

Tianjin Greatwall Flow Valve Co.,Ltd



**Resilient Seat
Butterfly valve**

2019

BRIEF INTRODUCTION

TIANJIN GREATWALL FLOW VALVE CO.,LTD

Professional manufacturer of butterfly valves
EST.1999 in city of Tianjin,China

Business Scope:

Butterfly valve manufacturing and sales
OEM/ODM service
Valve Stocking, labeling and packing
Valve design and molding
Valve actuation
Valve repair and reconditioning
On site support

Our Advantages

20 years experiences for OEM/ODM services
Full certification for various application
Partnership with world leading manufacturers
Reliable Quality
Professional team of tech-commercials
Stocking and short delivery time



APPLICATIONS FIELDS



CERTIFICATIONS

CERTIFICATE

Management system as per
GB/T 19001-2008/ISO 9001 : 2008

Manufacturing of Industrial Valves (Covering Products That Have Production License Requirements Subject to Production License Limited Scope)

Tianjin Great Wall Flow Valve Co., Ltd.
No. 8 Hongqian Road, Jing Bin Industrial Park, Wujing District, Tianjin City, P. R. China

ISO 9001 CERTIFIED

DNV BUSINESS ASSURANCE
EC TYPE-EXAMINATION CERTIFICATE

Certificate No. 4203-2014-CE-REG-ACCREDIA

This certificate consists of 5 pages
This is to certify that the products
Pressure Accessory
with name and/or type designation(s)
Valve
Manufactured by
Tianjin Great Wall Flow Valve Co., Ltd.
No. 8 Hongqian Road, Wujing Economic Development Zone, Wujing District, Tianjin, People's Republic of China

CE ACCREDIA logo

CE/PED CERTIFIED

This certifies that
TIANJIN GREATWALL FLOW VALVE CO., LTD.
has had the undermentioned product examined, tested and found, where correctly installed, to comply with the requirements of the United Kingdom Water Supply (Water Fittings) Regulations and Scottish Water (Scotland).

WRAS CERTIFIED

ATTESTATION DE CONFORMITE SANITAIRE
Certificate of sanitary conformity

Conformément de l'arrêté ministériel n° 2007-1218 du 14 novembre 2007 relatif à la mise en œuvre de la réglementation sanitaire relative à la fabrication et à la mise en œuvre de produits destinés à être utilisés dans les installations de distribution d'eau froide destinées à l'alimentation humaine.

Le produit est conforme aux exigences de la norme NF EN 1074-2.

Le produit est conforme aux exigences de la norme NF EN 1074-2.

ACS CERTIFIED

INSTALLATION TYPE

Butterfly valves are for installation in flanged piping systems. easy to install or to remove from the pipeline, being bolted between the mating pipe flanges.

	wafer type	Lug type	Wafer flange U type	Double flanged type
Clamping between flanges	•		•	
Installation between flanges and possibility for downstream pipe dismantling		•	•	•
Valve bolted at end of the line flange		•	•	•
Bolting directly to hull				•
Suitable for insulation of pipes	•	•	•	•
Installation example				

VALVE BODY

As the body is internally fully rubber lined, the body material is protected from corrosion by the medium.

Type of material	Material standard	Example for application
Ductile iron	DIN 1693 GGG40,ASTM A536 60-40-18,BS 2789 400-18	General application
Ductile iron(Heat treated)	DIN 1693 GGG40.3	Heavy applications,Cold applications,petrochemical industries,power stations,alternative for cast steel
Cast carbon steel	DIN 17245 GS-C 25,ASTM A216 WCB,BS 1504 161-430A	Heavy applications, petrochemical industries.
Cast stainless steel	ASTM A351 CF8,CF8M	Medicine,food,drink
Alu-Bronze	DIN 1705(RG 10) C-CuSn10Zn,ASTM B584 C954,BS 1400 LG1,	Marine service

VALVE DISC

As the disc contact with medium, the material should be carefully selected.

Type of material	Material standard	Example for application
Ductile iron nickel plated	DIN 1693 GGG40,ASTM A536 60-40-18,BS 2789 400-18	Air,non corrosive hot or cold water
Ductile iron nylon coated	DIN 1693 GGG40,ASTM A536 60-40-18,BS 2789 400-18	Potable water,water(max. 70°C,PH value between 4.5 and 9)
Ductile iron PTFE coated	DIN 1693 GGG40,ASTM A536 60-40-18,BS 2789 400-18	Acids,alkalis,oil,water,air
Cast stainless steel	ASTM A351 CF8,CF8M	Potable water,demineralized water,solvents,industrial water,not recommended for sea water,gas
Duplex stainless steel	1.4462, EN 10088,A181, Grade F51	Potable water,cooling water,sea water,demineralized water,solvents,foodstuff
Alu-bronze	DIN 1714 G-CuAl10Ni,ASTM B148 C95500,BS 1400 AB2	Sea water,potable water,gas
Hastelloy-C	A494, CW-12MW	Phosphoric,hypochloric,acetic,formic,sulfurous

VALVE SEAT

It is essential for each individual case that the selection of the type of rubber complies with medium characteristics.

Type of material	Temperature range	Example for application
NBR	0°C~90°C	Aliphatic hydrocarbons(fuels,low aromatic containing oils,gasses),sea water,compressed air,powders,granular,vacuum,gas supply
EPDM standard	-10°C~110°C	Water in general (hot-,cold-,sea-,ozone-,swimming-,industrial-,etc).Weak acids,weak salt solutions,alcohols,ketones,sour gasses,sugar juice
Viton	0°C~200°C	Aliphatic,aromatic and halogen hydrocarbons,hot gasses,hot water,steam,inorganic acid,alkali
PTFE	10°C~155°C	Fit for acids,alkalis,oil, not fit for low temperature

OPERATION MODE

Butterfly valves compatible for various operators

Hand lever(DN50-DN200,2"-8")



Manual gearbox



Pneumatic actuator



Electric actuator



STRUCTURE FEATURES

(DN50-DN350,2"-14")

INTERNATIONAL COMPATIBILITY

ISO 5211 mounting flange
enables direct mounting of various actuators

ANTI-BLOW OUT

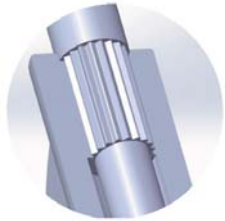
Retaining ring preventing the
blow out of stem on pressure

PRECISION SPLINED SHAFT

Pinless connection with disc
to avoid leakage from disc
and convenient replacement of valve parts

MANUALLY POLISHED DISC EDGE

Disc machined by CNC
and polished manually
ensures long life and low torque
and bubble tightness



RUBBER SEAT DESIGN

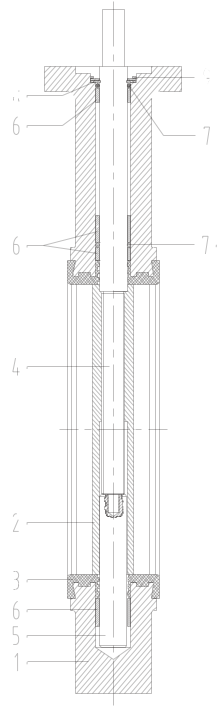
Replaceable rubber seats
designed with rib and groove,
preventing movement against valve body
ensure the firm sealing and stability.

WAFER OR LUG CONNECTION

Body could be wafer or lug type
suitable for various flange standard

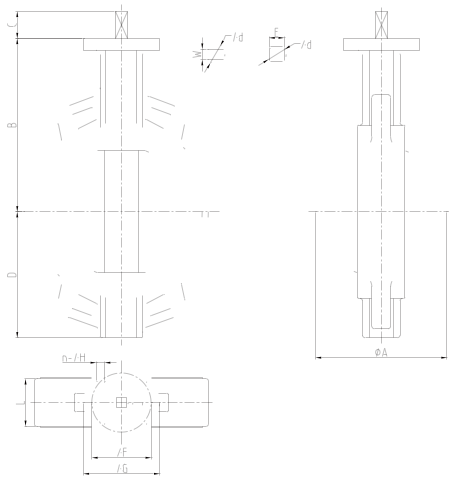


MAIN PARTS MATERIALS:



NO.	Parts	Qty	Material
1	Body	1	Ductile iron Cast steel Stainless steel
2	Disc	1	Ductile iron with nickel coating Ductile iron with nylon coating Stainless steel Duplex Alu-Bronze Hastelloy
3	Seat	1	EPDM(-10~120°C) NBR(0~80°C) FKM(-10~200°C)
4	Upper shaft	1	SS410/SS431/SS316/Monel
5	Lower shaft	1	SS410
6	Bushing	4	RPTFE
7	O ring	2	NBR,EPDM,VITON is an option
8	Split pin	1	Stainless steel
9	Retainer ring	1	Stainless steel

(other materials, please contact our sales team for details)



Wafer type/Lug type

Design to API609/EN593/BS5155

Flange end to EN1092-2 PN6/10/16,

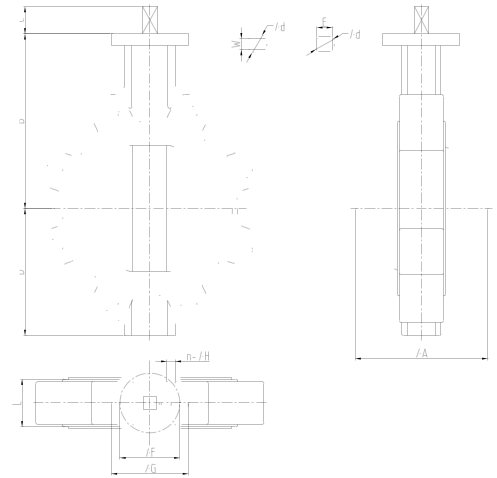
ANSI B16.1 Class125/150

JIS5/10/16K

Face to face to EN558-1 basic series 20

Actuator connection to ISO5211

Inspection to API598/EN12266



Dimension charts(mm):

NPS	DN	A	B	C	D	E	F	G	n×φH	ISO5211	L	W	d
2"	50	52.6	141	19	61	11	70	90	4×φ10	F7	43	10	12.6
2.5"	65	64.4	153	19	72	11	70	90	4×φ10	F7	46	10	12.6
3"	80	78.9	161	19	87	11	70	90	4×φ10	F7	46	10	12.6
4"	100	104.1	179	19	106	11	70	90	4×φ10	F7	52	12	15.77
5"	125	123.4	193	19	123	14	70	90	4×φ10	F7	56	14	18.92
6"	150	155.96	204	19	137	14	70	90	4×φ10	F7	56	14	18.92
8"	200	202.87	247	25	174	17	102	125	4×φ12	F10	60	17	22.1
10"	250	250.88	278	30	209	22	102	125	4×φ12	F10	68	22	28.45
12"	300	301.9	324	30	253	22	102	125	4×φ12	F10	78	24	31.6
14"	350	334.01	365	40	267	22	102	125	4×φ12	F10	78	24	31.6

STRUCTURE FEATURES

(DN400-DN600, 16"-24")

INTERNATIONAL COMPATIBILITY

ISO 5211 mounting flange enables direct mounting of various actuators

HEXAGONAL SHAFT

Pinless connection with disc to avoid leakage from disc and convenient replacement of valve parts



RUBBER SEAT DESIGN

Replaceable rubber seats designed with rib and groove, preventing movement against valve body ensure the firm sealing and stability.



ANTI-BLOW OUT

Position screw preventing the blow out of stem on pressure

MANUALLY POLISHED DISC EDGE

Disc machined by CNC and polished manually ensures long life and low torque and bubble tightness

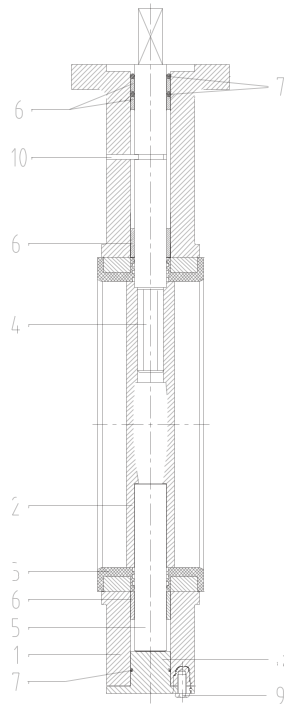
WAFER OR LUG CONNECTION

Body could be wafer or lug type suitable for various flange standard *Type U is available on request*

BOTTOM COVER DESIGN

Facilitate the replacement of lower shaft for large size valves

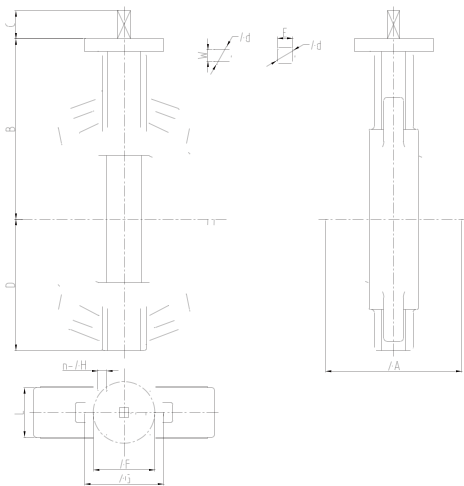




MAIN PARTS MATERIALS:

NO.	Parts	Qty	Materials
1	Body	1	Ductile iron Cast steel Stainless steel
2	Disc	1	Ductile iron with nickel coating Ductile iron with nylon coating Stainless steel Duplex Alu-Bronze Hastelloy
3	Seat	1	EPDM(-10~120°C) NBR(0~80°C) FKM(-10~200°C)
4	Upper shaft	1	SS431/SS316/Monel
5	Lower shaft	1	SS431/SS316/Monel
6	Bushing	4	RPTFE
7	O ring	3	NBR,EPDM,VITON is an option
8	Bottom cover	1	Same as body
9	bolts	4	Stainless steel
10	Screw	1	Stainless steel

(other materials, please contact our sales team for details)



Wafer type/Lug type

Design to API609/EN593/BS5155

Flange end to EN1092-2 PN6/10/16,

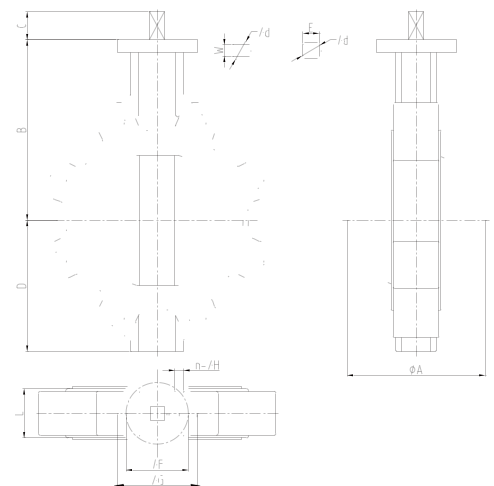
ANSI B16.1 Class125/150

JIS5/10/16K

Face to face to EN558-1 basic series 20

Actuator connection to ISO5211

Inspection to API598/EN12266



Dimension charts(mm):

NPS	DN	A	B	C	D	E	F	G	n×φH	ISO5211	L	W	d
16"	400	390.1	400	52	301	22	140	175	4×φ18	F14	102	27	33.15
18"	450	441.1	422	52	326	27	140	175	4×φ18	F14	114	27	38
20"	500	492.3	480	64	358	27	140	175	4×φ18	F14	127	32	41.15
24"	600	593	562	70	444	36	165	210	4×φ23	F16	154	36	50.65

STRUCTURE FEATURES

(DN700-DN1200, 28"-48")

INTERNATIONAL COMPATIBILITY

ISO 5211 mounting flange
enables direct mounting of various actuators

ANTI-BLOW OUT

Position screw preventing the
blow out of stem on pressure

HEXAGONAL SHAFT

Pinless connection with disc
to avoid leakage from disc
and convenient replacement of valve parts

**MANUALLY POLISHED DISC EDGE**

Disc machined by CNC
and polished manually
ensures long life and low torque
and bubble tightness

U TYPE FLANGE CONNECTION

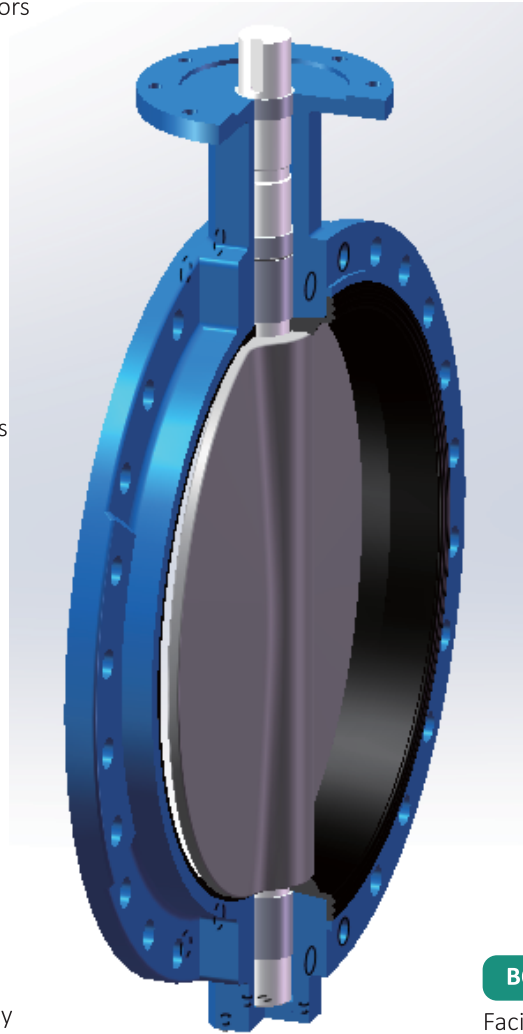
Body designed with U type flanges,
to facilitate the installation
of large size valves
suitable for various flange standard

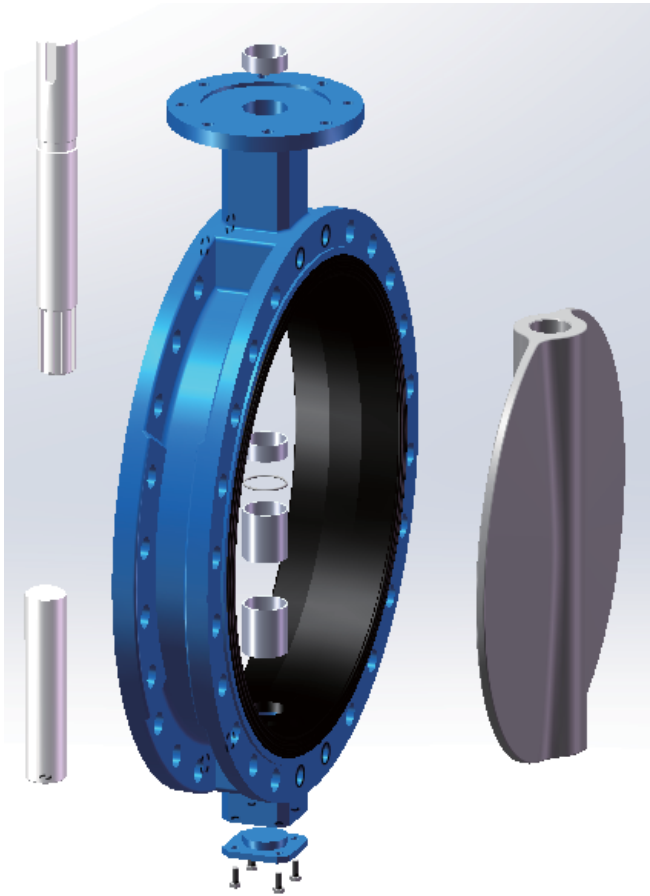
RUBBER SEAT DESIGN

Bonded rubber seat,
to avoid seat movement against valve body
ensure the firm sealing and stability of large size

BOTTOM COVER DESIGN

Facilitate the replacement of lower shaft
for large size valves





MAIN PARTS MATERIALS:

NO.	Parts	Qty	Materials
1	Body	1	Ductile iron Cast steel Stainless steel
2	Disc	1	Ductile iron with nickel coating Ductile iron with nylon coating Stainless steel Duplex Alu-Bronze Hastelloy
3	Seat	1	EPDM(-10~120°C) NBR(-10~80°C) FKM(-10~200°C)
4	Upper shaft	1	SS431/Duplex/Monel
5	Lower shaft	1	SS431/Duplex/Monel
6	Bushing	4	Bronze
7	O ring	3	NBR
8	Bottom cover	1	Same as body
9	Bolt	4	Stainless steel

(other materials, please contact our sales team for details)

Wafer type with flanges(Type U)

Design to API609/EN593/BS5155

Flange end to EN1092-2 PN6/10/16,

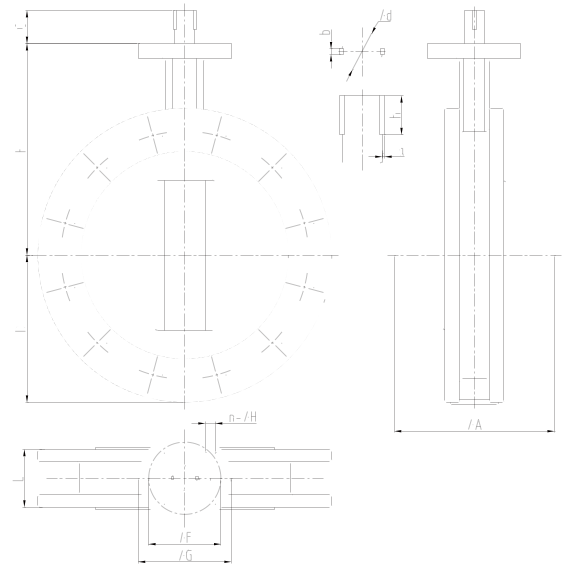
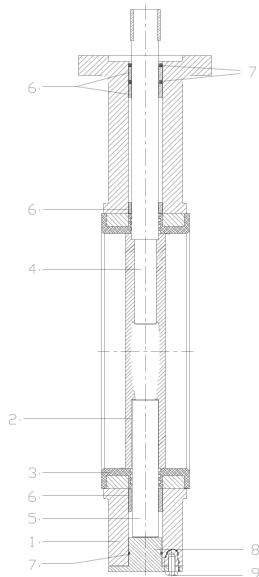
ANSI B16.1 Class125/150

JIS5/10/16K

Face to face to EN558-1 basic series 20

Actuator connection to ISO5211

Inspection to API598/EN12266



Dimension charts(mm):

NPS	DN	A	B	C	D	F	G	n×φH	ISO5211	L	a	b	c	d
28"	700	694.9	637	82	526	254	300	8×φ18	F25	165	5	16	55	63
30"	750	744.3	660	82	560	254	300	8×φ18	F25	165	5	16	55	63
32"	800	795.6	667	82	600	254	300	8×φ18	F25	190	5	16	55	63
36"	900	864	715	130	660	254	300	8×φ18	F25	203	6	20	75	100
40"	1000	964	795	130	731	254	300	8×φ18	F25	216	7	22	85	125
48"	1200	1160	951	150	878	298	350	8×φ22	F30	254	8	28	105	140

STRUCTURE FEATURES

(DN50-DN1200, 2"-48")

INTERNATIONAL COMPATIBILITY

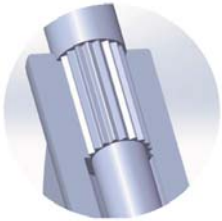
ISO 5211 mounting flange
enables direct mounting of various actuators

ANTI-BLOW OUT

Retaining ring/position screw
preventing the blow out
of stem on pressure

PRECISION SPLINED SHAFT

(DN50-DN350, 2"-14")

**HEXAGONAL SHAFT**

(DN400-DN1200, 16"-48")



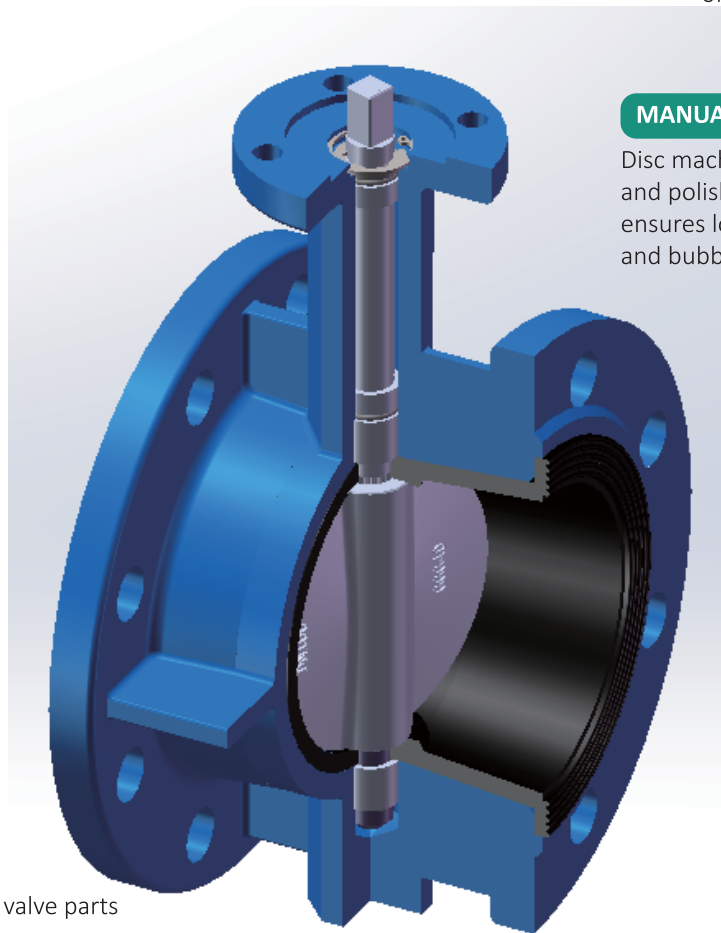
Pinless connection with disc
to avoid leakage from disc
and convenient replacement of valve parts

RUBBER SEAT DESIGN

Bonded rubber seat,
to avoid seat movement against valve body
ensure the firm sealing and stability

MANUALLY POLISHED DISC EDGE

Disc machined by CNC
and polished manually
ensures long life and low torque
and bubble tightness

**BOTTOM COVER DESIGN FOR LARGE SIZE**

(DN4000-DN1200, 16"-48")

Facilitate the replacement of lower shaft
for large size valves



MAIN PARTS MATERIALS:



NO.	Parts	Qty	Material
1	Body	1	Ductile iron Cast steel Stainless steel
2	Disc	1	Ductile iron with nickel coating Ductile iron with nylon coating Stainless steel Duplex Alu-Bronze Hastelloy
3	Seat	1	EPDM(-10~120°C) NBR(0~80°C) FKM(-10~200°C)
4	Upper shaft	1	SS410/SS431/SS316/Monel
5	Lower shaft	1	SS410/SS431/SS316/Monel
6	Bushing	4	RPTFE
7	O ring	2	NBR,EPDM,VITON is an option
8	Split pin	1	Stainless steel
9	Retainer ring	1	Stainless steel

(other materials, please contact our sales team for details)

Double Flange type

DN50-DN350, 2"-14"

Design to API609/EN593/BS5155

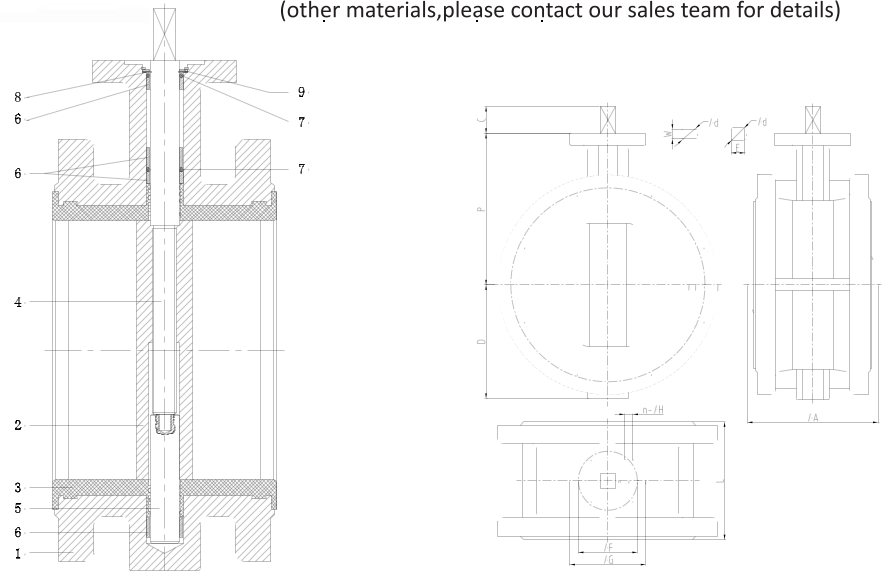
Flange end to EN1092-2 PN6/10/16,

ANSI B16.1 Class125/150

JIS5/10/16K

Face to face to EN558-1 basic series 13

Actuator connection to ISO5211

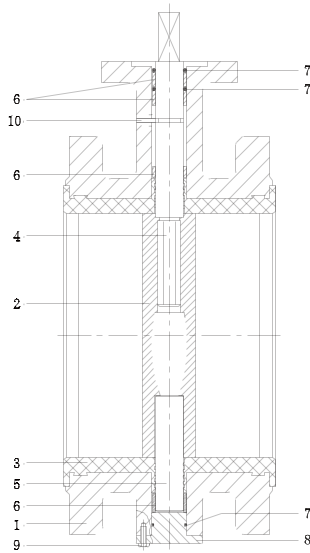


Dimension charts(mm):

NPS	DN	A	B	C	D	E	F	G	N×φH	ISO5211	L	W	d
2"	50	52.6	124	19	83	11	70	90	4×φ10	F7	108	10	12.6
2.5"	65	64.4	134	19	95	11	70	90	4×φ10	F7	112	10	12.6
3"	80	78.9	141	19	102	11	70	90	4×φ10	F7	114	10	12.6
4"	100	104.1	156	19	124	11	70	90	4×φ10	F7	127	12	15.77
5"	125	123.4	168	19	137	14	70	90	4×φ10	F7	140	14	18.92
6"	150	155.96	184	19	149	14	70	90	4×φ10	F7	140	14	18.92
8"	200	202.87	205	25	170	17	102	125	4×φ12	F10	152	17	22.1
10"	250	250.88	235	40	198	22	102	125	4×φ12	F10	165	22	28.45
12"	300	301.9	280	40	220	22	102	125	4×φ12	F10	178	24	31.6
14"	350	334.01	368	40	265	22	102	125	4×φ12	F10	190	24	31.6

MAIN PARTS MATERIALS:

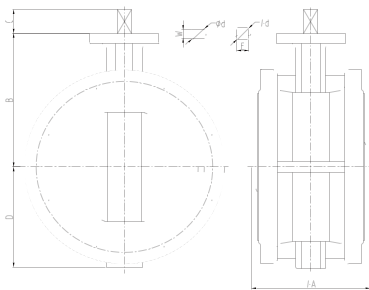
NO.	Parts	Qty	Material
1	Body	1	Ductile iron Cast steel Stainless steel
2	Disc	1	Ductile iron with nickel coating Ductile iron with nylon coating Stainless steel Duplex Alu-Bronze Hastelloy
3	Seat	1	EPDM(-10~120°C) NBR(0~80°C) FKM(-10~200°C)
4	Upper shaft	1	SS431/Duplex/Monel
5	Lower shaft	1	SS431/Duplex/Monel
6	Bushing	4	Brass
7	O ring	2	NBR,EPDM,VITON is an option
8	Bottom Cover	1	Same as body
9	Bolts	4	Stainless steel
10	Screw	1	Stainless steel



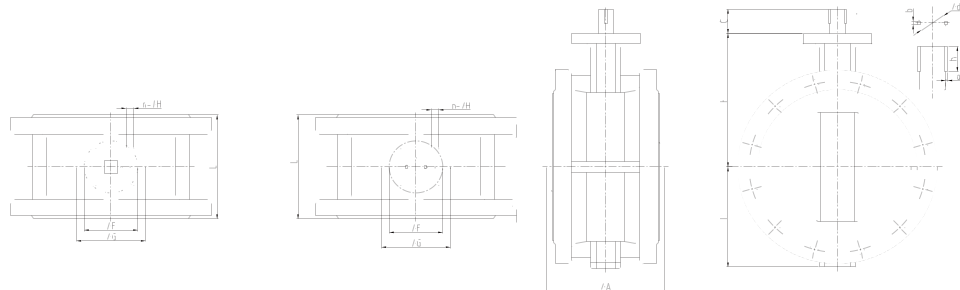
Double Flange type
 DN400-DN1200,24"-48"
 Design to API609/EN593/BS5155
 Flange end to EN1092-2 PN6/10/16,
 ANSI B16.1 Class125/150
 JIS5/10/16K
 Face to face to EN558-1 basic series 13
 Actuator connection to ISO5211

Dimension charts(mm):

NPS	DN	A	B	C	D	E	F	G	N×φH	ISO5211	L	W	d
16"	400	390.1	340	52	282	22	140	175	4×φ18	F14	216	27	33.15
18"	450	441.1	422	52	315	27	140	175	4×φ18	F14	222	27	38
20"	500	492.3	430	64	348	27	140	175	4×φ18	F14	229	32	41.15
24"	600	593	500	70	390	36	165	210	4×φ23	F16	267	36	50.65



(DN400-DN600,16"-24")



(DN700-DN1200,28"-48")

Dimension charts(mm):

NPS	DN	A	B	C	D	F	G	N×φH	ISO5211	L	a	b	c	d
28"	700	649.9	560	82	450	254	300	8×φ18	F25	292	5	16	55	63
30"	750	744.3	640	82	540	254	300	8×φ18	F25	318	5	16	55	63
32"	800	795.6	640	82	540	254	300	8×φ18	F25	318	5	16	55	63
36"	900	864	665	130	540	254	300	8×φ18	F25	330	6	20	75	100
40"	1000	964	735	130	620	254	300	8×φ18	F25	410	7	22	85	125
48"	1200	1160	917	150	760	298	350	8×φ23	F30	470	8	28	105	140

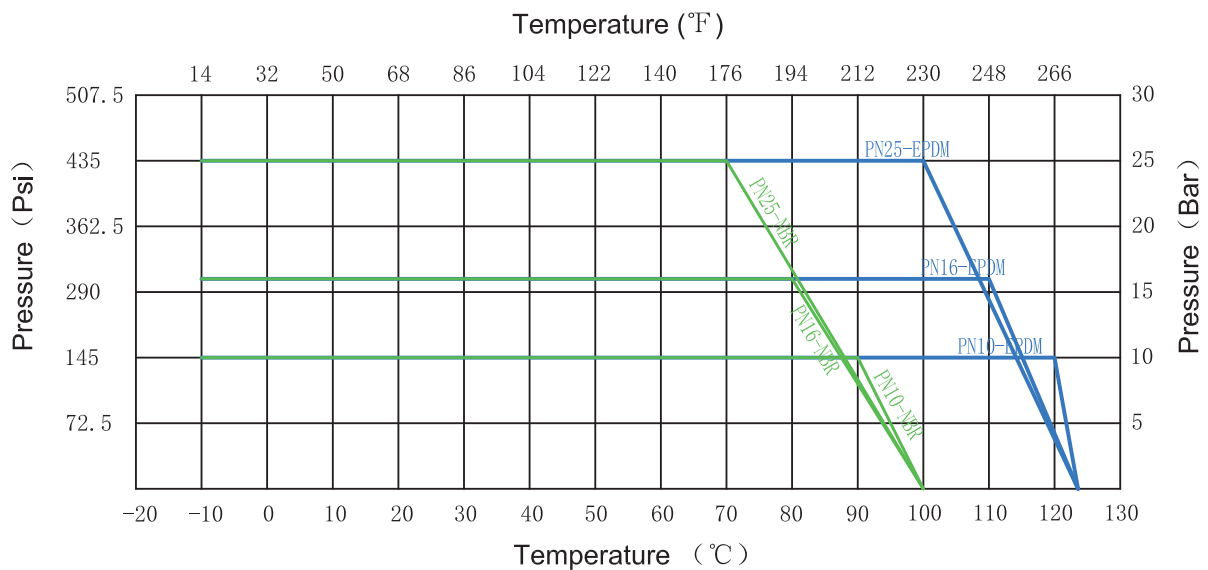
TorqueB Charts(N-M)

DN	NPS	6bar	10bar	16bar	25bar
50	2"	13	16	20	22
65	2.5"	16	20	23	27
80	3"	22	26	34	39
100	4"	35	43	52	60
125	5"	78	88	101	117
150	6"	88	101	120	138
200	8"	218	247	293	337
250	10"	290	338	390	449
300	12"	352	394	468	538
350	14"	832	884	927	1066
400	16"	1040	1105	1755	2019
450	18"	1359	1526	1950	2243
500	20"	1716	1968	2773	3189
600	24"	2600	3770	5070	5831
700	28"	5330	6500	7670	-
750	30"	6500	7150	8060	-
800	32"	7150	7800	9100	-
900	36"	10800	12000	13350	-
1000	40"	12750	15000	19500	-
1050	42"	14250	16500	22500	-
1100	44"	15000	21000	28500	-
1200	48"	26250	30000	34500	-

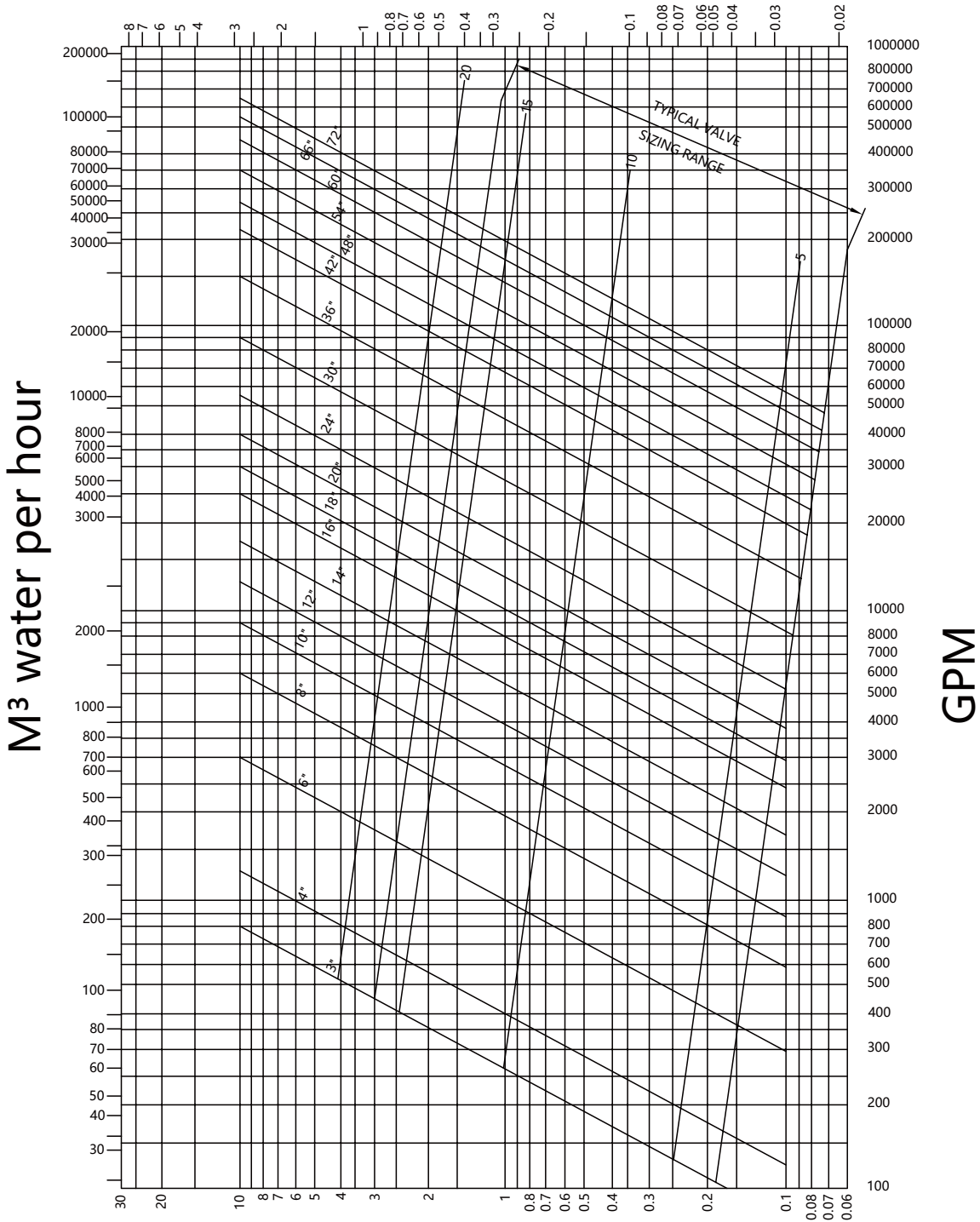
Notes:

All torque values shown on chart are for "wet" (water and other non-lubricating media) on-off service. For "dry" service (non-lubricating, dry gas media), multiply values by 1.15. For "lubed" service (clean, non-abrasive media) multiply values by 0.85. When sizing actuators for single valve applications, multiply the above torques by 1.25. Under certain conditions, hydrodynamic torque can meet or exceed seating and unseating torques. When designing valve systems hydrodynamic torques multiply above torques by 0.85.

Pressure-temperature curve



The Flow Coefficient Values of Wafer Type butterfly Valve



USER'S MANUAL

This instructions manual contains important information concerning the installation, operation, maintenance and storage of butterfly valve. Please read carefully these instructions and keep them for future occasions
It is important that only well-informed and qualified people operate the valves

WARNING

Make sure that the valves are used within the limits established in the technical specifications
Using the valves above the temperature limits can damage the internal and the external elements
Using the valves above the pressure limits can damage the internal and the external elements
Using the valve in corrosive environments, without the due protection, can damage the internal and the external elements
Do not try to dismount any part of the valve while it is mounted in the pipe, and do not do it neither if there is fluid inside
Purge the whole installation, being sure there is no air inside when the fluid is liquid
Do not dismount the shaft while the valve is installed in the pipe; the disc would be carried away through the pipe due to the pressure of the fluid.
Make sure which is the rotation way of the valve when mounting any type of operation
(there are stops clearly marked and opening/closing icons of the disc at 90 degree.)

WORKING CONDITIONS AND TECHNICAL INFORMATION

- Fluids

These valves are delivered for fluid as well as for gas services

It is the customer's responsibility or the Engineering which leads the project, the decision of choosing the most appropriate materials for the required services as well as the evaluation of the installation risks.

- Working pressure

Make sure the service pressure is in the range of pressure rating.

- Working temperature

Make sure the service temperature is in the range of temperature rating.

- Protection and resistance against corrosion

Every standard valve is delivered with protection against corrosion for normal environmental conditions

Before installing the valves in aggressive environmental conditions, make sure you have chosen the appropriate protection.

STORAGE

Valves must be stored, even if installed, with disc in semi open position for protection of liner.

If valve has to be installed long before scheduled start up, it is advisable to lubricate rubber seat with suitable lubricant.

If valves can not be installed in pipeline and store for long time, please place the valves under hidden and dry place so as to avoid high temperature or sunshine. otherwise, the rubber seat will be aging.

When store or transport big size butterfly valve (DN800 and above),

please place shaft horizontally so that the disc weight can be balanced.

INSTALLATION

Near the valve only spot welding is allowed as complete welding heat easily damages the elastomer.

Before final installation carefully remove from pipes anything could damage valve liner.

In case of muddy liquids it is advisable to install valves with shaft in horizontal position to allow an easy flow of the mud in the lower area of the pipe.

It is advisable to install valves DN>300 on a fixed base with shaft in horizontal position to split disc weight on two supports.

When installing the valve allow a sufficient clearance between the flanges to insert the valve

without cutting or damaging elastomer edge.

Do not use gaskets between flange and valve.

After centering, before tightening bolts, open and close the valve to verify the easy disc turning.

The disc must be in fully open position while tightening the bolts in cross way until flanges touch valve body.

PIPE END VALVE

Double flanged wafer type and lug type butterfly valves can be installed as a line end valve. In this case maximum pressure is 50% of the rated one for normal use.

It is advisable, when downstream line is disconnected, the end valve is replaced by a blind flange valve with a blind flange.

DISASSEMBLY AND MAINTENANCE

Close the line upstream. Turn the valve operator until the disc is almost in close position, unscrewed bolts but the lowest two allow enough clearance between the flanges and then remove the valve.

1. Valves DN50-350

Press the retainer ring 9, then remove the split pin 8.

After remove the upper shaft, using a long screw to pull out the lower shaft.

With a plastic lined hammer, push the disc out the liner.

Remove the liner with a proper tool.

Check items and replacing damaged ones.

2. DN400-DN1200

Unscrew the screw 10, then pull the upper shaft.

Remove the foot cover, then pull the lower shaft.

Remove the disc and liner.

Check items and replacing damaged ones.

Reassemble the valve following the opposite procedure.

for DN700 and above, bonded liner is NOT replaceable



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