

# NUTORK<sup>®</sup>

Actuators & Valves



## Butterfly Valves



**NUTORK CORPORATION**

## Production Range

Type	Wafer	Lug	Double Flanged
Fig	WBFV	LBFV	FBFV
Picture			
Dimensions	DN50 to DN1400 2"to 56"	DN50 to DN1400 2"to 56"	DN50 to DN1400 2"to 48"
Assembly Between Flanges	DN50(2") to DN300(12")	EN1092 PN10, PN16 ASME B16.1 CLASS125 ASME B16.5 CLASS150 JIS B 2239 10K,16K BS 10 Table D, Table E	EN1092 PN10 or PN16 ASME B16.1 CLASS125 ASME B16.5 CLASS150 Other standards depend on requirement
	DN350(14") to DN600(24")	EN1092 PN10, PN16 ASME B16.1 CLASS125 ASME B16.5 CLASS150 BS 10 Table D, Table E	EN1092 PN10 or PN16 ASME B16.1 CLASS125 ASME B16.5 CLASS150 Other standards depend on requirement
	DN600 (24") Above	EN1092 PN10, or PN16 ASME B16.1 CLASS125 ASME B16.5 CLASS150 Other standards depend on requirement	EN1092 PN10 or PN16 ASME B16.1 CLASS125 ASME B16.5 CLASS150 Other standards depend on requirement
Standard differential pressure	2"to 24"	16 Bar (230 psi)	16 Bar (230 psi)
	24"Above	10 Bar (145 psi)	10 Bar (145 psi)
Maximum differential pressure	2"to 24"	20 Bar (285 psi)	20 Bar (285 psi)
	24"Above	16 Bar (230 psi)	16 Bar (230 psi)
Working Temperature	-35°C~200°C (Depends on seal)	-35°C~200°C (Depends on seal)	-35°C~200°C (Depends on seal)



## Difference between Nutork valve and Normal valve

### Nutork Construction



The disc is precisely machined, sealing edge is a polished ball for torque and wear control, two-piece shaft construction enhances the Cv Value and avoids turbulence



By bonding the elastomer to a phenolic backing ring, complete support and stability of the seat is assured. This guarantees positive control of seating torque while eliminating seat distortion.



There is a groove inside backing ring, Which brings a low torque between the disc and the seat when closing or opening.



Seating area disgned with a wave line of slope, which reduces wear between disc and seat. Sealing could be always kept by adjusting the angle of disc to compensate long time wear between seat and disc. Long life time is enhanded.

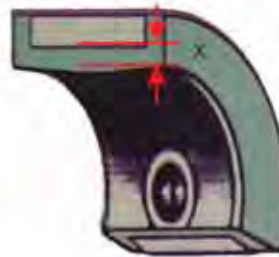
### Normal Construction



Roughly machined or just made by casting, precise dimensions are not maintained, Thicker center construction results in big Cv Value and turbulence



Simple elastomer " boot " seat has no rigid support. I.D. of seating area is severely distorted when seat is installed between flanges. Disc must be opened during installation to prevent binding of disc



No any groove inside backing ring.



No any wave line, sealing is achieved by strong wear. Shorter life time and valve has to be thrown away if leakage happen because of wear between seat and disc.

## Construction

### Nutork Construction



Stainless steel blow-out proof ring, work in whole life time of the valve.



Groove on top flange getting rid of wetness under actuator, offer a good protection to the expensive actuator.

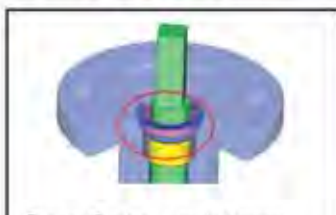


V type ring provides a seconding sealing, preventing any leakage from the stem. Disc and stem connected without any pin.



Plug used at the bottom of the valve, keeping lower stem not get out in any case, O ring on the plug offer a third sealing to the stem.

### Normal Construction



Spring Carbon steel thinner blow-out ring, just work in previous months of the valve life. When move the valve by Handle, sometimes valve drop happening.



No any groove and no any protection to actuator.



No any second sealing, disc and stem connected with pin, which may cause leakage and problem.

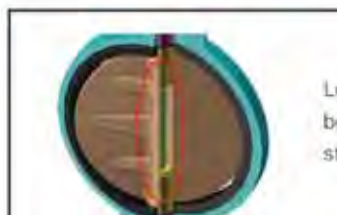


Pin used preventing stem blow-out, possibility of failing exist because of pin corrosion or pin moving out with stem rotating.

### Nutork Construction

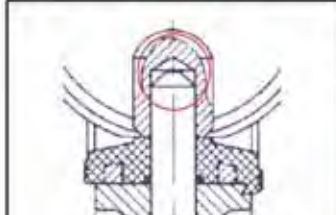


Bearing inside the disc giving valves a longer and more troubleless life span.



Long bolt used for 14" to 56" valves, no any friction between stem and stem keeper, no weak point on the stem, perfect balance achieved.

### Normal Construction



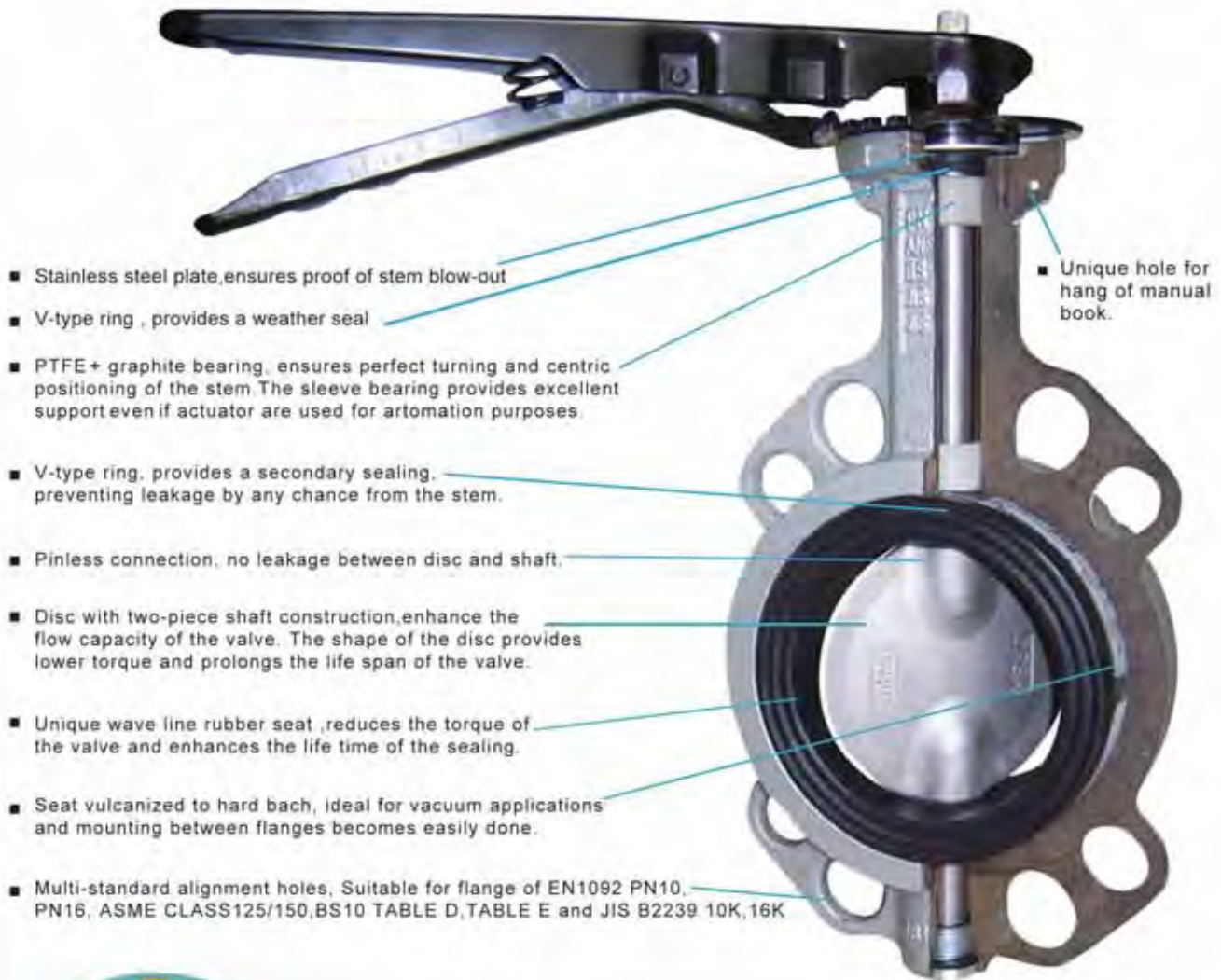
No any bearing inside the disc.



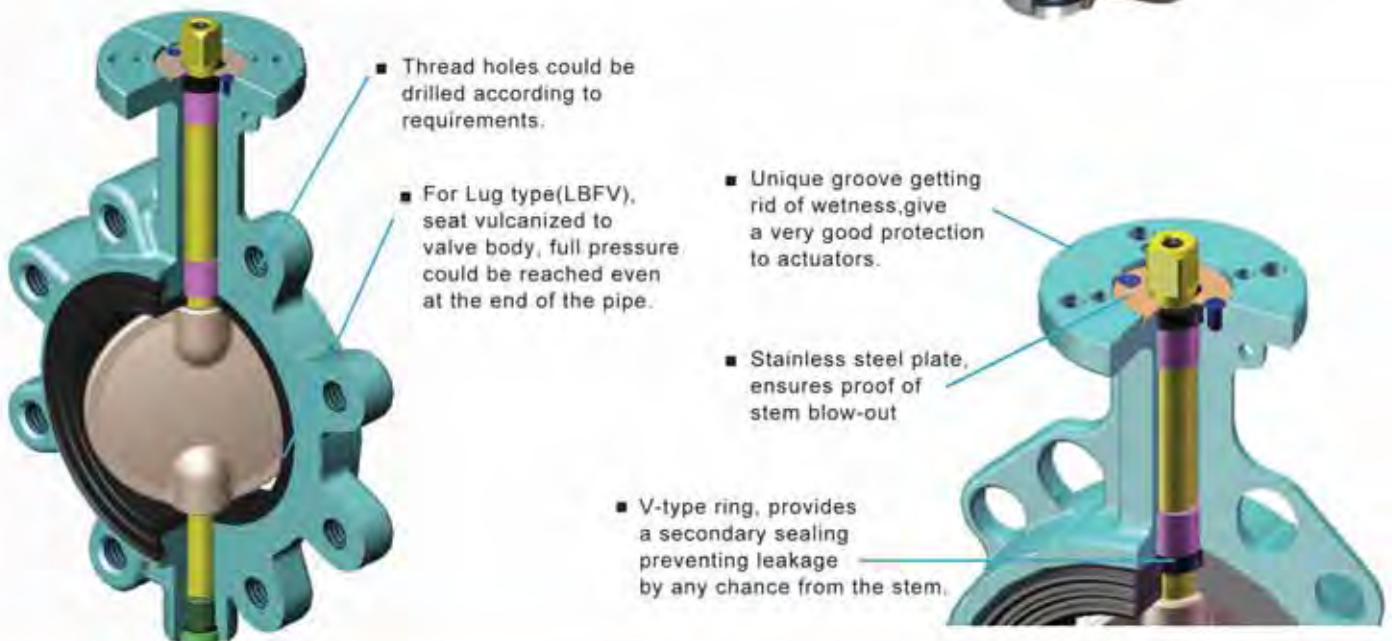
Pin used for 14" and bigger size valve, some manufactures even not use any thing, this leave a very big risk when you need repairing actuators, There is cases stem blowing out and hurting people after fail of pin or just blowing out if there is even no pin.



## Construction Features DN50(2") to DN300(12")

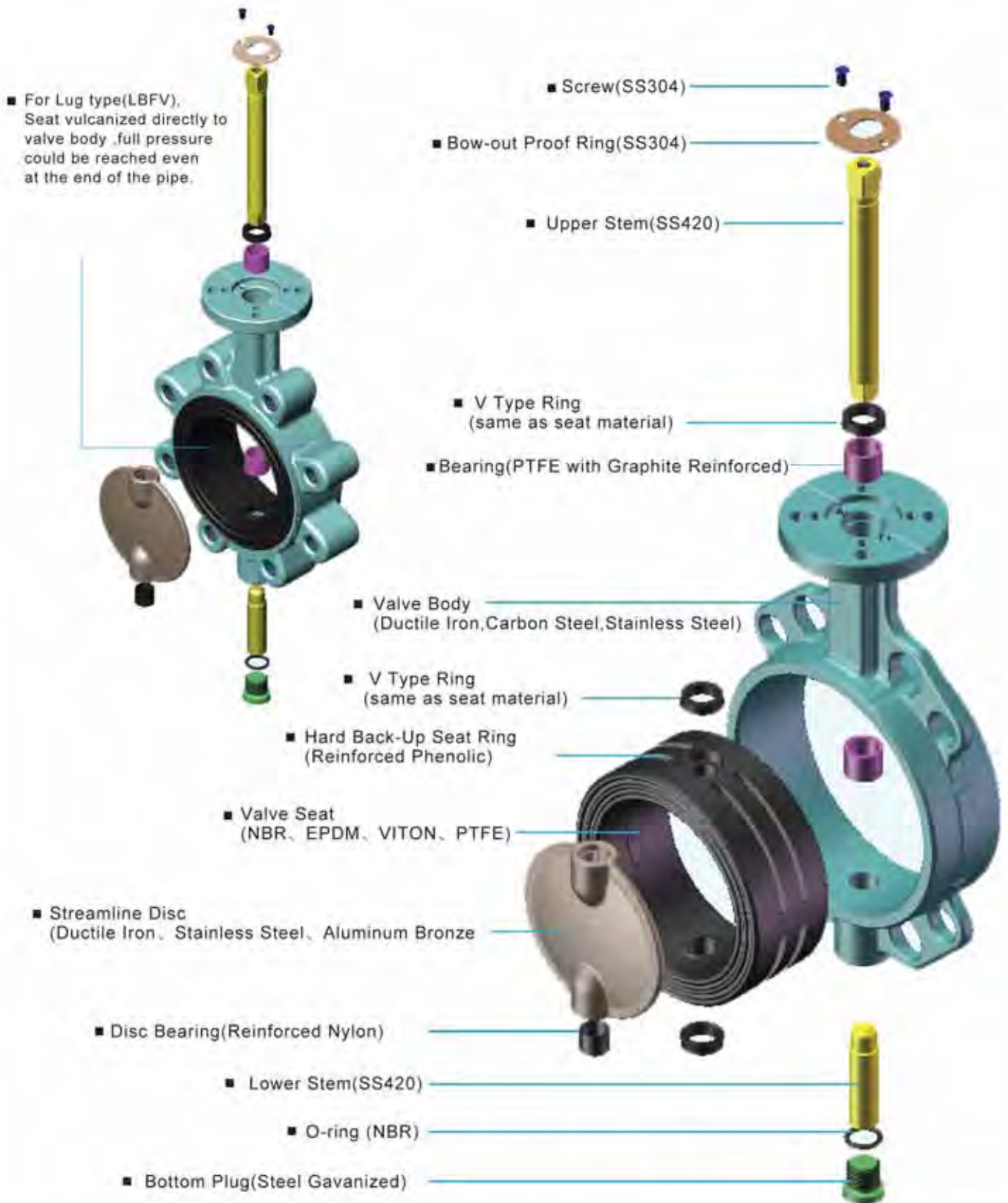


- Stainless steel plate, ensures proof of stem blow-out
- V-type ring , provides a weather seal
- PTFE+ graphite bearing, ensures perfect turning and centric positioning of the stem. The sleeve bearing provides excellent support even if actuator are used for artomation purposes.
- V-type ring, provides a secondary sealing, preventing leakage by any chance from the stem.
- Pinless connection, no leakage between disc and shaft.
- Disc with two-piece shaft construction, enhance the flow capacity of the valve. The shape of the disc provides lower torque and prolongs the life span of the valve.
- Unique wave line rubber seat ,reduces the torque of the valve and enhances the life time of the sealing.
- Seat vulcanized to hard bach, ideal for vacuum applications and mounting between flanges becomes easily done.
- Multi-standard alignment holes, Suitable for flange of EN1092 PN10, PN16, ASME CLASS125/150,BS10 TABLE D, TABLE E and JIS B2239 10K,16K
- Unique hole for hang of manual book.



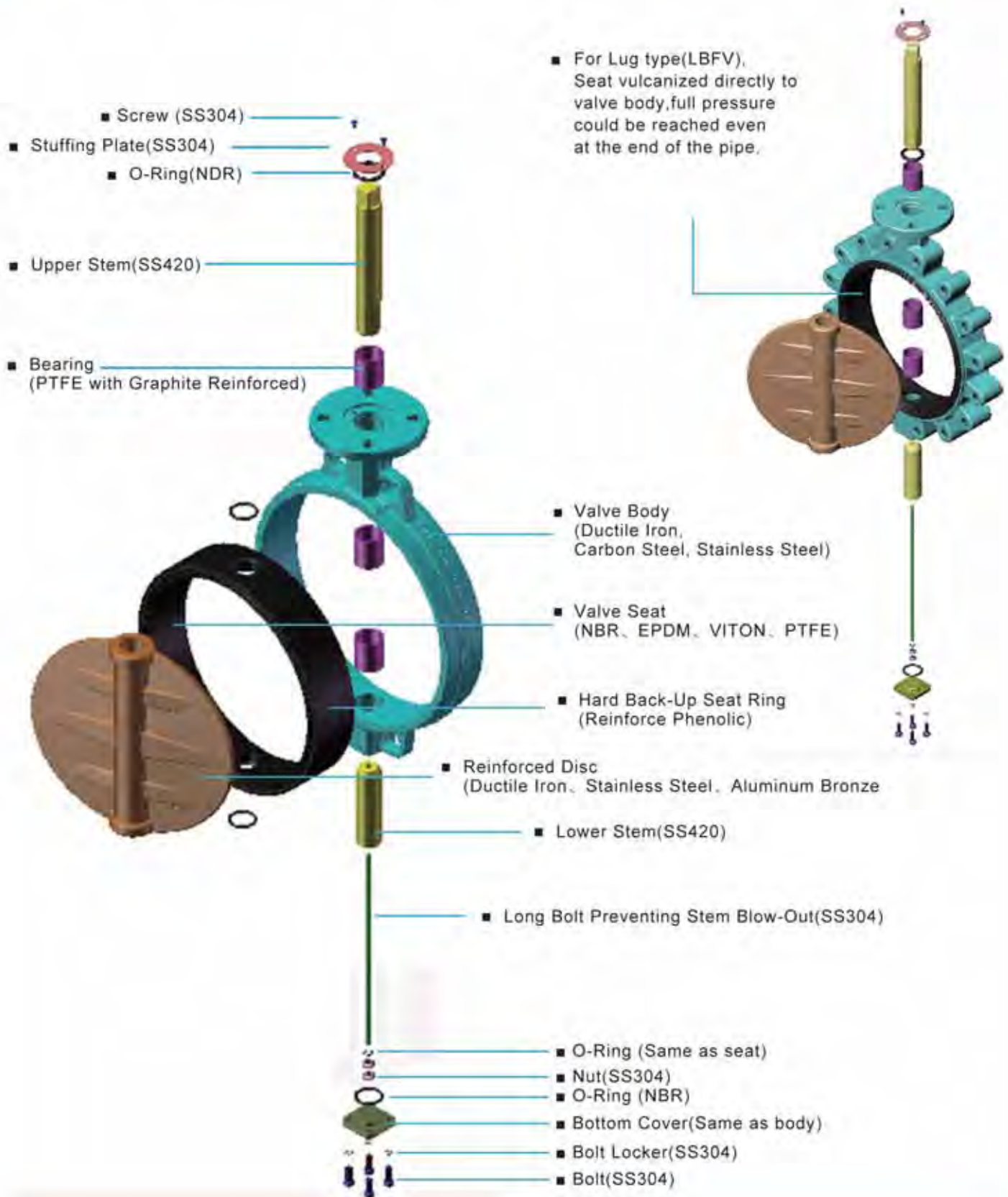
- Thread holes could be drilled according to requirements.
- For Lug type(LBFV), seat vulcanized to valve body, full pressure could be reached even at the end of the pipe.
- Unique groove getting rid of wetness, give a very good protection to actuators.
- Stainless steel plate, ensures proof of stem blow-out
- V-type ring, provides a secondary sealing preventing leakage by any chance from the stem.

## Valve Parts DN50(2") to DN300(12")





## Valve Parts DN350(14") to DN 1400(56")



## Wafer / Lug type soft seated butterfly valves

- Unique wave line rubber seat, makes the concentric butterfly valve work similar to eccentric butterfly valve, reduces the friction between disc and rubber
- Unique groove inside rubber back, reduces the torque of valve 20% to 30%, enhances the flexibility and life time of the seat 50% more
- Multi-standard alignment holes, Suitable for flange of EN1092 PN10, PN16, ASME CLASS125/150, BS10 TABLE D, TABLE E and JIS B2239 10K, 16K
- V-type ring around stem, prevent any leakage possibility
- Stainless steel palte, ensures whole life proof of stem blow-out
- Disc with two-piece shaft construction, enhance the flow capacity of the valve. The shape of the disc provides lower torque and prolongs the life span of the valve



Size Range: 2" to 56"

Pressure Rating: Full vacuum to 20bar

Flange accomodation: EN1092 PN10/PN16&ANSI 125/150 & BS10 Table D/E&JIS10K/16K for 2"to12"  
EN1092 PN10/PN16&ANSI 125/150 & BS10 Table D/E for 14" to 24"

Face to Face: EN558 Basic series 20, API609

Body: Cast Iron, Ductile Iron, Carbon Steel, Stainless Steel

Disc: SS201, SS304, SS316, SS316L, Aluminium Bronze, Hastelloy, Duplex, Super Duplex.

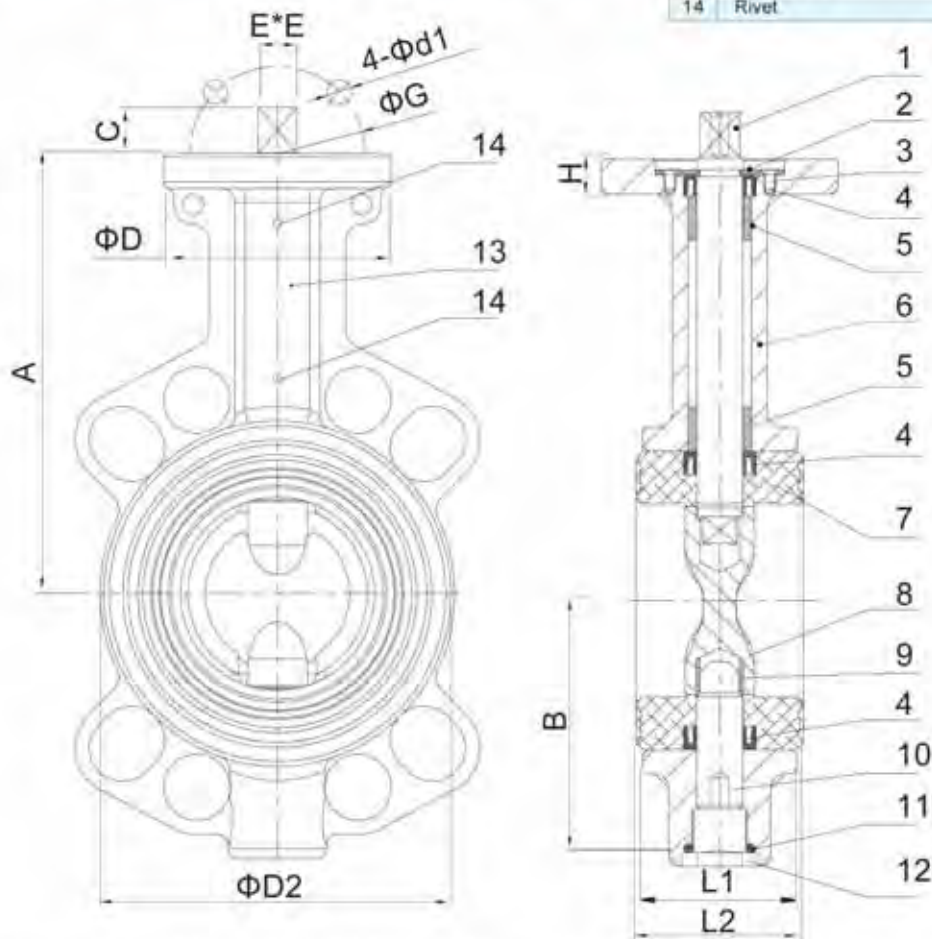
Seat: NBR, EPDM, Corrosion Resistant VITON-A, Steam Resistant VITON-B, Hypallon, PTFE.

★ With health and safety certilcaie: FDA, WRAS, DVGW, PED-CE.



## Dimensions of Wafer Type Valve Body DN50(2") DN300(12")

SIZE	A	B	C	E*E	D	D2	G	d1	H	L1	L2	No	Part Name	Standard Material
DN50	128	72	13.5	11*11	65	99	50	7	10	43	46	1	Upper stem	SS420
DN65	134	82	13.5	11*11	65	113.4	50	7	10	46	49	2	Preventing ring	SS304
DN80	157	95.5	13.5	11*11	65	127.7	50	7	10	48	49	3	Screw	SS304
DN100	167	113.5	17.5	14*14	90	156.7	50+70	7+9	13	52	55.6	4	V type ring	Same as seat
DN125	180	129	17.5	14*14	90	180.3	70	9	13	56	58.7	5	Bearing	PTFE Graphite reinforced
DN150	203	142	18.5	14*14	90	213	70	9	13	56	58.7	6	Body	GGG40
DN200	228	172	24.5	22*22	125	265.8	102	11	15	60	64.2	7	Seat	NBR, EPDM, VITON, PTFE
DN250	266	213	24.5	22*22	125	324.2	102	11	15	68	72.4	8	Disc	SS316
DN300	291	242	26.5	27*27	150	376.8	125	13	15	78	81.5	9	Disc bearing	Nylon Reinforced
												10	Lower stem	SS420
												11	O ring	NBR
												12	Plug	Steel Zinc-plated
												13	Name plate	SS304
												14	Rivet	Copper



1. Valve design complies with API609, MSS SP-67, BS5155 and EN593;
2. Valve face to face conform to EN558 basic series 20(wafer short) and API609;
3. Valve inspection according to API598;
4. Top flange compatible with ISO5211, actuator can be mounted parallel or perpendicular to the pipe line;
5. Suitable between flanges: EN1092 PN10, PN16, ANSI B16.1 CLASS125, ANSI B16.5 CLASS150, BS10 TABLE D, TABLE E, JIS B2239 10K, 16K.
6. Valves meet the intent of and have passed AWWA C504-87 Section 5 proof of design tests.

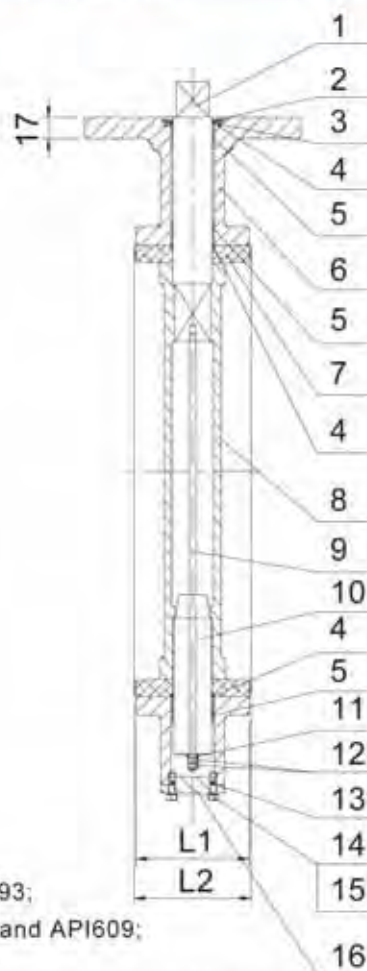
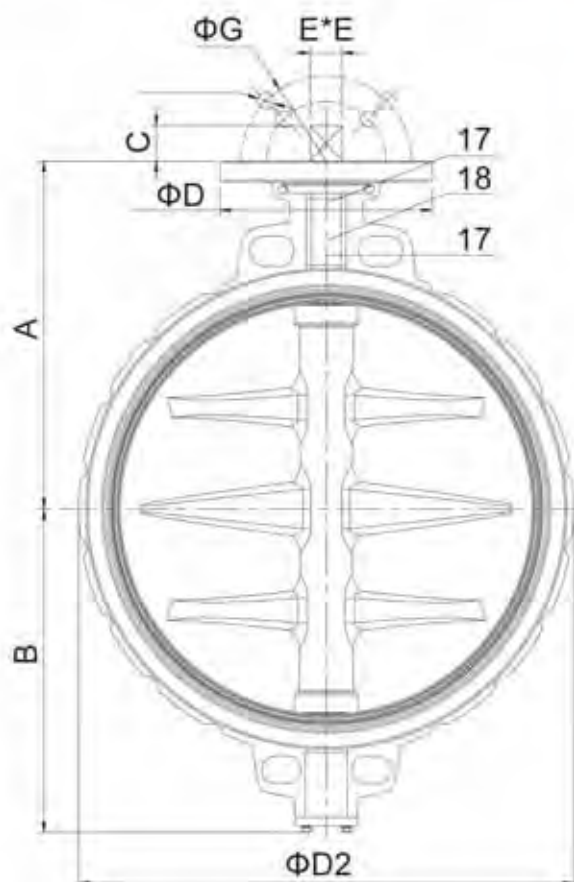
### Dimensions of Wafer Type Valve Body DN350(14")to DN1400(56")

SIZE	A	B	C	E*E	D	D2	G	n	d1	H	L1	L2
DN350	332	258	30	27*27	175	411.7	125+140	4+4	14+18	19	78	81.4
DN400	363	301.5	30	27*27	175	471.2	125+140	4+4	14+18	20	102	106
DN450	397	333	39	36*36	210	528	140+165	4+4	18+22	25	114	118
DN500	425	378	49	46*46	210	580.4	140+165	4+4	18+22	25	127	131
DN600	498	438	49	46*46	300	678.9	165+254	4+8	22+18	30	154	158.4

No	Part Name	Standard Material
1	Upper stem	SS420
2	Stuffing plate	SS304
3	Screw	SS304
4	O ring	Same as seat
5	Bearing	PTFE Graphite Reinforced
6	Body	GGG40
7	Seat	NBR, EPDM, VITON, PTFE
8	Disc	SS316
9	Long bolt	SS304
10	Lower stem	SS420
11	O ring	Same as seat
12	Nut	SS304
13	O ring	NBR
14	Bolt	SS304
15	Locker	SS304
16	Bottom cover	Same as body
17	Rivet	Copper
18	Name plate	SS304

Dimensions of DN700(28")to DN1400(56")

please contact with our technical department if you need.



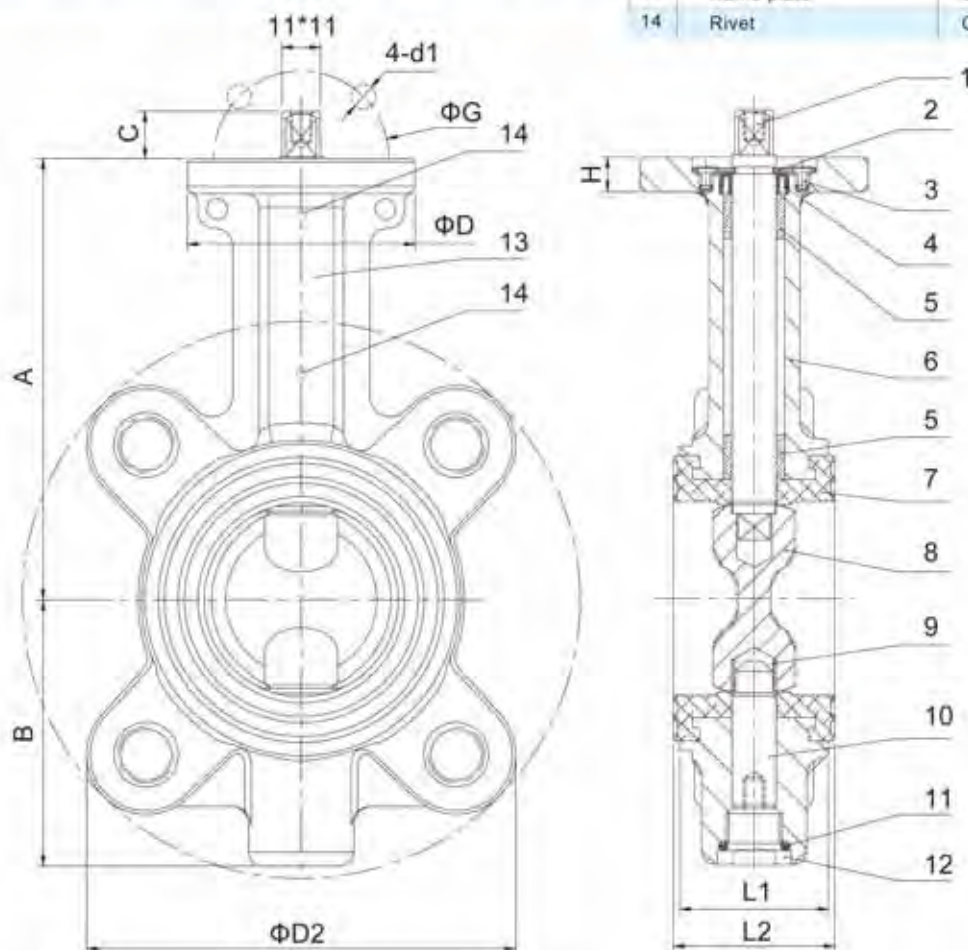
1. Valve design complies with API609, MSS SP-67, BS5155 and EN593;
2. Valve face to face conform to EN558 basic series 20 (wafer short) and API609;
3. Valve inspection according to API598;
4. Top flange compatible with ISO5211, actuator can be mounted parallel or perpendicular to the pipe line;
5. Suitable between flanges: EN1092 PN10, PN16, ANSI B16.1 CLASS125, ANSI B16.5 CLASS150, BS10 TABLE D, TABLE E.
6. Valves meet the intent of and have passed AWWA C504-87 Section 5 proof of design tests.



## Dimensions of Lug Type Valve Body DN50(2") to DN300(12")

SIZE	A	B	C	E*E	D	D2	G	d1	H	L1	L2
DN50	126	76	13.5	11*11	65	123	50	7	10	43	46
DN65	134	82	13.5	11*11	65	137	50	7	10	46	49
DN80	157	95.5	13.5	11*11	65	180	50	7	10	46	49
DN100	167	113.5	17.5	14*14	90	199	50+70	7+9	13	52	55.6
DN125	180	129	17.5	14*14	90	226	70	9	13	56	58.7
DN150	203	142	18.5	17*17	90	262	70	9	13	56	58.7
DN200	228	172	24.5	22*22	125	315	102	11	15	60	64.2
DN250	266	213	24.5	22*22	125	380	102	11	15	68	72.4
DN300	291	242	26.5	27*27	150	429	125	13	15	78	81.5

No.	Part Name	Standard Material
1	Upper stem	SS420
2	Preventing ring	SS304
3	Screw	SS304
4	V type ring	Same as seat
5	Bearing	PTFE Graphite Reinforced
6	Body	GGG40
7	Seat	NBR, EPDM, VITON, PTFE
8	Disc	SS316
9	Disc bearing	Nylon Reinforced
10	Lower stem	SS420
11	O ring	NBR
12	Plug	Steel Zinc-plated
13	Name plate	SS304
14	Rivet	Copper



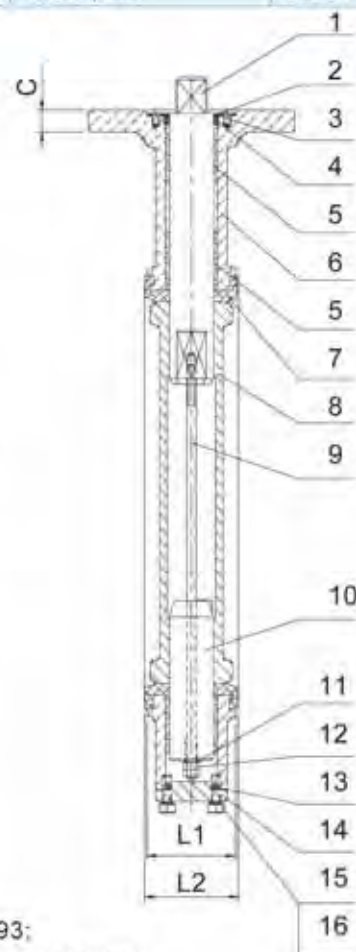
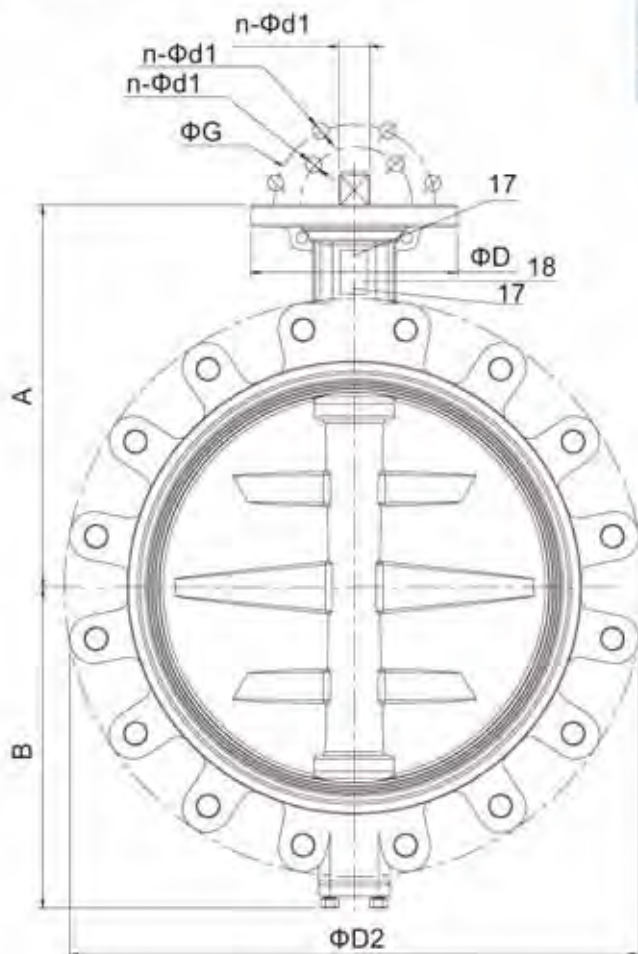
1. Valve design complies with API609, MSS SP-67, BS5155 and EN593;
2. Valve face to face conform to EN558 basic series 20(wafer short) and API609;
3. Valve inspection according to API598;
4. Top flange compatible with ISO5211, actuator can be mounted parallel or perpendicular to the pipe line;
5. Suitable between flanges: EN1092 PN10 or PN16, or ANSI B16.1 CLASS125, ANSI B16.5 CLASS150.
6. Valves meet the intent of and have passed AWWA C504-87 Section 5 proof of design tests.

## Dimensions of Lug Type Valve Body DN350(14")to DN1400(56")

SIZE	A	B	C	E*E	D	D2	G	d1	H	L1	L2
DN350	332	258	30	27*27	175	493	125+140	14+18	19	78	81.4
DN400	363	301.5	30	27*27	175	556	125+140	14+18	20	102	106
DN450	397	333	39	36*36	210	637	140+165	18+22	25	114	118
DN500	425	378	49	46*46	210	706	140+165	18+22	25	127	131
DN600	498	438	49	46*46	300	831	165+254	22+18	30	154	158.4

Dimensions of DN700(25")to DN 1400(56")  
please contact with our technical department if you need.

No.	Part Name	Standard Material
1	Upper stem	SS420
2	Stuffing plate	SS304
3	Screw	SS304
4	O ring	Same as seat
5	Bearing	PTFE Graphite Reinforced
6	Body	GGG40
7	Seat	NBR, EPDM, VITON, PTFE
8	Disc	SS316
9	Long bolt	SS304
10	Lower stem	SS420
11	O ring	Same as seat
12	Nut	SS304
13	O ring	NBR
14	Bottom cover	Same as body
15	Bolt	SS304
16	Locker	SS304
17	Rivet	Copper
18	Name plate	SS304



1. Valve design complies with API609, MSS SP-67, BS5155 and EN593;
2. Valve face to face conform to EN558 basic series 20(wafer short) and API609;
3. Valve inspection according to API598;
4. Top flange compatible with ISO5211, actuator can be mounted parallel or perpendicular to the pipe line;
5. Suitable between flanges : EN1092 PN10 or PN16, or ANSI B16.1 CLASS125, ANSI B16.5 CLASS150.
6. Valves meet the intent of and have passed AWWA C504-87 Section 5 proof of design tests.



## Double Flanged butterfly valves

- Stable connection, especially suitable for underground installation and frequent changes in temperature

Size Range: 2" to 48"

Pressure Rating: 10bar-16bar

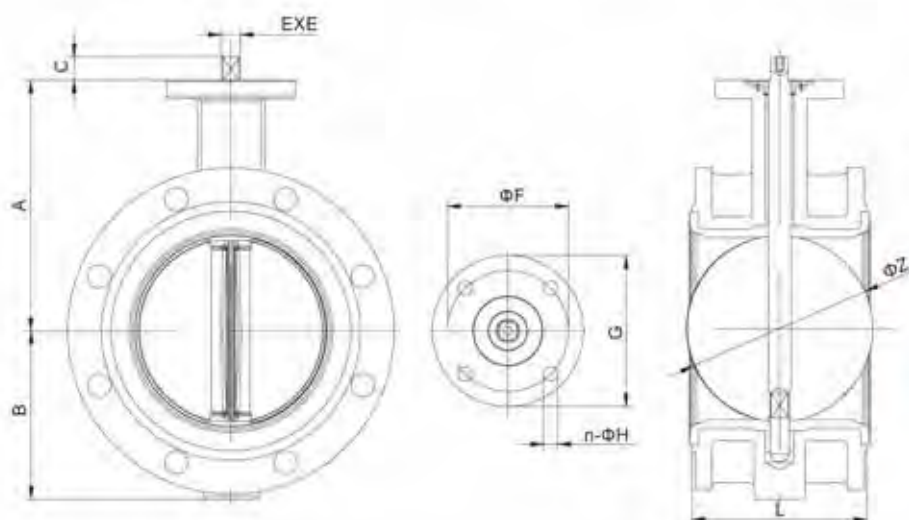
Flange accommodation: EN1092 PN10/PN16 OR ANSI 125/150

Face to Face: EN558 Basic series 13

Body: Cast Iron, Ductile Iron

Disc: SS201, SS304, SS316, Aluminum Bronze, Hastelloy, Duplex, Super Duplex.

Seat: NBR, EPDM. Corrosion resistant VITON-A, Steam resistant VITON-B, Hypalon.



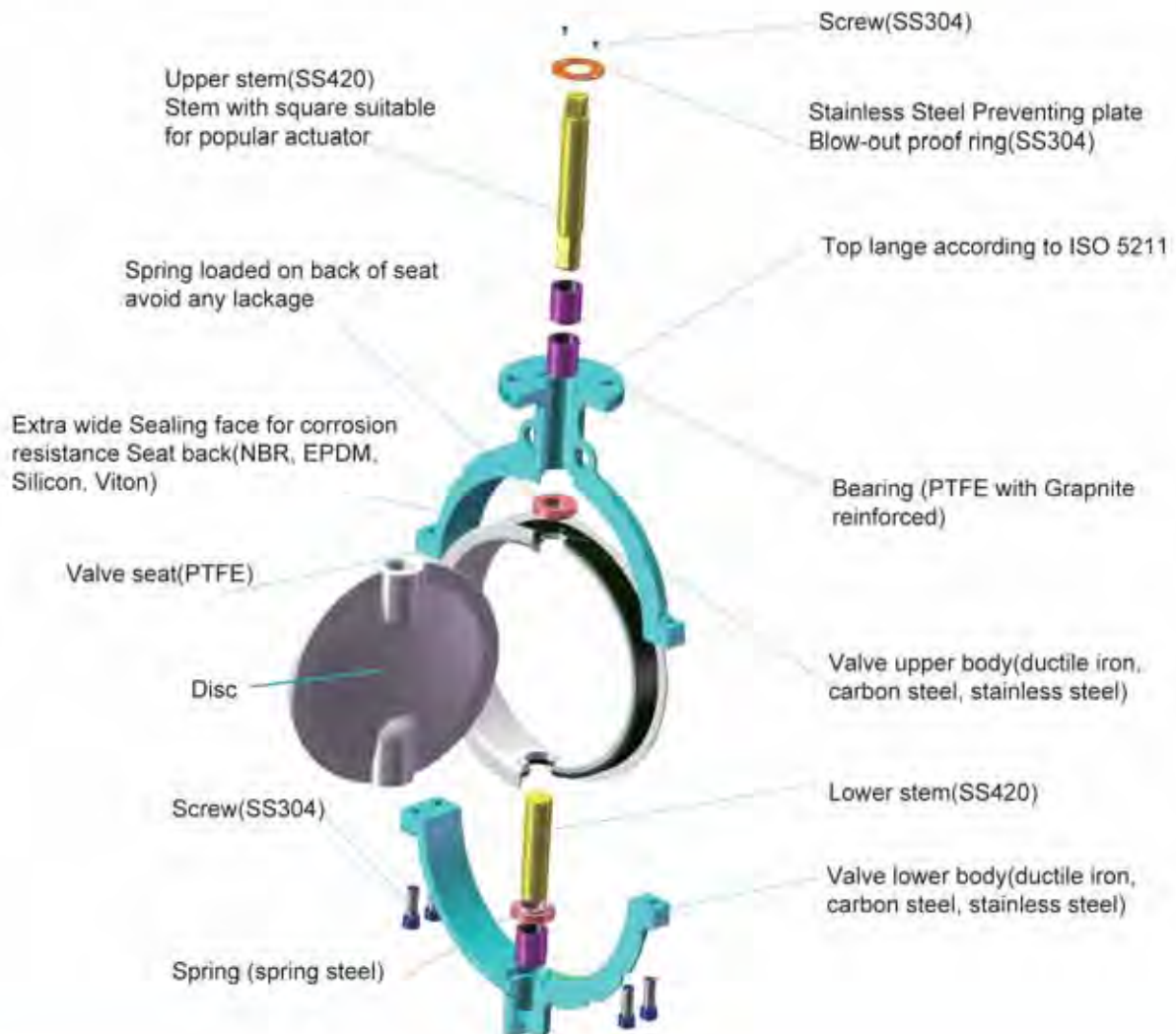
No.	Part	Material	Standard
1	Body	DI	GGG40
2	Disc	SS	CF8M
3	Seat	EPDM	
4	Shaft	SS	SS420

SIZE	A	B	C	E	F	G	n-H	L	Z
DN50	142	80	13.5	11	70	90	4-10	108	53
DN65	155	89	13.5	11	70	90	4-10	112	62
DN80	161	95	13.5	11	70	90	4-10	114	79
DN100	180	114	17.5	14	70	90	4-10	127	104
DN125	193	127	17.5	14	70	90	4-10	140	124
DN150	205	139	18.5	17	70	90	4-10	140	156
DN200	250	175	24.5	22	102	125	4-12	152	203
DN250	282	203	24.5	22	102	125	4-12	165	251
DN300	326	242	27	27	102	125	4-12	178	302
DN350	358	267	24.5	22	102	125	4-12	190	334
DN400	380	301	30	27	140	175	4-18	216	390
DN450	422	381	30	27	140	175	4-18	222	441
DN500	479	387	39	36	140	175	4-18	229	492
DN600	562	457	39	36	165	210	4-23	267	593

1. Valve design complies with API609, MSS SP-67, BS5155 and EN593;
2. Valve face to face conform to EN558 basic series 13 (Double flanged short);
3. Valve inspection according to API598;
4. Top flange compatible with ISO5211, actuator can be mounted parallel or perpendicular to the pipe line;
5. Suitable between flanges : EN1092 PN10 or PN16, or ANSI B16.1 CLASS125, ANSI B16.5 CLASS150.
6. Valves meet the intent of and have passed AWWA C504-87 Section 5 proof of design tests.

## 2pc Valve Body

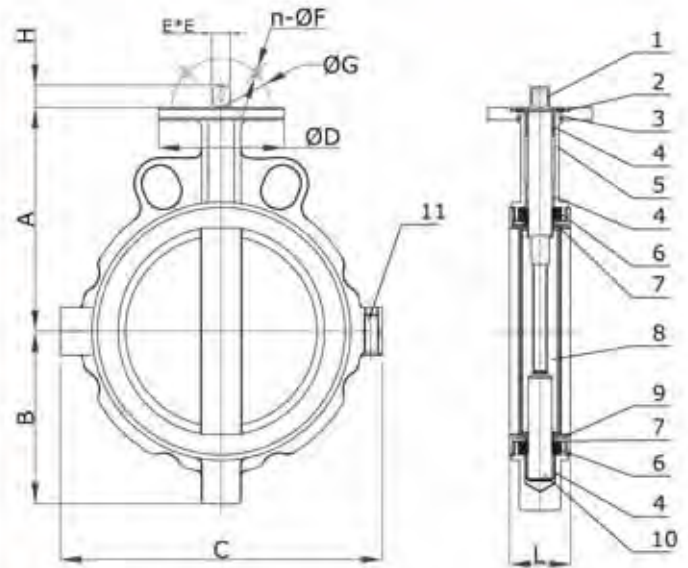
- Spring loaded on back of seat, prevent any leadkage even under high corrosion.
  - PTFE liner, low triction and resistant to high corrosion
  - Rubber back ensures flexibility and diffrent rubber for diffrent temperature range
- Size Range: 2" to 24"  
 Pressure Rating: 16bar  
 Flange accomodation: EN1092 PN10/0N16 OR ANSI 125/150  
 Face to Face: EN558 Basic series 20, API609  
 Body: Ductile iron, Carbon steel, Stainless steel  
 Disc: PTFE, SS304, SS316, SS316L, Aluminium Bronze, Hastelloy, Duplex, Super Duplex  
 Seat : PTFE with NBR back, PTFE with EPDM back, PTFE with Silicon back, PTFE with VITON back





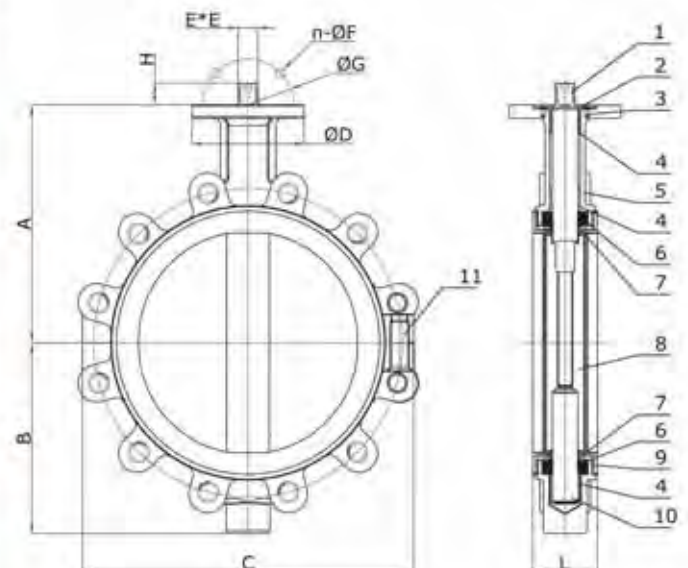
### 2pc Valve Body (Wafer / Lug Type)

SIZE	A	B	C	D	E	F	n	G	H	L
DN50	135	77	130	65	11	7	4	50	13.5	43
DN65	138	91	150	65	11	7	4	50	13.5	46
DN80	138	95	164	65	11	7	4	50	13.5	46
DN100	149	121	188	90	14	9	4	70	17.5	52
DN125	173	125	220	90	14	9	4	70	17.5	56
DN150	187	150	252	90	17	9	4	70	18.5	56
DN200	225	182	305	125	22	11	4	102	24.5	60
DN250	247	226	370	125	22	11	4	102	24.5	68
DN300	285	260	430	140	27	11+13	4+4	102+125	26.5	78
DN350	335	275	470	140	27	14	4	125	30.5	78
DN400	410	305	565	175	27	18	4	140	30.5	102
DN450	440	338	620	210	36	22	4	165	39	114
DN500	495	375	695	210	46	22	4	165	49	127



2pc Valve Body (Wafer Type)

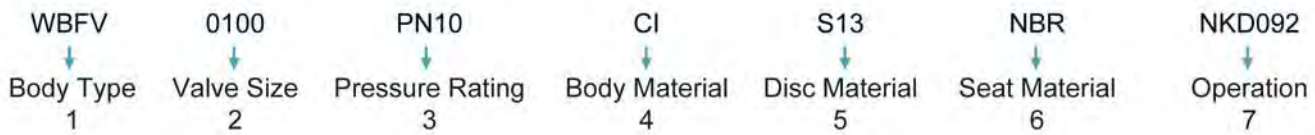
NO.	Part Name	Material
1	Upper Stem	SS420
2	Preventing plate	SS
3	Screw	SS
4	Bushing	PTFE with Graphite
5	Body	GGG40
6	Disc Spring	SS
7	Washer	PTFE
8	Disc	SS316 or Steel + PTFE
9	Seat	PTFE
10	Lower Stem	SS420
11	Screw	SS



2pc Valve Body (Lug Type)

1. Valve design complies with API 609, MSS SP-67, BS 5155 and EN593;
2. Valve face to face conform to EN558 basic series 20(water short) and API609;
3. Valve inspection according to API598;
4. Top flange compatible with ISO5211. Actuator can be mounted parallel or perpendicular to the pipe line;
5. Suitable between flanges: EN1092 PN10 or PN16, or ANSI B16.1 CLASS 125. ANSI B16.5 CLASS 150;

## Order Informaton



### 1.Body Type

Code	Description
WBFV	Wafer Type
LBFV	Lug Type
FBFV	Flanged

### 2.Valve Size

Code	Description
0100	Four numbers represent the valve size. eg: 0100 represent DN100(4" )

### 3.Pressure Rating

Code	Description
PN10	PN10
PN16	PN16
150LB	ANSI 150LB
10K	JIS10K
16K	JIS16K

### 4.Body Material

Code	Description
CI	Cast Iron
DI	Ductile Iron
CS	Carbon Steel
S13	304SS
S14	316SS
XX	Other Material

### 5.Disc Material

Code	Description
DI	Ductile Iron
CS	Carbon Steel
S13	304SS
S14	316SS
XX	Other Material

### 6.Seat Material

Code	Description
NBR	NBR
EPDM	EPDM
VITON	VITON
PTFE	PTFE
XX	Other Material

### 10. Operation

Code	Description
M	Manual
NK	Rack & Pinon Pneumatic Actuator/NK(052~270)
NSF	Scotch Yoke Type Pneumatic Actuator/NSF(16~60)
NTE	Electric Actuator/NTE Series(02~200)
NTQ	Electric Actuator/NTQ Series(100~3000)

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