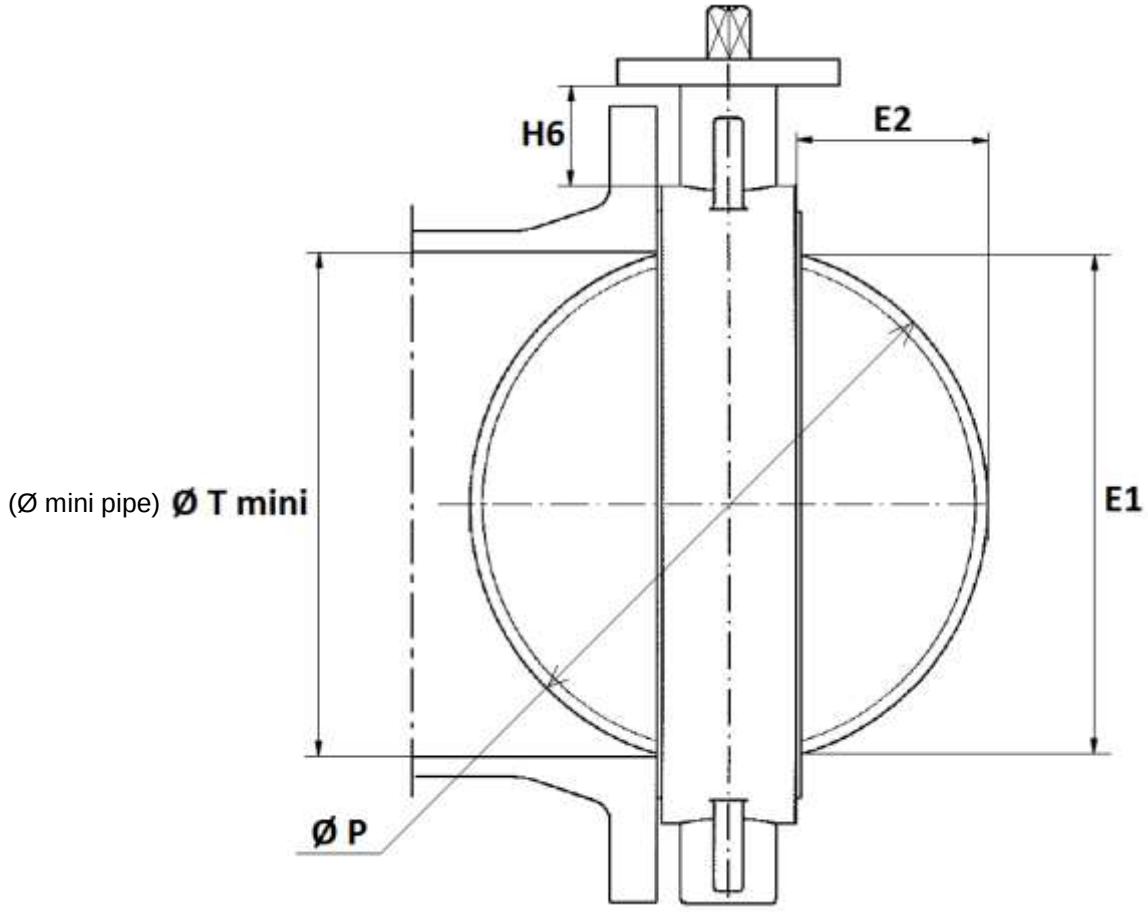
Information provided as an indication and subject to possible modification

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REF. 202

CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM 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

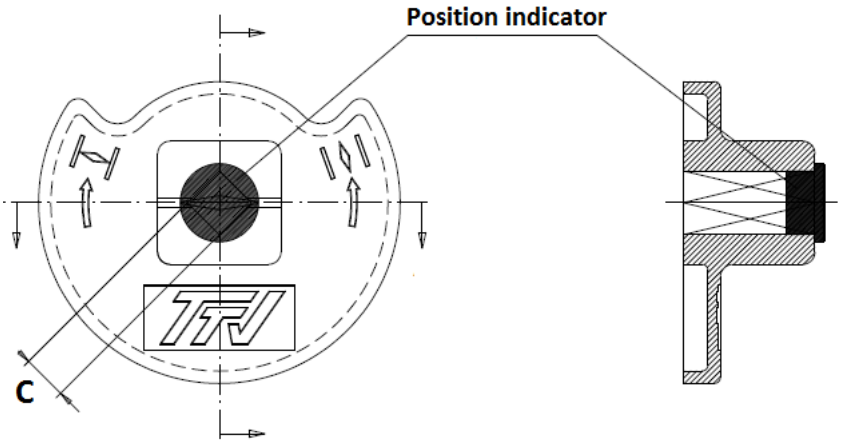
DN	700	750	800	900	1000	1100	1200	1300	1400
E1	680	721	777	850	957	1052	1146	1261	1368
E2	267.5	278	305	335.5	382.5	429	460	475.5	527.5
H6	148	140	170	150	162	175	176	240	228
Ø T mini	683	724	780	853	960	1055	1149	1264	1371
Ø P	700	746	800	874	981	1074	1174	1311	1415

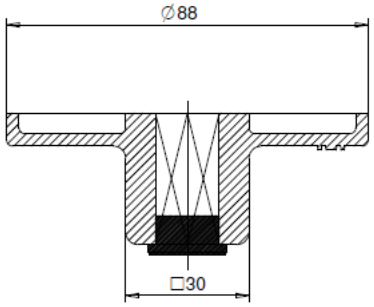
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CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

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

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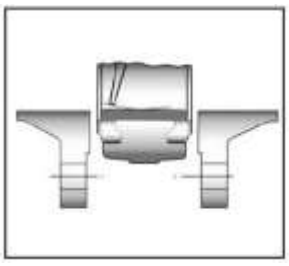
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CONCENTRIC WAFER BUTTERFLY VALVE EXCELLENCE RANGE TTV
DUCTILE IRON BODY-STAINLESS STEEL DISC AND FKM SEAT

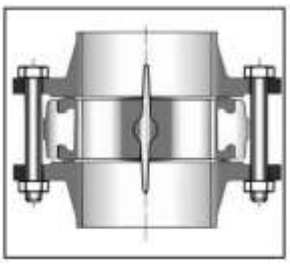
STANDARDS :

- Manufacturer certified ISO 9001:2015
- Designing according to ISO 10631 and EN 593
- DIRECTIVE 2014/68/EU : For liquids or Gas of Group 1
  - DN32-50 : Risk category I, CE marking
  - DN65-200 : Risk category II, CE0094 marking
  - DN250-300 : Risk category III, CE0094 marking
  - DN350 : Risk category II, CE0094 marking
  - DN400-600 : Risk category III, CE0094 marking
- 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**

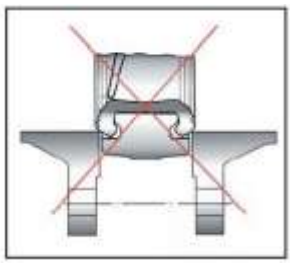
INSTALLATION INSTRUCTIONS :



Half open valve introduction



Complete opened disc valves when screw tightening



Information provided as an indication and subject to possible modification