

BUTTERFLY VALVE



It is a type of valve consisting of a disc travelling 90 degrees on shaft inside of a circular body. It is a type which needs less installation space and which is light in weight and cheap in cost compared to other types of valves.

Even it is fully open, disc is located on flow path. This is the reason why it cannot be used in sewage media, but can be used only in clean water.

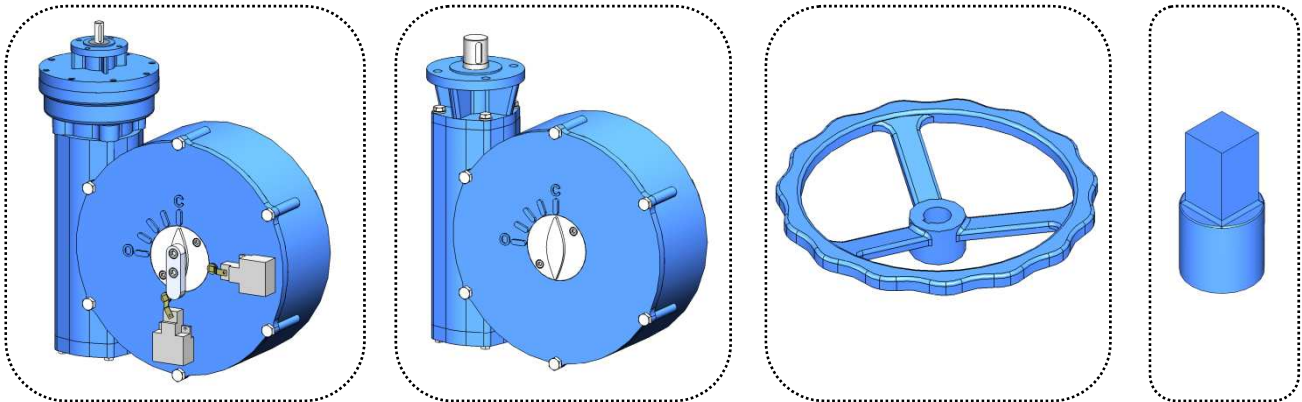
Disc of butterfly valve is operated by means of a gearbox.

Butterfly valve should be used as isolation valve for performing on-off duty. It must not be used for throttling purpose. Velocity of flow is increased; cavitations and water jets begin to take place while disc is approaching to fully closed position. Internal components of valve, especially disc ring, are damaged.

For throttling duty, regulating duty and for high line pressures such as more than PN25, needle valve should be used.

Installation Position, Any position is applicable as long as shaft of valve is horizontal.

Accessories, Gearbox, Product Code, TK



The accessory which operates valve is the gearbox. Worm gear-helical gear design is applied. Since disc of valve travels 90 degrees, gearbox is designed and produced to allow that travel. There is an adjustable item inside the gearbox for limit stops at “fully open” and “fully closed” positions of valve. Position indicator on the gearbox shows the opening degree of disc.

For operating butterfly valves up to and including DN 500 PN 16, worm gear-helical gear system is capable on its own.

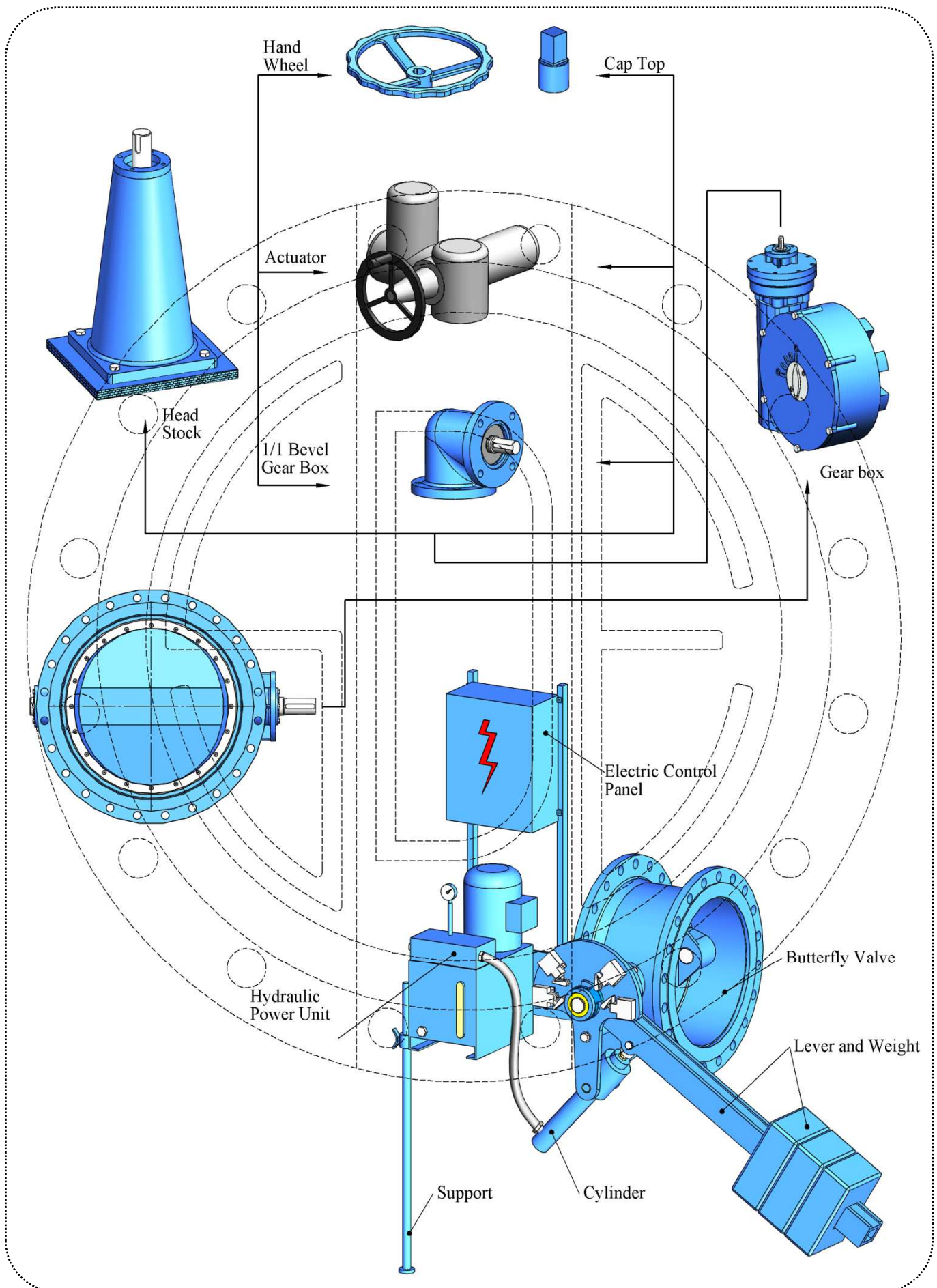
For valves including DN 600 PN 16 and greater, planet gear system is fixed on TK gearbox for easy operation.

You can refer to our gearbox information pages for further information.

Maintenance,

No maintenance is needed for a valve which is used in clean water except lubricating gear unit. If valve is uninstalled, it is recommended to check disc ring (rubber ring), o-rings and change if necessary.

ACCESSORIES OF BUTTERFLY VALVE

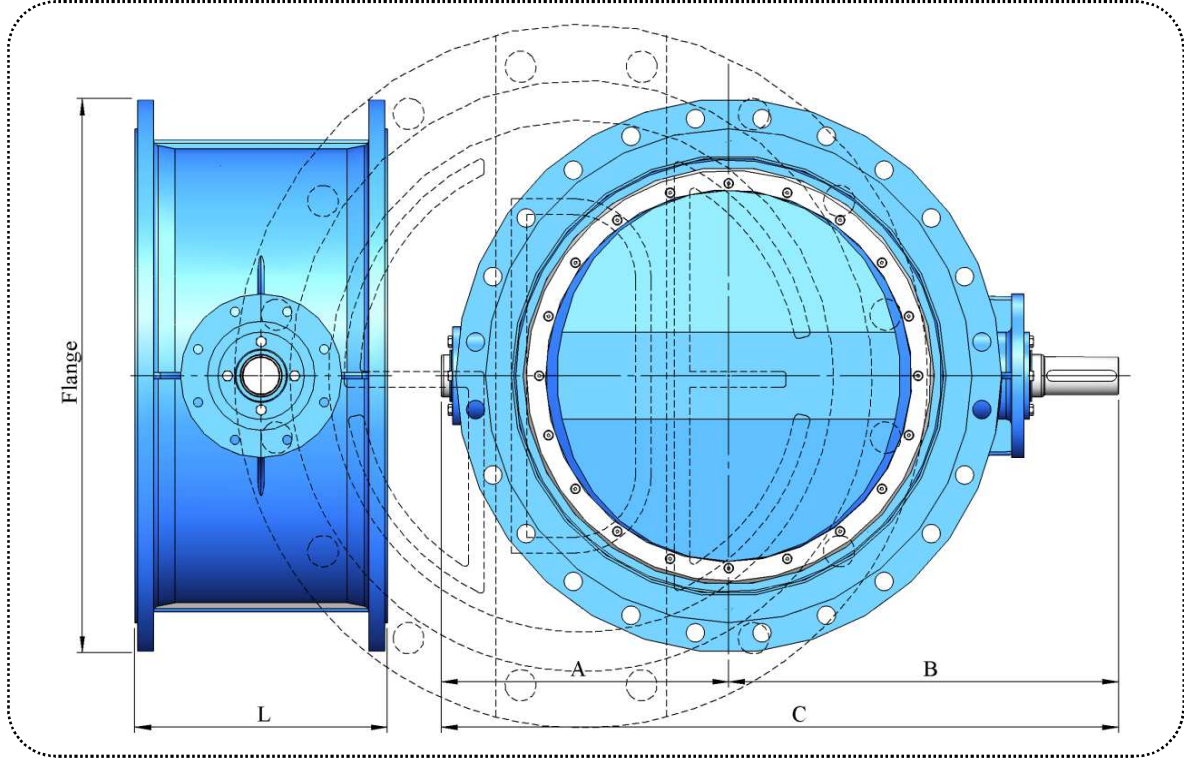


BUTTERFLY VALVE BARE SHAFT

Body Length Standard : EN 558-1, S 14

Valve Standard : EN 593

Maximum allowable working temperature for all types of our valves is 80 degrees Celcius.



DIMENSIONS

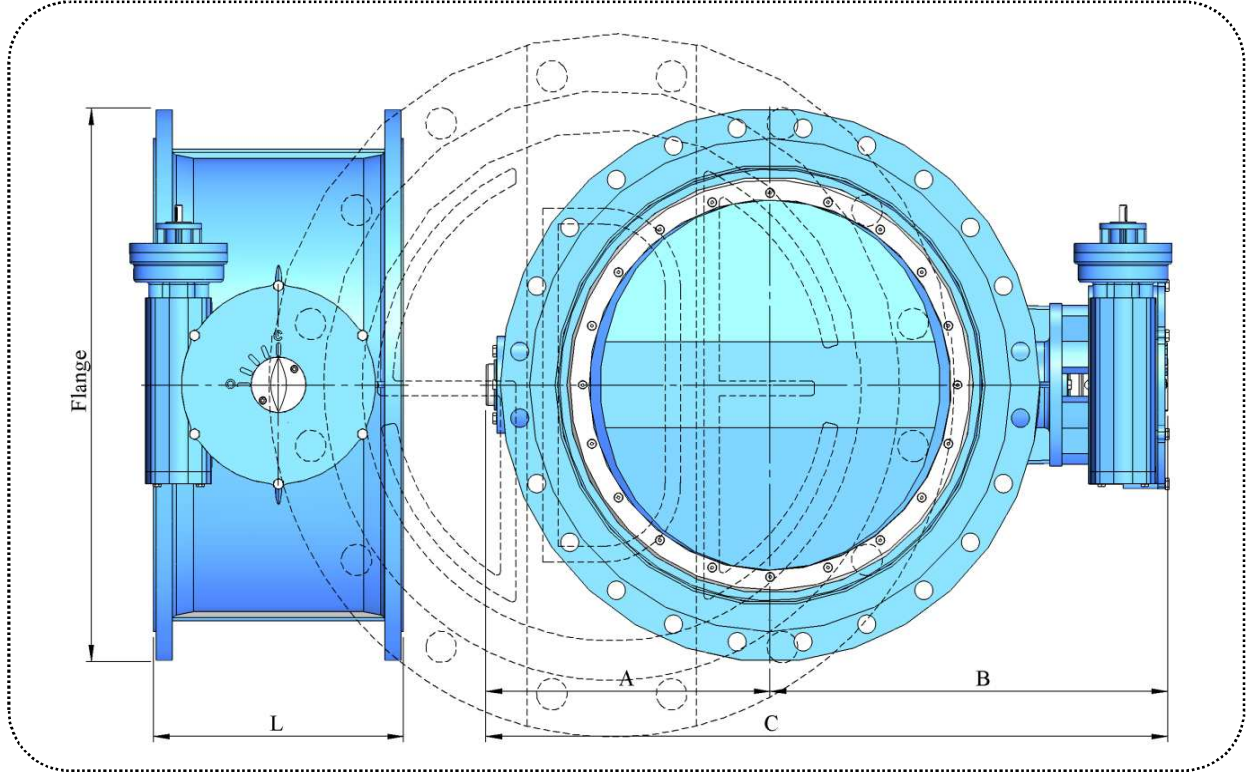
DN	L	PN 20				PN 25				PN 40			
		A	B	C	Kg	A	B	C	Kg	A	B	C	Kg
200	230	180	315	495	67	180	315	495	67	188	333	520	88
250	250	213	358	570	104	213	358	570	104	225	380	605	135
300	270	243	398	640	139	243	398	640	139	258	433	690	183
350	290	278	453	730	174	278	453	730	174	290	485	775	228
400	310	310	505	815	240	310	505	815	240	330	545	875	312
450	330	335	550	885	305	335	550	885	305	343	578	920	391
500	350	365	580	945	362	365	580	945	362	378	613	990	466
550	370	394	629	1.023	443	394	629	1.023	443	411	666	1.078	570
600	390	423	658	1.080	500	423	658	1.080	500	445	700	1.145	643
650	410	451	726	1.178	618	451	726	1.178	618	471	766	1.238	790
700	430	480	755	1.235	701	480	755	1.235	701	498	793	1.290	894
750	450	510	845	1.355	867	510	845	1.355	867	534	889	1.423	1.096
800	470	543	878	1.420	989	543	878	1.420	989	570	925	1.495	1.243
900	510	593	928	1.520	1.268	593	928	1.520	1.268	625	980	1.605	1.595
1.000	550	660	995	1.655	1.657	660	995	1.655	1.657	680	1.035	1.715	2.070
1.050	570	686	1.061	1.748	1.900	686	1.061	1.748	1.900				
1.100	590	713	1.088	1.800	2.156	713	1.088	1.800	2.156				
1.200	630	765	1.140	1.905	2.398	765	1.140	1.905	2.398				

BUTTERFLY VALVE

Body Length Standard : EN 558-1, S 14

Valve Standard : EN 593

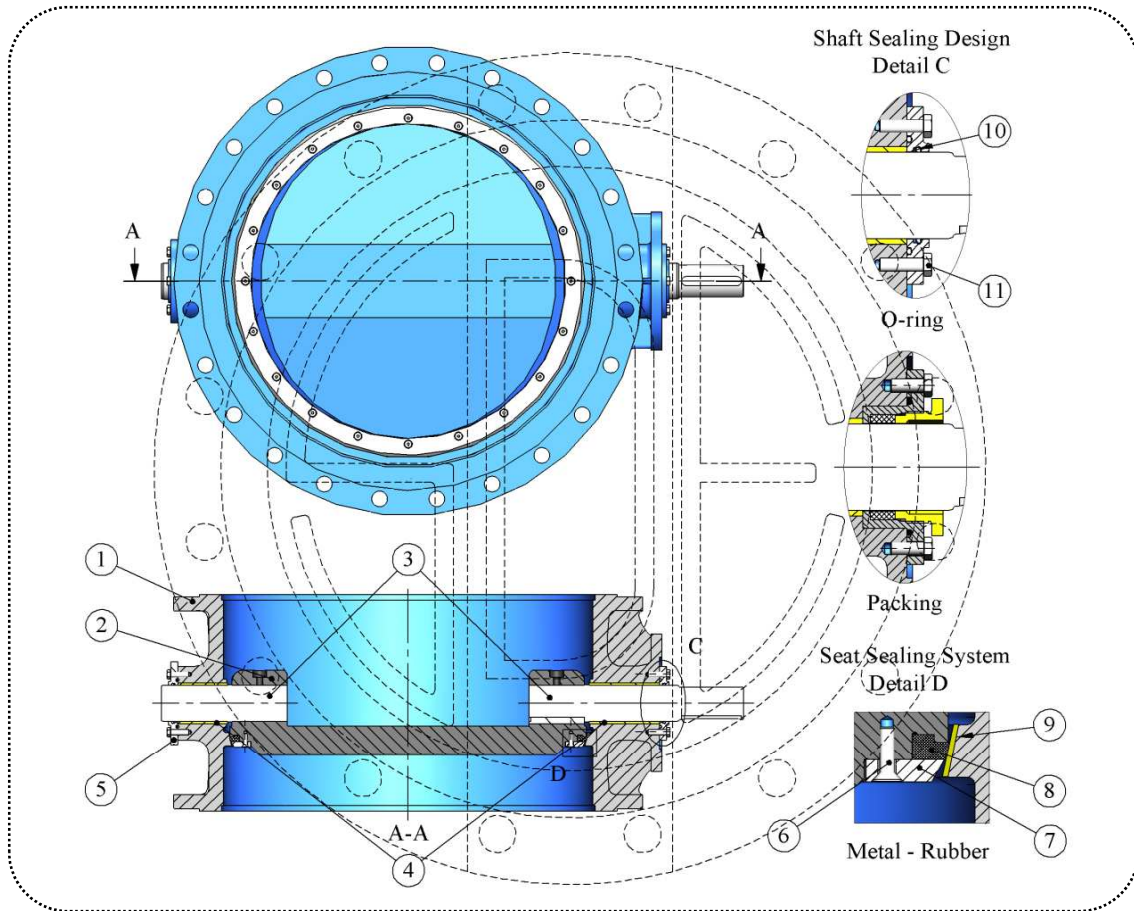
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DIMENSIONS

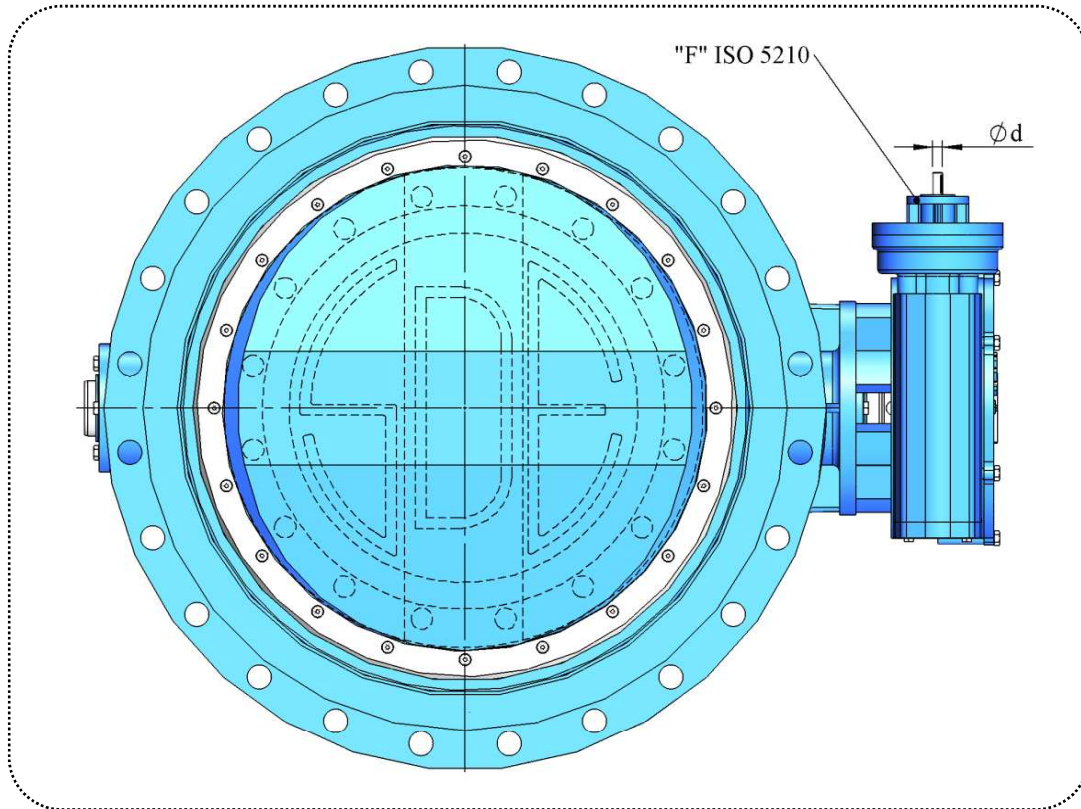
DN	L	PN 20				PN 25				PN 40			
		A	B	C	Kg	A	B	C	Kg	A	B	C	Kg
200	230	180	334	514	86	180	334	514	86	188	352	540	107
250	250	213	379	591	123	213	379	591	123	225	403	628	170
300	270	243	421	664	174	243	421	664	174	258	458	716	217
350	290	278	480	757	208	278	480	757	208	290	514	804	291
400	310	310	535	845	303	310	535	845	303	330	578	908	399
450	330	335	583	918	392	335	583	918	392	343	612	955	478
500	350	365	615	980	449	365	615	980	449	378	649	1.027	602
550	370	394	666	1.060	530	394	666	1.060	530	411	706	1.117	705
600	390	423	697	1.119	635	423	697	1.119	635	445	742	1.187	874
650	410	451	770	1.221	754	451	770	1.221	754	471	812	1.283	1.021
700	430	480	800	1.280	932	480	800	1.280	932	498	840	1.338	1.304
750	450	510	896	1.406	1.098	510	896	1.406	1.098	534	942	1.476	1.506
800	470	543	930	1.473	1.399	543	930	1.473	1.399	570	981	1.551	1.653
900	510	593	983	1.576	1.678	593	983	1.576	1.678	625	1.039	1.664	2.343
1.000	550	660	1.055	1.715	2.067	660	1.055	1.715	2.067	680	1.097	1.777	2.818
1.050	570	686	1.125	1.811	2.310	686	1.125	1.811	2.310				
1.100	590	713	1.153	1.865	2.566	713	1.153	1.865	2.566				
1.200	630	765	1.208	1.973	2.808	765	1.208	1.973	2.808				

BUTTERFLY VALVE



No	Item Name	Material	Description	EN Standard	Material No
1	Body	GGG 40	Ductile Iron	EN-GJS-450-15	0.7040
		GGG 50		EN-GJS-500-7	0.7050
		ST 37-2	Steel Construction	EN 10025	1.0037
2	Disc	GGG 40	Ductile Iron	EN-GJS-450-15	0.7040
		GGG 50		EN-GJS-500-7	0.7050
		304	Stainless Steel Casting	G - X6CrNi 18-9	1.4308
		316		G - X6CrNiMo 18-10	1.4408
		CC 331G-GS	Aluminium Bronze	CuAl10Fe2-C	2.0940.01
3	Shafts	420	Stainless Steel	X20Cr13	1.4021
		304		X5CrNi 18-10	1.4301
		316		X5CrNiMo17-12-2	1.4401
		431		X17CrNi16-2	1.4057
4	Bearings	CC 331G-GS	Aluminium Bronze	CuAl10Fe2-C	2.0940.01
5	Shaft Covers	GGG 50	Ductile Iron	EN-GJS-500-7	0.7050
6	Retainer Ring Bolts	A2 - A4	Stainless Steel	-	-
7	Retainer Ring	304	Stainless Steel	X5CrNi 18-10	1.4301
		316		X5CrNiMo17-12-2	1.4401
		CC 331G-GS	Aluminium Bronze	CuAl10Fe2-C	2.0940.01
8	Disc Ring	NBR - EPDM	Rubber	-	-
9	Body Seat	316 L	Stainless Steel Welding	12072	1.4430
		CuAl8	Aluminium Bronze Welding	14640 S Cu 6100	2.0921
10	Shaft and Cover Sealing	NBR - EPDM	Rubber	-	-
		Packing*	Non Asbestos	Only for shaft sealing	
11	Bolt of Covers	Galvanized	Steel	-	-
		A 2 - A 4	Stainless Steel	-	-
Coating		WRAS approved fusion bonded epoxy. 300 microns dft as standard.			
Maximum allowable working temperature for all types of our valves is 80 degrees Celcius.					

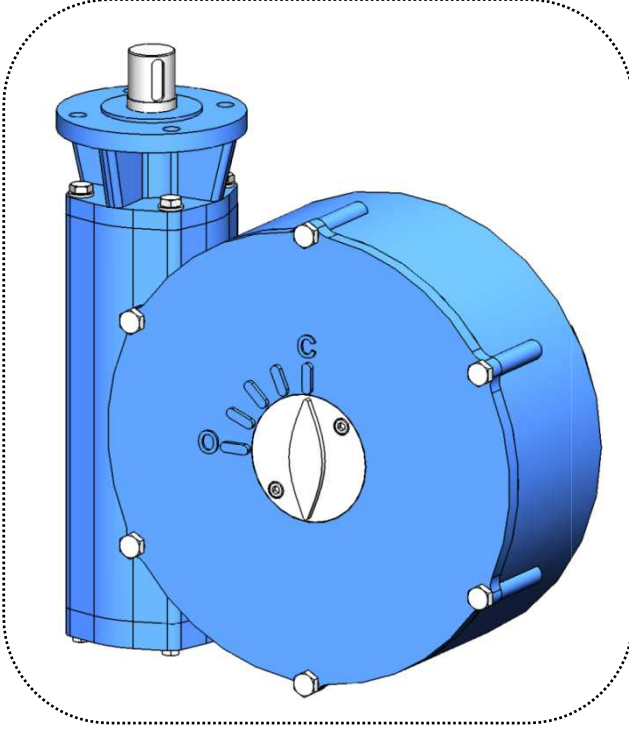
OPERATION OF BUTTERFLY VALVES



DN	PN 20					PN 25					PN 40				
	F	d	Torque Nm	Ratio	Number of turn	F	d	Torque Nm	Ratio	Number of turn	F	d	Torque Nm	Ratio	Number of turn
200	10	20	16	40	10	10	20	18	40	10	10	20	24	40	10
250	10	20	27	40	10	10	20	30	40	10	10	20	33	50	12,5
300	10	20	39	50	12,5	10	20	43	50	12,5	10	20	61	50	12,5
350	10	20	58	50	12,5	10	20	64	50	12,5	10	20	77	60	15
400	10	20	78	60	15	10	20	86	60	15	10	20	33	240	60
450	10	20	29	240	60	10	20	32	240	60	10	20	45	240	60
500	10	20	35	240	60	10	20	39	240	60	10	20	55	240	60
550	10	20	45	240	60	10	20	51	240	60	10	20	72	240	60
600	10	20	54	240	60	10	20	61	240	60	10	20	86	240	60
650	10	20	71	240	60	10	20	80	240	60	10	20	116	240	60
700	10	20	82	240	60	10	20	93	240	60	10	20	62	520	130
750	10	20	110	240	60	10	20	126	240	60	10	20	85	520	130
800	10	20	58	520	130	10	20	66	520	130	10	20	97	520	130
900	10	20	73	520	130	10	20	84	520	130	10	20	106	600	150
1.000	10	20	90	520	130	10	20	103	520	130	10	20	131	600	150
1.050	10	20	108	520	130	10	20	125	520	130					
1.100	10	20	119	520	130	10	20	137	520	130					
1.200	10	20	141	520	130	10	20	163	520	130					

WORM GEARBOX

To be used for Butterfly Valves

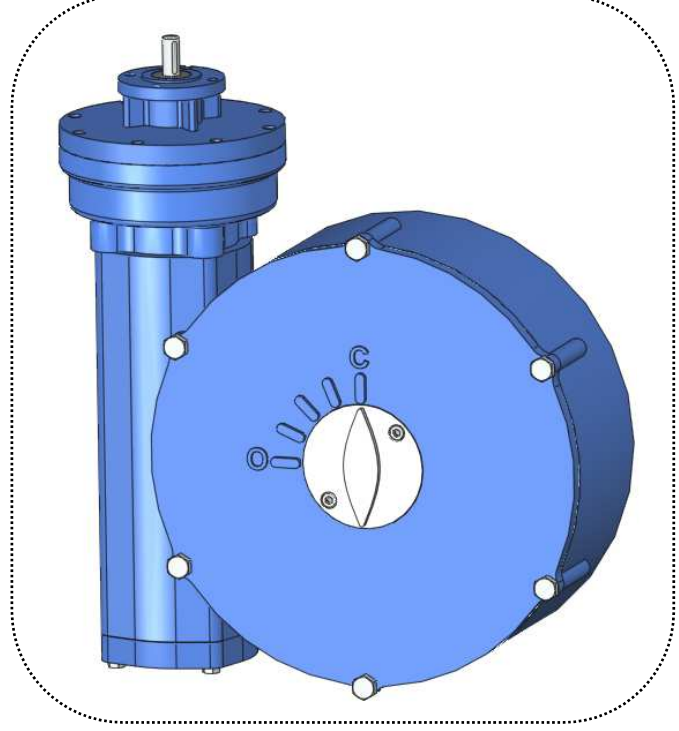


Product Code: TK,

For DN 600 PN 10 / DN 450 PN 25

or smaller Butterfly Valves

It is a type of gearbox consisting of a body, covers, helical gear and worm gear.



Product Code: TK, TKP

For DN 600 PN 16 / DN 500 PN 25

and greater Butterfly Valves

It is a type of gearbox consisting of a body, covers, helical gear, worm gear and planet gears.

Gearboxes are used for valves which require high torque values for operation.

Additional gearbox is used for bigger valves which require higher torque values.

It is possible to operate the valve with lower force but higher number of turns.

Properties of gearbox,

Input force required to operate the valve can easily be applied by one person. To achieve output force, suitable gear ratio is selected.

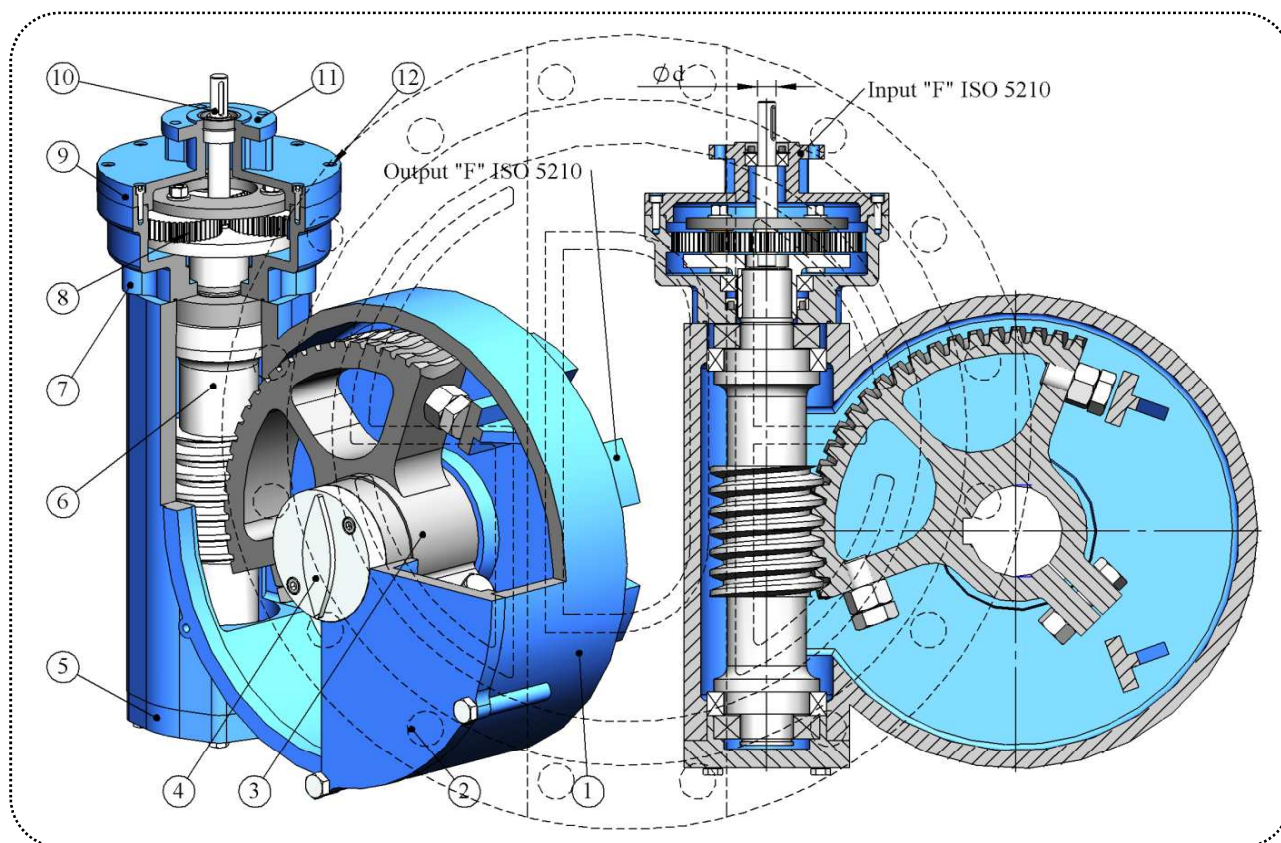
Input and output flanges and shafts are manufactured in accordance with ISO 5210 F standards.

Thus, gearbox can be mounted to another valve with same size, or gearbox can be removed and another brand can be mounted instead. If required, a suitable size actuator can be fitted or existing one can be changed with another brand.

Maintenance,

No maintenance is needed except lubricating gears.

WORM GEAR BOX, for BUTTERFLY VALVE



PARTS

No	Item Name	Material	Description	EN Standard	Material No
1-2	Body and Front Cover	GGG 50	Ductile Iron	EN-GJS-500-7	0.7050
3	Worm Gear	GGG 50	Ductile Iron	EN-GJS-500-7	0.7050
4-5	Indicator, Bottom Cover	GGG 50	Ductile Iron	EN-GJS-500-7	0.7050
6	Helical Gear	1050	Steel	100083-3	1.1191
7-9	Top Body, Top Cover	GGG 50	Ductile Iron	EN-GJS-500-7	0.7050
8	Gears	1050	Steel	100083-3	1.1191
10	Pinion Gear	420	Stainless Steel	X20Cr13	1.4021
		304		X5CrNi 18-10	1.4301
11	Actuator Flange	1050	Steel	100083-3	1.1191
12	Bolts	Galvanized	Steel	-	-
		A 2, A 4	Stainless Steel	-	-

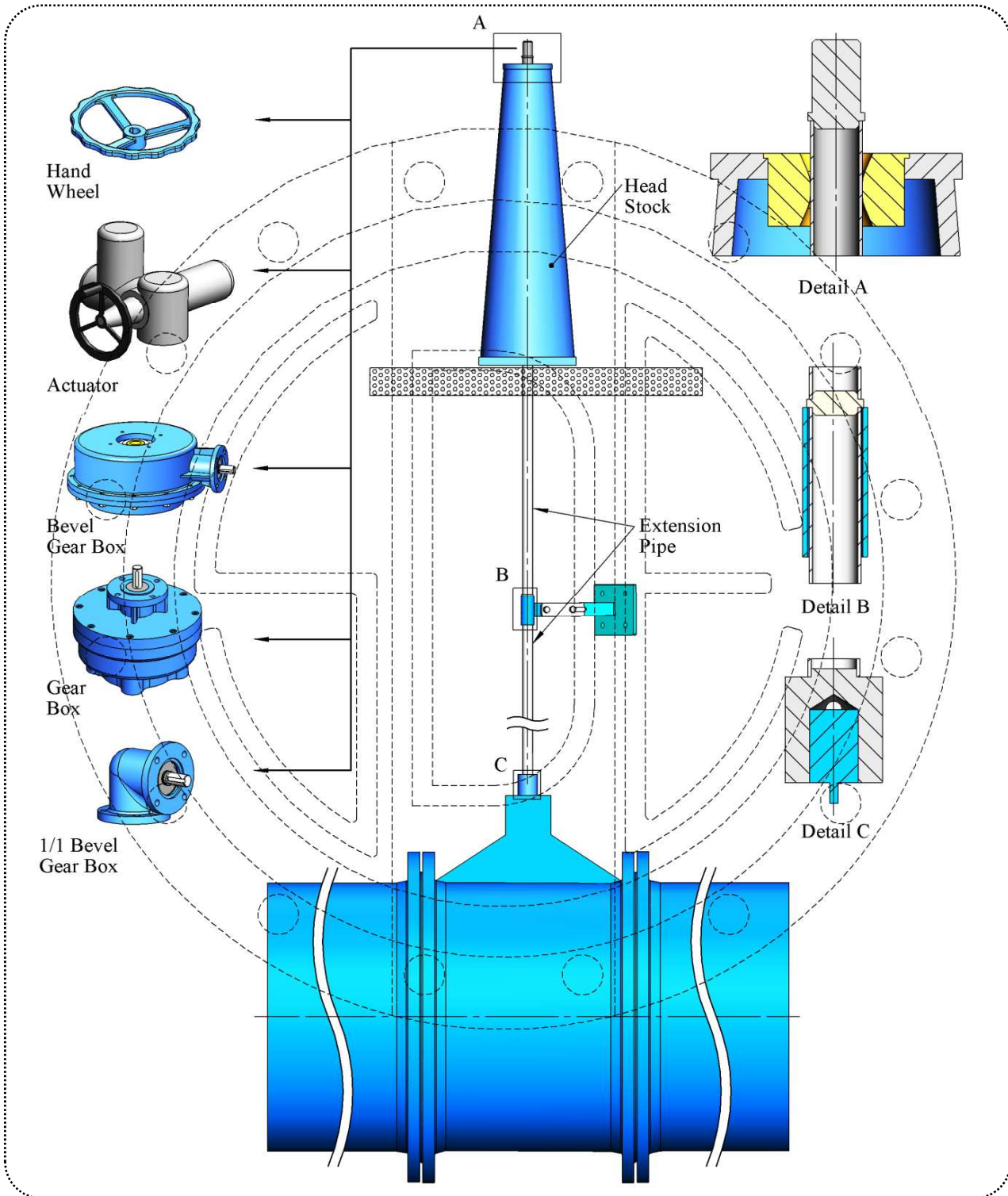
Coating WRAS approved fusion bonded epoxy. 300 microns dft as standard.

Maximum allowable working temperature for all types of our valves is 80 degrees Celcius.

TECHNICAL INFORMATION

No	INPUT					RATIO		OUTPUT			Total Kg
	"F"	"d"	Torque Nm	Total Ratio	Open to Close	Worm Gear Box	Planet	"F"	"D"	Torque Nm	
1	10	20	6	45	11	45	1	10	22	140	11
2	10	20	35	40	10	40	1	12	25	700	19
3	10	20	64	50	13	50	1	14	35	1.600	34
4	10	20	32	240	60	60	4	16	50	3.800	62
5	10	20	44	240	60	60	4	25	70	5.300	111
6	10	20	78	240	60	60	4	30	90	9.400	207
7	10	20	69	520	130	65	8	35	120	18.000	386
8	10	20	123	600	150	75	8	40	140	37.000	724
9	14	30	171	760	190	95	8	48	160	65.000	1.364
10	14	30	171	960	240	120	8	56	180	82.000	2.579

HEADSTOCK



Headstock consists of a cast body, extension spindles and guide brackets holding the spindles.

According to usage area of valve, it can be installed at first floor but operational equipments can be at second floor.

Valve can be in a dirty or humid environment and operational equipments may not be requested to be at the same place.

For such conditions, headstock accessory can be used for any kind of valve.

Valve is located where it has to be, but operational equipments are located at a clean area.

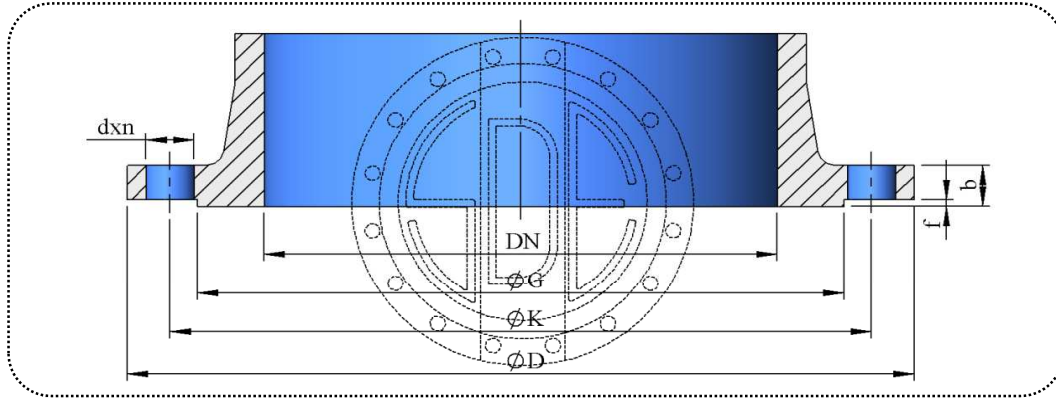
Headstock is fixed on floor by screws. Extension spindles are between valve and headstock.

If space between valve and headstock is more than 3 meters, guide brackets are used to hold spindle and eliminate oscillation.

It is advised to use one guide bracket for each 3 meters.

Upon request, extension spindles can be made of plain carbon steel or stainless steel.

FLANGE DIMENSIONS



Nominal Dia	Outside Dia	Raised Face		Flange Holes			Flange Thickness	Outside Dia	Raised Face		Flange Holes			Flange Thickness
DN	D	G	f	K	d	n	b	D	G	f	K	d	n	b
PN 10								PN 16						
100	220	158	3	180	19	8	19	220	158	3	180	19	8	19
125	250	188	3	210	19	8	19	250	188	3	210	19	8	19
150	285	212	3	240	23	8	19	285	212	3	240	23	8	19
200	340	268	3	295	23	8	20	340	268	3	295	23	12	20
250	395	320	3	350	23	12	22	405	320	3	355	28	12	22
300	445	370	4	400	23	12	25	460	378	4	410	28	12	25
350	505	430	4	460	23	16	25	520	438	4	470	28	16	27
400	565	482	4	515	28	16	25	580	490	4	525	31	16	28
450	615	532	4	565	28	20	26	640	550	4	585	31	20	30
500	670	585	4	620	28	20	27	715	610	4	650	34	20	32
600	780	685	5	725	31	20	30	840	725	5	770	37	20	36
700	895	800	5	840	31	24	33	910	795	5	840	37	24	40
800	1.015	905	5	950	34	24	35	1.025	900	5	950	41	24	43
900	1.115	1.005	5	1.050	34	28	38	1.125	1.000	5	1.050	41	28	47
1.000	1.230	1.110	5	1.160	37	28	40	1.255	1.115	5	1.170	44	28	50
1.200	1.455	1.330	5	1.380	41	32	45	1.485	1.330	5	1.390	50	32	57
1.400	1.675	1.535	5	1.590	44	36	46	1.685	1.530	5	1.590	50	36	59
1.500	1.785	1.640	5	1.700	44	36	48	1.820	1.640	5	1.710	57	36	63
1.600	1.915	1.760	5	1.820	50	40	49	1.930	1.750	5	1.820	57	40	65
1.800	2.115	1.950	5	2.020	50	44	52	2.130	1.950	5	2.020	57	44	69
2.000	2.325	2.150	5	2.230	50	48	55	2.345	2.150	5	2.230	62	48	73
2.200	2.550	2.370	5	2.440	57	52	59	2.555	2.360	5	2.440	62	52	80
PN 25								PN 40						
100	235	162	3	190	23	8	19	235	162	3	190	23	8	19
125	270	188	3	220	28	8	19	270	188	3	220	28	8	24
150	300	218	3	250	28	8	20	300	218	3	250	28	8	26
200	360	278	3	310	28	12	22	375	285	3	320	31	12	30
250	425	335	3	370	31	12	25	450	345	3	385	34	12	35
300	485	395	4	430	31	16	28	515	410	4	450	34	16	40
350	555	450	4	490	34	16	30	580	465	4	510	37	16	44
400	620	505	4	550	37	16	32	660	535	4	585	41	16	48
450	670	548	4	600	37	20	34	685	560	4	610	41	20	50
500	730	615	4	660	37	20	37	755	615	4	670	44	20	52
600	845	720	5	770	41	20	42	890	735	5	795	50	20	58
700	960	820	5	875	44	24	47	995	840	5	900	50	24	63
800	1.085	930	5	990	50	24	51	1.140	960	5	1.030	57	24	68
900	1.185	1.030	5	1.090	50	28	56	1.250	1.070	5	1.140	57	28	73
1.000	1.320	1.140	5	1.210	57	28	60	1.360	1.180	5	1.250	57	28	80
1.200	1.530	1.360	5	1.420	57	32	69	1.575	1.385	5	1.460	62	32	88
1.400	1.755	1.570	5	1.640	62	36	74	1.795	1.600	5	1.680	62	36	98
1.500	1.865	1.680	5	1.750	62	40	75	1.910	1.700	5	1.790	70	40	102
1.600	1.975	1.790	5	1.860	62	40	81	2.025	1.815	5	1.900	70	40	108
1.800	2.195	2.000	5	2.070	70	44	88							
2.000	2.425	2.230	5	2.300	70	48	95							