



**Product
Catalog**

**FX
FLOW**

FX FLOW CONTROL BV

● Technical Specification

Design and Manufacture: Cast steel globe valve to BS 1873 and ASME B16.34; Forged steel globe valve to API 602.

Inspection and Test: API 598.

End flange dimension: ASME B16.5 .

BW end dimension: ASME B16.25.

Socket-weld dimension: ASME B16.11.

Face to face and end to end: ASME B16.10.

Pressure-temperature ratings: ASME B16.34.

● The features of globe valve

Bolted Bonnet; Outside Screw and Yoke; Rising stems; Metallic seating surfaces.

● Body and Bonnet Connection

The body and bonnet of Class 150 ~ Class 900 globe valves are usually with studs and nuts. And the body and bonnet of Class 1500 ~ Class 2500 globe valves are usually of pressurized seal design.

● Gasket of Cover Flange

Stainless steel + flexible graphite wounded gasket is used for Class 150 and Class 300 globe valve; Stainless steel + flexible graphite wounded gasket is used for Class 600, and ring joint gasket is also optional for Class 600. Ring joint gasket is used for Class 900 globe valve; Pressurized seal design is used for Class 1500 ~ Class 2500 globe valve.

● Actuation

Hand wheel, impact hand wheel & gear box is usually used for globe valve actuation. Chain wheel and electric actuator can be also used for globe valve actuation if being requested by the customers.

● Packing Seal

Molded flexible graphite is used for packing material. PTFE or combined packing material can be also used if being requested by the customer. The internal surface of the stuffing box, of which area is contacted with the packing, is of excellent finish (Ra 3.2 μ m). The stem surface, contacting with the packing, should be rolled and pressed after being precisely machined, so as to reach to the high finish and compactness (Ra 0.8 μ m) and ensure the reliable tightness of the stem area.

● Belleville Spring Loaded Packing Impacting System

If being requested by the customer, the Belleville spring loaded packing impacting system can be adopted for enhancing the durability and reliability of the packing seal.

● Back Seating Design

All our globe valves have the back seating design. In most cases, the carbon steel globe valve is fitted with a renewable back seat. For stainless steel globe valve, the back seat is machined directly in the bonnet or is machined after welding. When the globe valve is at fully open position, the sealing of the back seat can be very reliable. However, as per the requirement of API, it is not advisable to add or change packing by the mean of back seating when the valve is pressure containing.

● Seat

For carbon steel globe valve, the seat is usually forged steel. The sealing surface of the seat is spray welded with hard alloy specified by the customer. Renewable threaded seat is used for NPS \leq 10 globe valves, and welded on seat can be also optional if being requested by the customer. Welded on seat is used for NPS \geq 12 carbon steel globe valves. For Stainless steel globe valve, integral seat is usually adopted, or to weld hard alloy directly integrally. Threaded or welded on seat is also optional for stainless steel globe valve if being requested by the customer.

● Stem Design

The stem is of integral forged design. The minimum diameter of the stem shall per the standard requirement.

● Stem Nut

Usually, the stem nut is made of ASTM A439 D2. it is also can be made of copper ally if being requested by the customer. For large sized globe valve, rolling bearing is fitted at the two sides of stem nut in order to minimize the open and close torque of the globe valve.

● Special Gate Valve

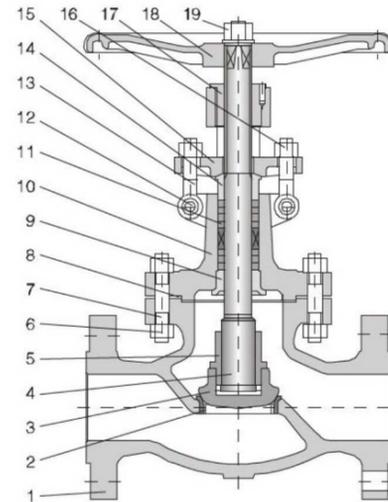
Besides the common globe valves, Our company also makes cryogenic globe valve, Bellow sealed globe valve, Jacketed globe valve, etc.



Bellow Sealed Globe Valve



Forged Steel Globe Valve



Technical Specification

Design and Manufacture: BS1873 or ASME B16.34
 Inspection and Test: API 598
 End flange dimension: ASME B16.5
 BW end dimension: ASME B16.25

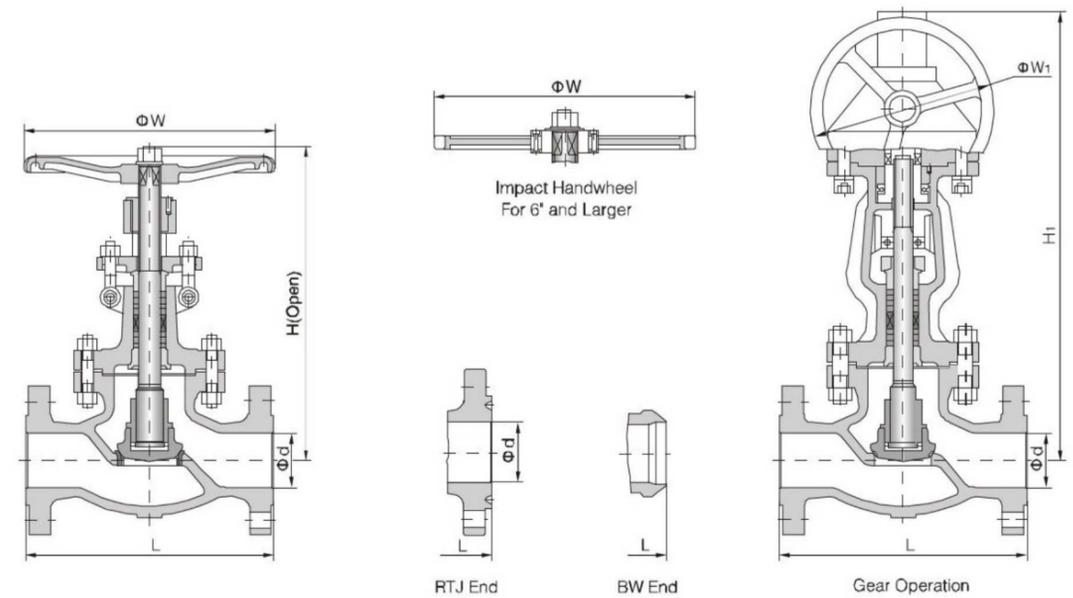
Socket-weld dimension: ASME B16.11
 Face to face and end to end: ASME B16.10
 Pressure-temperature ratings: ASME B16.34

Form of Major Part Material

Parts No.	Parts Name	Materials				
		WCB/Trim 1	WCB/Trim 5	WCB/Trim 8	CF8/304	CF8M/316
1	Body	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
2	Seat ring	A105 + 13Cr	A105 + STL	A105 + STL	ASTM A351 CF8	ASTM A351 CF8M
3	Disc	ASTM A216 WCB + 13Cr	ASTM A216 WCB + STL	ASTM A216 WCB + 13Cr	ASTM A351 CF8	ASTM A351 CF8M
4	Stem	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316
5	Disc nut	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
6	Bonnet nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
7	Bonnet bolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
8	Gasket	304 sheet + Graphite	304 sheet + Graphite	304 sheet + Graphite	304 + Graphite	316 + Graphite
9	Backseat bushing	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A351 CF8	ASTM A351 CF8M
10	Bonnet	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
11	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
12	Eyebolt pin	ASTM A36	ASTM A36	ASTM A36	304ss	316ss
13	Gland eyebolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
14	Gland	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316
15	Gland flange	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
16	Eyebolt nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
17	Stem nut	ASTM A439 D2	ASTM A439 D2	ASTM A439 D2	ASTM A439 D2	ASTM A439 D2
18	Hand wheel	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron
19	Hand wheel nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel

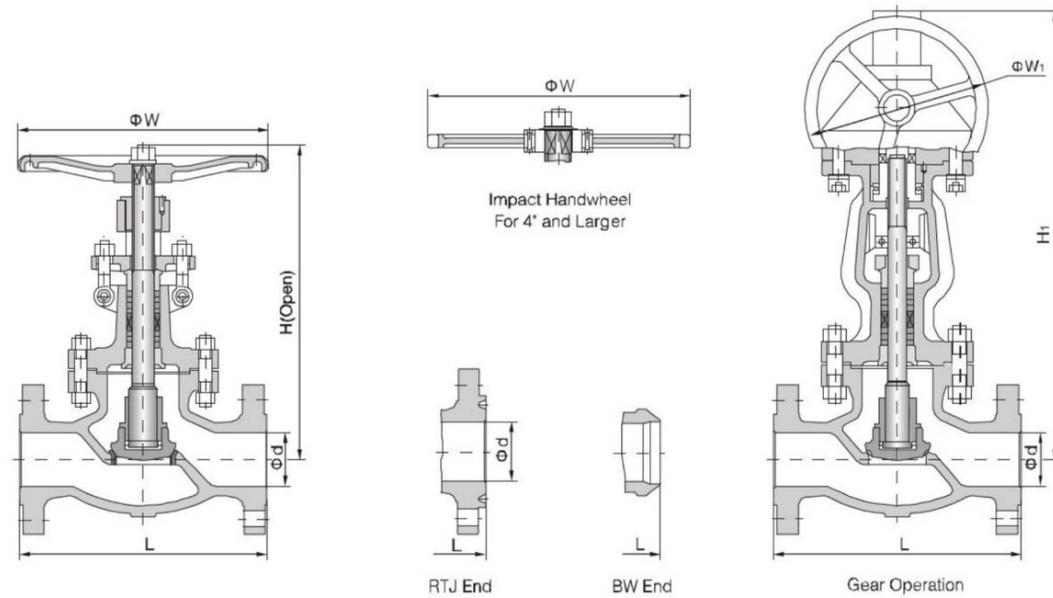
Note: The chart above only lists out some common composition of steel check valve parts. We may provide other different parts material composition according to the customer's request or the actual valve working condition.

Cast Steel Globe Valve Class 150

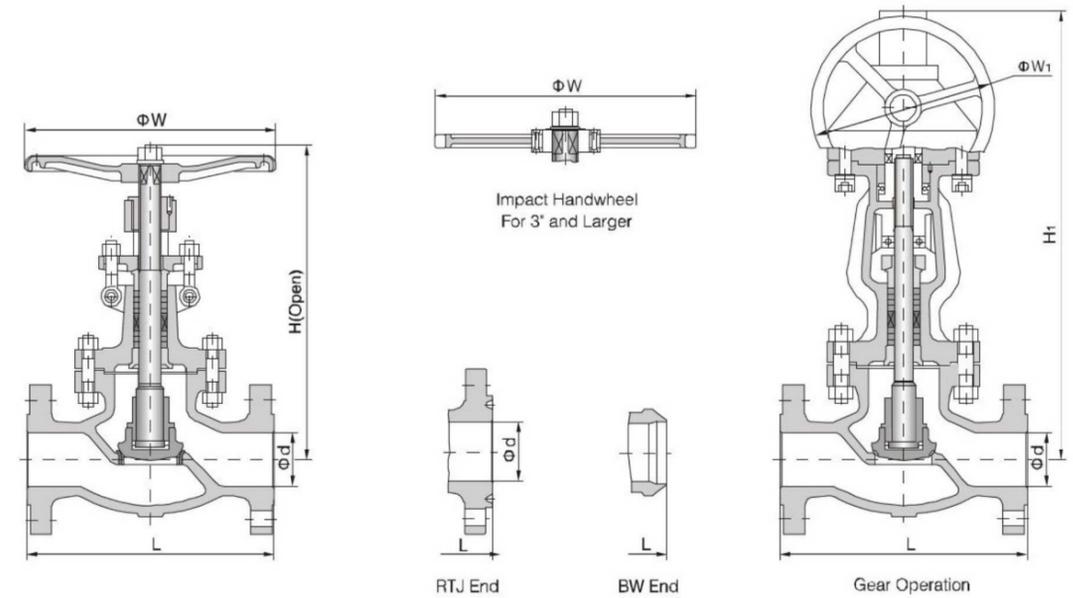


Class	Size		Dimensions(mm)							Weight(kg)		
	NPS	DN	L			d	H	H ₁	W	W ₁	H.W	G.O
150	1/2	15	108	119	108	13	182	-	100	-	4	-
	3/4	20	117	130	117	19	193	-	100	-	6	-
	1	25	127	140	127	25	217	-	100	-	8	-
	1 1/4	32	140	152	140	32	235	-	135	-	12	-
	1 1/2	40	165	178	165	38	258	-	135	-	16	-
	2	50	203	216	203	51	330	-	200	-	25	-
	2 1/2	65	216	229	216	64	360	-	250	-	42	-
	3	80	241	254	241	76	390	-	280	-	46	-
	4	100	292	305	292	102	445	-	300	-	74	-
	5	125	356	369	356	127	480	-	350	-	111	-
	6	150	406	419	406	152	520	556	350	310	165	258
	8	200	495	508	495	203	600	658	400	310	275	300
10	250	622	635	622	254	773	805	450	460	400	450	
12	300	698	711	698	305	880	955	500				

● Cast Steel Globe Valve Class 300

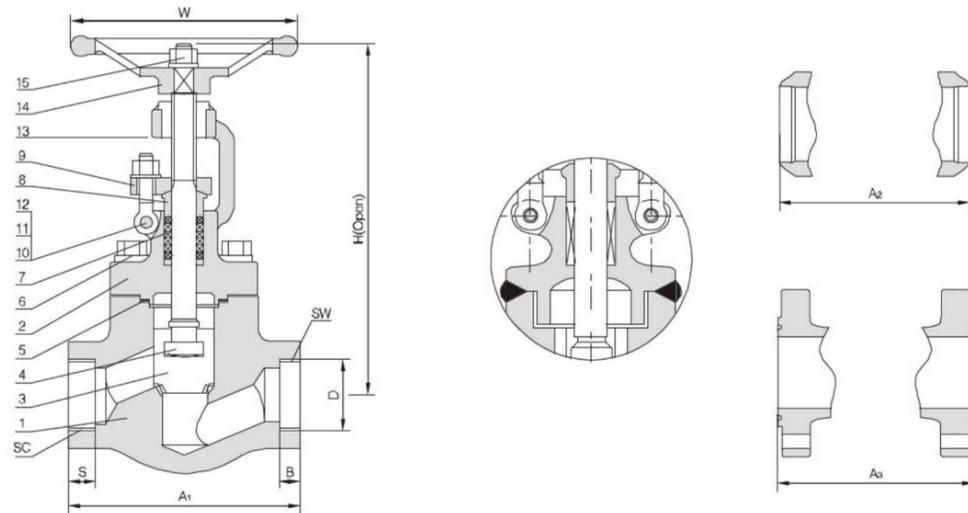


● Cast Steel Globe Valve Class 600/900



Class	Size		Dimensions(mm)								Weight(kg)	
	NPS	DN	L			d	H	H ₁	W	W ₁	H.W	G.O
			RF	RTJ	BW							
300	1/2	15	152	164	152	14	185	-	100	-	5	-
	3/4	20	178	191	178	19	195	-	100	-	7	-
	1	25	203	216	203	25	220	-	135	-	10	-
	1 1/4	32	216	229	216	32	240	-	135	-	14	-
	1 1/2	40	229	241	229	38	260	-	160	-	19	-
	2	50	267	283	267	51	385	-	200	-	25	-
	2 1/2	65	292	308	292	64	420	-	200	-	42	-
	3	80	318	333	318	76	440	-	280	-	46	-
	4	100	356	371	356	102	515	-	350	-	74	-
	5	125	400	416	400	127	580	-	350	-	111	-
	6	150	444	460	444	152	660	690	400	310	165	195
	8	200	559	575	559	203	900	950	550	460	275	327
10	250	622	638	622	254	950	990	600	460	400	452	
12	300	711	727	711	305	1030	1080	700	460	624	725	

Class	Size		Dimensions(mm)								Weight(kg)	
	NPS	DN	L			d	H	H ₁	W	W ₁	H.W	G.O
			RF	RTJ	BW							
600	2	50	292	295	292	51	360	-	250	-	32	-
	2 1/2	65	330	333	330	64	410	-	280	-	42	-
	3	80	356	359	356	76	465	-	300	-	63	-
	4	100	432	435	432	102	545	575	400	310	107	138
	5	125	508	511	508	127	625	660	500	310	185	215
	6	150	559	562	559	152	785	820	550	460	290	342
	8	200	660	664	660	200	930	960	650	460	540	645
	2	50	368	371	368	51	480	-	350	-	55	-
900	2 1/2	65	419	422	419	64	520	-	350	-	68	-
	3	80	381	384	381	76	564	630	400	310	95	128
	4	100	457	460	457	102	685	720	450	310	160	210
	5	125	559	562	559	127	780	840	550	460	270	325
	6	150	610	613	610	152	950	1015	650			



Technical Specification

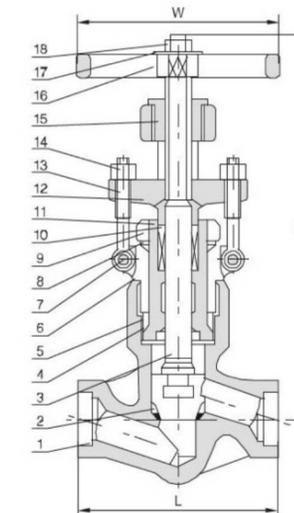
Steel Globe Valves, API 602
 Steel Valves, ASME B16.34
 Face to Face, Manufacturer Standard
 Face to Face, Flanged, ASME B16.10
 End Flanges, ASME B16.5
 Buttwelding Ends, ASME B16.25
 Socket-welding Ends, ASME B16.11
 Screwed Ends, ASME B1.20.1
 Inspection and Test, API 598

Design Description

Outside Screw and Yoke (OS&Y)
 Bolted Bonnet
 Choice of WB, Welding Bonnet
 Seat Rings Integral with Body
 Yoke Integral with Bonnet
 Rising Stem and Handwheel
 Horizontal Service
 SW, Socket-welding Ends
 SC, Screwed Ends
 BW, Buttwelding Ends

Form of Major Part Material

No.	Part Name	ASTM Material								
		Carbon Steel	F11	F22	304 Type	316 Type	304L Type	316L Type	20 Alloy	
1	Body	A105	A182 F11	A182 F22	A182 F304	A182 F316	A182 F304L	A182 F316L	20-Alloy	
2	Bonnet	A105	A182 F11	A182 F22	A182 F304	A182 F316	A182 F304L	A182 F316L	20-Alloy	
3	Disc	A182 F6a	A182 F11+HF	A182 F22+HF	A182 F304	A182 F316	A182 F304L	A182 F316L	20-Alloy	
4	Stem	A182 F6a	A182 F11	A182 F22	A182 F304	A182 F316	A182 F304L	A182 F316L	20-Alloy	
5	Bonnet Gasket	304+Graphit	304+Graphit	304+Graphit	304+Graphit	316+Graphit	304L+Graphit	316L+Graphit	316+Graphit	
6	Bonnet Bolt	A193 B7	A193 B7	A193 B16	A193 B8					
7	Packing	Graphite	Graphite	Graphite	Graphite *2					
8	Gland	A276 410	A276 410	A276 410	A276 304	A276 316	A276 304L	A276 316L	20-Alloy	
9	Gland Flange	A182 F6a	A182 F11	A182 F22	A182 F304					
10	Eyebolt	Carbon Steel	A193 B7	A193 B7	A193 B8					
11	Eyebolt Nut	Carbon Steel	A194 2H	A194 2H	A194 8					
12	Eyebolt Pin	A276 410	A276 410	A276 410	A276 304					
13	Yoke Sleeve	Bronze	Bronze *3	Bronze *3	Bronze	Bronze	Bronze	Bronze	Bronze	
14	Hand wheel	Malleable iron	Malleable iron	Malleable iron	Malleable iron	Malleable iron	Malleable iron	Malleable iron	Malleable iron	
15	Wheel Nut	Carbon Steel	Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	
*1	PN≥600Class seal face will be HF									
*2	PTFE Optional									
*3	Ductile Ni-Resist iron Optional									
Na	Integral with vessel									



Technical Specification

Steel Globe Valves, API 602
 Steel Valves, ASME B16.34
 Face to Face, Manufacturer Standard
 Face to Face, ASME B16.10
 Buttwelding Ends, ASME B16.25
 Socket-welding Ends, ASME B16.11
 Screwed Ends, ASME B1.20.1
 Inspection and Test, API 598

Design Description

Outside Screw and Yoke (OS&Y)
 Pressure Seal Bonnet
 Choice of WB, Welding Bonnet
 Single wedge, Fully Guided
 Renewable Seat Rings
 Yoke Integral with Bonnet
 Rising Stem and Handwheel
 SW, Socket-welding Ends
 SC, Screwed Ends
 BW, Buttwelding Ends

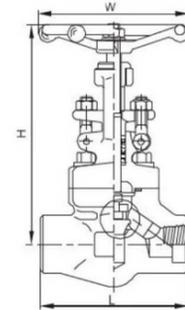
Form of Major Part Material

No.	Part Name	CS to ASTM	AS to ASTM	SS to ASTM	
		Type A 105N	Type F22	Type F304(L)	Type F316(L)
1	Body	A105N	A182 F22	A182 F304(L)	A182 F316(L)
2	Disc	A276 420+STL	A276 304+STL	A276 304(L)+STL	A276 316(L)+STL
3	Stem	A276-410	A182 F22	A182 F304(L)	A182 F316(L)
4	Seal Place	A105	A182 F22	A182 F304(L)	A182 F316(L)
5	Packing Ring	A182 F304	A182 F304	A182 F304(L)	F316(L)
6	Bonnet	A105N	A182 F22	A182 F304(L)	A182 F316(L)
7	Pin	A276 420	A276 420	A182 F304	A182 F304
8	Gasket	A105N	A182 F22	A182 F304(L)	A182 F316(L)
9	Promotes the Nut	A194 2H	A194 4	A194 8	A194 8M
10	Stem Packing	Flexible graphite+304	Flexible graphite+304	Flexible graphite+316	Flexible graphite+316
11	Gland	A276 420	A276 420	A182 F304	A182 F304
12	Gland Flange	A105	A105	A182 F304	A182 F304
13	Gland Eyebolt	A193 B7	A193 B16	A193 B8	A193 B8M
14	Gland Nut	A194 2H	A194 4	A194 8	A194 8M
15	Yoke Nut	A276 420	A276 420	A276 420	A276 420
16	Hand Wheel	A197	A194 4	A197	A197
17	Nameplate	SS	SS	SS	SS
18	Stem Nut	C.S	C.S	SS	SS

● Class800 Main Outline Dimensions & Weight

Bold fastening valve cover, outside screw stem & yoke (OS&Y).
Designs according to BS5,352.

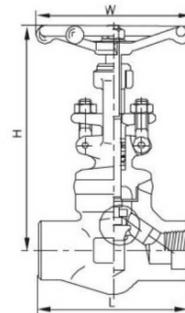
R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
L	79	79	92	111	120	152	172	200
W	100	100	100	125	160	160	180	200
H	164	164	164	203	224	260	300	355
d	7	9	13	17.5	23	30	35	46
Weight(kg)	1.9	2.28	2.37	4.3	5.75	7.8	12.5	17.5



● Class800 Main Outline Dimensions & Weight

Weld joint valve cover, outside screw stem & yoke (OS&Y).
Designs according to BS5,352.

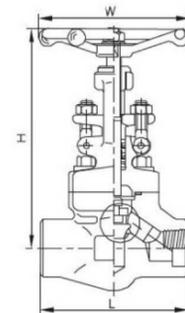
R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
L	79	79	92	111	120	152	172	200
W	100	100	100	125	160	160	180	200
H	164	164	164	203	224	260	300	355
d	7	9	13	17.5	23	30	35	46
Weight(kg)	1.7	1.7	1.9	3.3	5.2	6.8	10.6	13.8



● Class900~1500 Main Outline Dimensions & Weight

Bold fastening valve cover, outside screw stem & yoke (OS&Y).
Designs according to BS5,352.

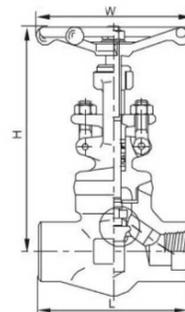
R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
L	92	111	111	120	152	172	200	220
W	100	125	125	160	160	180	200	240
H	171	207	207	240	258	330	355	370
d	7	12	15	20	28	32	40	45
Weight(kg)	2.3	3.7	3.6	6.8	7.6	11.6	15	21.9



● Class900~1500 Main Outline Dimensions & Weight

Weld joint valve cover, outside screw stem & yoke (OS&Y).
Designs according to BS5,352.

R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
L	92	111	111	120	152	172	200	220
W	100	125	125	160	160	180	200	240
H	171	207	207	240	258	330	355	370
d	7	12	15	20	28	32	40	45
Weight(kg)	2.0	3.4	3.3	6.0	5.6	10.3	14.2	18.5



● Technical Specification

Design and Manufacture: Cast steel gate valve to API 600 (ISO 10434) or API 6D; Cast stainless steel gate valve to API 600; Forged steel gate valve to API 602.

Inspection and Test: API 598, API 600 or API 6D.

End flange dimension: ASME B16.5 (for NPS ≤ 24), ASME B16.47 series B, API 605 or ASME B16.47 series A, MSS SP-44 (for NPS > 24).

BW end dimension: ASME B16.25.

Socket-weld dimension: ASME B16.11.

Face to face and end to end: ASME B16.10.

Pressure-temperature ratings: ASME B16.34.

● Design of Disc

Gate Valves with NPS ≥ 2 are of wedge flexible gate; Gate valves with NPS < 2 are of wedge solid gate.

● Body and Bonnet Connection

The body and bonnet of Class 150 ~ Class 900 gate valves are usually connected with studs and nuts. And the body and bonnet of Class 1500 ~ Class 2500 gate valves are usually of pressurized seal design.

● Gasket of Cover Flange

Carbon steel or stainless steel + flexible graphite combined gasket is used for Class 150 gate valve; Stainless steel + flexible graphite wounded gasket is used for Class 300 gate valve; Stainless steel + flexible graphite wounded gasket is used for Class 600 gate valve, and ring joint gasket is also optional for Class 600 gate valve; Ring Joint gasket is used for Class 900 gate valve; Pressurized seal design is used for Class 1500 ~ Class 2500 gate valve.

● Actuation

Hand wheel or gear box is usually used for gate valve actuation. Chain wheel and electric actuator can be also used for gate valve actuation if being requested by the customers.

● Packing Seal

Molded flexible graphite is used for packing material. PTFE or combined packing material can be also used if being requested by the customer. The internal surface of the stuffing box, of which area is contacted with the packing, is of excellent finish (Ra 3.2 μm). The stem surface, contacting with the packing, should be rolled and pressed after being precisely machined, so as to reach to the high finish and compactness (Ra 0.8 μm) and ensure the reliable tightness of the stem area.

● Belleville Spring Loaded Packing Impacting System

If being requested by the customer, the Belleville spring loaded packing impacting system can be adopted and reliability of the packing seal.

● Back Seating Design

All our gate valves have the back seating design. In most cases, the carbon steel gate valve is fitted with a renewable back seat. For stainless steel gate valve, the back seat is machined directly in the bonnet or is machined after welding. When the gate valve is at fully open position, the sealing of the back seat can be very reliable. However, as per the requirement of API 600, it is not advisable to add or change packing by the mean of back seating when the valve is pressure containing.

● Seat

For carbon steel gate valve, the seat is usually forged steel. The sealing surface of the seat is spray welded with hard alloy specified by the customer. Renewable threaded seat is used for NPS ≤ 10 gate valves, and welded on seat can be also optional if being requested by the customer. Welded on seat is used for NPS ≤ 10 carbon steel gate valves. For Stainless steel gate valve, integral seat is usually adopted, or to weld hard alloy directly integrally. Threaded or welded on seat is also optional for stainless steel gate valve if being requested by the customer.

● Stem Design

The stem is of integral forged design. The minimum diameter of the stem shall per the standard requirement. The connection of the stem and disc is T type. The strength of the connecting area is bigger than that of the T threaded part of the stem. The strength test of that area conforms to API 591.

● Stem Nut

Usually, the stem nut is made of ASTM A439 D2. It is also can be made of copper ally if being requested by the customer. For large sized gate valves (NPS 10 for Class 150, NPS 8 for Class 300, NPS 6 for Class 600, NPS 5 for Class 900), rolling bearing is fitted at the two sides of the stem nut in order to minimize the open and close torque of the gate valve.

● Special Gate Valve

Besides the common gate valves, Our Company also makes cryogenic gate valve, Jacketed Gate Valve, Bellow Sealed Gate Valve, Extension Stem Gate Valve for underground application, Flat Gate Valve, etc.



Flat Gate Valve



Cryogenic Gate Valve



Bellow Sealed Gate Valve



Extension Stem Gate Valve
for Underground Application

● Technical Specification

Design and Manufacture: API 600 (ISO 10434) or API 6D

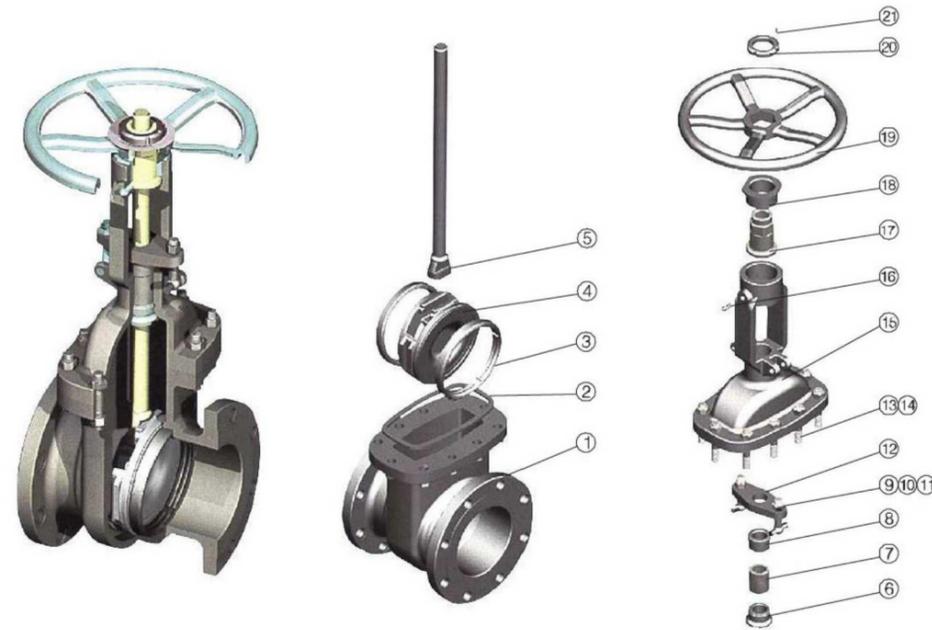
Inspection and Test: API 598, API 600 or API 6D

End flange dimension: ASME B16.5 (for NPS ≤ 24), ASME B16.47 series B, API 605 or ASME B16.47 series A, MSS SP-44 (for NPS > 24)

BW end dimension: ASME B16.25

Face to face and end to end: ASME B16.10

Pressure-temperature ratings: ASME B16.34

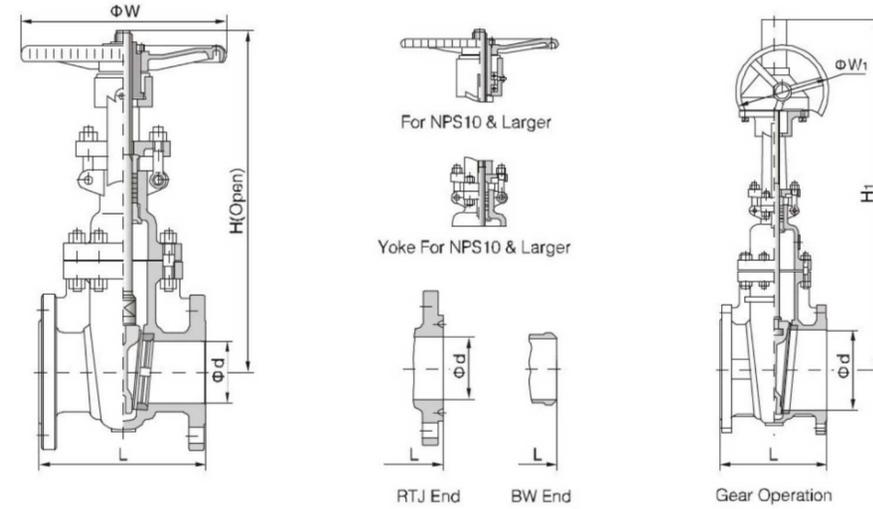


Form of Major Part Material

Parts No.	Parts Name	Materials				
		WCB/Trim 1	WCB/Trim 5	WCB/Trim 8	CF8/304	CF8M/316
1	Body	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
2	Gasket	Soft Iron + Graphite or 304 + Graphite			304 + Graphite	316 + Graphite
3	Seat ring	A105 + 13Cr	A105 + STL	A105 + STL	ASTM A351 CF8	ASTM A351 CF8M
4	Gate	ASTM A216 WCB + 13Cr	ASTM A216 WCB + STL	ASTM A216 WCB + 13Cr	ASTM A351 CF8	ASTM A351 CF8M
5	Stem	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316
6	Backseat bushing	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A351 CF8	ASTM A351 CF8M
7	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
8	Gland	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316
9	Gland eyebolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
10	Eyebolt nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
11	Eyebolt pin	ASTM A36	ASTM A36	ASTM A36	304ss	316ss
12	Gland flange	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
13	Bonnet bolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
14	Bonnet nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
15	Bonnet	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
16	Nipple	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
17	Stem nut	ASTM A439 D2	ASTM A439 D2	ASTM A439 D2	ASTM A439 D2	ASTM A439 D2
18	Yoke sleeve nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
19	Hand wheel	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron	Ductile Iron
20	Hand wheel nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
21	Set screw	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7

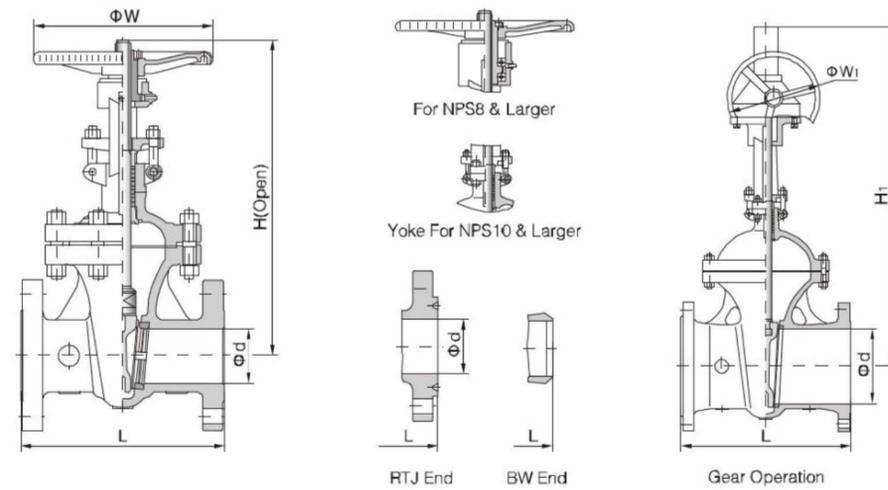
Note: The chart above only lists out some common composition of steel gate valve parts. We may provide other different parts material composition according to the customer's request or the actual valve working condition.

Class150 Cast Steel Gate Valve



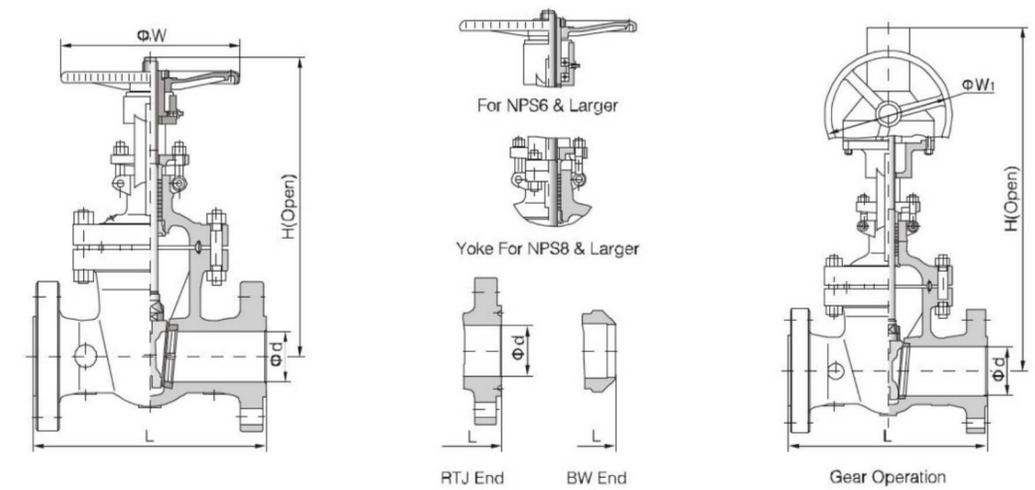
Class	Size		Dimensions(mm)								Weight(kg)	
	NPS	DN	L			d	H	H ₁	W	W ₁	H.W	G.O
			RF	RTJ	BW							
Class150	1/2	15	108	119	108	14	195	-	120	-	4	-
	3/4	20	117	130	117	19	210	-	120	-	5	-
	1	25	127	140	127	25	240	-	140	-	7	-
	1 1/4	32	140	153	140	32	300	-	180	-	10	-
	1 1/2	40	165	178	165	38	395	-	200	-	14	-
	2	50	178	191	216	51	400	-	200	-	19	-
	2 1/2	65	191	203	241	64	435	-	200	-	25	-
	3	80	203	216	283	76	515	-	250	-	33	-
	4	100	229	241	305	102	595	-	280	-	49	-
	5	125	254	267	381	127	725	-	280	-	62	-
	6	150	267	279	403	152	780	820	300	310	77	104
	8	200	292	305	419	203	975	1020	350	310	123	150
	10	250	330	343	457	254	1150	1200	400	310	188	215
	12	300	356	368	502	305	1380	1430	450	310	288	315
	14	350	381	394	572	337	1545	1580	500	310	385	435
	16	400	406	419	610	387	1733	1780	500	460	500	552
	18	450	432	445	660	438	1915	1990	500	460	601	653
	20	500	457	470	711	489	2122	2220	600	460	764	816
	24	600	508	521	813	591	2520	2600	600	460	1007	1185
	26	650	559	-	864	633	-	2800	-	600	-	1550
	28	700	610	-	914	684	-	3050	-	600	-	1880
30	750	610	-	914	735	-	3130	-	600	-	2300	
32	800	711	-	965	779	-	3280	-	-	-	-	
34	850	762	-	1016	830	-	3500	-	-	-	-	
36	900	711	-	1016	874	-	3720	-	-	-	-	

● Class300 Cast Steel Gate Valve



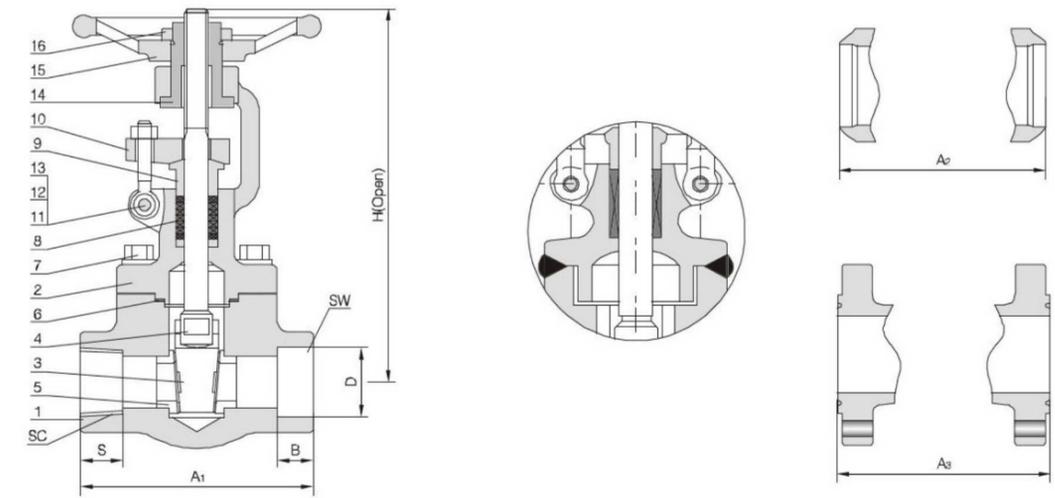
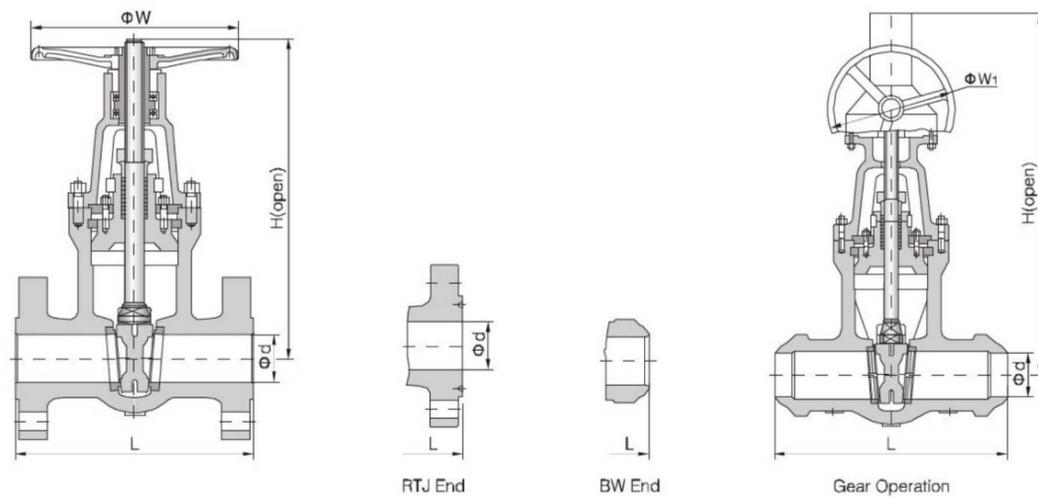
Class	Size		Dimensions(mm)								Weight(kg)	
	NPS	DN	L			d	H	H ₁	W	W ₁	H.W	G.O
			RF	RTJ	BW							
Class300	1/2	15	140	151	140	14	198	-	120	-	6	-
	3/4	20	152	165	152	19	215	-	140	-	7	-
	1	25	165	178	165	25	245	-	160	-	10	-
	1 1/4	32	178	191	178	32	306	-	180	-	15	-
	1 1/2	40	190	203	190	38	400	-	200	-	21	-
	2	50	216	232	216	51	420	-	200	-	25	-
	2 1/2	65	241	257	241	64	446	-	200	-	30	-
	3	80	283	298	283	76	537	-	250	-	48	-
	4	100	305	321	305	102	619	650	280	310	73	100
	5	125	381	397	381	127	722	750	300	310	99	126
	6	150	403	419	403	152	806	835	350	310	130	186
	8	200	419	435	419	203	1000	1030	400	310	208	235
	10	250	457	473	457	254	1240	1280	450	310	334	386
	12	300	502	518	502	305	1425	1460	500	310	450	502
	14	350	762	778	762	337	1585	1620	600	460	704	756
	16	400	838	854	838	387	1790	1830	500	460	923	965
	18	450	914	930	914	438	1960	2000	650	460	1131	1224
	20	500	991	1010	991	489	2158	2220	750	460	1345	1400
24	600	1143	1165	1143	591	2576	2620	900	600	2122	2385	
26	650	1245	1270	1245	633	-	2850	-	600	-	3000	
28	700	1346	1372	1346	684	-	3080	-	600	-	3300	
30	750	1397	1422	1397	735	-	3180	-	600	-	3550	
32	800	1524	1553	1524	779	-	3300	-	600	-	4400	
34	850	1626	1654	1626	830	-	3550	-	600	-	5200	
36	900	1727	1756	1727	874	-	3760	-	600	-	6050	

● Class600 & Class900 Cast Steel Gate Valve



Class	Size		Dimensions(mm)								Weight(kg)	
	NPS	DN	L			d	H	H ₁	W	W ₁	H.W	G.O
			RF	RTJ	BW							
Class600	2	50	292	295	292	51	444	-	200	-	32	-
	2 1/2	65	330	333	330	64	500	-	250	-	52	-
	3	80	356	359	356	76	558	585	280	310	60	87
	4	100	432	435	432	102	665	695	300	310	107	134
	5	125	508	511	508	127	760	790	350	310	175	227
	6	150	559	562	559	152	868	900	450	310	216	268
	8	200	660	664	660	203	1073	1110	500	310	399	451
	10	250	787	791	787	254	1263	1300	650	460	605	657
	12	300	838	841	838	305	1600	1650	700	460	851	893
	14	350	889	892	889	337	1705	1750	900	460	1177	1232
	16	400	991	994	991	387	1835	1900	900	460	1513	1568
	18	450	1092	1095	1092	438	-	2020	-	600	-	1980
	20	500	1194	1200	1194	489	-	2172	-	600	-	2460
	24	600	1397	1407	1397	591	-	2650	-	600	-	3650
Class900	2	50	368	371	368	51	500	-	280	-	70	-
	2 1/2	65	419	422	419	64	550	-	280	-	110	-
	3	80	381	384	381	76	610	660	300	310	140	167
	4	100	457	460	457	102	702	750	350	310	200	227
	5	125	559	562	559	127	850	900	400	310	258	285
	6	150	610	613	610	152	980	1060	500	460	358	410
	8	200	737	740	737	203	1100	1140	650	460	550	600
	10	250	838	841	838	254	1320	1370	700	460	1000	1100
	12	300	965	968	965	305	1500	1560	900	460	1300	1400
	14	350	1029	1038	1029	322	1900	1950	900	460	1600	1700
16	400	1130	1140	1130	373	2050	2100	900	460	1800	1900	

● Class 1500 & Class 2500 Cast Steel Gate Valve



Class	Size		Dimensions(mm)								Weight(kg)	
	NPS	DN	L			d	H	H ₁	W	W ₁	H.W	G.O
			RF	RTJ	BW							
Class 1500	2	50	368	371	368	51	510	-	280	-	70	-
	2 1/2	65	419	422	419	64	560	-	300	-	110	-
	3	80	470	473	470	76	620	670	350	310	175	202
	4	100	546	549	546	102	728	770	400	310	270	300
	5	125	673	676	673	127	870	920	450	310	378	405
	6	150	705	711	705	144	1000	1070	500	460	520	575
	8	200	832	841	832	192	1130	1180	750	460	820	915
	10	250	991	1000	991	239	1360	1410	900	600	1560	1750
	12	300	1130	1146	1130	287	-	1620	-	600	-	2120
	14	350	1257	1276	1257	315	-	2020	-	600	-	2600
Class 2500	2	50	451	454	451	42	530	580	280	310	100	130
	2 1/2	65	508	514	508	52	580	630	300	310	150	180
	3	80	578	584	578	62	650	700	350	310	245	275
	4	100	673	683	673	87	750	800	400	310	390	420
	5	125	794	807	794	96	900	960	500	460	550	580
	6	150	914	927	914	131	1040	1100	600	460	780	835
	8	200	1022	1038	1022	179	1150	1200	750	460	1260	1355
	10	250	1270	1292	1270	223	1400	1460	900	600	2380	2565
	12	300	1422	1445	1422	265	-	1660	-	600	-	3250

● Technical Specification

Steel Gate Valves, API 602
 Steel Valves, ASME B16.34
 Face to Face, Manufacturer Standard
 Face to Face, Flanged, ASME B16.10
 End Flanges, ASME B16.5
 Buttwelding Ends, ASME B16.25
 Socket-welding Ends, ASME B16.11
 Screwed Ends, ASME B1.20.1
 Inspection and Test, API 598

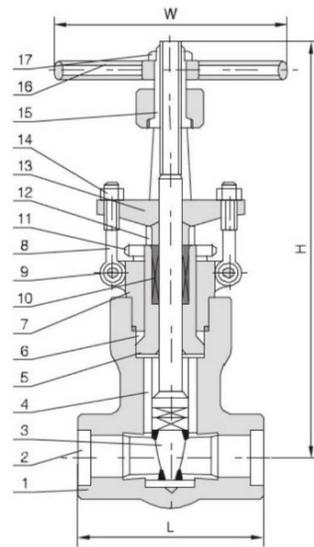
● Design Description

Outside Screw and Yoke (OS&Y)
 Bolted Bonnet
 Choice of WB, Welding Bonnet
 Single Wedge, Fully Guided
 Renewable Seat Rings
 Yoke Integral with Bonnet
 Rising Stem and Non-rising Handwheel
 SW, Socket-welding Ends
 SC, Screwed Ends
 BW, Buttwelding Ends
 Flanged Ends

● Form of Major Part Material

No.	Part Name	ASTM Material							
		Carbon Steel	1.25Cr-0.5Mo	2.25Cr-1Mo	304 Type	316 Type	304L Type	316L Type	20 Alloy
1	Body	A105	A182 F11	A182 F22	A182 F304	A182 F316	A182 F304L	A182 F316L	20-Alloy
2	Bonnet	A105	A182 F11	A182 F22	A182 F304	A182 F316	A182 F304L	A182 F316L	20-Alloy
3	Wedge	A105+13Cr *1	A182 F11+HF	A182 F22+HF	A182 F304	A182 F316	A182 F304L	A182 F316L	20-Alloy
4	Stem	A182 F6a	A182 F11	A182 F22	A182 F304	A182 F316	A182 F304L	A182 F316L	20-Alloy
5	Seat Ring	A105+13Cr *1	A182 F11+HF	A182 F22+HF	NA	NA	NA	NA	Na
6	Bonnet Gasket	304+Graphit	304+Graphit	304+Graphit	304+Graphit	316+Graphit	304L+Graphit	316L+Graphit	316+Graphit
7	Bonnet Bolt	A193 B7	A193 B7	A193 B16	A193 B8	A193 B8M	A193 B8M	A193 B8M	A193 B8M
8	Packing	Graphite	Graphite	Graphite	Graphite *2				
9	Gland	A276 410	A276 410	A276 410	A276 304	A276 316	A276 304L	A276 316L	20-Alloy
10	Gland Flange	A105	A105	A105	A182 F304	A182 F316	A182 F304L	A182 F316L	20-Alloy
11	Eyebolt	Carbon Steel	A193 B7	A193 B7	A193 B8				
12	Eyebolt Nut	Carbon Steel	A194 2H	A194 2H	A194 8				
13	Eyebolt Pin	A276 410	A276 410	A276 412	A276 304				
14	Stem Nut	Bronze	Bronze *3	Bronze *3	Bronze	Bronze	Bronze	Bronze	Bronze
15	Hand wheel	Malleable iron	Malleable iron	Malleable iron	Malleable iron	Malleable iron	Malleable iron	Malleable iron	Malleable iron
16	Wheel Nut	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel+Zn				

*1 PN ≥ 600 Class seal face will be HF
 *2 PTFE Optional
 *3 Ductile Ni-Resist iron Optional



● Technical Specification

Steel Gate Valves, API 602
 Steel Valves, ASME B16.34
 Face to Face, Manufacturer Standard
 Face to Face, Flanged, ASME B16.10
 End Flanges, ASME B16.5
 Butt welding Ends, ASME B16.25
 Socket-welding Ends, ASME B16.11
 Screwed Ends, ASME B1.20.1
 Inspection and Test, API 598

● Design Description

Outside Screw and Yoke (OS&Y)
 Pressure Seal Bonnet
 Single Wedge, Fully Guided
 Renewable Seat Rings
 Rising stem and non-rising handwheel
 SW, Socket-welding Ends
 SC, Screwed Ends
 BW, Butt welding Ends
 Flanged Ends

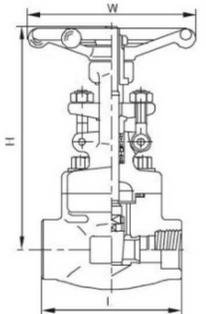
● Form of Major Part Material

No.	Part Name	CS to ASTM	AS to ASTM	SS to ASTM	
		Type A 105N	Type F22	Type F304(L)	Type F316(L)
1	Body	A105N	A182 F22	A182 F304(L)	A182 F316(L)
2	Seat Ring	A276 420	A276 304	A276 304(L)	A276 316(L)
3	Wedge	A182/F430+STL	A182 F304+STL	A182 F304(L)+STL	A182 F316(L)+STL
4	Stem	A182 F6a A276-410	A182 F22	A182 F304(L)	A182 F316(L)
5	From Seal Place	A105N	A182 F304	A182 F304(L)	F316(L)
6	From Packing Ring	F182 F304	A182 F304 F22	A276 304(L)	A276 316L
7	Bonnet	A105N	A182 F22	A182 F304(L)	A182 F316(L)
8	Gland Eyebolt	A193 B7	A193 B16	A193 B8	A193 B8M
9	Cylindrical Pin	A276 F420	A276 F420	A182 F304	A182 F304
10	Stem Packing	Graphite+304	Graphite+304	Graphite+316	Graphite+316
11	Promotes the Nut	A194 2H	A194 4	A194 8	A194 8M
12	Gland	A276 F420	A276 F420	A182 F304	A182 F304
13	Gland Flange	A105	F22	A182 F304	A182 F304
14	Gland Nut	A194 2H	A194 4	A194 8	A194 8M
15	Yoke Nut	A276-410	A276-410	A276 F410	A276 F410
16	Hand Wheel	A197	A197	A197	A197
17	Lock Nut	A194 2H	A194 4	A194 8	A194 8M

● Class800 Main Outline Dimensions & Weight

Bold fastening valve cover, outside screw stem & yoke (OS&Y)
 Designs according to API 602.

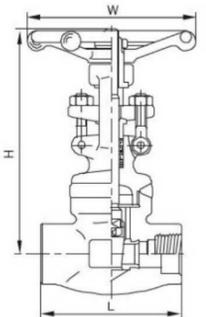
R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
L	79	79	92	111	120	120	140	178
W	100	100	100	125	160	160	180	200
H	161	161	163	196	223	251	290	333
d	8	10.5	13.5	18	24	29	36.5	45
Weight(kg)	2.3	2.22	2.39	4.24	5.7	7.05	10.9	16.8



● Class800 Main Outline Dimensions & Weight

Weld joint valve cover, outside screw stem & yoke (OS&Y).
 Designs according to API 602.

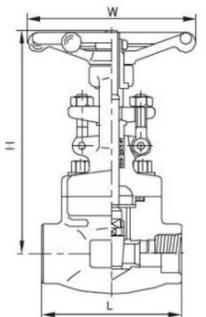
R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
L	79	79	92	111	120	120	140	178
W	100	100	100	125	160	160	180	200
H	161	161	163	196	223	251	290	333
d	8	10.5	13.5	18	24	29	36.5	45
Weight(kg)	1.9	1.9	2.1	3.2	5.2	6.9	10.4	15.8



● Class800 Main Outline Dimensions & Weight

Bold fastening valve cover, outside screw stem & yoke (OS&Y).
 Designs according to API 602.

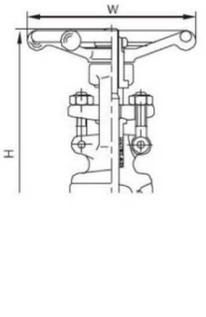
R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
L	92	111	111	120	120	140	178	180
W	100	125	125	160	160	180	200	220
H	191	191	192	219	243	296	316	370
d	8	10.5	13.5	18	24	29	36.5	45
Weight(kg)	2.4	4.4	4.3	6	7.2	11.4	16	23



● Class800 Main Outline Dimensions & Weight

Weld joint valve cover, outside screw stem & yoke (OS&Y).
 Designs according to API 602.

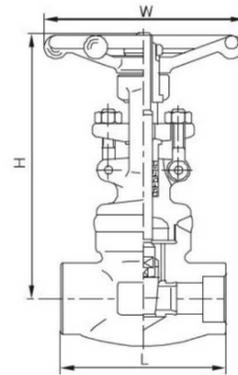
R.P	-	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
F.P	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
L	92	111	111	120	120	140	178	180
W	100	125	125	160	160	180	200	220
H	171	207	207	240	258	330	355	370
d	8	10.5	13.5	18	24	29	36.5	45
Weight(kg)	2.3	4	4	4.8	7.1	11	16	22.8



● Class2500 Main Outline Dimensions & Weight

Weld joint valve cover, outside screw stem & yoke (OS&Y).
Designs according to ASME B16.34

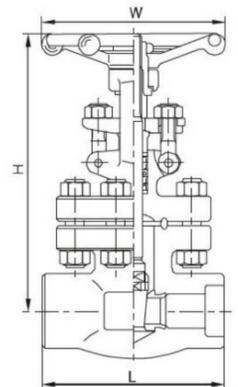
NPS	3/8	1/2	3/4	1	1 1/4
L	111	120	120	120	140
W	125	160	160	180	220
H	215	218	220	238	281
d	14	14	14	19	25
Weight(kg)	7	8.7	8.5	11.7	17



● Class1500~2500 Main Outline Dimensions & Weight

Bolt fastening cover, outside screw stem & yoke (OS&Y).
Designs according to ASME B16.34

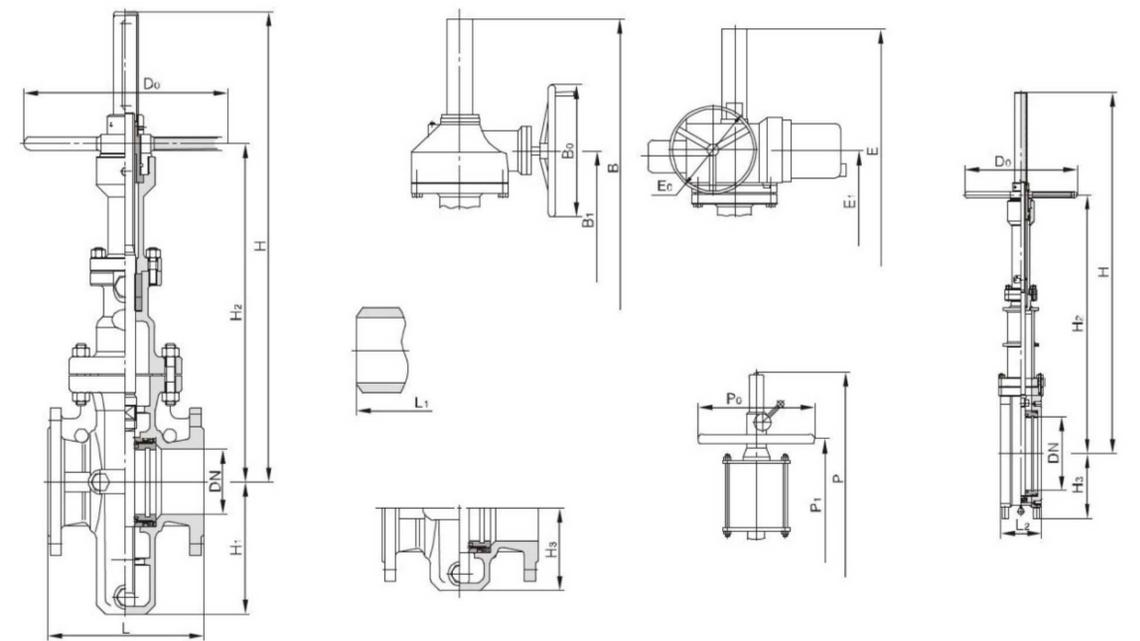
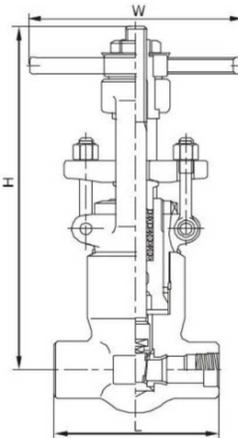
NPS	Class	1/2	3/4	1	1 1/2	2
L	1500	110	150	150	210	235
	2500	150	150	210	235	235
W	1500	110	130	130	180	250
	2500	130	130	250	300	300
H	1500	277	300	390	400	435
	2500	293	300	390	435	435
d	1500	14	17	22	35	37
	2500	14	14	14	25	30
Weight(kg)	1500	5.1	11	12.1	22	37
	2500	11	11.3	22.4	38	38



● Class1500~2500 Main Outline Dimensions & Weight

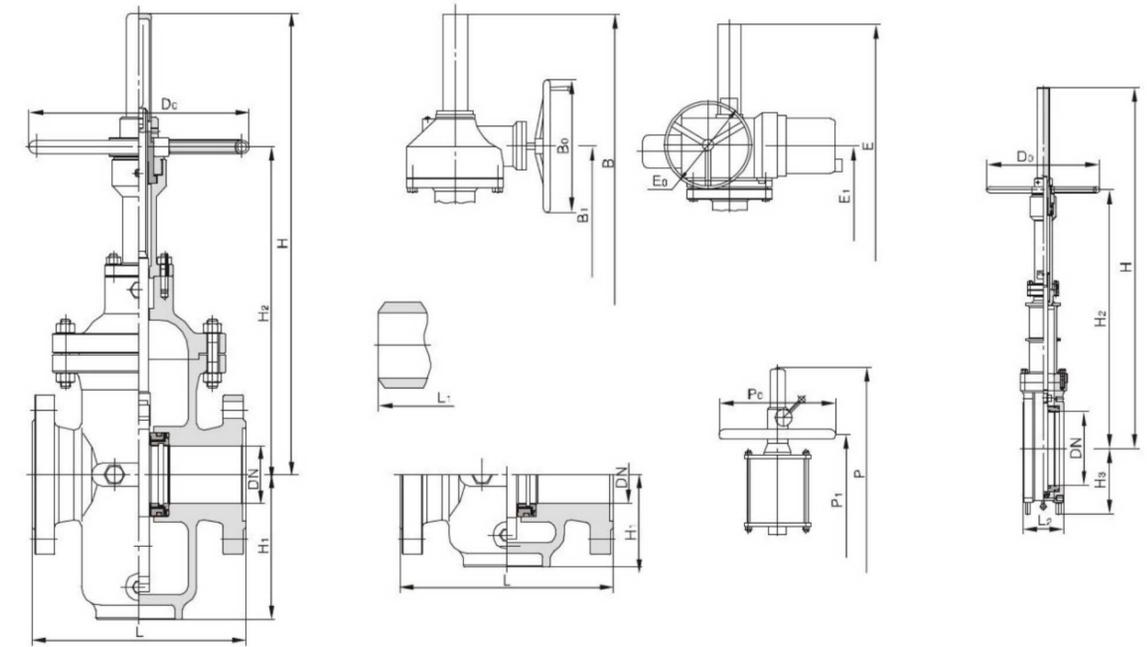
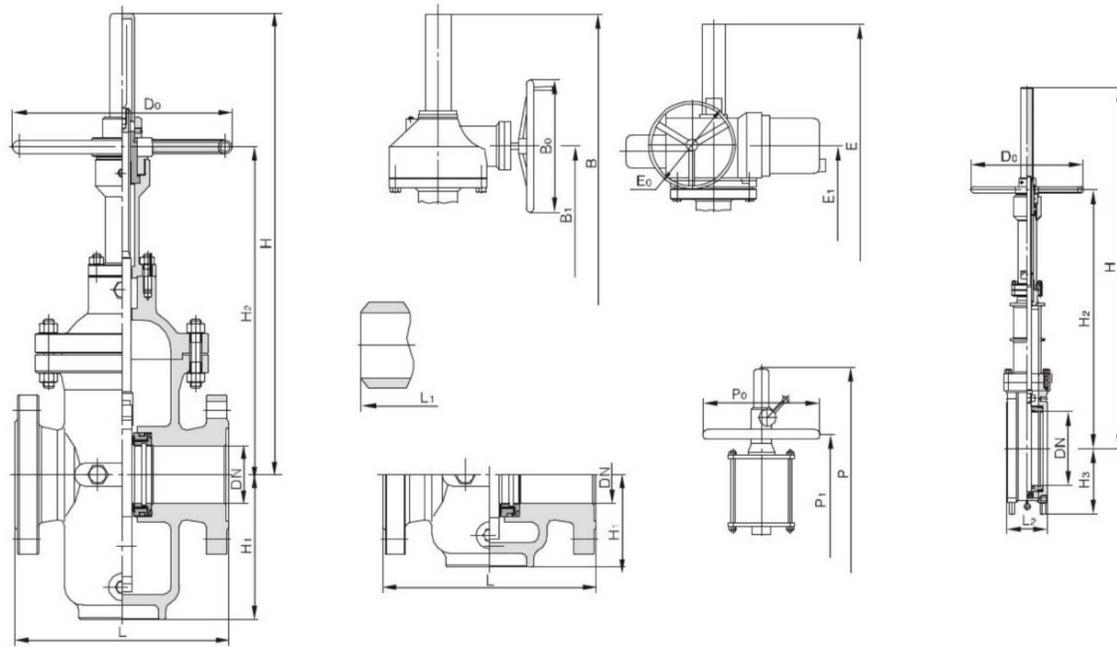
Pressure seal bonnet, outside screw stem & yoke (OS&Y).
Designs according to ASME B16.34

NPS	Class	3/8	1/2	3/4	1	1 1/4	1 1/2	2
L	900-1500	140	140	140	140	178	178	216
	2500	186	186	186	186	232	232	279
W	900-1500	200	200	200	200	280	280	300
	2500	200	200	200	200	280	280	300
H	900-1500	318	318	318	322	467	468	540
	2500	325	325	325	327	467	468	540
d	900-1500	14	14	14	19	25	30	36.5
	2500	14	14	14	19	25	30	36.5
Weight(kg)	900-1500	11.5	11.5	10.8	10.5	19.6	21.0	55.4
	2500	12.3	12.3	11.6	10.8	26.0	28.4	60.0



● Class150 Main Size of Outside

NPS (in)	Flange	Butt welding	Light-duty	Hand-operated			Geared driving			Geared driving	Air-operated and Fluid driving			Electric driving device			Electric driving device	Non-diversion hole type	Diversion hole type
	L	L1	L2	H	H2	D0	B	B1	B0		P	P1	P0	E	E1	E0		H3	H1
1	127	127	-	360	250	180	-	-	-	-	-	-	-	-	-	-	60	85	
1 1/4	140	140	-	375	260	180	-	-	-	-	-	-	-	-	-	-	71	103	
1 1/2	165	165	-	410	290	250	-	-	-	-	-	-	-	-	-	-	75	115	
2	178	216	-	450	315	250	-	-	-	-	525	430	250	-	-	-	85	122	
2 1/2	190	241	-	550	420	300	-	-	-	-	648	560	300	-	-	-	91	154	
3	203	283	-	610	428	300	-	-	-	-	730	630	300	-	-	-	109	169	
4	229	305	150	700	494	300	770	650	310	BA-0	850	720	300	912	790	200	SMC-04	121	193
6	267	403	150	895	625	350	965	800	310	BA-0	1120	920	350	1107	920	500	SMC-03	178	283
8	292	419	180	1130	784	350	1200	960	310	BA-0	1430	1160	350	1390	1120	500	SMC-03	211	352
10	330	457	180	1290	937	400	1360	1080	310	BA-0	1665	1380	400	1550	1250	500	SMC-03	215	440
12	356	502	200	1480	1080	450	1560	1200	310	BA-0	1930	1550	450	1740	1400	305	SMC-00	245	514
14	381	572	200	1660	1283	500	1740	1350	460	BA-1	2185	1750	450	1913	1550	305	SMC-00	280	602
16	406	610	218	1850	1417	500	1930	1500	460	BA-1	2450	2000	500	2103	1620	305	SMC-00	310	678
18	432	660	218	2080	1489	600	2160	1680	460	BA-1	2755	2250	500	2365	1830	305	SMC-0	346	785
20	457	711	229	2300	1672	700	2420	1850	460	BA-1	3050	2450	600	2585	1980	305	SMC-0	363	855
24	508	813	248	2680	2012	800	2800	2120	460	BA-2	3580	2900	800	2990	2300	305	SMC-1	442	1045
28	610	914	286	3080	2250	800	3200	2450	460	BA-2	4130	3350	800	3390	2600	305	SMC-1	505	1190
32	660	965	286	3491	2550	1000	3640	2800	460	BA-2	-	-	-	3850	2980	305	SMC-1	560	1350
36	711	1016	-	3897	2850	1000	4050	3080	600	BA-3	-	-	-	4260	3200	-	-	-	-
40	811	-	-	4317	3250	1200	4467	3400	600	BA-3	-	-	-	4677	3600	-	-	-	-



● Class 300 Main Size of Outside

NPS (in)	Flange L	Butt welding L1	Light-duty L2	Hand-operated			Geared driving				Air-operated and Fluid driving			Electric driving device			Electric driving device	Non-diversion hole type H3	Diversion hole type H1
				H	H2	D0	B	B1	B0	Geared driving	P	P1	P0	E	E1	E0			
1	165	165	-	370	260	180	-	-	-	-	-	-	-	-	-	-	70	90	
1 1/4	178	178	-	385	270	180	-	-	-	-	-	-	-	-	-	-	80	115	
1 1/2	190	190	-	420	300	250	-	-	-	-	-	-	-	-	-	-	85	130	
2	216	216	-	458	325	250	-	-	-	-	533	435	200	-	-	-	100	137	
2 1/2	241	241	-	555	420	300	-	-	-	-	653	565	200	-	-	-	106	169	
3	283	283	-	615	430	300	-	-	-	-	735	635	250	-	-	-	124	184	
4	305	305	150	710	500	300	770	650	310	BA-0	860	730	250	912	790	200	SMC-04	146	218
6	403	403	150	900	625	350	965	800	310	BA-0	1125	925	350	1155	960	500	SMC-03	206	311
8	419	419	180	1135	790	350	1200	960	310	BA-0	1435	1165	350	1390	1120	305	SMC-00	241	382
10	457	457	180	1401	1040	400	1360	1090	310	BA-0	1776	1450	400	1543	1240	305	SMC-00	251	476
12	502	502	200	1580	1150	450	1560	1200	310	BA-1	2030	1620	450	1745	1400	305	SMC-0	281	545
14	762	762	200	-	-	-	1740	1350	460	BA-1	2305	1900	500	1945	1580	305	SMC-0	325	645
16	838	838	218	-	-	-	1930	1540	460	BA-1	2558	2100	600	2135	1640	305	SMC-0	360	728
18	914	914	218	-	-	-	2160	1700	460	BA-1	2835	2320	700	2385	1840	305	SMC-1	400	800
20	991	991	229	-	-	-	2420	1850	460	BA-2	3120	2510	800	2660	2050	305	SMC-1	430	930
24	1143	1143	248	-	-	-	2800	2120	460	BA-2	3670	2980	900	3010	2310	305	SMC-1	497	1100
28	1346	1346	286	-	-	-	3200	2460	460	BA-2	-	-	-	3480	2680	458	SMC-2	560	1260
32	1524	1524	286	-	-	-	3640	2800	460	BA-2	-	-	-	3890	3020	458	SMC-2	620	1420
36	1727	1727	-	-	-	-	4050	3080	600	BA-3	-	-	-	4260	3200	458	SMC-2	610	1510

● Class 600 Main Size of Outside

NPS (in)	Flange L	Butt welding L1	Hand-operated			Geared driving			Geared driving	Air-operated and Fluid driving			Electric driving device			Electric driving device	Non-diversion hole type H3	Diversion hole type H1
			H	H2	D0	B	B1	B0		P	P1	P0	E	E1	E0			
2	292	292	468	335	300	505	430	310	BA-0	543	445	200	647	560	200	SMC-04	108	158
2 1/2	330	330	565	430	300	560	470	310	BA-0	663	570	200	702	610	200	SMC-04	125	190
3	356	356	625	440	350	610	510	310	BA-0	745	640	250	752	650	500	SMC-03	145	225
4	432	432	720	510	350	770	650	310	BA-0	870	740	250	950	820	500	SMC-03	165	255
6	559	559	910	630	400	965	800	310	BA-0	1135	930	350	1138	950	305	SMC-0	220	330
8	660	660	1145	800	500	1200	960	310	BA-1	1445	1170	350	1403	1130	305	SMC-0	280	410
10	787	787	1411	1050	500	1370	1090	460	BA-1	1786	1460	400	1575	1280	305	SMC-0	330	490
12	838	838	1590	1160	600	1560	1200	460	BA-1	2040	1630	450	1750	1410	305	SMC-1	380	570
14	889	889	-	-	-	1740	1350	460	BA-2	-	-	-	1930	1570	305	SMC-1	430	650
16	991	991	-	-	-	1970	1540	460	BA-2	-	-	-	2210	1700	305	SMC-1	480	735
18	1092	1092	-	-	-	2260	1700	460	BA-2	-	-	-	2500	1940	458	SMC-2	530	810
20	1194	1194	-	-	-	2420	1850	460	BA-2	-	-	-	2630	2020	458	SMC-2	580	905

● Technical Specification

Design and Manufacture: Cast steel check valve to BS 1868, ASME B16.34 and API 6D; Forged steel check valve to API 602.

Inspection and Test: API 598 or API 6D.

End flange dimension: ASME B16.5 (for NPS ≤ 24), ASME B16.47 series B, API 605 or ASME B16.47 series A, MSS SP-44 (for NPS > 24).

BW end dimension: ASME B16.25.

Socket-weld dimension: ASME B16.11.

Face to face and end to end: ASME B16.10.

Pressure-temperature ratings: ASME B16.34.

Wall thickness dimension: API 600 and BS 1868.

● The Features of check Valve

Bolted Bonnet; Swing and lift disc; Metallic seating surfaces.

● Body and Bonnet Connection

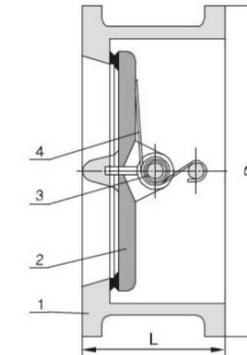
The body and bonnet of Class 150 ~ Class 900 check valves are usually with studs and nuts. And the body and bonnet of Class 1500 ~ Class 2500 check valves are usually of pressurized seal design.

● Body-To-Bonnet Joint

Stainless steel + flexible graphite wounded gasket is used for Class 150 and Class 300 check valve; Stainless steel + flexible graphite wounded gasket is used for Class 600 check valve, and joint gasket is also optional for Class 600 check valve; Ring Joint gasket is used for Class 900 check valve; Pressurized seal design is used for Class 1500 ~ Class 2500 check valve.

● Seat

For carbon steel check valve, the seat is usually forged steel. The sealing surface of the seat is spray welded with hard alloy specified by the customer. Renewable threaded seat is used for NPS ≤ 10 check valves, and welded on seat can be also optional if being requested by the customer. Welded on seat is used for NPS ≥ 12 carbon steel check valves. For Stainless steel check valve, integral seat is usually adopted, or to weld hard alloy directly integrally. Threaded or welded on seat is also optional for stainless steel check valve if being requested by the customer.



● Technical Specification

Structural formation: Dual-disc swing type check valve

Design standard: API 594

Face to face: ASME B16.0

Flanged ends: ASME B16.5

Test & inspection: API 598

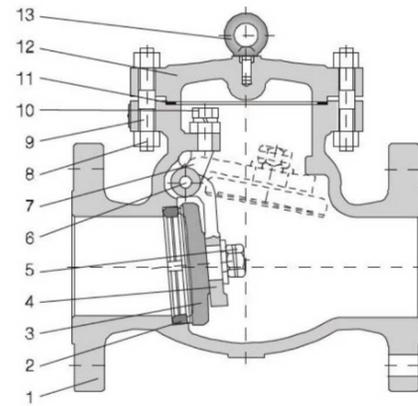
● Form of Major Part Material

Parts No.	Parts Name	Materials
1	Body	ASTM A216-WCB, ASTM A351-CF8, CF8M, CF8C, CF3, CF3M
2	Disc	ASTM A216-WCB, ASTM A351-CF8, CF8M, CF8C, CF3, CF3M
3	Pivot	ASTM A182 Gr.F6a, ASTM A182 F22, ASTM A182-F304, F316, F321, F304L, F316L
4	Spring	AISI 9260, AISI 6150, ASTM A182-F304, F316, F321, F304L, F316L

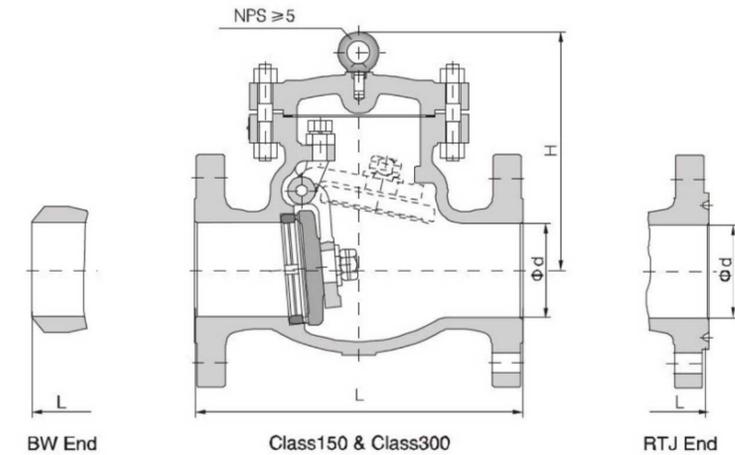
● Main Size of Outside & Weight

Model: H76H, H76Y

Class	DN (mm)	NPS (in)	Dimensions(mm)		Weight (kg)	Class	DN (mm)	NPS (in)	Dimensions(mm)		Weight (kg)	Class	DN (mm)	NPS (in)	Dimensions(mm)		Weight (kg)		
			L	D					L	D					L	D			
150	50	2	60	103	2	300	50	2	60	110	3.5	600	50	2	60	110	3.5		
	65	2 1/2	67	122	3.2		65	2 1/2	67	148	5		65	2 1/2	67	129	5		
	80	3	73	135	4		80	3	73	248	7		80	3	73	148	7		
	100	4	73	173	6		100	4	73	180	10		100	4	79	192	12		
	125	5	86	196	9		125	5	86	215	18.5		125	5	105	240	22.5		
	150	6	98	222	12		150	6	98	250	19		150	6	137	265	35		
	200	8	127	279	22		200	8	127	307	33		200	8	165	319	45		
	250	10	146	339	38		250	10	146	361	54		250	10	213	399	77		
	300	12	181	409	54		300	12	181	422	88		300	12	229	456	110		
	350	14	184	450	80		350	14	222	485	128		350	14	273	489	135		
1500	400	16	191	514	118	1500	400	16	232	539	169	900	400	16	305	562	163		
	450	18	203	549	210		450	18	222	485	128		450	16	305	562	163		
	500	20	219	606	240		500	20	219	606	240		500	20	305	562	163		
	600	24	222	717	410		600	24	222	717	410		600	24	305	562	163		
															50	2	70	142	6.5
															65	2 1/2	83	164	9
												80	3	83	167	14			
												100							
												150							
												200							



● Class 150 & Class 300 Cast Steel Swing Check Valve



● Technical Specification

Design and Manufacture: BS1868 or API 6D

Inspection and Test: API 598 or API 6D

End flange dimension: ASME B16.5, ASME B16.47 A, MSS SP-44; ASME B16.47 B, API 605

BW end dimension: ASME B16.25

Face to face and end to end: ASME B16.10

Pressure-temperature ratings: ASME B16.34

Wall thickness dimension: API 600 and BS 1868

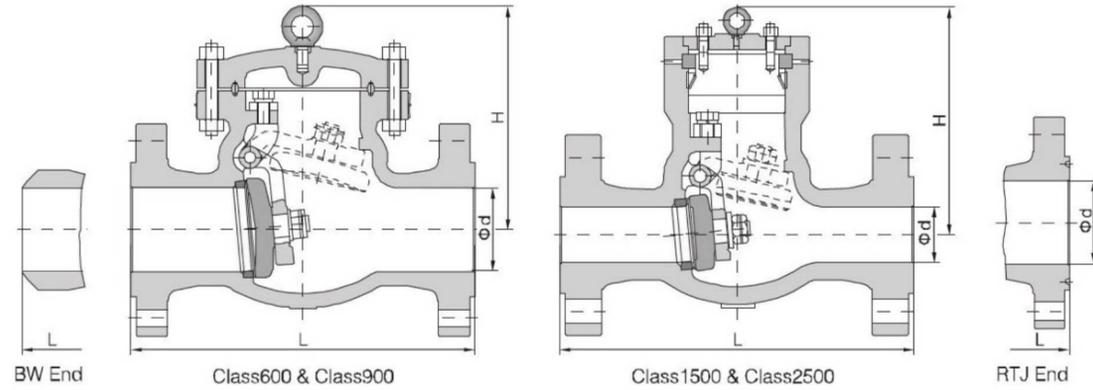
● Form of Major Part Material

Parts No.	Parts Name	Materials				
		WCB/Trim 1	WCB/Trim 5	WCB/Trim 8	CF8/304	CF8M/316
1	Body	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
2	Seat ring	A105 + 13Cr	A105 + STL	A105 + STL	ASTM A351 CF8	ASTM A351 CF8M
3	Disc	ASTM A216 WCB + 13Cr	ASTM A216 WCB + STL	ASTM A216 WCB + 13Cr	ASTM A351 CF8	ASTM A351 CF8M
4	Arm	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
5	Nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
6	Arm pin	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F6a	ASTM A182 F304	ASTM A182 F316
7	Yoke	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
8	Bonnet nut	ASTM A194 2H	ASTM A194 2H	ASTM A194 2H	ASTM A194 8	ASTM A194 8M
9	Bonnet bolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
10	Bolt	ASTM A193 B7	ASTM A193 B7	ASTM A193 B7	ASTM A193 B8	ASTM A193 B8M
11	Gasket	304 sheet + Graphite	304 sheet + Graphite	304 sheet + Graphite	304 + Graphite	316 + Graphite
12	Bonnet	ASTM A216 WCB	ASTM A216 WCB	ASTM A216 WCB	ASTM A351 CF8	ASTM A351 CF8M
13	Eye bolt	ASTM A181	ASTM A181	ASTM A181	ASTM A181	ASTM A181

Note: The chart above only lists out some common composition of steel check valve parts. We may provide other different parts material composition according to the customer's request or the actual valve working condition.

Size		Class 150						Class 300					
NPS	DN	Dimensions(mm)					Weight (kg)	Dimensions(mm)					Weight (kg)
		L			d	H		L			d	H	
RF	RTJ	BW	RF	RTJ			BW	RF	RTJ	BW			d
2	50	203	216	203	51	132	15	267	283	267	51	144	20
2 1/2	65	216	229	216	64	147	20	292	308	292	64	149	35
3	80	241	254	241	76	176	27	318	333	318	76	210	40
4	100	292	305	292	102	198	45	356	371	356	102	260	61
5	125	330	343	330	127	255	58	400	416	400	127	295	80
6	150	356	368	356	152	320	69	445	460	445	152	326	130
8	200	495	508	495	203	380	131	533	549	533	203	380	190
10	250	622	635	622	254	440	219	622	638	622	254	440	296
12	300	699	711	699	305	480	321	711	727	711	305	520	450
14	350	787	800	787	337	530	380	838	854	838	337	540	640
16	400	864	876	864	387	580	560	864	879	864	387	588	850
18	450	978	991	978	438	618	630	978	994	978	438	670	1030
20	500	978	991	978	489	657	770	1016	1035	1016	489	720	1330
24	600	1295	1308	1295	591	760	960	1346	1368	1346	591	850	1950
26	650	1295	-	1295	633	840	1250	1346	1372	1346	633	920	2300
28	700	1448	-	1448	684	920	1580	1499	1524	1499	684	1150	2600
30	750	1524	-	1524	735	980	1950	1594	1619	1594	735	1250	3100

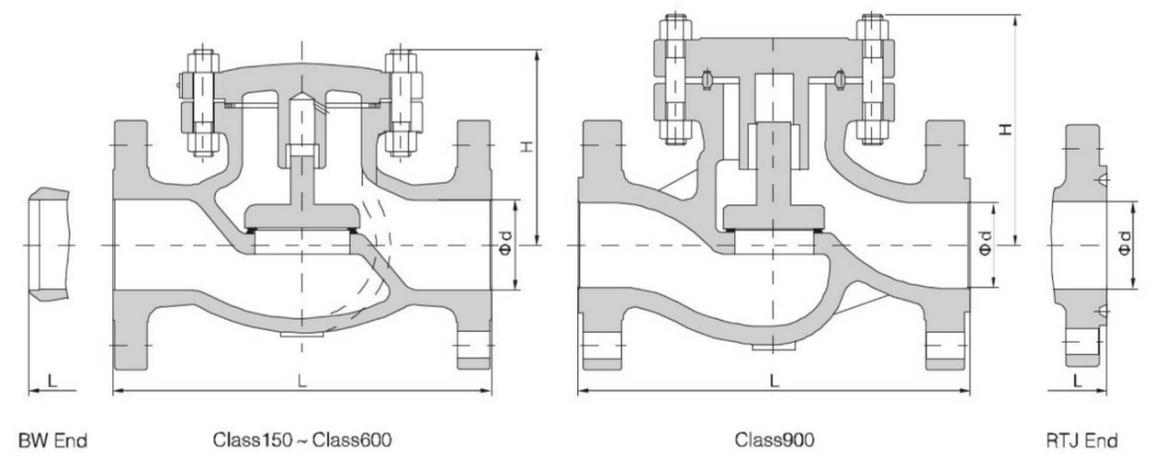
● Class 600~Class 2500 Cast Steel Swing Check Valve



Size		Class 600					Class 900						
NPS	DN	Dimensions(mm)			d	H	Weight (kg)	Dimensions(mm)			d	H	Weight (kg)
		RF	RTJ	BW				RF	RTJ	BW			
2	50	292	295	292	51	170	28	368	371	368	51	200	48
2 1/2	65	330	333	330	64	178	40	419	422	419	64	220	75
3	80	356	359	356	76	246	68	381	384	381	76	280	95
4	100	432	435	432	102	290	117	457	460	457	102	320	135
5	125	508	511	508	127	320	155	559	562	559	127	360	200
6	150	559	562	559	152	360	192	610	613	610	152	400	264
8	200	660	664	660	203	430	340	737	740	737	203	480	424
10	250	787	791	787	254	502	515	838	841	838	254	560	730
12	300	838	841	838	305	554	750	965	968	965	305	632	1070
14	350	889	892	889	337	595	890	1029	1038	1029	322	680	1180
16	400	991	994	991	387	680	1303	1130	1140	1130	373	780	1790
18	450	1092	1095	1092	438	778	1800	1219	1232	1219	423	880	2500
20	500	1194	1200	1194	489	970	2150	1321	1334	1321	471	1050	3080
24	600	1397	1407	1397	591	1100	3200	1549	1568	1549	522	1200	4600

Size		Class 1500					Class 2500						
NPS	DN	Dimensions(mm)			d	H	Weight (kg)	Dimensions(mm)			d	H	Weight (kg)
		RF	RTJ	BW				RF	RTJ	BW			
2	50	368	371	368	51	210	48	451	454	451	42	230	68
2 1/2	65	419	422	419	64	240	75	508	514	508	52	260	100
3	80	470	473	470	76	303	120	578	584	578	62	330	165
4	100	546	549	546	102	340	180	673	683	673	87	370	260
5	125	673	676	673	127	380	294	794	807	794	96	410	440
6	150	705	711	705	144	430	385	914	927	914	131	460	580
8	200	832	841	832	192	500	634	1022	1038	1022	179	530	970
10	250	991	1000	991	239	590	1140	1270	1292	1270	223	620	1700
12	300	1130	1146	1130	287	660	1650	1422	1445	1422	265	690	2600
14	350	1257	1276	1257	315	710	2000	-	-	-	-	-	-
16	400	1384	1407	1384	360	820	2700	-	-	-	-	-	-

● Class 150~Class 900 Cast Steel Lift Check Valve



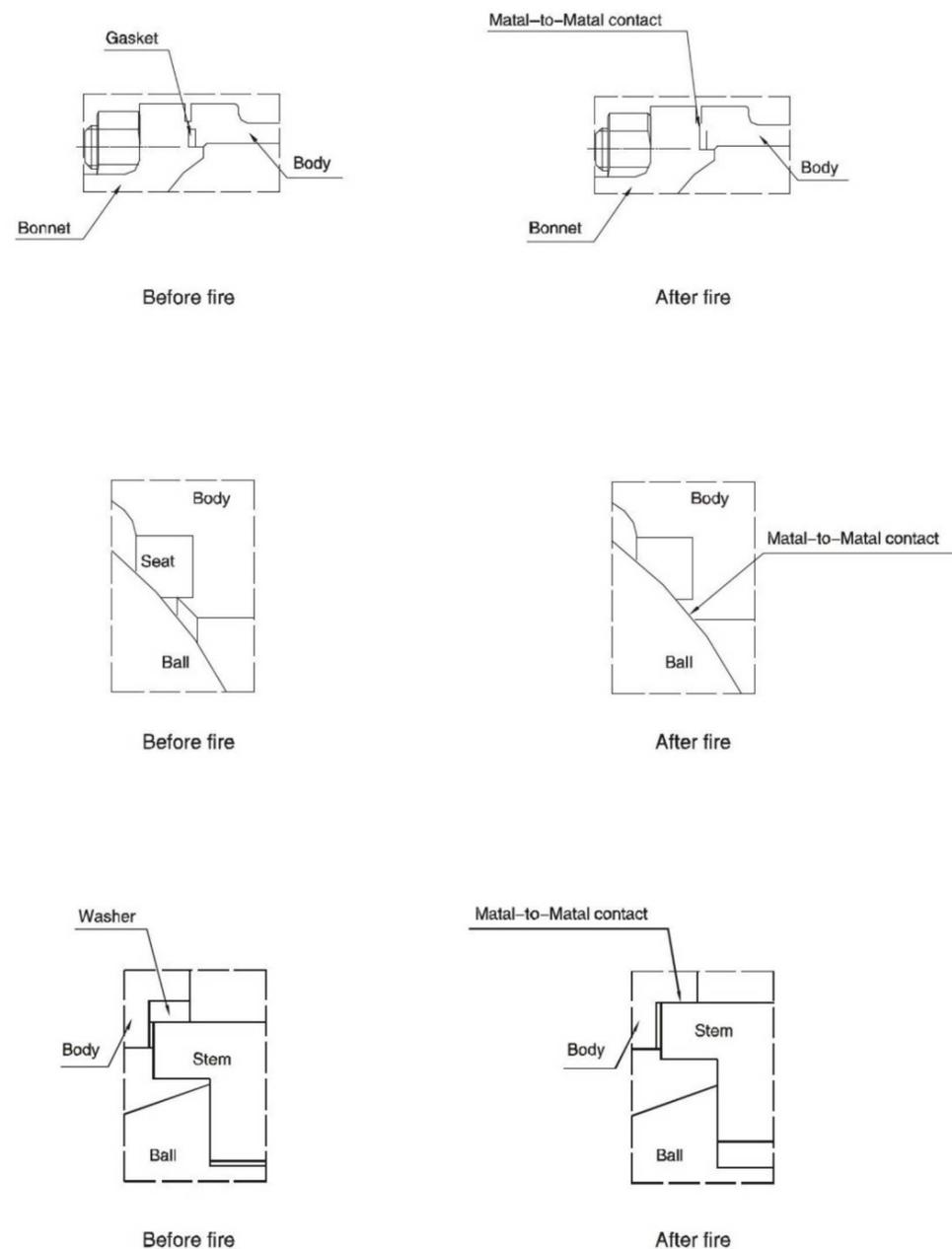
Size		Class 150					Class 300						
NPS	DN	Dimensions(mm)			d	H	Weight (kg)	Dimensions(mm)			d	H	Weight (kg)
		RF	RTJ	BW				RF	RTJ	BW			
1/2	15	108	119	108	13	76	3	152	162	152	13	78	5
3/4	20	117	130	117	19	76	4	178	191	178	19	82	6
1	25	127	140	127	25	98	5	203	216	203	25	102	8
1 1/4	32	140	153	140	32	102	7	216	229	216	32	106	11
1 1/2	40	165	178	165	38	115	8	229	242	229	38	118	13
2	50	203	216	203	51	140	15	267	283	267	51	140	26
2 1/2	65	216	229	216	64	162	22	292	308	292	64	164	33
3	80	241	254	241	76	168	28	318	333	318	76	178	50
4	100	292	305	292	102	194	42	356	371	356	102	195	86
5	125	356	368	356	127	210	60	400	416	400	127	223	120
6	150	406	419	406	152	226	75	445	460	445	152	245	180
8	200	495	508	495	203	250	118	533	549	533	203	280	220
10	250	622	635	622	254	275	194	622	638	622	254	336	310
12	300	699	711	699	305	332	320	711	727	711	305	380	510

Size		Class 600					Class 900						
NPS	DN	Dimensions(mm)			d	H	Weight (kg)	Dimensions(mm)			d	H	Weight (kg)
		RF	RTJ	BW				RF	RTJ	BW			
2	50	292	295	292	51	152	32	368	371	368	50	180	50
2 1/2	65	330	333	330	64	167	45	419	422	419	64	200	65
3	80	356	359	356	76	178	68	381	384	381	74	235	88
4	100	432	435	432	102	215	98	457	460	457	100	270	140
5	125	508	511	508	125	240	155	559	562	559	127	300	200
6	150	559	562	559	152	279	230	610	613	610	152	320	264
8	200	660	664	660	200	328	300	737	740	737	203	480	424

Sedon floating type ball valves are manufactured to BS 5351 specification, tested to BS 6755/API 598. The construction is the side entry type full port and end entry/side entry type reduced port. All valves are lever operated, the gear operator or the actuator are supplied at demand. The following are some of the major design features:

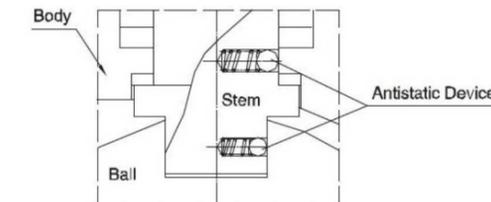
1. Fire Safe:

Designed and tested to BS 5146/API 607 to grant their operation suitability in case of fire.



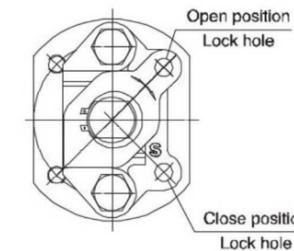
2. Antistatic:

Ametallic contact is always granted between ball and stem/body to discharge eventual statics build-up during service.



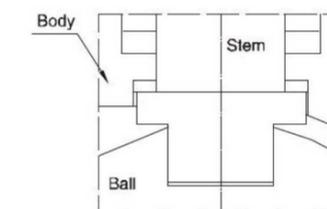
3. Locking Device:

To avoid misoperation, the valve may be locked by open or closed position locking device with popular padlock design. It's very important to lock the valve to prevent the valve from being operated by error, especially when the valve is installed in field or the valve should not be opened or closed during technical process.



4. Blowout Resistance of Stem:

To prevent stem from being blow out by the pressure entrapped in valve cavity when the fluid flows through the valve, the lower part of stem is incorporated with a raised collar. In this case, should the stem packing, thrust-washer be destroyed by fire or such damages cause by any other reason, the fluid pressure in valve body pushes stem's raised collar closely against the upper sealing surface of the body to avoid fluid leakage.



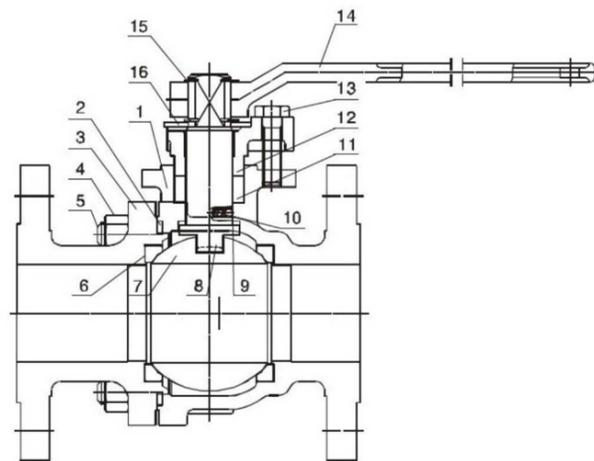
5. Easy Maintenance:

A very limited number of components and easily accessible.

6. Low Torque:

Although the seats are preloaded against the ball producing a friction between ball and seats with no pres the valve is pressurized such a friction decreases in a remarkable way since the ball is floated against th upstream one

● Class 150/300 Casting Steel Floating Ball Valve



● Technical Specification

Temp. & pressure: ASME B16.34, BS5351

Wall thickness: ASME B16.34, BS5351

Bore dimension: API 6D, BS5351

Face to face: ASME B16.10, BS2080

Flanges dimensions: ASME B16.5, BS1560

Test & inspection: API 598, API 6D, BS5146

Body material: WCB, LCB, LCC, CF8, CF8M, CF3, CF3M

● Form of Major Part Material

Parts No.	Parts Name	Materials		
		Carbon Steel	Low Temp. Steel	Stainless Steel
1	Body	ASTM A216-WCB	ASTM A352-LCB/LCC	ASTM A351-CF8/CF8M
2	Gasket	304+Graphite	304+Graphite	304+Graphite
3	Bonnet	ASTM A216-WCB	ASTM A352-LCB/LCC	ASTM A351-CF8/CF8M
4	Nut	ASTM A194-2H/2HM	ASTM A194 4	ASTM A194-8M/8
5	Stud	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B8M/B8
6	Seat	PTFE	PTFE	PTFE
7	Ball	ASTM A182-F304	ASTM A182-F304	ASTM A182-F304/F316
8	Stem	ASTM A182-F304	ASTM A182-F304	ASTM A182-F304/F316
9	Gasket	304+PTFE	304+PTFE	304+PTFE
10	Antistatic device	ASTM A182-F304	ASTM A182-F304	ASTM A182-F304/F316
11	Packing	PTFE/Graphit	PTFE/Graphit	PTFE/Graphit
12	Packing gland	ASTM A216-WCB	ASTM A352-LCB/LCC	ASTM A351-CF8/CF8M
13	Screw	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B8M/B8
14	Lever	ASTM A216-WCB	ASTM A216-WCB	ASTM A216-WCB
15	Back stop	Carbon Steel	Carbon Steel	Carbon Steel
16	Stopper plate	Carbon Steel	Carbon Steel	Carbon Steel

● Class 150 Dimension Chart

Norm. Dia.	Unit(mm)												
	in	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8	10
mm	15	20	25	40	50	65	80	100	125	150	200	250	
Ball Bore	15	20	25	40	50	65	80	100	125	150	200	250	
L	108	117	127	165	178	190	203	229	356	394	457	533	
H	84	88	95	120	130	160	185	210	220	295	335		
W	130	130	140	250	250	400	400	450	450	1050	1500		

1/2" ~ 4": Lever operation

6" ~ 8": Optional gear operation

10": Gear operation

Test pressure

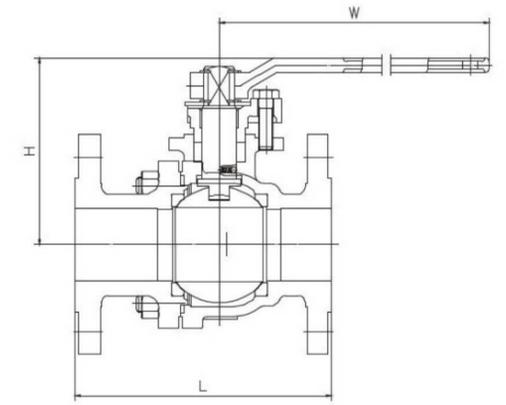
Shell: Hydrostatic 3.10MPa(450psi)

Seat: Air 0.55MPa(80psi)

Options

Packing and gasket

CF8M(316SS) ball and stem



CLASS150

● Class 300 Dimension Chart

Norm. Dia.	Unit(mm)											
	in	1/2	3/4	1	1 1/2	2	2 1/2	3	4	5	6	8
mm	15	20	25	40	50	65	80	100	125	150	200	
Ball Bore	15	20	25	40	50	65	80	100	125	150	200	
L	140	152	165	191	216	241	283	305	381	403	502	
H	84	88	95	120	140	160	180	208	220	335		
W	130	130	140	250	250	400	400	450	450	1050		

1/2" ~ 4": Lever operation

6" ~ 8": Optional gear operation

10": Gear operation

Test pressure

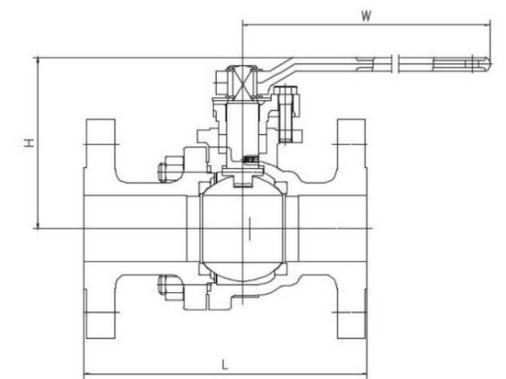
Shell: Hydrostatic 7.76MPa(1125psi)

Seat: Air 0.55MPa(80psi)

Options

Packing and gasket

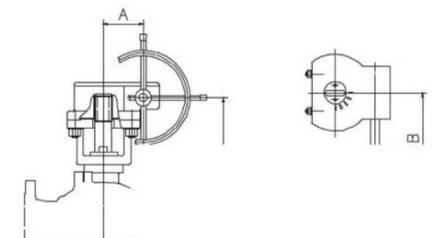
CF8M(316SS) ball and stem



CLASS300

● Gear operation Dimension

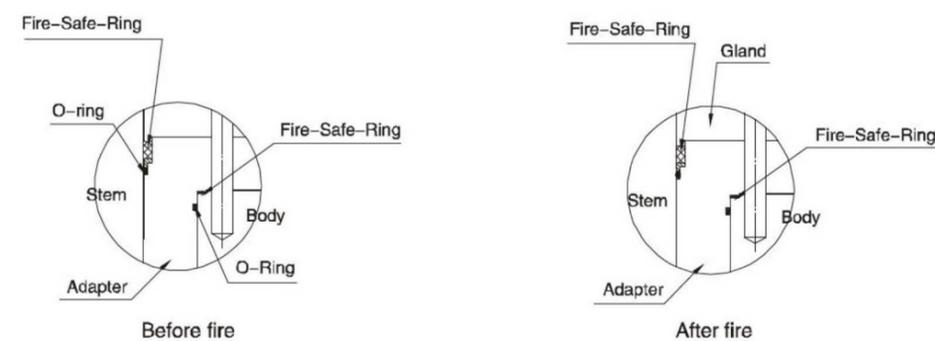
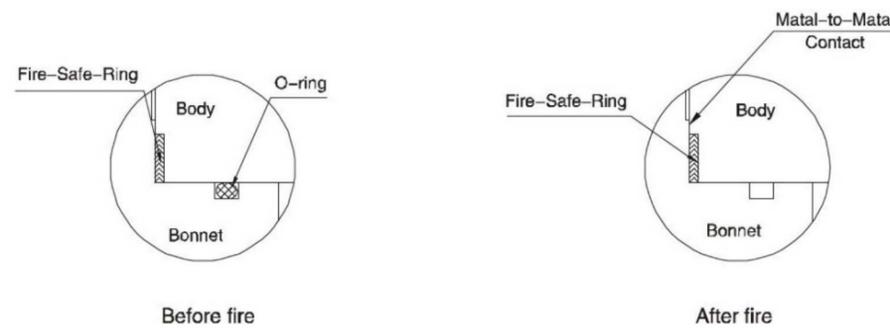
Class	150	300	Gear operator			
			H	W	B	A
Valve size (inch)	6	6	325	350	205	125
	8	8	415	355	320	185
	10	-	475	365	340	360



Sedelon trunnion mounted type ball valves are manufactured to API 6D specification and tested to API 598/API 607. The construction is side entry three pieces full and reduced port. The valves are lever operated and where recommended or when required are gear operated or actuated. The following are some of the major design features:

1. Fire-safe:

All size and pressure classes have been successfully fire-safetested according to the relevant API and BS specifications. Test certifications are available on request.

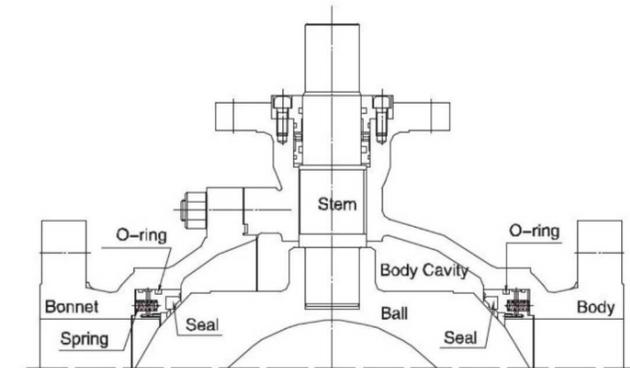


2. Antistatic:

Electrical continuity of all valve components, prevent statics build-up.

3. Double Block & Bleed:

The body cavity is isolated when the ball is in either fully closed or fully opened position, the medium entrapped in it can easily be bled to avoid overpressure

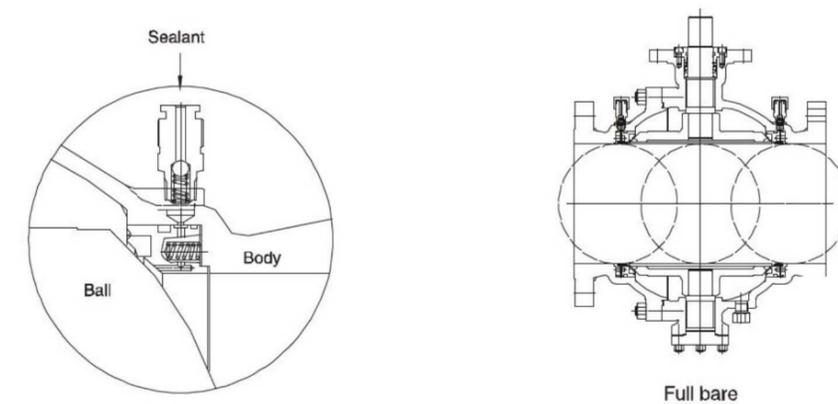
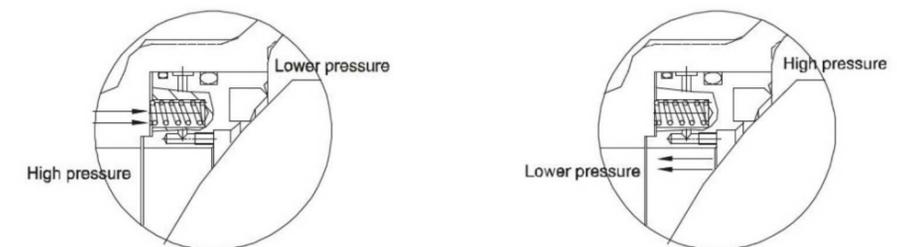


4. Seat Ring Sealing:

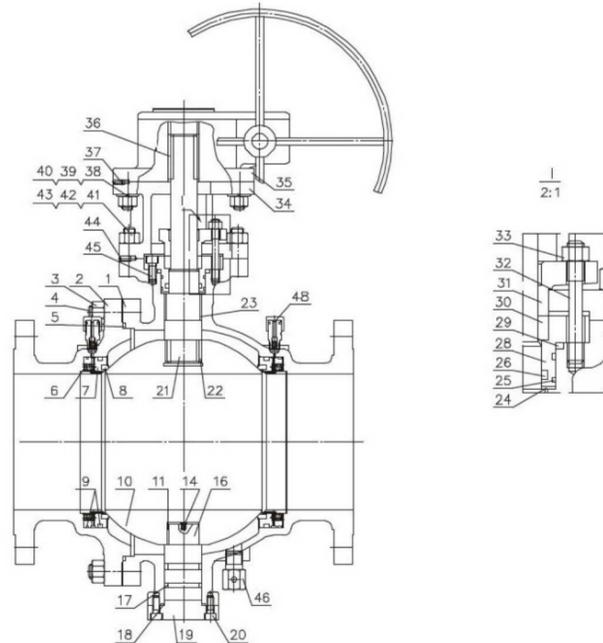
as line pressure increases, our seat design originates a piston effect forcing the sealing resilient insert against the ball. In absence of the pressure or with low pressures, the seats are forced against the ball by the set of preloaded springs. (see sketch)

5. Pressure relieving:

If excessive pressure builds up in the body cavity exceeding the seats spring pressure, the seat automatically relieves.



Carbon Steel/Stainless Steel Ball Valve



Technical Specification

Temp. & pressure: ASME B16.34、BS5351

Wall thickness: ASME B16.34、BS5351

Bore dimension: API 6D、BS5351

Face to face: ASME B16.10、API 6D

Flanges dimensions: ASME B16.5(MSS SP-44)、BS1560

Test & inspection: API 598、API 6D、BS5146

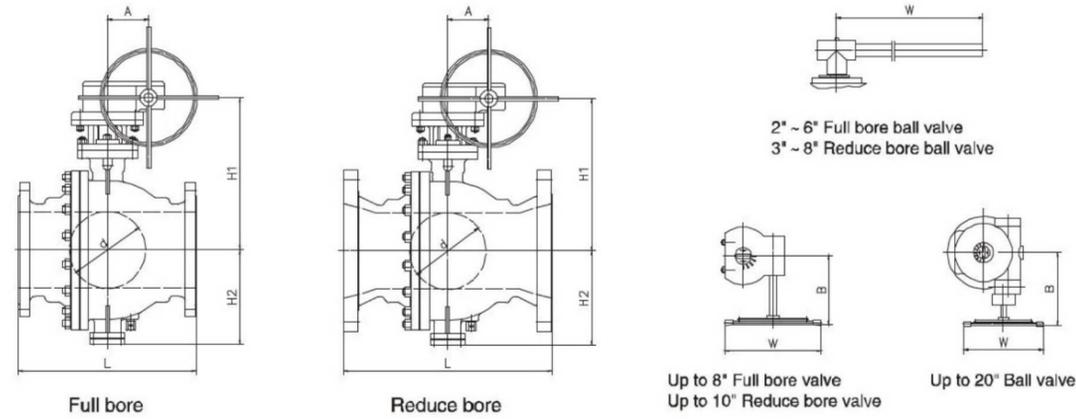
Body material: WCB、LCB、LCC、CF8、CF8M、CF3、CF3M

Form of Major Part Material

Parts No.	Parts Name	Materials		
		Carbon Steel	Low Temp. Steel	Stainless Steel
1	Body	ASTM A216-WCB	ASTM A352-LCB/LCC	ASTM A351-CF8/CF8M
2	Bonnet	ASTM A216-WCB	ASTM A352-LCB/LCC	ASTM A351-CF8/CF8M
3	Nut	ASTM A194-2H/2HM	ASTM A194 4	ASTM A194- 8M/8
4	Bolt	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B8M/B8
5	O-ring	VITON	VITON	VITON
6	Spring	INCONELX-750	INCONELX-750	INCONELX-750
7	Seat ring	ASTM A105	ASTM A182 G304	ASTM A182 F304/F316
8	Seat insert	RPTFE	RPTFE	RPTFE
9	O-ring	VITON	VITON	VITON
10	Ball	ASTM A182-F6a	ASTM A182-F304	ASTM A182 F304/F316
11	Stem bearing	304+PTFE	304+PTFE	304+PTFE
14	Spring	ASTM A276-316	ASTM A276-316	ASTM A276-316
16	Lower stem	ASTM A182-F6a	ASTM A182-F304	ASTM A182 F304/F316

Parts No.	Parts Name	Materials		
		Carbon Steel	Low Temp. Steel	Stainless Steel
17	O-ring	VITON	VITON	VITON
18	Gasket	304+Graphite	304+Graphite	304+Graphite
19	Bottom cover	ASTM A105	ASTM A182-F304	ASTM A182-F304/F316
20	Screw	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B8M/B8
21	Upper stem	ASTM A182-F6a	ASTM A182-F304	ASTM A182-F304/F316
22	Key	ANSI 1045	ASTM A182-F304	ASTM A182-F304/F316
23	Radial bearing	304+PTFE	304+PTFE	304+PTFE
24	Axial bearing	304+PTFE	304+PTFE	304+PTFE
25	O-ring	VITON	VITON	VITON
26	O-ring	VITON	VITON	VITON
28	Gland	ASTM A105	ASTM A182-F304	ASTM A182-F304/F316
29	Gasket	304+Graphite	304+Graphite	304+Graphite
30	Packing	Graphite	Graphite	Graphite
31	Packing gland	ASTM A216-WCB	ASTM A352-LCB /LCC	ASTM A351-CF8/CF8M
32	Bolt	ASTM A193-B7/B7M	ASTM A1320 L7	ASTM A193-B8M/B8
33	Nut	ASTM A194-2H/2HM	ASTM A194 4	ASTM A194- 8M/8
34	Yoke	ASTM A216-WCB	ASTM A352-LCB /LCC	ASTM A182-F304/F316
35	Gear box	Cast iron	Cast iron	Cast iron
36	Key	ANSI 1045	ANSI A182-F304	ASTM A182-F304/F316
37	Screw	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B8M/B8
38	Nut	ASTM A194-2H/2HM	ASTM A194 4	ASTM A194- 8M/8
39	Spring gasket	65Mn	65Mn	65Mn
40	Bolt	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B8M/B8
41	Nut	ASTM A194-2H/2HM	ASTM A194 4	ASTM A194- 8M/8
42	Gasket	65Mn	65Mn	65Mn
43	Bolt	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B8M/B8
44	Screw	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B8M/B8
45	Screw	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B8M/B8
46	Drain plug	ANSI 1045	ASTM A182-F304	
48	Sealant injection	ANSI 1045	ANSI 1045	

● Class150 / Class300 Carbon Steel/Stainless Steel Ball Valve



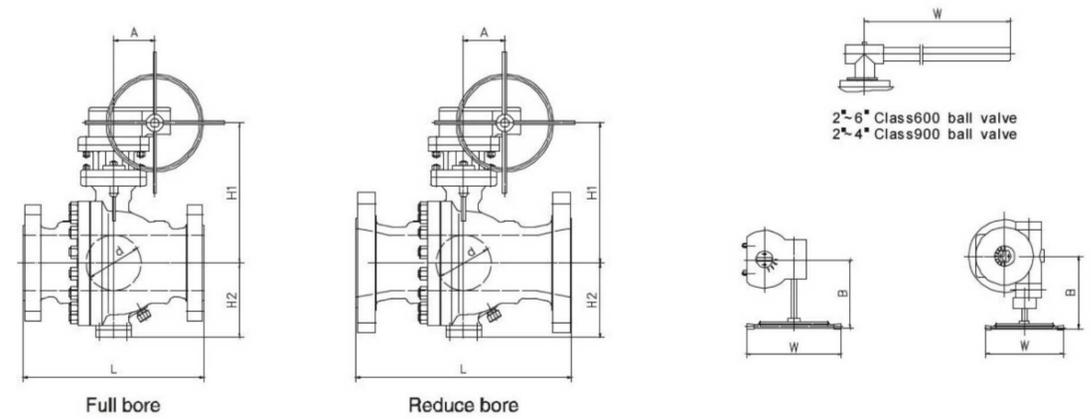
● Class150

NPS	d	L	H ₁	H ₂	W	A	B
2	51	178	176	95	350	-	-
3 × 2 × 3	51	203	176	95	350	-	-
3	76	203	215	120	400	-	-
4 × 3 × 4	76	229	215	120	400	-	-
4	102	229	252	142	500	-	-
6 × 4 × 6	102	394	252	142	500	-	-
6	152	394	330	220	1050	-	-
8 × 6 × 8	152	457	330	220	1050	-	-
8	203	457	448	259	300	105	190
10 × 8 × 10	203	533	448	259	300	105	190
10	254	533	505	305	350	125	205
12 × 10 × 12	254	610	505	305	350	125	205
12	305	610	556	348	400	185	320
14 × 12 × 14	305	686	556	348	400	185	320
14	337	686	620	395	500	195	350
16 × 14 × 16	337	762	620	395	500	195	350
16	387	762	700	450	500	195	350
18 × 16 × 18	387	864	700	450	500	195	350
18	438	864	750	485	500	215	380
20 × 18 × 20	438	914	750	485	500	215	380
20	489	914	805	525	500	215	380
22 × 18 × 22	438	1016	750	485	500	215	380
22	540	1016	890	615	500	215	380
24 × 20 × 24	489	1067	805	525	500	215	380
24	591	1067	1110	680	500	280	460
26 × 22 × 26	540	1143	890	615	500	215	380
26	635	1143	1140	715	500	280	460
28 × 24 × 28	591	1245	1110	680	500	280	460
28	686	1245	1180	750	500	280	460
30 × 24 × 30	591	1295	1110	680	500	280	460
30	737	1295	1220	850	500	280	460
32 × 26 × 32	635	1372	1140	715	500	280	460
32	787	1372	1250	920	500	280	460
34 × 28 × 34	686	1473	1180	750	500	280	460
34	832	1473	1300	985	500	280	460
36 × 30 × 36	737	1524	1220	850	500	280	460
36	876	1524	1350	1050	650	200	640

● Class300

NPS	d	L	H ₁	H ₂	W	A	B
2	51	216	176	95	350	-	-
3 × 2 × 3	51	283	176	95	350	-	-
3	76	283	215	120	400	-	-
4 × 3 × 4	76	305	215	120	400	-	-
4	102	305	252	142	500	-	-
6 × 4 × 6	102	403	252	142	500	-	-
6	152	403	330	220	1050	-	-
8 × 6 × 8	152	502	330	220	1050	-	-
8	203	502	448	259	300	105	190
10 × 8 × 10	203	568	448	259	300	105	190
10	254	568	505	305	350	125	205
12 × 10 × 12	254	648	505	305	350	125	205
12	305	648	556	348	400	185	320
14 × 12 × 14	305	762	556	348	400	185	320
14	337	762	620	395	500	195	350
16 × 14 × 16	337	838	620	395	500	195	350
16	387	838	700	450	500	195	350
18 × 16 × 18	387	914	700	450	500	195	350
18	438	914	750	485	500	215	380
20 × 18 × 20	438	991	750	485	500	215	380
20	489	991	805	525	500	215	380
22 × 18 × 22	438	1092	750	485	500	215	380
22	540	1092	890	615	500	215	380
24 × 20 × 24	489	1143	805	525	500	215	380
24	591	1143	1110	680	500	280	460
26 × 22 × 26	540	1245	890	615	500	215	380
26	635	1245	1140	715	500	280	460
28 × 24 × 28	591	1346	1110	680	500	280	460
28	686	1346	1180	750	500	280	460
30 × 24 × 30	591	1397	1110	680	500	280	460
30	737	1397	1220	850	500	280	460
32 × 26 × 32	635	1524	1140	715	500	280	460
32	787	1524	1250	920	500	280	460
34 × 28 × 34	686	1626	1180	750	500	280	460
34	832	1626	1300	985	500	280	460
36 × 30 × 36	737	1727	1220	850	500	280	460
36	876	1727	1350	1050	650	200	640

● Class600 / Class900 Carbon Steel/Stainless Steel Ball Valve



● Class600

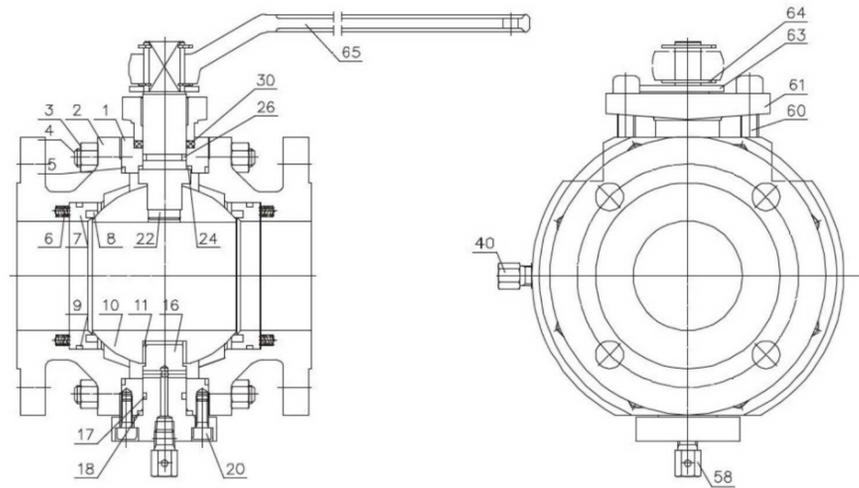
NPS	d	L	H ₁	H ₂	W	A	B
2	51	292	192	142	600	-	-
3 × 2 × 3	51	356	192	142	600	-	-
3	76	356	279	172	1000	-	-
4 × 3 × 4	76	432	279	172	1000	-	-
4	102	432	315	205	1500	-	-
6 × 4 × 6	102	559	315	205	1500	-	-
6	152	559	323	272	500	185	320
8 × 6 × 8	152	660	323	272	500	185	320
8	203	660	381	335	500	185	320
10 × 8 × 10	203	787	381	335	500	185	320
10	254	787	518	406	500	215	380
12 × 10 × 12	254	838	518	406	500	215	380
12	305	838	568	461	500	215	380
14 × 12 × 14	305	899	568	461	500	215	380
14	337	899	665	513	500	215	380
16 × 14 × 16	337	991	665	513	500	215	380
16	387	991	730	583	500	215	380
18 × 16 × 18	387	1092	730	583	500	215	380
18	438	1092	795	646	500	215	380
20 × 18 × 20	438	1194	795	646	500	215	380
20	489	1194	825	706	500	215	380
24 × 20 × 24	489	1397	825	706	500	215	380
24	591	1397	973	831	500	280	460
26 × 22 × 26	540	1448	865	711	500	215	380
26	635	1448	945	825	610	300	500
28 × 24 × 28	591	1549	920	766	500	280	460
28	686	1549	1038	890	610	300	500
30 × 24 × 30	591	1651	920	766	500	280	460
30	737	1651	1088	938	610	300	500

● Class900

NPS	d	L	H ₁	H ₂	W	A	B
2	51	368	192	142	600	-	-
3 × 2 × 3	51	381	192	142	600	-	-
3	76	381	279	172	1000	-	-
4 × 3 × 4	76	457	279	172	1000	-	-
4	102	457	315	205	1500	-	-
6 × 4 × 6	102	610	315	205	1500	-	-
6	152	610	323	272	500	185	320
8 × 6 × 8	152	737	323	272	500	185	320
8	203	737	381	335	500	185	320
10 × 8 × 10	203	838	381	335	500	185	320
10	254	838	518	406	500	215	380
12 × 10 × 12	254	965	518	406	500	215	380
12	305	965	568	461	500	215	380
14 × 12 × 14	305	1029	568	461	500	215	380
14	324	1029	665	513	500	215	380
16 × 14 × 16	324	1130	665	513	500	215	380
16	375	1130	730	583	500	215	380
18 × 16 × 18	375	1219	730	583	500	215	380
18	426	1219	795	646	500	215	380
20 × 18 × 20	426	1321	795	646	500	215	380
20	473	1321	825	706	500	215	380
24 × 20 × 24	473	1549	825	706	500	215	380
24	572	1549	973	831	500	280	460

● Forged Trunnion Mounted Ball Valve

2" ~ 4" Class150/300, DN50 ~ 100 PN2.0 ~ 5.0



● Technical Specification

Temp. & pressure: ASME B16.34

Wall thickness: ASME B16.34

Bore dimension: API 6D

Face to face: ASME B16.10, API 6D

Flanges dimensions: ASME B16.5

Test & inspection: API 6D

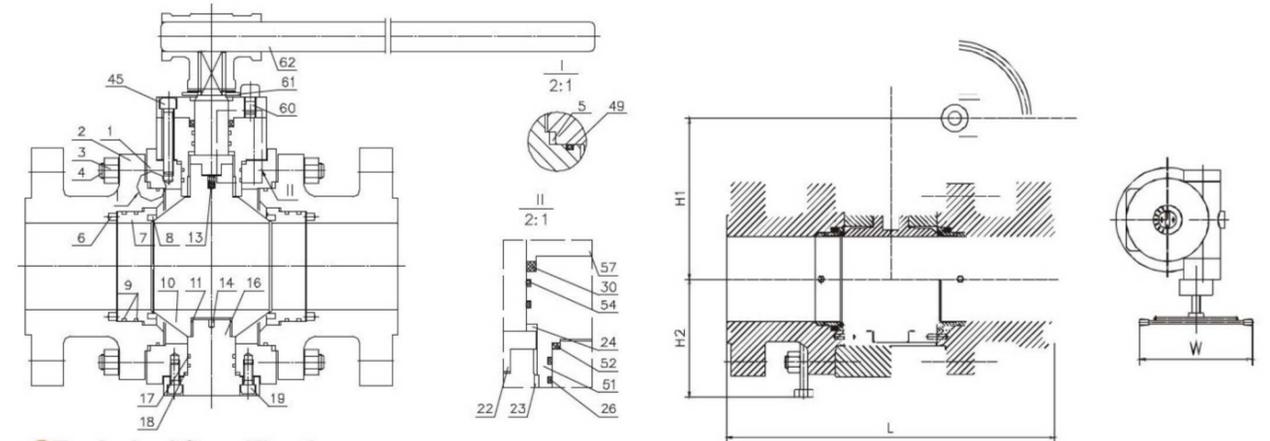
Body material: A105, LF2, LF3, F304, F316, F304L, F316L

● Form of Major Part Material

Parts No.	Parts Name	Materials		
		Carbon Steel	Low Temp. Steel	Stainless Steel
1	Body	ASTM A105	ASTM A350-LF2/LF3	ASTM A182-F304/F316
2	Bonnet	ASTM A105	ASTM A350-LF2/LF3	ASTM A182-F304/F316
3	Nut	ASTM A194-2H/2HM	ASTM A194 4	ASTM A194-2HM/8
4	Bolt	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B7M/B8
5	O-ring	VITON	VITON	VITON
6	Spring	INCONELX-750	INCONELX-750	INCONELX-750
7	Seat ring	ASTM A105	ASTM A350-LF2/LF3	ASTM A182-F304/F316
8	Seat insert	RPTFE	RPTFE	RPTFE
9	O-ring	VITON	VITON	VITON
10	Ball	ASTM A105	ASTM A182-F304	ASTM A182-F304/F316
11	Stem bearing	304+PTFE	304+PTFE	304+PTFE
16	Lower stem	ASTM A105	ASTM A182-F304	ASTM A182-F304/F316
17	O-ring	VITON	VITON	VITON
18	Gasket	304+Graphite	304+Graphite	304+Graphite
20	Screw	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B7M/B8
22	Stem	ASTM A182-F6a	ASTM A182-F304	ASTM A182-F304/F316
24	Stem washer	304+PTFE	304+PTFE	304+PTFE
26	O-ring	VITON	VITON	VITON
30	Packing	Graphite	Graphite	Graphite
58	Drain valve	Carbon steel	Carbon steel	Carbon steel
60	Screw	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B7M/B8
61	Gland flange	Carbon steel	Carbon steel	Carbon steel
63	Stopper	Carbon steel	Carbon steel	Carbon steel
64	Snap ring	Carbon steel	Carbon steel	Carbon steel
65	Lever	Carbon steel	Carbon steel	Carbon steel

● Forged Trunnion Mounted Ball Valve

2" ~ 4" Class600 ~ 1500, DN50 ~ 100 PN10.0 ~ 25.0



● Technical Specification

Temp. & pressure: ASME B16.34

Wall thickness: ASME B16.34

Bore dimension: API 6D

Face to face: ASME B16.10, API 6D

Flanges dimensions: ASME B16.5

Test & inspection: API 6D

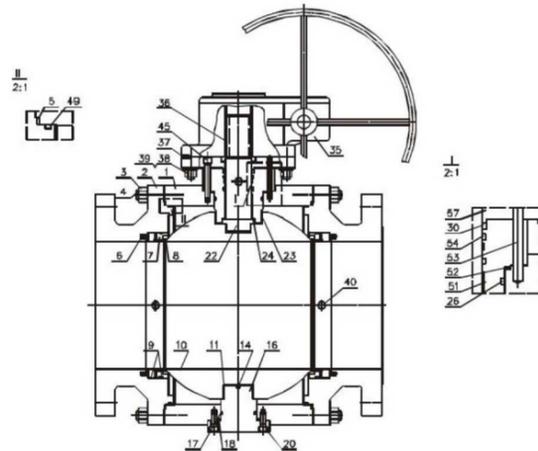
Body material: A105, LF2, LF3, F304, F316, F304L, F316L

● Form of Major Part Material

Parts No.	Parts Name	Materials		
		Carbon Steel	Low Temp. Steel	Stainless Steel
1	Body	ASTM A105	ASTM A350-LF2/LF3	ASTM A182-304/316
2	Bonnet	ASTM A105	ASTM A350-LF2/LF3	ASTM A182-304/316
3	Nut	ASTM A194-2H/2HM	ASTM A194 4	ASTM A194-2HM/8
4	Bolt	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B7M/B8
5	O-ring	VITON	VITON	VITON
6	Spring	INCONELX-750	INCONELX-750	INCONELX-750
7	Seat ring	ASTM A105	ASTM A350-LF2/LF3	ASTM A182-F304/F316
8	Seat insert	RPTFE	RPTFE	RPTFE
9	O-ring	VITON	VITON	VITON
10	Ball	ASTM A105	ASTM A182-F304	ASTM A182-F304/F316
11	Stem bearing	304+PTFE	304+PTFE	304+PTFE
13	Spring	ASTM A276-316	ASTM A276-316	ASTM A276-316
14	Spring	ASTM A276-316	ASTM A276-316	ASTM A276-316
16	Lower stem	ASTM A105	ASTM A182-F304	ASTM A182-F304/F316
17	O-ring	VITON	VITON	VITON
18	Gasket	304+Graphite	304+Graphite	304+Graphite
19	Screw	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B7M/B8
22	Stem	ASTM A182-F6a	ASTM A182-F304	ASTM A182-F304/F316
23	Ball bearing	304+PTFE	304+PTFE	304+PTFE
24	Stem washer	304+PTFE	304+PTFE	304+PTFE
26	O-ring	VITON	VITON	VITON
30	Packing	Graphite	Graphite	Graphite
45	Screw	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B7M/B8
49	O-ring	VITON	VITON	VITON
51	Flange adapter	ASTM A105	ASTM A182-F304	ASTM A182-F304/316
52	Gasket	304+Graphite	304+Graphite	304+Graphite
54	O-ring	VITON	VITON	VITON
57	Gland	ASTM A105	ASTM A182-F304	
58	Drain Valve	Carbon steel	Carbon steel	
60	Screw	ASTM A193-B7/B7M	ASTM A320 L7	
61	Stopper	Carbon steel	Carbon steel	
62	Lever	Carbon steel	Carbon steel	

● Forged Trunnion Mounted Ball Valve

6" ~ 40" Class150 ~ 900, DN150 ~ 1000 PN2.0 ~ 15.0



● Technical Specification

Temp. & pressure: ASME B16.34

Wall thickness: ASME B16.34

Bore dimension: API 6D

Face to face: ASME B16.10, API 6D

Flanges dimensions: ASME B16.5(MSS SP-44), BS1560

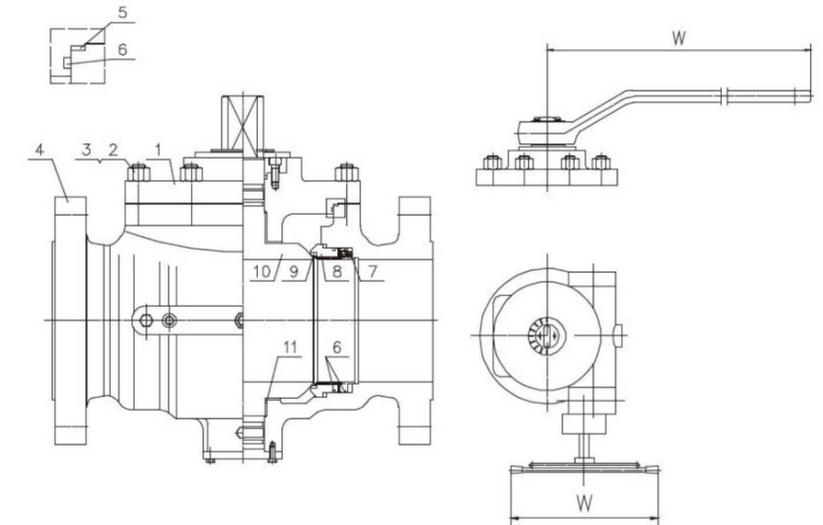
Test & inspection: API 6D, BS5146

Body material: A105, LF2, LF3, F304, F316, F304L, F316L

● Form of Major Part Material

Parts No.	Parts Name	Materials		
		Carbon Steel	Low Temp. Steel	Stainless Steel
1	Body	ASTM A105	ASTM A350-LF2/LF3	ASTM A182-304/316
2	Bonnet	ASTM A105	ASTM A350-LF2/LF3	ASTM A182-304/316
3	Nut	ASTM A194-2H/2HM	ASTM A194 4	ASTM A194-2HM/8
4	Bolt	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B7M/B8
5	O-ring	VITON	VITON	VITON
6	Spring	INCONELX-750	INCONELX-750	INCONELX-750
7	Seat ring	ASTM A105	ASTM A350-LF2/LF3	ASTM A182-F304/F316
8	Seat insert	RPTFE	RPTFE	RPTFE
9	O-ring	VITON	VITON	VITON
10	Ball	ASTM A105	ASTM A350-LF2/LF3	ASTM A182-F304/F316
11	Stem bearing	304+PTFE	304+PTFE	304+PTFE
14	Spring	ASTM A276-316	ASTM A276-316	ASTM A276-316
16	Lower stem	ASTM A105	ASTM A350-LF2/LF3	ASTM A182-F304/F316
17	O-ring	VITON	VITON	VITON
18	Gasket	304+Graphite	304+Graphite	304+Graphite
20	Screw	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B7M/B8
22	Upper stem	ASTM A182-F6a	ASTM A350-LF2/LF3	ASTM A182-F304/F316
23	Ball bearing	304+PTFE	304+PTFE	304+PTFE
24	Axial bearing	304+PTFE	304+PTFE	304+PTFE
26	O-ring	VITON	VITON	VITON
30	Packing	Graphite	Graphite	Graphite
35	Gear box	Cast iron	Cast iron	Cast iron
36	Key	ANSI 1045	ASTM A182-F304	ASTM A182-F304/F316
37	Screw	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B7M/B8
38	Nut	ASTM A194-2H/2HM	ASTM A194 4	ASTM A194-2HM/8
39	Spring gasket	65Mn	65Mn	65Mn
40	Injection valve	Carbon steel	Carbon steel	Stainless steel
45	Screw	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B7M/B8
49	O-ring	VITON	VITON	VITON
51	Flange adapter	ASTM A105	ASTM A182-F304	ASTM A182-F304/F316
52	Gasket	304+Graphite	304+Graphite	304+Graphite
53	Pin	Carbon steel	Carbon steel	Stainless steel
54	O-ring	VITON	VITON	VITON
57	Gland	ASTM A105	ASTM A182-F304	ASTM A182-F304/316
58	Drain Valve	Carbon steel	Carbon steel	Stainless steel

● Top Entry Ball Valve



● Technical Specification

Temp. & pressure: ASME B16.34, BS5351

Wall thickness: ASME B16.34, BS5351

Bore dimension: API 6D

Face to face: ASME B16.10, API 6D

Flanges dimensions: ASME B16.5(MSS SP-44)

Test & inspection: API 598, API 6D, BS5146

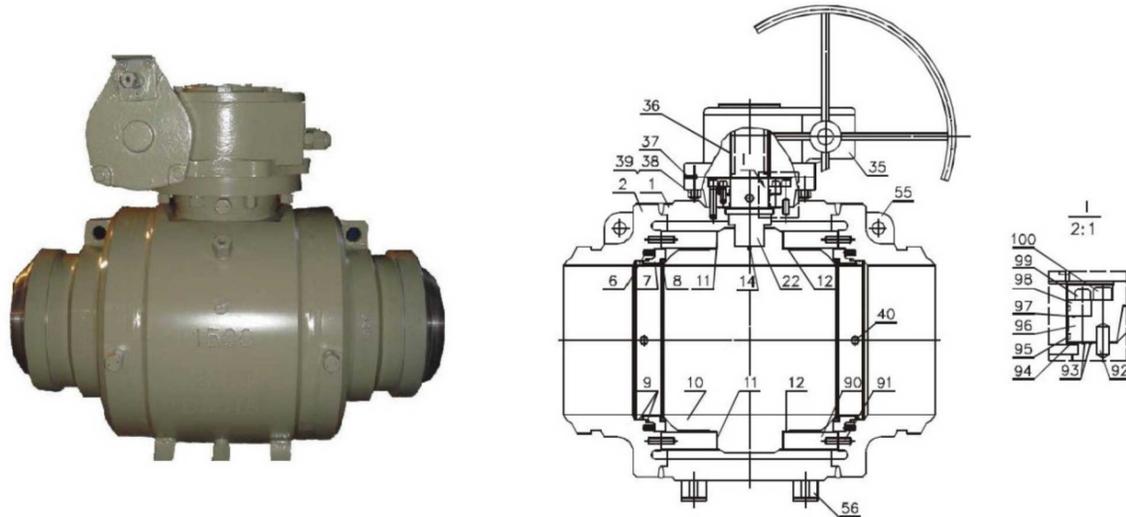
Body material: WCB, LCB, LCC, CF8, CF8M, CF3, CF3M

● Form of Major Part Material

Parts No.	Parts Name	Materials		
		Carbon Steel	Low Temp. Steel	Stainless Steel
1	Body	ASTM A216-WCB	ASTM A352-LCB/LCC	ASTM A351-CF8/CF8M
2	Bonnet	ASTM A216-WCB	ASTM A352-LCB/LCC	ASTM A351-CF8/CF8M
3	Nut	ASTM A194-2H/2HM	ASTM A194 4	ASTM A194-8M/8
4	Bolt	ASTM A193-B7/B7M	ASTM A320 L7	ASTM A193-B8M/B8
5	Gasket	304+PTFE	304+PTFE	304+PTFE
6	O-ring	VITON	VITON	VITON
7	Spring	INCONELX-750	INCONELX-750	INCONELX-750
8	Seat ring	ASTM A105	ASTM A182 F304/F316	ASTM A182 F304/F316
9	Seat insert	RPTFE	RPTFE	RPTFE
10	Ball	ASTM A182-F6a	ASTM A182-F304	
11	Stem bearing	304+PTFE	304+PTFE	

● Full Weld Ball Valve

6" ~ 40" Class150 ~ 1500, DN150 ~ 1000 PN2.0 ~ 25.0



● Technical Specification

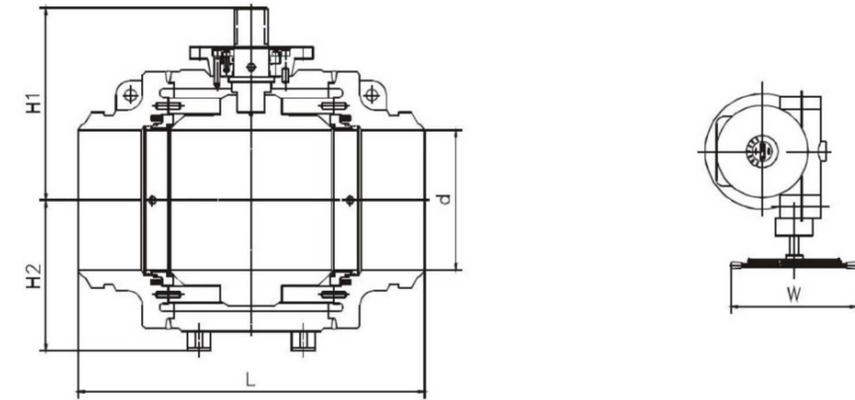
Temp. & pressure: ASME B16.34
 Wall thickness: ASME B16.34
 Bore dimension: API 6D
 Face to face: ASME B16.10, API 6D

Flanges dimensions: ASME B16.25
 Test & inspection: API 6D, BS5146
 Body material: A105, LF2, LF3, F304, F316, F304L, F316L

● Form of Major Part Material

Parts No.	Parts Name	Materials		Parts No.	Parts Name	Materials	
		Carbon Steel				Carbon Steel	
1	Body	ASTM A105		40	Injection valve	Carbon steel	
2	Bonnet	ASTM A105		55	Stationary plante	Carbon steel	
6	Spring	INCONELX-750		56	Support	Carbon steel	
7	Seat ring	ASTM A105		58	Drain/Vent valve	Carbon steel	
8	Seat insert	RPTFE/VITON		90	Trunnion	ASTM A105	
9	O-ring	VITON		91	Parallel pin	ANSI 1025	
10	Ball	ASTM A105		92	Pin	ANSI 1025	
11	Radial bearing	304+PTFE		93	O-ring	VITON	
12	Thust washer	304+PTFE		94	Stem washer	304+PTFE	
14	Spring	ASTM A276-316		95	O-ring	VITON	
22	Upper stem	ASTM A182-F6a		96	Gland	ASTM A105	
35	Gear box	Cast iron		97	O-ring	VITON	
36	Key	ANSI 1045		98	Backup ring	ASTM A105	
37	Screw	ASTM A193-B7/B7M		99	Screw	ASTM A193-B7/B7M	
38	Bolt	ASTM A193-B7/B7M		100	Screw	ASTM A193-B7/B7M	
39	Hexagon nut	ASTM A194-2H/2HM					

● Full Weld Ball Valve



● Class150~900 Dimention & Weight

Class	NPS	Dimensions(mm)					Weight (kg)
		d	L	H1	H2	W	
150Lb 300Lb	6	152	457	303	185	460	185
	8	203	521	342	226	460	276
	10	254	559	378.5	272	705	385
	12	305	635	418	311	705	535
	14	337	762	455	348	705	735
	16	387	838	558	417	800	1585
	18	438	914	598	453	800	2340
	20	489	991	630	479	800	2520
	24	591	1143	705	587	800	3985
	26	635	1245	777	600	800	4800
	28	686	1346	800	650	800	5760
	30	737	1397	860	692	800	6715
600Lb	32	781	1524	908	736	800	8120
	6	152	558.8	309	245	460	230
	8	203	660.4	358	300	705	445
	10	254	787.4	409	340	705	658
	12	305	838.2	474.4	390	800	952
	14	337	889	502	428	800	1330
	16	387	990.6	532.3	475	800	2040
	18	438	1092.2	636	545	800	2890
	20	489	1193.8	674.8	570	800	3350
	22	540	1295.4	725	628	800	4165
	24	591	1397	765	700	800	5650

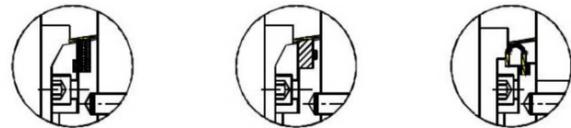
● Class900~1500 Dimention & Weight

Class	NPS	Dimensions(mm)					Weight (kg)	
		d	L	H1	H2	W		
900Lb	6	152	609.6	305	300	705	330	
	8	203	736.6	395	400	800	595	
	10	254	838.2	430	430	800	935	
	12	305	965.2	465	455	800	1485	
	14	324	1028.7	545	545	800	1955	
	16	375	1130.3	615	615	800	2975	
	18	425.5	1219.2	685	645	800	4010	
	20	473	1320.8	750	685	800	4710	
	24	571.5	1549.4	895	775	800	8285	
	1500Lb	6	146	704.9	380	300	800	503
		8	194	831.9	490	400	800	795
		10	241	990.6	510	430	800	1615
12		289	1130.3	560	460	800	1945	
14		317.5	1257.3					
16		362	1384.3					

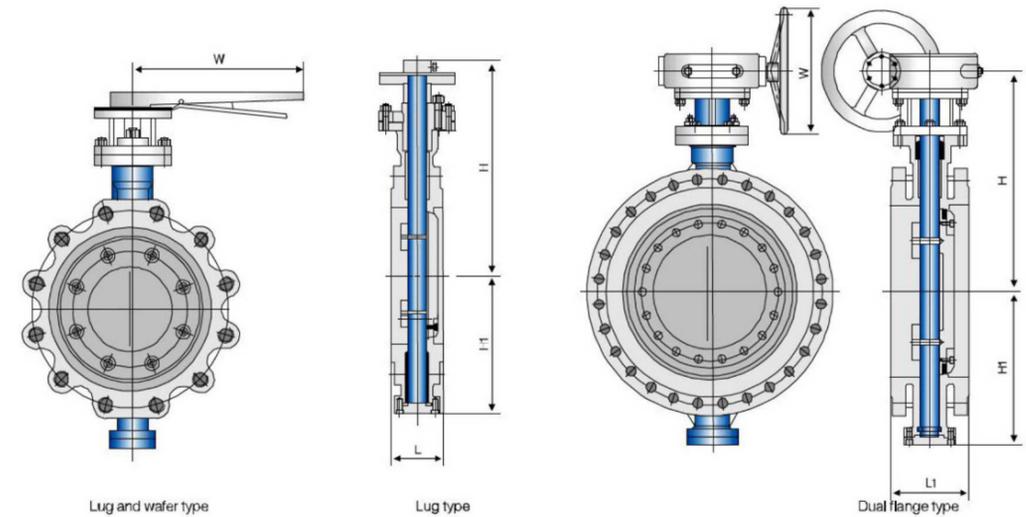
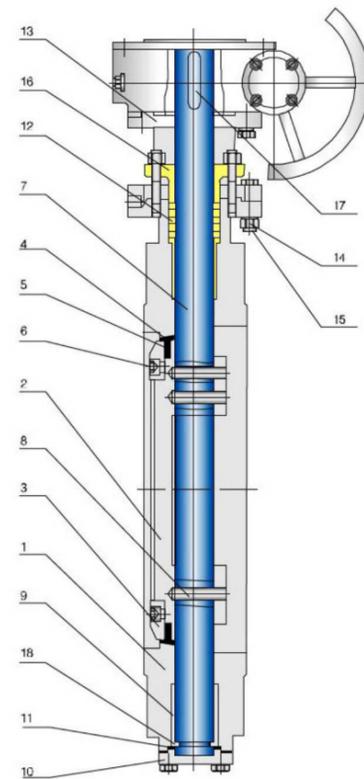
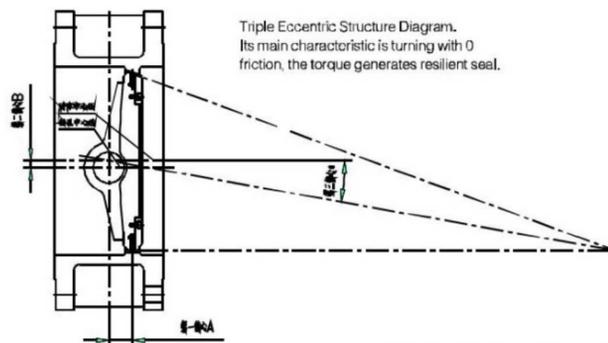
Applicable Standards:

DESIGN & MANUFACTURE CONFORM WITH: API609, MSS SP-67
 CONNECTION DIMENSION CONFORMS WITH: ASME B16.5, ASME B16.47
 STRUCTURE & LENGTH CONFORMS WITH: API 609, MSS SP-67, ISO 5752
 INSPECTION & TEST CONFORMS WITH: ISO 5208, API 598

No	Part Name	No	Part Name
1	Body	10	Bottom end cover
2	Disc	11	Gasket
3	Clamp	12	Packing
4	Seat	13	Yoke
5	Ring	14	Nut
6	Screw	15	Bolt
7	Stem	16	Packing restrainer
8	Check pin	17	Flat key
9	Bushing sleeve	18	Bisect rings



Multiple arrangement metal hard sealed structure metal resilient sealed structure U metal sealed structure



Dimensional datas

NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MI (kg·m)	T N.m	NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MI (kg·m)	T N.m
ANSI Class 150Lb																	
2	50	43	108	112	225	220	10	55	★16	400	102	216	352	540	600	160	4128
3	80	48	114	126	255	270	12	226	★18	450	114	222	386	585	600	200	5511
4	100	54	127	146	285	270	16	325	★20	500	127	229	415	642	600	270	7190
★6	150	57	140	170	332	360	25	615	★24	600	154	267	482	693	600	420	7814
★8	200	64	152	218	386	300	36	902	★30	750	165	318	622	868	600	700	16450
★10	250	71	165	245	427	300	60	1278	★36	900	200	330	673	1000	700	1050	23501
★12	300	81	178	290	498	500	80	2628	★42	1050	251	410	755	1058	700	1500	31963
★14		92	190	316	510	500	120	3276	★48	1200	276	470	866	1278	700	1845	47000

Dimensional datas

NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MI (kg·m)	T N.m	NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MI (kg·m)	T N.m
ANSI Class 300Lb																	
—	50	—	—	—	—	—	—	—	★16	400	133	216	392	582	600	185	8152
3	80	48	114	130	265	270	15	352	★18	450	149	222	420	651	600	230	10223
4	100	54	127	150	290	270	19	514	★20	500	159	229	465	704	600	330	13469
★6	150	59	140	185	355	300	35	1073	★24	600	181	267	532	780	600	460	22827
★8	200	73	152	236	418	500	42	1954	★30	750	—	318	642	908	700	1280	39726
★10	250	83	165	273	456	500	68	2453	★36	900	—	330	703	1108	700	2150	63452
★12	300	92	178	313	498	600	88	3260	★42	1050	—	410	785	1258	700	3150	85326
★14		117	190	338	547	600	144	5405	★48	1200	—	470	906	1478	1000	4885	126742

Dimensional datas

NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MI (kg·m)	T N.m	NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MI (kg·m)	T N.m
ANSI Class 600Lb																	
—	—	—	—	—	—	—	—	—	★12	300	140	270	378	690	600	398	14236
3	80	54	180	152	305	270	38	575	★14	350	155	290	412	715	600	535	16947
4	100	64	190	193	338	360	58	1043	★16	400	178	310	450	823	600	780	20473
★6	150	78	210	248	416	500	120	3673	★18	450	200	330	511				
★8	200	102	230	295	490	600	154	4520	★20	500	216	350	561				
★10	250	117	250	342	580	600	297	7061	★24	600	232	390	621				

Materials of parts

Body	WCB/LCB/CF8M/CF8/CF3M/CF3/WC6/WC9/CD3MN
Disc	WCB+ENP/LCB/CF8M/CF8/CF3M/CF3/WC6/WC9/CD3MN
Seat	STL/13Cr/316/316L/304/304L/F316L/Monel/F51
Stem	F6a/17-4PH/F304/F316/F304L/F316L/F51/Monel
Ring	304+Flexible graphite/316+Flexible graphite/Stainless steel series
Bolt	B7M/B8M/L7M/B16M
Nut	2HM/8M/7M/4M
Clamp	A36+ENP/Stainless steel series
Bushing sleeve	C95200/C95500/SS+304
Gasket	Flexible graphite+304/Flexible graphite+316
Packing	Flexible graphite

Materials could be choosed according to customers' requirement & working condition.

Features and Application:

Three eccentric butterfly valve series is the newly-developed long-life and energy-saving products. The sealing is metal to metal, which could be changed to be seal ring to metal, stainless steel plate and composite graphite to metal. Under the working condition of high temperature and high pressure, it still has a stable sealing performance. Our company adopts optimization design and new technology, so that the torque is small, gaining the point of energy-saving, labor-saving and reliable sealing performance, thus to ensure the high-reliability of corrosion-resistance, stand fire and wear-resistance.

This product is widely used in petroleum, natural gas, piped gas and medicine, food industry, industrial environmental water treatment and shipping industry.

Applicable Standards:

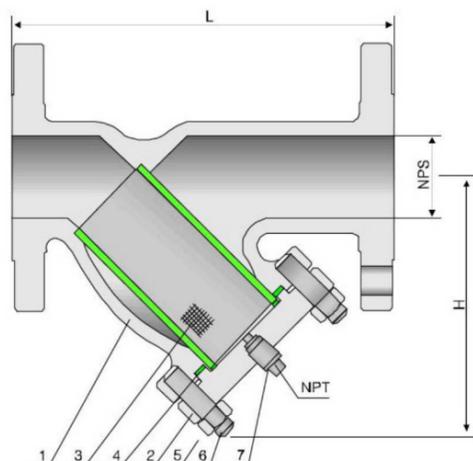
- STEEL STRAINER, ASME B16.34
- FACE TO FACE, ASME B16.10
- END FLANGES, ASME B16.5
- BUTTWELDING ENDS, ASME B16.25
- INSPECTION AND TEST, API 598

Design descriptions:

- Y-PATTERN TYPE
- BOLTED BONNET CAP WITH DRAIN PLUG
- PERFORATED STAINLESS STEEL SCREEN
- STRAINER DENSITY 100 MESH DESIGN
- FULL RANGE OF STRAINER DENSITY
- RENEWABLE STRAINER DENSITY
- FLANGED OR BUTTWELDING ENDS

Applicable Standards:

- DESIGN & MANUFACTURE CONFORM WITH: ASME B16.34
- CONNECTION DIMENTION CONFORMS WITH: ASME B16.5、ASME B16.11、EN 1092
- STRUCTURE AND LENGTH CONFORMS WITH THE TERMS OF THE CONTRACT
- MATERIAL CONFORMS WITH: ISO 5208、API 598



Materials of parts

No	Part Name	ASTM Materials		
		Carbon Steel	18Cr-9Ni-2Mo	Carbon Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet Cap	A216-WCB	A351-CF8M	A350-LCB
3	Screen	A240-304	A240-316	A240-304
4	Bonnet Gasket	Graphite+304 ¹⁾	PTFE	Graphite+304 ¹⁾
5	Bonnet Stud	A193-B7	A193-B8	A320-L7
6	Bonnet Stud Nut	A194-2H	A194-8	A194-7
7	Drain Plug	A276-410	A276-316	A276-410

Note: 1) spiral wound construction

Percentage of open area

MESH	A SWG	B m/m	C m/m	D %
5	20	0.914	4.166	67.3
10	22	0.711	1.829	51.8
20	28	0.356	0.914	51.8
30	32	0.274	0.572	45.7
40	36	0.193	0.442	48.4
50	37	0.172	0.336	43.6
60	38	0.152	0.271	41.0
80	40	0.122	0.195	37.8
100	42	0.102	0.152	35.8
120	43	0.092	0.119	31.8
150	45 1/2	0.066	0.103	37.1
180	46 1/2	0.053	0.088	38.9
200	47	0.051	0.076	35.8
250	48	0.040	0.062	37.7
300	48	0.039	0.044	27.6

Even the mesh's same:
open area is not always same
due to the diameter of wire.
The details of wire as follows:

- A: Number of Wire
- B: Diameter of Wire
- C: Width of Opening
- D: Percentage of OPEN AREA

Dimensional datas

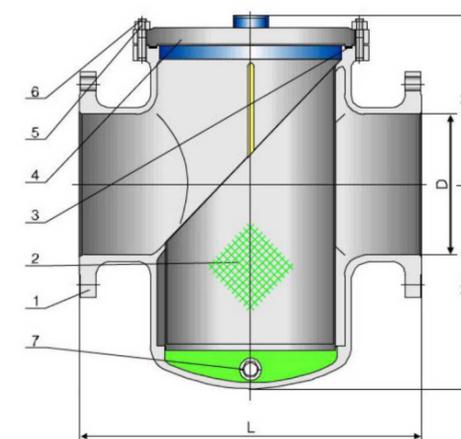
NPS	DN	L/L1 (RF/BW)		H		PLUG (NPT)	WT (KG)		L/L1 (RF/BW)		H		PLUG (NPT)	WT (KG)	
		RF	BW	in	mm		in	mm	in	mm	in	mm		in	mm
ANSI Class 150Lb															
1/2	15	5.50	140	3.38	87	1/8	2.1	0.8	5.50	140	3.38	87	1/8	2.5	1.2
3/4	20	6.00	152	4.12	105	1/2	2.3	1.2	6.00	152	4.12	105	1/2	3.4	1.8
1	25	6.50	165	4.50	114	1/2	3.1	1.4	6.50	165	4.50	114	1/2	4.2	2.6
1 1/2	40	8.00	203	6.12	156	1/2	6.2	3.7	8.00	203	6.12	156	1/2	8.6	4.8
2	50	9.00	229	7.12	181	1/2	9.7	6.7	9.00	229	7.12	181	1/2	11.12	8.2
2 1/2	65	11.00	279	10.25	259	3/4	23.5	16.5	11.00	279	10.25	259	3/4	29	20
3	80	12.50	318	11.50	293	3/4	28	22	12.50	318	11.50	293	3/4	38	27
4	100	14.50	368	12.75	324	3/4	37	28	14.50	368	12.75	324	3/4	57	39
6	150	18.50	470	17.62	448	3/4	67	59	18.50	470	17.62	448	3/4	105	74
8	200	23.50	597	21.00	535	3/4	91	78	23.50	597	21.00	535	3/4	176	131
10	250	26.50	673	27.12	690	1	135	113	26.50	673	27.12	690	1	230	164
12	300	30.50	775	30.75	780	1	168	151	30.50	775	30.75	780	1	360	268
in	mm	in	mm	in	mm	in	RF	BW	in	mm	in	mm	in	RF	BW

No	Part Name	No	Part Name
1	Body	5	Bottom End Cover
2	Disc	6	Gasket
3	Gasket	7	NPT Screw Plug
4	Seat		

Materials of parts

Body	WCB/CF8M/CF8/CF3M/CF3/CD3MN
Strainer	316/304/316L/304L/S31803
Bonnet	F316/F304/F316L/F304L/F51
Bolt	B7M/B8M/L7M/B16M
Nut	2HM/8M/7M/4M
Gasket	Flexible graphite+304/Flexible graphite+316
Screw Plug	410/316/304/316L/304L/S31803

Materials could be choosed according to customers' requirement & working condition.



Features and Application:

The strainer is used to improve the purity of products, insure the facilities (compressor pump water) working secure. It's widely used in the production of petrochemical industry material such as weak corrosive, low-temperature, Grains & food, pharmacy.

Dimensional datas

NPS DN	1	1 1/4	1 1/2	2	2 1/2	3	4	6	8	10	12	in mm
	25	32	40	50	65	80	100	150	200	250	300	
ANSI Class 150Lb												
L	180	180	260	260	330	340	400	500	560	660	750	mm
H	105	112	130	130	145	150	175	210	260	300	350	mm
H1	165	170	175	175	210	255	300	425	525	600	680	mm
WT(kg)	6	7	8	10	14	16	27	55	78	118	158	kg

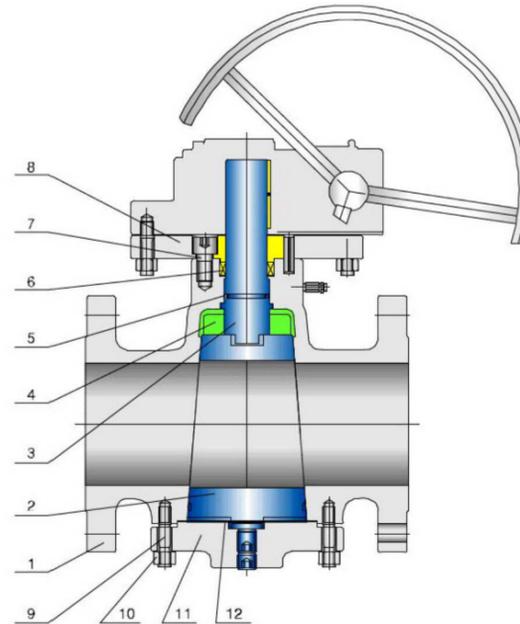
Dimensional datas

NPS DN	1	1 1/4	1 1/2	2	2 1/2	3	4	6	8	10	12	in mm
	25	32	40	50	65	80	100	150	200	250	300	
ANSI Class 300Lb												
L	180	180	260	260	330	340	400	500	560	660	750	mm
H	105	112	130	130	145	150	175	210	260			
H1	165	170	175	175	210	255	300	425	525			
WT(kg)	8	9	10	14	20	38	55	90	120			

● Applicable Standards:

DESIGN & MANUFACTURE CONFORM WITH: API 6D/ISO 14313、ASME B16.34
 CONNECTION DIMENSION CONFORMS WITH: ASME B16.5、DIN EN 1092
 FIRE RESISTANCE DESIGN CONFORMS WITH: API 607/ISO 10497
 INSPECTION & TEST CONFORMS WITH: API 6D、ISO 5208、API 598
 MATERIAL CONFORMS WITH: ISO 15156

No	Part Name	No	Part Name
1	Body	9	Bolt
2	Cock body	10	Connection board
3	Stem	11	Stud
4	Driving dog	12	Nut
5	O-ring	13	Lower cover
6	Packing	14	Gasket



Materials of parts

Body	WCB/LCB/CF8M/CF8/CF3M/CF3/WC6/WC9/CD3MN
Cock body	WCB+N/CA15/4140+ENP/CF8M/CF8/CF3M/CF3/CD3MN
Stem	F6a/4140+ENP/F304/F316/F304L/F316L/F51
Lower cover	A105/LF2/F304/F316/F304L/F316L/F51
O-ring	VITON/NBR
Stud	B7M/B8M/L7M/B16M
Nut	2HM/8M/7M/4M
Gasket	Flexible graphite+304/PTFE/304

Materials could be choosed according to customers' requirement & working condition.

● Plug Valve Introduction

一、 Usage.

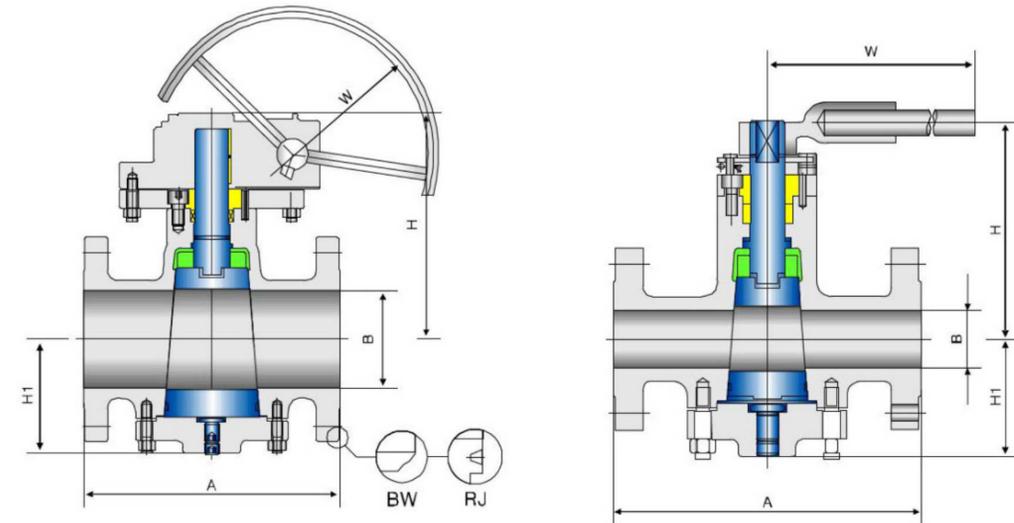
It is mainly used for storage and transportation of oil and gas in the chemical industry, metallurgy, paper making, food processing, shipbuilding and other industries, used to open or close, and with pneumatic and electrical devices can also achieve the long-distance operation, to ensure personal safety.

二、 Features.

- 1、 lockup device, manual operation, in order to prevent misoperation, valve can be equipped with padlock device.
- 2、 Anti-static structure, when a fire break out, the metal seal forms to prevent large leakage of media
- 3、 valve body and stem can finish emergency injection seal, through the grease injection valve, the stop-leak compound can achieve a short-time seal, therefore to buy time handling the scene.

● Applicable Standards:

DESIGN & MANUFACTURE CONFORM WITH: API 6D/ISO 14313、ASME B16.34
 CONNECTION DIMENSION CONFORMS WITH: ASME B16.5、DIN EN 1092
 FIRE RESISTANCE DESIGN CONFORMS WITH: API 607/ISO 10497
 INSPECTION & TEST CONFORMS WITH: API 6D、ISO 5208、API 598
 MATERIAL CONFORMS WITH: ISO 15156



Dimensional datas

NPS inch	DN	A mm	B mm	H mm	H1 mm	W mm	M(RF) kg	T N.m	NPS inch	DN	A mm	B mm	H mm	H1 mm	W mm	M(RF) kg	T N.m
Short Series Type ANSI Class 150Lb									Venturi Type ANSI Class 150Lb								
2	50	178	51	175	106	350	18	98	★10	250	533	252	420	255	600	375	2166
3	80	203	76	190	127	600	31	180	★12	300	610	303	492	316	600	420	3199
4	100	229	102	214	158	700	50	302	★14	350	686	334	498	320	600	480	4849
★6	150	267	152	270	185	900	93	628	★16	400	762	385	645	368	700	590	6032
★8	200	292	201	370	220	600	250	2032	★18	450	864	436	687	426	760	713	9142
★10	250	330	252	420	250	600	330	2166	★20	500	914	487	742	477	760	880	12022
★12	300	356	303	490	310	600	360	3199	★24	600	1067	589	798	522	760	1203	19424

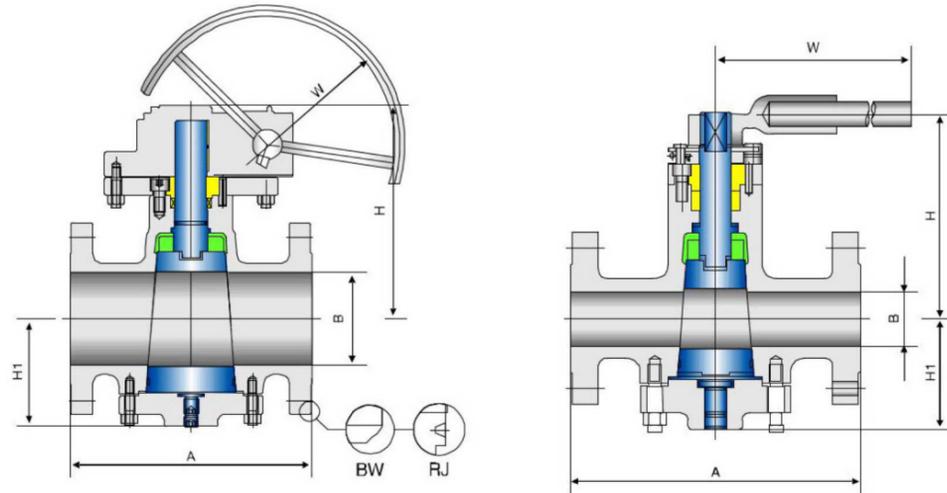
Dimensional datas

NPS inch	DN	A mm	B mm	H mm	H1 mm	W mm	M(RF) kg	T N.m	NPS inch	DN	A mm	B mm	H mm	H1 mm	W mm	M(RF) kg	T N.m
Short Series Type ANSI Class 300Lb									Venturi Type ANSI Class 300Lb								
2	50	216	51	184	108	500	25	172	6	150	403	152	307	200	900	144	1080
2 1/2	70	241	62	190	115	550	33	198	★8	200	419	303	390	230	600	280	3208
3	80	283	76	195	137	600	40	218	★10	250	457	252	433	255	600	370	3258
4	100	305	102	265	168	700	70	536	★12	300	502	303	500	320	700	408	5202
★6	150	403	152	307	200	900	144	1080	★14	350	762	334	620	240	700	510	8486
★8	200	419	201	390	230	600	280	3208	★16	400	838	385	710	270	700	600	8486
★10	250	457	252	433	255	600	370	3258	★18	450	914	436	710	270	700	600	8486
★12	300	502	303	500	320	700	408	5202	★20	500	991	487	810	270	700	600	8486
									★24	600	1143	589	810	270	700	600	8486

Note: ★ Turbine drives

Applicable Standards:

DESIGN & MANUFACTURE CONFORM WITH: API 6D/ISO 14313, ASME B16.34
 CONNECTION DIMENSION CONFORMS WITH: ASME B16.5, DIN EN 1092
 FIRE RESISTANCE DESIGN CONFORMS WITH: API 607/ISO 10497
 INSPECTION & TEST CONFORMS WITH: API 6D, ISO 5208, API 598
 MATERIAL CONFORMS WITH: ISO 15156



Dimensional datas

NPS inch	DN	A mm	B mm	H mm	H1 mm	W mm	M(RF) kg	T N.m	NPS inch	DN	A mm	B mm	H mm	H1 mm	W mm	M(RF) kg	T N.m
Reduced Bore Type ANSI Class 600Lb									Venturi Type ANSI Class 600Lb								
2	50	292	51	194	108	500	30	292	6	150	403	152	307	200	900	144	1080
2 1/2	65	330	62	200	115	550	40	322	★8	200	419	303	390	230	600	280	3208
3	80	356	76	205	137	780	48	380	★10	250	457	252	433	255	600	370	3258
4	100	432	102	270	168	1100	85	918	★12	300	502	303	500	320	700	408	5202
★6	150	559	152	340	200	600	194	1814	★14	350	762	334	630	340	700	510	8486
★8	200	660	201	405	230	600	305	5114	★16	400	838	385	740	376	762	630	10696
★10	250	787	252	460	255	700	625	6088	★18	450	914	436	788	436	762	750	15940
									★20	500	991	487	833	497	762	890	21040
									★24	600	1143	589	889	543	762	1035	24082

Dimensional datas

NPS inch	DN	A mm	B mm	H mm	H1 mm	W mm	M(RF) kg	T N.m	NPS inch	DN	A mm	B mm	H mm	H1 mm	W mm	M(RF) kg	T N.m
Reduced Bore Type ANSI Class 900Lb									Venturi Type ANSI Class 900Lb								
2	50	368	51	215	120	700	50	417	★6	150	610	152	365	210	600	240	2548
3	80	381	76	250	145	800	70	540	★8	200	737	201	405	240	600	410	7022
4	100	457	102	300	180	1100	116	1258	★10	250	838	252	460	265	762	860	8516
★6	150	610	152	365	210	600	240	2548	★12	300	965	303	510	335	762	1150	11986
★8	200	737	201	405	240	700	410	7022	★16	400	1130	373	600	390	762	1960	20326
★10	250	838	252	460	265	762	860	8516									

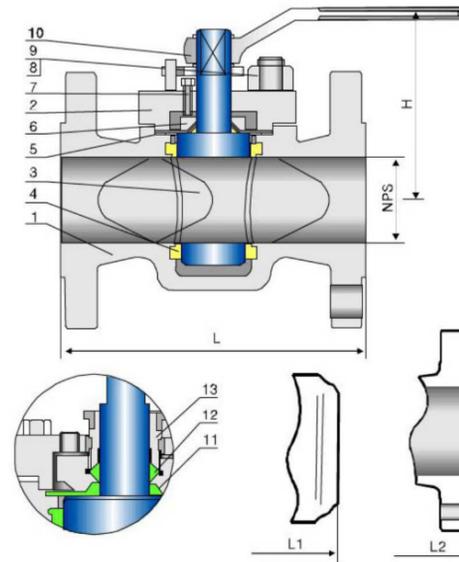
Dimensional datas

NPS inch	DN	A mm	B mm	H mm	H1 mm	W mm	M(RF) kg	T N.m	NPS inch	DN	A mm	B mm	H mm	H1 mm	W mm	M(RF) kg	T N.m
Reduced Bore Type ANSI Class 1500Lb									Venturi Type ANSI Class 1500Lb								
2	50	368	51	215	120	700	50	654	★6	150	705	144	390	220	600	325	4022
3	80	470	76	60	150	1000	88	862	★8	200	832	192	415	260	762	520	10848
4	100	546	102	320	185	600	160	2064	★10	250	911	239	480	280	762	970	13388
★6	150	705	144	390	220	600	325	4022	★12	300	1130	287	540	360	762	1450	18792
★8	200	832	192	415	260	762	520	10848									

Note: ★ Turbine drives

Applicable Standards:

● STEEL PLUG VALVES API 599/API 6D
 ● STEEL PLUG VALVES ISO 14313
 ● FIRE SAFE, API 607
 ● ANTI STATICS, API 599
 ● STEEL VALVES, ASME B16.34
 ● FACE TO FACE ASME B16.10
 ● END FLANGES, ASME B16.5
 ● BUTTWELDING ENDS ASME B16.25
 ● INSPECTION AND TEST, API 598/ API 6D



Dimensional datas

NPS	DN	L (RF)	L1 (BW)	H	W	WT(kg)	L (RF)	L1 (BW)	H	W	WT(kg)
ANSI Class150Lb						ANSI Class300Lb					
2	50	7.00	178	10.50	267	6.00	150	13	320	17	13
2 1/2	65	7.50	191	12.00	305	6.50	165	14	350	20	14
3	80	8.00	203	13.00	330	7.12	180	16	410	25	17.5
4	100	9.00	229	14.00	356	15.00	380	13	320	40	29
6	150	10.50	267	18.00	457	20.50	520	13	320	70	55
8	200	11.50	292	20.50	521	22.88	580	13	320	135	110
10	250	13.00	330	22.00	559	24.50	620	14	350	220	182
12	300	14.00	356	25.00	635	26.75	680	15	380	300	247
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm

Dimensional datas

NPS	DN	L (RF)	L1 (BW)	H	W	WT(kg)	L (RF)	L1 (BW)	H	W	WT(kg)
ANSI Class600Lb						ANSI Class900Lb					
2	50	11.50	292	11.62	295	6.12	155	14	350	28	21
2 1/2	65	13.00	330	13.12	333	6.75	170	16	410	33	23.5
3	80	14.00	356	14.12	359	7.25	185	13	320	387	23
4	100	16.00	432	16.12	435	15.38	390	13	320	75	46
6	150	19.50	559	19.62	562	20.88	530	13	320	142	97
8	200	23.50	660	23.62	664	23.25	590	14	350	250	167
10	250	26.50	787	26.62	791	24.88	630	15	350	365	227
12	300	30.00	838	30.12	841	27.12	690	15	380	515	354
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm

Design descriptions:

- RUGGED, HEAVY-DUTY BODY
- BOLTED BONNET CAP
- PTFE SLEEVED, TAPERED PLUG
- LARGE PORT OPENINGS
- NON-LUBRICATED
- STEM INTEGRAL WITH PLUG
- IN-LINE ADJUSTMENT
- STOPPER DEVICE
- RENEWABLE SEAT RING
- FLANGED OR BUTTWELDING ENDS
- AVAILABLE WITH WG OPERATOR
- FIRE SAFE CONSTRUCTION
- ANTI STATICS DEVICE

Materials of parts

No	Part Name	Carbon Steel	ASTM Materials 18Cr-9Ni-2Mo	Carbon Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Plug	A182-F304(1)	A182-F316	A182-F304(1)
4	Sleeve	Glass Filled PTFE		
5	Bonnet Gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
6	Adjusting Gasket	A182-F6a	A182-F316	A182-F6a
7	Adjusting Bolt	A193-B7	A193-B8	A320-L7
8	Bonnet Stud	A193-B7	A193-B8	A320-L7
9	Bonnet Bolt	A194-2H	A194-8	A194-4
10	Handle	Carbon Steel		
11	Diaphragm	A167-304+PTFE	A167-316+PTFE	A167-304+PTFE
12	Packing	Graphite		
13	Gland Flange	A216-WCB	A217-WC6	A352-LCB

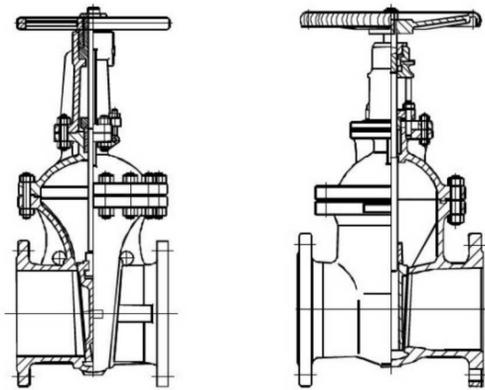
Note: 1)A105+ENP optional
 2)Jacketed construction

● Product structural features

Gate valve seal acc. to DIN is applicable to the cutting and connection of pipelines medium that are used in various industries such as petroleum, chemical industry, pharmacy, chemical fertilizer, electric power industry, etc under nominal pressure of PN1.6~16MPa and working temperature within -110~600°C

● Main structural features

- 1.This product has logical structure, reliable seal, excellent performance and nice design.
- 2.The seal surface is build-up welding with Co hard alloy, which is attrition-resistant, corrosion-resistant, has good friction resistant and long life.
- 3.The stem quenched and tempered, and its surface is treated by nitriding treatment, thus it has good corrosion resistant and friction resistant.
- 4.It has double seal capability, which is more reliable.
- 5.The part material, flange and butt weld end dimension may be selected according to current operating condition and users' requirement, so that meeting the requirements of various engineering.



Technical specification

Structural Formation	BB-BG-OS & Y
Driving Manner	Hand wheel Operated , Gear Operated Electric - Actuated
Design Standard	DIN3352 En1984
Face to Face	DIN3202 (F4 / F5/ F7/ F8) / EN 558-1
Flange Ends	DIN2543~DIN2547 / EN 1092-1
Test & Inspection	DIN3230 / En12266

Products performance specification

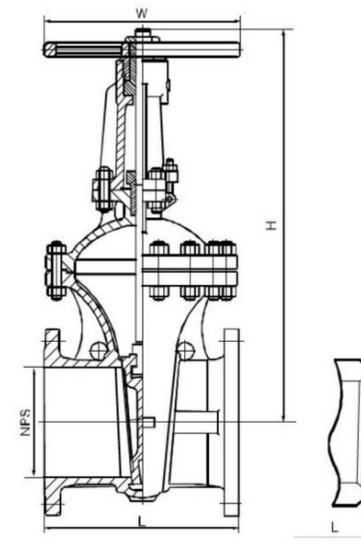
Nominal Pressure (Mpa)	Shell Test (MPa)	Sealing Test (MPa)	Suitable Temp(°C)	Suitable Medium
1.6	2.4	1.76	-110~600°C	Water Oil & Gas
2.5	3.75	2.75		
4.0	6.0	4.4		
6.4	9.6	7.04		

Main part material and property

Part	Material										
Body	GS-C25								1.4308		
Disc	GS-C25		1.4308	1.4408	Monel						
Stem	13Cr		1.4308	1.4408	Monel	F304					
Wedge Disc Sealing Face	13Cr	13Cr	STL	1.4308	STL	1.4408	STL	Monel	1.4308	1.4308	STL
Seat Ring Sealing Face	13Cr	STL	STL	1.4308	STL	1.4408	STL	Monel	1.4308	STL	STL
Body	1.4408			1.4306			1.4301				
Disc	1.4408			1.4306			1.4301				
Stem	1.4408		1.4306		1.4301						
Wedge Disc Sealing Face	1.4408	1.4408	STL	1.4306	1.4306	STL	1.4301	1.4301	STL		
Seat Ring Sealing Face	1.4408	STL	STL	1.4306	STL	STL	1.4301	STL	STL		

Noted: The chart above only lists out some common composition of steel gate valve parts. We may provide other different parts material composition according to the customer's request or the actual valve working condition.

● Rising Stem Gate Valves PN1.6~2.5MPa DIN3202 F5 Series

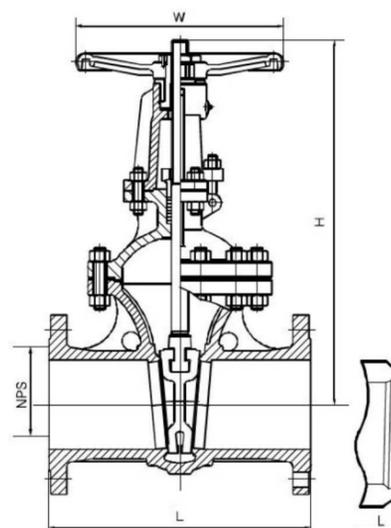


Dimensions data

Pressure (MPa)	PN1.6MPa													
Size mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
L	250	270	280	300	325	350	400	450	500	550	600	650	700	800
H	417	452	530	607	720	790	885	1014	1190	1350	1460	1630	1800	2200
W	200	280	280	300	350	350	400	450	500	600	600	650	700	800
Weight(kg)	16	25	30	55	75	98	150	245	353	490	750	985	1063	1390

Pressure (MPa)	PN2.5MPa													
Size mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
L	250	270	280	300	325	350	400	450	500	550	600	650	700	800
H	417	452	530	607	720	790	885	1014	1190	1350	1460	1630	1800	2200
W	200	280	280	300	350	350	400	450	500	600	600	650	700	800
Weight(kg)	16	31	43	58	82	103	180	265	385	547	835	1050	1130	1500

● Rising Stem Gate Valves PN4.0~6.4MPa DIN3202 F7 Series

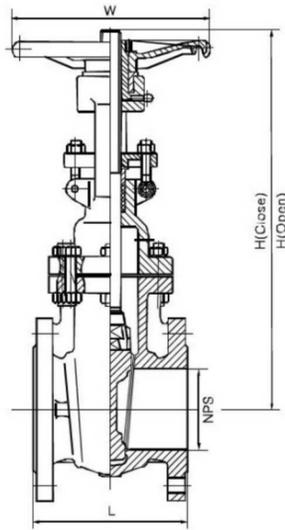


Dimensions data

Pressure (MPa)	PN4.0MPa													
Size mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
L	250	290	310	350	400	450	550	650	750	850	950	1050	1150	1350
H	404	456	604	607	720	780	875	1260	1480	1605	1788	1956	2168	2601
W	200	280	300	350	350	400	450	500	500	600	650	700	700	800
Weight(kg)	18	32	47	60	95	130	220	290	490	760	900	1250	1450	1700

Pressure (MPa)	PN6.4MPa													
Size mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
L	250	290	310	350	400	450	550	650	750	850	950	1050	1150	1350
H	404	456	604	607	720	780	875	1260	1480	1605	1788	1956	2168	2601
W	200	280	300	350	350	400	450	500	500	600	650	700	700	800
Weight(kg)	20	35	52	66	103	140	230	300	510	780	940	1300	1600	1850

● Rising Stem Gate Valves PN1.6~2.5MPa DIN3202 F4 Series



Dimensions data

Pressure (MPa)	PN1.6MPa													
Size mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
L	150	170	180	190	200	210	230	250	270	290	310	330	350	390
H	305	354	402	437	496	541	699	815	914	1189	1350	1680	1907	2050
W	200	200	750	250	300	350	400	400	450	450	500	500	600	600
Weight(kg)	15	17	23	43	51	68	105	176	285	356	568	702	895	1045

Pressure (MPa)	PN2.5MPa													
Size mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
L	150	170	180	190	200	210	230	250	270	290	310	330	350	390
H	325	363	415	453	505	556	744	864	948	1269	1450	1680	1907	2050
W	200	200	250	300	350	400	450	500	550	600	600	600	600	600
Weight(kg)	20	30	39	58	80	101	190	290	405	510	650	702	895	1045

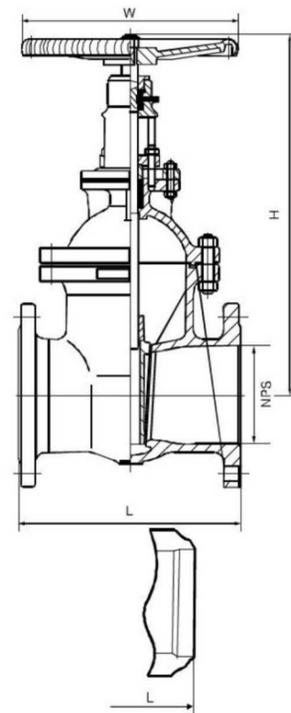
● Non-Rising Stem Gate Valves PN1.6~4.0MPa DIN3202 F15 Series

Dimensions data

Pressure (MPa)	PN1.6MPa											
Size mm	50	65	80	100	125	150	200	250	300	350	400	
L	250	270	280	330	360	390	460	530	630	690	750	
H	305	354	402	437	496	541	699	815	914	1189	1350	
W	200	200	750	250	300	350	400	450	500	550	600	
Weight(kg)	20	30	38	56	75	100	182	278	398	500	618	

Pressure (MPa)	PN2.5MPa											
Size mm	50	65	80	100	125	150	200	250	300	350	400	
L	250	270	280	330	360	390	460	530	630	690	750	
H	325	363	415	453	505	556	744	864	948	1269	1450	
W	200	200	250	300	350	400	450	500	550	600	600	
Weight(kg)	20	30	39	58	80	101	190	290	405	510	650	

Pressure (MPa)	PN4.0MPa											
Size mm	50	65	80	100	125	150	200	250	300	350	400	
L	250	270	280	330	360	390	460	530	630	690	750	
H	325	370	430	480	532	589	783	888	965	1285	1512	
W	200	200	250	300	350	400	450	500	550	600	600	
Weight(kg)	22	31	41.5	61	83	110	210	318.5	430	520	680	

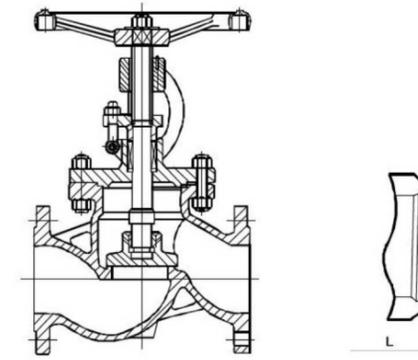


● Product structural features

Globe valve seal acc. to DIN is applicable to the cutting and connection of pipelines medium that are used in various industries such as petroleum, chemical industry, pharmacy, chemical fertilizer, electric power industry etc under nominal pressure of PN1.6~16MPa and working temperature within -110~600°C

● Main structural features

1. This product has logical structure, reliable seal, excellent performance and nice design.
2. The seal surface is build-up welding with Co hard alloy, which is attrition-resistant, corrosion-resistant, has good friction resistant and long life.
3. The stem quenched and tempered, and its surface is treated by nitriding treatment, thus it has good corrosion resistant and friction resistant.
4. The part material, flange and butt weld end dimension may be selected according to current operating condition and users' requirement, so that meeting the requirements of various engineering.



Technical specification

Structural Formation	BB-BG-OS & Y
Driving Manner	Hand wheel Operated , Gear Operated Electric - Actuated
Design Standard	DIN3356 / En13709
Face to Face	DIN3202 (F1 / F2) / EN 558-1
Flange Ends	DIN2543-DIN2548 / EN 1092-1
Test & Inspection	DIN3230 / En12266

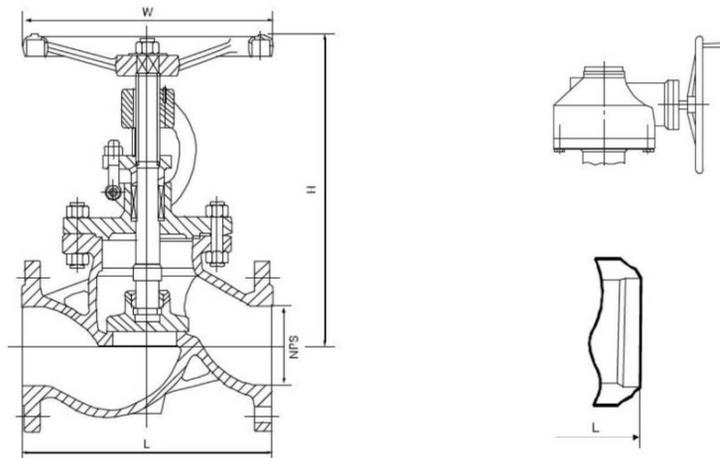
Products performance specification

Nominal Pressure (MPa)	Shell Test(MPa)	Sealing Test (MPa)	Suitable Temp(°C)	Suitable Medium
1.6	2.4	1.76	-110~600°C	Water Oil & Gas
2.5	3.75	2.75		
4.0	6.0	4.4		
6.4	9.6	7.04		

Main part material and property

Part	Material	Property
Body	GS-C25	1.4308
Disc	GS-C25	1.4308, 1.4408, Monel
Stem	13Cr	1.4308, 1.4408, Monel
Wedge Disc Sealing Face	13Cr, 13Cr, STL	1.4308, STL, 1.4408, STL, Monel, 1.4308, 1.4308, STL
Seat Ring Sealing Face	13Cr, STL, STL	1.4308, STL, 1.4408, STL, Monel, 1.4308, STL, STL
Body	1.4408	1.4306, 1.4301
Disc	1.4408	1.4306
Stem	1.4408	1.4306
Wedge Disc Sealing Face	1.4408, 1.4408, STL	1.4306, 1.4306, STL, 1.
Seat Ring Sealing Face	1.4408, STL, STL	1.4306, STL, STL, 1.

Noted: The chart above only lists out some common composition of steel globe valve parts. We may provide other different parts material according to customer's request or the actual valve working condition.



● DIN Globe Valves PN1.6~4.0MPa
DIN3202 F1 Series

Dimensions data mm

Pressure(MPa)		PN1.6MPa															
		Flange Ends:DIN2543															
Size	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
L		130	150	160	180	200	230	290	310	350	400	480	600	730	850	980	1100
H		240	260	276	285	300	305	354	402	437	496	541	699	815	914	1189	1350
W		120	140	160	160	180	200	200	750	250	300	350	400	450	500	550	600
		95	105	115	140	150	165	185	200	220	250	285	340	405	460	520	580

Pressure(MPa)		PN2.5MPa															
		Flange Ends:DIN2544															
Size	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
L		130	150	160	180	200	230	290	310	350	400	480	600	730	850	980	1100
H		240	260	276	285	300	325	363	415	453	505	556	744	864	948	1269	1450
W		120	140	160	160	180	200	200	250	300	350	400	450	500	550	600	600
		95	105	115	140	150	165	185	200	235	270	300	360	425	485	555	620

Pressure(MPa)		PN4.0MPa															
		Flange Ends:DIN2545															
Size	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
L		130	150	160	180	200	230	290	310	350	400	480	600	730	850	980	1100
H		240	260	276	285	300	325	370	430	480	532	589	783	888	965	1285	1512
W		120	140	160	160	180	200	200	250	300	350	400	450	500	550	600	600
D		95	105	115	140	150	165	185	200	235	270	300	375	450	515	580	600

● DIN Globe Valves PN6.4~10.0MPa
DIN3202 F2 Series

Dimensions data mm

Pressure(MPa)		PN6.4MPa															
		Flange Ends:DIN2546															
Size	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
L		130	150	160	180	200	300	340	380	430	500	550	650	775	900	1025	1150
H		240	260	276	285	300	305	354	402	437	496	541	699	815	914	1189	1350
W		120	140	160	160	180	200	200	750	250	300	350	400	450	500	550	600
D		105	125	140	150	170	180	205	215	250	295	345	415	470	530	600	670

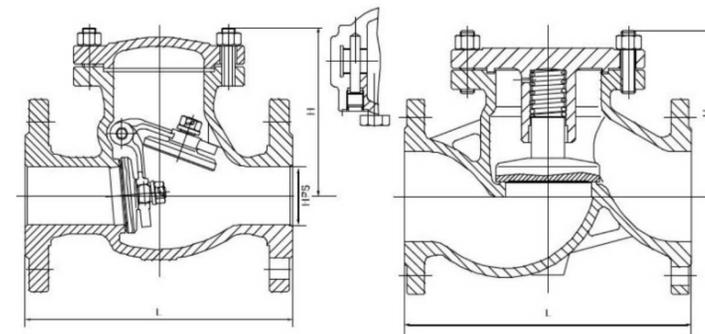
Pressure(MPa)		PN10.0MPa															
		Flange Ends:DIN2547															
Size	mm	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
L		130	150	160	180	200	300	340	380	450	500	550	650	775	900	1025	1150
H		240	260	276	285	300	325	363	415	453	505	556	744	864	948	1269	1450
W		120	140	160	160	180	200	200	250	300	350	400	450	500	550	600	600
D		105	125	140	150	170	195	220	230	265	315	355	430	505	585	655	715

● Product structural features

Check valve seal acc. to DIN is applicable to the cutting and connection of pipelines medium that are used in various industries such as petroleum, chemical industry, pharmacy, chemical fertilizer, electric power industry, etc under nominal pressure of PN1.6~16MPa, and working temperature within -110~600°C

● Main structural features

- 1.This product has logical structure, reliable seal, excellent performance and nice design.
- 2.The seal surface is build-up welding with Co hard alloy, which is attrition-resistant, corrosion-resistant, has good friction resistant and long life.
- 3.The part material, flange and butt weld end dimension may be selected according to current operating condition and users' requirement, so that meeting the requirements of various engineering.



Technical specification	
Design Standard	DIN3840 / En14341
Face to Face	DIN3202 (F1 / F2/F6) / EN 558-1
Flange Ends	DIN2543~DIN2547 / EN 1092-1
Test & Inspection	DIN3230 / En12266

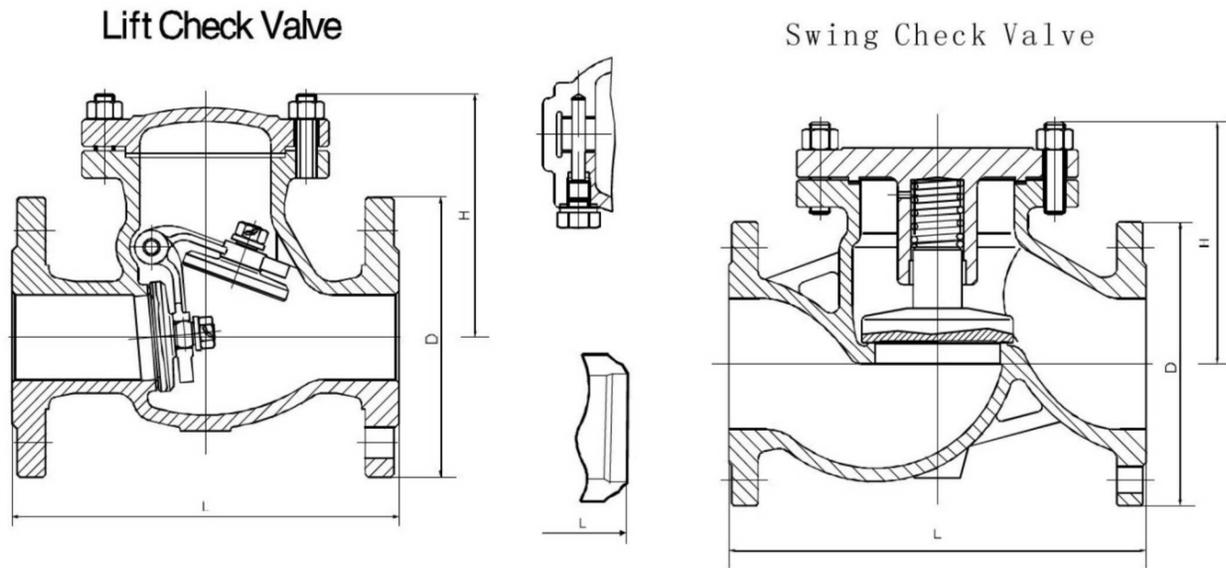
Products performance specification

Nominal Pressure (MPa)	Shell Test (MPa)	Sealing Test (MPa)	Suitable Temp(°C)	Suitable Medium
1.6	2.4	1.76	-110~600°C	Water Oil & Gas
2.5	3.75	2.75		
4.0	6.0	4.4		
6.4	9.6	7.04		

Main part material and property

Part	Material																
Body	GS-C25																
Disc	GS-C25			1.4308		1.4408		Monel		1.4308							
Wedge Disc Sealing Face	13Cr	13Cr	STL	1.4308	STL	1.4408	STL	Monel	1.4308	1.4308	STL	1.4308	1.4308	STL	1.4308	1.4308	STL
Seat Ring Sealing Face	13Cr	STL	STL	1.4308	STL	1.4408	STL	Monel	1.4308	STL	STL	1.4308	STL	STL	1.4308	STL	STL
Body	1.4408						1.4306						1.4301				
Disc																	
Wedge Disc Sealing Face	1.4408	1.4408	STL	1.4306	1.4306												
Seat Ring Sealing Face	1.4408	STL	STL	1.4306	STL												

Notes: The chart above only lists out some common composition of steel check valve parts. We may provide other different parts customer's request or the actual valve working condition.



● Swing Check Valves PN1.6~2.5MPa
DIN3202 F6 Series

Dimensions data mm

Pressure(MPa)		PN1.6MPa										
		Flange Ends: DIN2543										
Size	mm	50	65	80	100	125	150	200	250	300	350	400
L		200	240	260	300	350	400	500	600	700	800	900
H		135	140	145	165	250	285	315	390	420	450	520
D		165	185	200	220	250	285	340	405	460	520	580

Pressure(MPa)		PN2.5MPa										
		Flange Ends: DIN2544										
Size	mm	50	65	80	100	125	150	200	250	300	350	400
L		200	240	260	300	350	400	500	600	700	800	900
H		135	140	150	170	265	295	345	400	435	460	530
D		165	185	200	235	270	300	360	425	485	555	620

● DIN Swing & Lift Check Valves PN1.6~4.0MPa
DIN3202 F1 Series

Dimensions data mm

Pressure(MPa)		PN1.6MPa										
		Flange Ends: DIN2543										
Size	mm	50	65	80	100	125	150	200	250	300	350	400
L		230	290	310	350	400	480	600	730	850	980	1100
H		135	140	145	165	250	285	315	390	420	450	520
D		165	185	200	220	250	285	340	405	460	520	580

Pressure(MPa)		PN2.5MPa										
		Flange Ends: DIN2544										
Size	mm	50	65	80	100	125	150	200	250	300	350	400
L		230	290	310	350	400	480	600	730	850	980	1100
H		135	140	150	170	265	295	345	400	435	460	530
D		165	185	200	235	270	300	360	425	485	555	620

Pressure(MPa)		PN4.0MPa										
		Flange Ends: DIN2545										
Size	mm	50	65	80	100	125	150	200	250	300	350	400
L		230	290	310	350	400	480	600	730	850	980	1100
H		145	160	180	190	280	310	350	430	450	480	550
D		165	185	200	235	270	300	375	450	515	580	600

● DIN Swing Check Valves PN6.4~16.0MPa
DIN3202 F2 Series

Dimensions data mm

Pressure(MPa)		PN6.4MPa										
		Flange Ends: DIN2546										
Size	mm	50	65	80	100	125	150	200	250	300	350	400
L		300	340	380	430	500	550	650	775	900	1025	1150
H		170	190	205	240	300	335	390	450	520	570	620
D		180	205	215	250	295	345	415	470	530	600	670

Pressure(MPa)		PN10.0MPa										
		Flange Ends: DIN2547										
Size	mm	50	65	80	100	125	150	200	250	300	350	400
L		300	340	380	430	500	550	650	775	900	1025	1150
H		205	220	235	270	300	340	390	450	530	590	650
D		195	220	230	265	315	355	430	505	585	655	715

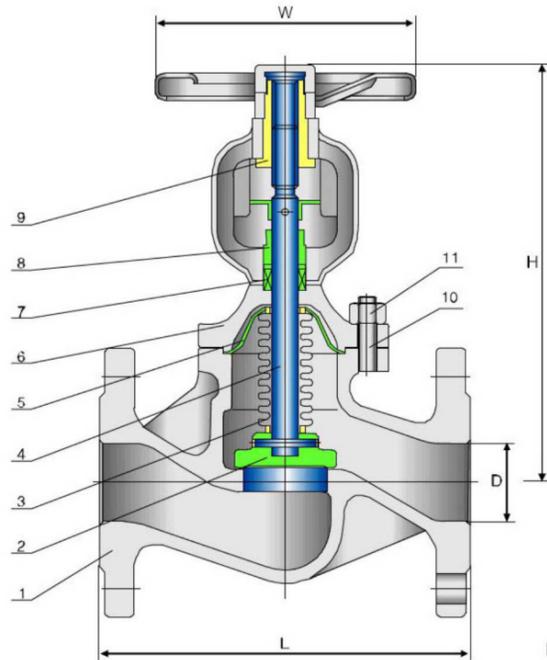
Pressure(MPa)		PN16.0MPa										
		Flange Ends: DIN2548										
Size	mm	50	65	80	100	125	150	200	250	300	350	400
L		300	340	380	430	500	550	650	775	900		
H		210	230	245	280	320	360	400	470	550		
D		195	220	230	265	315	355	430	515			

Applicable Standards:

DESIGN & MANUFACTURE CONFORM WITH: EN 13709、ASME B16.34
 CONNECTION DIMENSION CONFORMS WITH: EN 1092、ASME B16.5
 INSPECTION & TEST CONFORMS WITH: EN 588-1、DIN 3202、ASME B16.10
 MATERIAL CONFORMS WITH: EN 12266、ISO 5208、API 598

Features and Application:

Bellows globe valve adopts sealed structure. In common valves, the packing seal of the stem ages fast and it is easy to leak, but this design totally eliminates these short comings. Apart from increasing the efficiency of materials and the safety of production equipment, it not only reduces maintenance costs and frequent maintenance of products but also provides a clean and safe working environment.
 Double seal design (bellows and packings), if the bellows invalidates, the stem packings will prevent outside leaking. There are no fluid loss, but it reduces the energy loss and improves the equipment safety.
 Longer service life, less maintenance and lower operating costs. Firm and durable seal design of bellows ensures the zero leakage of stem and provides more reliable performance and no maintenance.
 Quenched stem and surface nitridation with good performance of corrosion and friction resistance.
 Excellent performance, graceful outline, and more visibility with position indicating of stem.



Materials of parts

1	Body	GS-C25/WCB/CF8M/CF8/CF3M/CF3/CD3MN
2	Disc	A105/F316/F304/F316L/F304L/F51
3	Bellow	304/316/316L/304L/S31803
4	Stem	F6a/F304/F316/F304L/F316L/F51/Monel
5	Gasket	Flexible graphite+304/Flexible graphite+316
6	Bonnet	GS-C25/WCB/CF8M/CF8/CF3M/CF3/CD3MN
7	Packing	Flexible graphite
8	Gland Bushing	410/304/316/304L/316L
9	Stem Nut	C95200/D2/A536
10	Bolt	B7M/B8M/L7M/B16M
11	Nut	2HM/8M/7M/4M

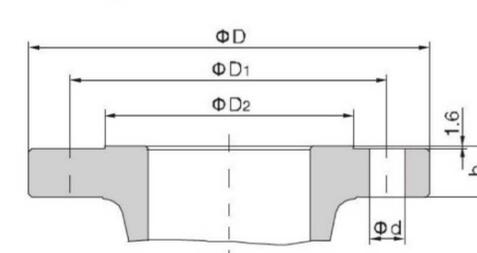
Materials could be chosen according to customers' requirement & working condition.

Dimensional datas

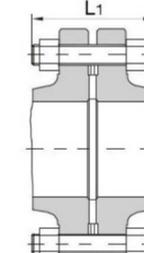
PN 16															
NPS	DN	L	D	H	W	WT	T	NPS	DN	L	D	H	W	WT	T
		mm	mm	mm	mm	Kg	N.M			mm	mm	mm	mm	Kg	N.M
1/2	15	130	15	174	100	3.5	14	4	100	350	100	345	280	50	127
3/4	20	150	20	176	125	4	18	5	125	400	125	370	320	65	209
1	25	160	25	207	160	6	23	6	150	480	150	430	350	84	319
1 1/4	32	180	32	207	160	10	26	8	200	600	200	488	400	150	408
1 1/2	40	200	40	210	180	13	31	10	250	730	250	530	500	240	885
2	50	230	50	225	200	19	49	12	★300	850	300	600	460	360	1129
2 1/2	65	290	65	250	220	26	62	14	★350	980	350	700	600	490	1515
3	80	310	80	260	240	30	103	16	★400	1100	400	800	700	600	1805
PN 25															
NPS	DN	L	D	H	W	WT	T	NPS	DN	L	D	H	W	WT	T
		mm	mm	mm	mm	Kg	N.M			mm	mm	mm	mm	Kg	N.M
1/2	15	130	15	174	100	3.5	18	4	100	350	100	345	280	65	140
3/4	20	150	20	176	125	4	23	5	125	400	125	370	320	85	222
1	25	160	25	207	160	6	30	6	150	480	150	430	350	109	341
1 1/4	32	180	32	207	160	10	34	8	200	600	200	488	400	180	436
1 1/2	40	200	40	210	180	13	38	10	250	730	250	530	500	300	974
2	50	230	50	225	200	19	56	12	★300	850	300	600	460	450	1242
2 1/2	65	290	65	250	220	31	69	14	★350	980	350	700	600	613	1667
3	80	310	80	260	240	36	112	16	★400	1100	400	800	700	750	1986

Note: ★ Manual control

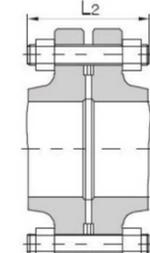
Steel Pipe Flanges ASME B 16.5 RF



Class 150 & Class 300 RF Flanges



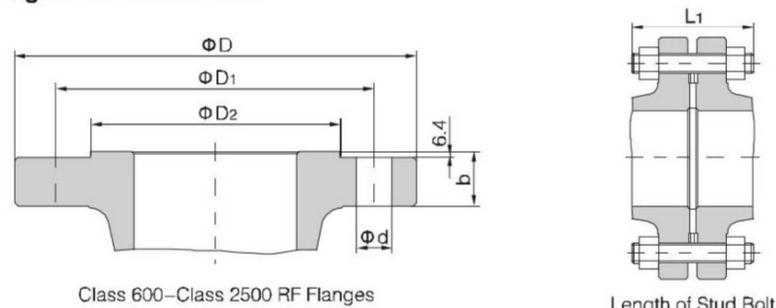
Length of Stud Bolt



Length of Machine Bolt

Class	Nominal Size		D		D1		D2		b		d		Bolt		L1		L2	
	NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	Number	Diam	in	mm	in	mm
150	1/2	15	3.50	90	2.35	60.5	1.38	35	0.38	10	0.62	16	4	1/2	2.25	57	2.00	51
	3/4	20	3.88	100	2.75	69.9	1.69	43	0.41	10.5	0.62	16	4	1/2	2.50	64	2.00	51
	1	25	4.25	110	3.12	79.2	2.00	51	0.44	11.5	0.62	16	4	1/2	2.50	64	2.25	57
	1 1/4	32	4.62	120	3.50	88.9	2.50	64	0.50	13	0.62	16	4	1/2	2.75	70	2.25	57
	1 1/2	40	5.00	130	3.88	98.6	2.88	73	0.56	14.5	0.62	16	4	1/2	2.75	70	2.50	64
	2	50	6.00	150	4.75	120.7	3.62	92	0.62	16	0.75	19	4	5/8	3.25	83	2.75	70
	2 1/2	65	7.00	180	5.50	139.7	4.12	105	0.69	18	0.75	19	4	5/8	3.50	89	3.00	76
	3	80	7.50	190	6.00	152.4	5.00	127	0.75	19.5	0.75	19	4	5/8	3.50	89	3.00	76
	4	100	9.00	230	7.50	190.5	6.19	157	0.94	24	0.75	19	8	5/8	3.50	89	3.00	76
	5	125	10.00	255	8.50	215.9	7.31	186	0.94	24	0.88	22	8	3/4	3.75	95	3.25	83
	6	150	11.00	280	9.50	241.3	8.50	216	1.00	25.5	0.88	22	8	3/4	4.00	102	3.25	83
	8	200	13.50	345	11.75	298.5	10.62	270	1.12	29	0.88	22	8	3/4	4.25	108	3.50	89
	10	250	16.00	405	14.25	362.0	12.75	324	1.19	30.5	1.00	25	12	7/8	4.50	114	4.00	102
	12	300	19.00	485	17.00	431.8	15.00	381	1.25	32	1.00	25	12	7/8	4.75	121	4.00	102
14	350	21.00	535	18.75	476.3	16.25	413	1.38	35	1.12	28	12	1	5.25	133	4.50	114	
16	400	23.50	595	21.25	539.8	18.50	470	1.44	37	1.12	28	16	1	5.25	133	4.50	114	
18	450	25.00	635	22.75	577.9	21.00	533	1.56	40	1.25	32	16	1 1/8	5.75	146	5.00	127	
20	500	27.50	700	25.00	635.0	23.00	584	1.69	43	1.25	32	20	1 1/8	6.25	159	5.50	140	
24	600	32.00	815	29.50	749.3	27.25	692	1.88	48	1.38	35	20	1 1/4	6.75	171	6.00	152	
300	1/2	15	3.75	95	2.62	67.0	1.38	35	-	-	0.62	16	4	1/2	2.50	64	2.25	57
	3/4	20	4.62	120	3.25	83.0	1.69	43	-	-	0.75	19	4	5/8	3.00	76	2.50	64
	1	25	4.88	125	3.50	89.0	2.00	51	0.69	18	0.75	19	4	5/8	3.00	76	2.50	64
	1 1/4	32	5.25	135	3.88	99.0	2.50	64	0.75	19.5	0.75	19	4	5/8	3.25	83	2.75	70
	1 1/2	40	6.12	155	4.50	114.0	2.88	73	0.81	21	0.88	22	4	3/4	3.50	89	3.00	76
	2	50	6.50	165	5.00	127.0	3.62	92	0.88	22.5	0.75	19	8	5/8	3.50	89	3.00	76
	2 1/2	65	7.50	190	5.88	149.4	4.12	105	1.00	25.5	0.88	22	8	3/4	4.00	102	3.25	83
	3	80	8.25	210	6.62	168.1	5.00	127	1.12	29	0.88	22	8	3/4	4.25	108	3.50	89
	4	100	10.00	255	7.88	200.2	6.19	157	1.25	32	0.88	22	8	3/4	4.50	114	3.75	95
	5	125	11.00	280	9.25	235.0	7.31	186	1.38	35	0.88	22	8	3/4	4.75	121	4.25	108
	6	150	12.50	320	10.62	269.7	8.50	216	1.44	37	0.88	22	12	3/4	4.75	121	4.25	108
	8	200	15.00	380	13.00	330.2	10.62	270	1.62	41.5	1.00	25	12	7/8	5.50	140	4.75	121
	10	250	17.50	445	15.25	387.4	12.75	324	1.88	48	1.12	28	16	1	6.25	159	5.50	140
	12	300	20.50	520	17.75	450.9	15.00	381	2.00	51	1.25	32	16	1 1/8	6.75	171	5.75	146
14	350	23.00	585	20.25	514.4	16.25	413	2.12	54	1.25	32	20	1 1/8	7.00	178	6.25	159	
16	400	25.50	650	22.50	571.5	18.50	470	2.25	57.5	1.38	35	20	1 1/2					
18	450	28.00	710	24.75	628.7	21.00	533	2.38	60.5	1.38	35	24	1 1/2					
20	500	30.50	775	27.00	685.8	23.00	584	2.50	63.5	1.38	35	24	1 1/2					
24	600	36.00	915	32.00	812.8	27.25	692	2.75	70	1.62	41	24	1 1/2					

Steel Pipe Flanges ASME B 16.5 RF

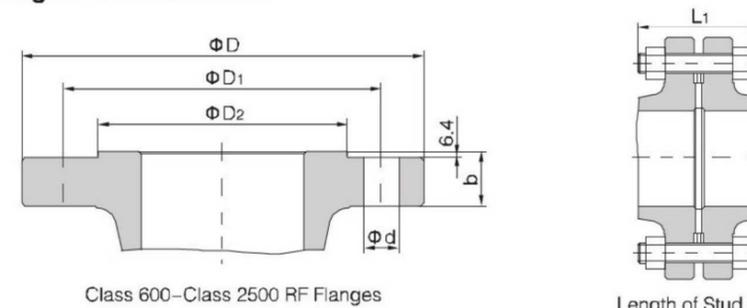


Class 600–Class 2500 RF Flanges

Length of Stud Bolt

Class	Nominal Size		D		D ₁		D ₂		b		d		Bolt		L ₁	
	NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	Number	Diam	in	mm
600	1/2	15	3.75	95	2.62	66.5	1.38	35	0.56	14	0.62	16	4	1/2	3.00	76
	3/4	20	4.62	120	3.25	82.6	1.69	43	0.62	16	0.75	19	4	5/8	3.50	89
	1	25	4.88	125	3.50	88.9	2.00	51	0.69	18	0.75	19	4	5/8	3.50	89
	1 1/4	32	5.25	135	3.88	98.6	2.50	64	0.81	21	0.75	19	4	5/8	3.75	95
	1 1/2	40	6.12	155	4.50	114.3	2.88	73	0.88	22	0.88	22	4	3/4	4.25	108
	2	50	6.50	165	5.00	127.0	3.62	92	1.00	25	0.75	19	8	5/8	4.25	108
	2 1/2	65	7.50	190	5.88	149.4	4.12	105	1.12	28	0.88	22	8	3/4	4.75	121
	3	80	8.25	210	6.62	168.1	5.00	127	1.25	32	0.88	22	8	3/4	5.00	127
	4	100	10.75	275	8.50	215.9	6.19	157	1.50	38	1.00	25	8	7/8	5.75	146
	5	125	13.00	330	10.50	266.7	7.31	186	1.75	44	1.12	28	8	1	6.50	165
	6	150	14.00	355	11.50	292.1	8.50	216	1.88	48	1.12	28	12	1	6.75	171
	8	200	16.50	420	13.75	349.3	10.62	270	2.19	56	1.25	32	12	1 1/8	7.50	191
10	250	20.00	510	17.00	431.8	12.75	324	2.50	63.5	1.38	35	16	1 1/4	8.50	216	
12	300	22.00	560	19.25	489.0	15.00	381	2.62	67	1.38	35	20	1 1/4	8.75	222	
14	350	23.75	605	20.75	527.1	16.25	413	2.75	70	1.50	38	20	1 1/4	9.25	235	
16	400	27.00	685	23.75	603.3	18.50	470	3.00	76.5	1.62	41	20	1 1/2	10.00	254	
18	450	29.25	745	25.75	654.1	21.00	533	3.25	83	1.75	44	20	1 5/8	10.75	273	
20	500	32.00	815	28.50	723.9	23.00	584	3.50	89	1.75	44	24	1 5/8	11.25	286	
24	600	37.00	940	33.00	838.2	27.25	692	4.00	102	2.00	51	24	1 7/8	13.00	330	
900	1/2	15	4.75	120	3.25	82.6	1.38	35	0.88	22.5	0.88	22	4	3/4	4.25	108
	3/4	20	5.12	130	3.50	88.9	1.69	43	1.00	25.5	0.88	22	4	3/4	4.50	114
	1	25	5.88	150	4.00	101.6	2.00	51	1.12	29	1.00	25	4	7/8	5.00	127
	1 1/4	32	6.25	160	4.38	111.3	2.50	64	1.12	29	1.00	25	4	7/8	5.00	127
	1 1/2	40	7.00	180	4.88	124.0	2.88	73	1.25	32	1.12	28	4	1	5.50	140
	2	50	8.50	215	6.50	165.1	3.62	92	1.50	38.5	1.00	25	8	7/8	5.75	146
	2 1/2	65	9.62	240	7.50	190.5	4.12	105	1.62	41.5	1.12	28	8	1	6.25	159
	3	80	9.50	245	7.50	190.5	5.00	127	1.50	38.5	1.00	25	8	7/8	5.75	146
	4	100	11.50	290	9.25	235.0	6.19	157	1.75	44.5	1.25	32	8	1 1/8	6.75	171
	5	125	13.75	350	11.00	279.4	7.31	186	2.00	51	1.38	35	8	1 1/4	7.50	191
	6	150	15.00	380	12.50	317.5	8.50	216	2.19	56	1.25	32	12	1 1/8	7.50	191
	8	200	18.50	470	15.50	393.7	10.62	270	2.50	63.5	1.50	38	12	1 3/8	8.75	222
10	250	21.50	545	18.50	469.9	12.75	324	2.75	70	1.50	38	16	1 3/8	9.25	235	
12	300	24.00	610	21.00	533.4	15.00	381	3.12	79.5	1.50	38	20	1 3/8	10.00	254	
14	350	25.25	640	22.00	558.8	16.25	413	3.38	86	1.62	41	20	1 1/2	10.75	273	
16	400	27.75	705	24.25	616.0	18.50	470	3.50	89	1.75	44	20	1 5/8	11.25	286	
18	450	31.00	785	27.00	685.8	21.00	533	4.00	102	2.00	51	20	1 7/8	12.75	324	
20	500	33.75	855	29.50	749.3	23.00	584	4.25	108	2.12	54	20	2	13.75	349	
24	600	41.00	1040	35.50	901.7	27.25	692	5.50	140	2.62	67	20	2 1/2	17.25	438	

Steel Pipe Flanges ASME B 16.5 RF

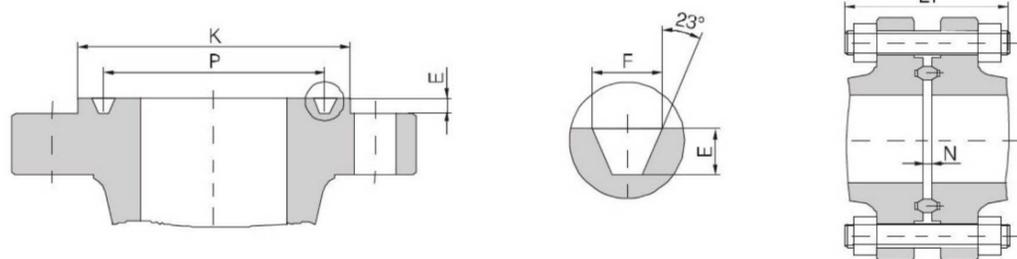


Class 600–Class 2500 RF Flanges

Length of Stud Bolt

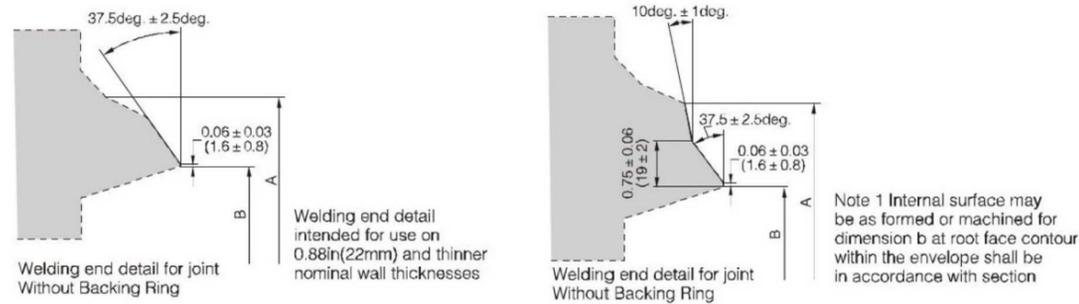
Class	Nominal Size		D		D ₁		D ₂		b		d		Bolt		L ₁	
	NPS	DN	in	mm	in	mm	in	mm	in	mm	in	mm	Number	Diam	in	mm
1500	1/2	15	4.75	120	3.25	82.6	1.38	35	0.88	22.5	0.88	22	4	3/4	4.25	108
	3/4	20	5.12	130	3.50	88.9	1.69	43	1.00	25.5	0.88	22	4	3/4	4.50	114
	1	25	5.88	150	4.00	101.6	2.00	51	1.12	29	1.00	25	4	7/8	5.00	127
	1 1/4	32	6.25	160	4.38	111.3	2.50	64	1.12	29	1.00	25	4	7/8	5.00	127
	1 1/2	40	7.00	180	4.88	124.0	2.88	73	1.25	32	1.12	28	4	1	5.50	140
	2	50	8.50	215	6.50	165.1	3.62	92	1.50	38.5	1.00	25	8	7/8	5.75	146
	2 1/2	65	9.62	245	7.50	190.5	4.12	105	1.62	41.5	1.12	28	8	1	6.25	159
	3	80	10.50	265	8.00	203.2	5.00	127	1.88	48	1.25	32	8	1 1/8	7.00	178
	4	100	12.25	310	9.50	241.3	6.19	157	2.12	54	1.38	35	8	1 1/4	7.75	197
	5	125	14.75	375	11.50	292.1	7.31	186	2.88	73.5	1.62	41	8	1 1/2	9.75	248
	6	150	15.50	395	12.50	317.5	8.50	216	3.25	83	1.50	38	12	1 3/8	10.25	260
	8	200	19.00	485	15.50	393.7	10.62	270	3.62	92	1.75	44	12	1 5/8	11.50	292
10	250	23.00	585	19.00	482.6	12.75	324	4.25	108	2.00	51	12	1 7/8	13.25	337	
12	300	26.50	675	22.50	571.5	15.00	381	4.88	124	2.12	54	16	2	14.75	375	
14	350	29.50	750	25.00	635.0	16.25	413	5.25	133.5	2.38	60	16	2 1/4	16.00	406	
16	400	32.50	825	27.75	704.9	18.50	470	5.75	146.5	2.62	67	16	2 1/2	17.50	445	
18	450	36.00	915	30.50	774.7	21.00	533	6.38	162	2.88	73	16	2 3/4	19.50	495	
20	500	38.75	985	32.75	831.9	23.00	584	7.00	178	3.12	79	16	3	21.25	540	
24	600	46.00	1170	39.00	990.6	27.25	692	8.00	203.5	3.62	92	16	3 1/2	24.25	616	
2500	1/2	15	5.25	135	3.50	88.9	1.38	35	1.19	30.5	0.88	22	4	3/4	4.75	121
	3/4	20	5.50	140	3.75	95.3	1.69	43	1.25	32	0.88	22	4	3/4	5.00	127
	1	25	6.25	160	4.25	108.0	2.00	51	1.38	35	1.00	25	4	7/8	5.50	140
	1 1/4	32	7.25	185	5.12	130.0	2.50	64	1.50	38.5	1.12	28	4	1	6.00	152
	1 1/2	40	8.00	205	5.75	146.1	2.88	73	1.75	44.5	1.25	32	4	1 1/8	6.75	171
	2	50	9.25	235	6.75	171.5	3.62	92	2.00	51	1.12	28	8	1	7.00	178
	2 1/2	65	10.50	265	7.75	196.9	4.12	105	2.25	57.5	1.25	32	8	1 1/8	7.75	197
	3	80	12.00	305	9.00	228.6	5.00	127	2.62	67	1.38	35	8	1 1/4	8.75	222
	4	100	14.00	355	10.75	273.1	6.19	157	3.00	76.5	1.62	41	8	1 1/2	10.00	254
	5	125	16.50	420	12.75	323.9	7.31	186	3.62	92.5	1.88	48	8	1 3/4	11.75	298
	6	150	19.00	485	14.50	368.3	8.50	216	4.25	108	2.12	54				
	8	200	21.75	550	17.25	438.2	10.62	270	5.00	127	2.12	54				
10	250	26.50	675	21.25	539.8	12.75	324	6.50	165.5	2.62	67					
12	300	30.00	760	24.38	619.3	15.00	381	7.25	184.5	2.88	73					

● Steel Pipe Flanges ASME B 16.5 RTJ



Class	Nominal Size		Ring Number	P		E		F		K		N		L1	
	NPS	DN		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
150	1	25	R15	1.875	47.63	0.25	6.35	0.344	8.74	2.50	64	0.16	4	3.00	76
	1 1/4	32	R17	2.250	57.15	0.25	6.35	0.344	8.74	2.88	73	0.16	4	3.25	83
	1 1/2	40	R19	2.562	65.07	0.25	6.35	0.344	8.74	3.25	83	0.16	4	3.25	83
	2	50	R22	3.250	82.55	0.25	6.35	0.344	8.74	4.00	102	0.16	4	3.75	95
	2 1/2	65	R25	4.000	101.60	0.25	6.35	0.344	8.74	4.75	121	0.16	4	4.00	102
	3	80	R29	4.500	114.30	0.25	6.35	0.344	8.74	5.25	133	0.16	4	4.00	102
	4	100	R36	5.875	149.23	0.25	6.35	0.344	8.74	6.75	171	0.16	4	4.00	102
	5	125	R40	6.750	171.45	0.25	6.35	0.344	8.74	7.62	194	0.16	4	4.25	108
	6	150	R43	7.625	193.68	0.25	6.35	0.344	8.74	8.62	219	0.16	4	4.50	114
	8	200	R48	9.750	247.65	0.25	6.35	0.344	8.74	10.75	273	0.16	4	4.75	121
	10	250	R52	12.000	304.80	0.25	6.35	0.344	8.74	13.00	330	0.16	4	5.00	127
	12	300	R56	15.000	381.00	0.25	6.35	0.344	8.74	16.00	406	0.16	4	5.25	133
	14	350	R59	15.625	396.88	0.25	6.35	0.344	8.74	16.75	425	0.12	3	5.75	146
	16	400	R64	17.875	454.03	0.25	6.35	0.344	8.74	19.00	483	0.12	3	5.75	146
300	18	450	R68	20.375	517.53	0.25	6.35	0.344	8.74	21.50	546	0.12	3	6.25	159
	20	500	R72	22.000	558.80	0.25	6.35	0.344	8.74	23.50	597	0.12	3	6.75	171
	24	600	R76	26.500	673.10	0.25	6.35	0.344	8.74	28.00	711	0.12	3	7.25	184
	1	25	R16	2.000	50.80	0.25	6.35	0.344	8.74	2.75	70	0.16	4	3.50	89
	1 1/4	32	R18	2.375	60.33	0.25	6.35	0.344	8.74	3.12	79	0.16	4	3.75	95
	1 1/2	40	R20	2.688	68.28	0.25	6.35	0.344	8.74	3.56	90	0.16	4	4.00	102
	2	50	R23	3.250	82.55	0.312	7.92	0.469	11.91	4.25	108	0.22	6	4.00	102
	2 1/2	65	R26	4.000	101.60	0.312	7.92	0.469	11.91	5.00	127	0.22	6	4.50	114
	3	80	R31	4.875	123.83	0.312	7.92	0.469	11.91	5.75	146	0.22	6	4.75	121
	4	100	R37	5.875	149.23	0.312	7.92	0.469	11.91	6.88	175	0.22	6	5.00	127
	5	125	R41	7.125	180.98	0.312	7.92	0.469	11.91	8.25	210	0.22	6	5.25	133
	6	150	R45	8.312	211.12	0.312	7.92	0.469	11.91	9.50	241	0.22	6	5.50	140
	8	200	R49	10.625	269.88	0.312	7.92	0.469	11.91	11.88	302	0.22	6	6.00	152
	10	250	R53	12.750	323.85	0.312	7.92	0.469	11.91	14.00	356	0.22	6	6.75	171
12	300	R57	15.000	381.00	0.312	7.92	0.469	11.91	16.25	413	0.22	6	7.25	184	
14	350	R61	16.500	419.10	0.312	7.92	0.469	11.91	18.00	457	0.22	6	7.50	191	
16	400	R65	18.500	469.90	0.312	7.92	0.469	11.91	20.00	508	0.22	6	8.00	203	
18	450	R69	21.000	533.40	0.312	7.92	0.469	11.91	22.62	575	0.22	6	8.25	210	
20	500	R73	23.000	584.20	0.375	9.53	0.531	11.91	25.00	635	0.22	6	8.75	222	
24	600	R77	27.250	692.15	0.438	11.13	0.656	11.91	29.50	749	0.25	6	10.00	254	

Class	Nominal Size		Ring Number	P		E		F		K		N		L1	
	NPS	DN		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
600	1	25	R16	2.000	50.80	0.250	6.35	0.344	8.74	2.75	70	0.16	4	3.50	89
	1 1/4	32	R18	2.375	60.33	0.250	6.35	0.344	8.74	3.12	79	0.16	4	3.75	95
	1 1/2	40	R20	2.688	68.28	0.250	6.35	0.344	8.74	3.56	90	0.16	4	4.25	108
	2	50	R23	3.250	82.55	0.312	7.92	0.469	11.91	4.25	108	0.19	5	4.25	108
	2 1/2	65	R26	4.000	101.60	0.312	7.92	0.469	11.91	5.00	127	0.19	5	4.75	121
	3	80	R31	4.875	123.83	0.312	7.92	0.469	11.91	5.75	146	0.19	5	5.00	127
	4	100	R37	5.875	149.23	0.312	7.92	0.469	11.91	6.88	175	0.19	5	5.75	146
	5	125	R41	7.125	180.98	0.312	7.92	0.469	11.91	8.25	210	0.19	5	6.50	165
	6	150	R45	8.312	211.12	0.312	7.92	0.469	11.91	9.50	241	0.19	5	6.75	171
	8	200	R49	10.625	269.88	0.312	7.92	0.469	11.91	11.88	302	0.19	5	7.75	197
	10	250	R53	12.750	323.85	0.312	7.92	0.469	11.91	14.00	356	0.19	5	8.50	216
	12	300	R57	15.000	381.00	0.312	7.92	0.469	11.91	16.25	413	0.19	5	8.75	222
	14	350	R61	16.500	419.10	0.312	7.92	0.469	11.91	18.00	457	0.19	5	9.25	235
	16	400	R65	18.500	469.90	0.312	7.92	0.469	11.91	20.00	508	0.19	5	10.00	254
900	18	450	R69	21.000	533.40	0.312	7.92	0.469	11.91	22.62	575	0.19	5	10.75	273
	20	500	R73	23.000	584.20	0.375	9.53	0.531	13.49	25.00	635	0.19	5	11.50	292
	24	600	R77	27.250	692.15	0.438	11.13	0.656	13.49	29.50	749	0.22	6	13.25	337
	1	25	R16	2.000	50.80	0.250	6.35	0.344	8.74	2.81	71	0.16	4	5.00	127
	1 1/4	32	R18	2.375	60.33	0.250	6.35	0.344	8.74	3.19	81	0.16	4	5.00	127
	1 1/2	40	R20	2.688	68.28	0.250	6.35	0.344	8.74	3.62	92	0.16	4	5.50	140
	2	50	R24	3.750	82.55	0.312	7.92	0.469	11.91	4.88	124	0.12	3	5.75	146
	2 1/2	65	R27	4.250	101.60	0.312	7.92	0.469	11.91	5.38	137	0.12	3	6.25	159
	3	80	R31	4.875	123.83	0.312	7.92	0.469	11.91	6.12	155	0.16	4	5.75	146
	4	100	R37	5.875	149.23	0.312	7.92	0.469	11.91	7.12	181	0.16	4	6.75	171
	5	125	R41	7.125	180.98	0.312	7.92	0.469	11.91	8.50	216	0.16	4	7.50	191
	6	150	R45	8.312	211.12	0.312	7.92	0.469	11.91	9.50	241	0.16	4	7.75	197
	8	200	R49	10.625	269.88	0.312	7.92	0.469	11.91	12.12	308	0.16	4	8.75	222
	10	250	R53	12.750	323.85	0.312	7.92	0.469	11.91	14.25	362	0.16	4	9.25	235
1500	12	300	R57	15.000	381.00	0.312	7.92	0.469	11.91	16.50	419	0.16	4	10.00	254
	14	350	R62	16.500	419.10	0.438	11.13	0.656	16.66	18.38	467	0.16	4	11.00	279
	16	400	R66	18.500	469.90	0.438	11.13	0.656	16.66	20.62	524	0.16	4	11.50	292
	18	450	R70	21.000	533.40	0.500	12.70	0.781	19.84	23.38	594	0.19	5	13.25	337
	20	500	R74	23.000	584.20	0.500	12.70	0.781	19.84	25.50	648	0.19	5	14.25	362
	24	600	R78	27.250	692.15	0.625	15.88	1.062	26.97	30.38	772	0.22	6	18.00	457
	1	25	R16	2.000	50.80	0.250	6.35	0.344	8.74	2.81	71	0.16	4	5.00	127
	1 1/4	32	R18	2.375	60.33	0.250	6.35	0.344	8.74	3.19	81	0.16	4	5.00	127
	1 1/2	40	R20	2.688	68.28	0.250	6.35	0.344	8.74	3.62	92	0.16	4	5.50	140
	2	50	R24	3.750	82.55	0.312	7.92	0.469	11.91	4.88	124	0.12	3	5.75	146
	2 1/2	65	R27	4.250	101.60	0.312	7.92	0.469	11.91	5.38	137	0.12	3	6.25	159
	3	80	R35	5.375	123.83	0.312	7.92	0.469	11.91	6.62	168	0.12	3	7.00	178
	4	100	R39	6.375	149.23	0.312	7.92	0.469	11.91	7.62	194	0.12	3	7.75	197
	5	125	R44	7.625	180.98	0.312	7.92	0.469	11.91	9.00	229	0.12	3	9.75	248
6	150	R46	8.312	211.12	0.375	9.53	0.531	13.94	9.75	248	0.12	3	10.50	267	
8	200	R50	10.625	269.88	0.438	11.13	0.656	16.66	12.50	318	0.16	4	12.75	324	
10	250	R54	12.750	323.85	0.438	11.13	0.656	16.66	14.62	371	0.16	4	13.50	343	
12	300	R58	15.000	381.00	0.562	14.27	0.906	23.01	17.25	438	0.19	5	15.25	387	
14	350	R63	16.500	419.10	0.625	15.88	1.062	26.97	19.25	489	0.22	6	16.75	425	
16	400	R67	18.500	469.90	0.688	17.48	1.188	30.18	21.50	546	0.31	8	18.50	470	
18	450	R71	21.000	533.40	0.688	17.48	1.188	30.18	24.12	613	0.31	8	20.75	527	
20	500	R75	23.000	584.20	0.688	17.48	1.312	33.32	26.50	673	0.38	10	22.25	565	
24	600	R79	27.250	692.15	0.812	20.62	1.438	36.53	31.25	794	0.4				



Nominal Pipe Size		Schedule Number or Wall	Outside Diameter				Nominal Inside Diameter		Machined Inside Diameter		Nominal Wall Thickness	
NPS	DN		Forging or Process module, A		Moulded steel Valve, A		B		C		T	
			inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
2 1/2	50	40	2.88	73	2.96	75	2.469	62.7	2.479	62.97	0.203	5.2
		80					2.323	59.0	2.351	59.72	0.276	7.0
		160					2.125	54.0	2.178	55.32	0.375	9.5
		XXS					1.771	45.0	1.868	47.45	0.552	14.0
3	80	40	3.5	88.9	3.59	91	3.068	77.9	3.081	78.26	0.216	5.5
		80					2.900	73.7	2.934	74.52	0.300	7.6
		160					2.624	66.6	2.692	68.38	0.438	11.1
		XXS					2.300	58.4	2.409	61.19	0.600	15.2
4	100	40	4.5	114.3	4.62	117	4.026	102.3	4.044	102.72	0.237	6.0
		80					3.826	97.2	3.869	98.27	0.337	8.6
		120					3.624	92.0	3.692	93.78	0.438	11.1
		160					3.438	87.3	3.530	89.66	0.531	13.5
		XXS					3.152	80.1	3.279	83.29	0.674	17.1
5	125	40	5.56	141.3	5.69	144	5.047	128.2	5.070	128.78	0.258	6.6
		80					4.813	122.3	4.866	123.60	0.375	9.5
		120					4.563	115.9	4.647	118.03	0.500	12.7
		160					4.313	109.6	4.428	112.47	0.625	15.9
		XXS					4.063	103.2	4.209	106.91	0.750	19.1
6	150	40	6.62	168.3	6.78	172	6.065	154.1	6.094	154.79	0.280	7.1
		80					5.761	146.3	5.828	148.03	0.432	11.0
		120					5.501	139.7	5.600	142.24	0.562	14.3
		160					5.187	131.7	5.326	135.28	0.719	18.3
		XXS					4.897	124.4	5.072	128.83	0.864	21.9
8	200	40	8.62	219.1	8.78	223	7.981	202.7	8.020	203.71	0.322	8.2
		60					7.813	198.5	7.873	199.97	0.406	10.3
		80					7.625	193.7	7.709	195.81	0.500	12.7
		100					7.437	188.9	7.544	191.62	0.594	15.1
		120					7.187	182.5	7.326	186.08	0.719	18.3
		140					7.001	177.8	7.163	181.94	0.812	20.6
		XXS					6.875	174.6	7.053	179.15	0.875	22.2
							6.813	173.1	6.998	177.75	0.906	23.0

Nominal Pipe Size		Schedule Number or Wall	Outside Diameter				Nominal Inside Diameter		Machined Inside Diameter		Nominal Wall Thickness						
NPS	DN		Forging or Process module, A		Moulded steel Valve, A		B		C		T						
			inch	mm	inch	mm	inch	mm	inch	mm	inch	mm					
10	250	40	10.75	273	10.94	278	10.020	254.5	10.070	255.78	0.365	9.3					
		60					9.750	247.2	9.834	249.78	0.500	12.7					
		80					9.562	242.9	9.670	245.62	0.594	15.1					
		100					9.312	236.5	9.451	240.06	0.719	18.3					
		120					9.062	230.2	9.232	234.49	0.844	21.4					
		140					8.750	222.3	8.959	227.56	1.000	25.4					
		160					8.500	215.9	8.740	222.00	1.125	28.6					
12	300	STD	12.75	323.8	12.97	329	12.000	304.8	12.053	306.15	0.375	9.5					
		40					11.938	303.2	11.999	304.77	0.406	10.3					
		XS					11.750	298.5	11.834	300.58	0.500	12.7					
		60					11.626	295.3	11.725	297.82	0.562	14.3					
		80					11.374	288.9	11.505	292.23	0.688	17.5					
		100					11.062	281.0	11.232	285.29	0.844	21.4					
		120					10.750	273.1	10.959	278.36	1.000	25.4					
		140					10.500	266.6	10.740	272.80	1.125	28.6					
		160					10.126	257.7	10.413	264.49	1.312	33.3					
14	350	STD	14.00	355.6	14.25	362.0	13.250	336.6	13.303	337.90	0.375	9.5					
		40					13.124	333.3	13.192	335.08	0.438	11.1					
		XS					13.000	330.2	13.084	332.33	0.500	12.7					
		60					12.812	325.4	12.920	328.17	0.594	15.1					
		80					12.500	317.5	12.646	321.21	0.750	19.1					
		100					12.124	308.0	12.318	312.88	0.938	23.8					
		120					11.812	300.0	12.044	305.92	1.094	27.8					
		140					11.500	292.1	11.771	298.98	1.250	31.8					
		160					11.188	284.2	11.498	292.05	1.406	35.7					
16	400	STD	16.00	406.4	16.25	412.8	15.250	387.4	15.303	388.70	0.375	9.5					
		40					15.000	381.0	15.084	383.13	0.500	12.7					
		60					14.688	373.1	14.811	376.20	0.656	16.7					
		80					14.312	363.5	14.482	367.84	0.844	21.4					
		100					13.938	354.0	14.155	359.54	1.031	26.2					
		120					13.562	344.5	13.826	351.18	1.219	31.0					
		140					13.124	333.3	13.442	341.43	1.438	36.5					
		160					12.812	325.4	13.170								

Nominal Pipe Size		Schedule Number or Wall	Outside Diameter				Nominal Inside Diameter		Machined Inside Diameter		Nominal Wall Thickness							
NPS	DN		Forging or Process module, A		Moulded steel Valve, A		B		C		T							
			inch	mm	inch	mm	inch	mm	inch	mm	inch	mm						
18	450	STD	18.00	457.2	18.28	464.3	17.250	438.2	17.303	439.50	0.375	9.5						
		XS					17.000	431.8	17.084	433.93	0.500	12.7						
		40					16.876	428.7	16.975	431.17	0.562	14.3						
		60					16.500	419.1	16.646	422.81	0.750	19.1						
		80					16.124	409.5	16.318	414.48	0.938	23.8						
		100					15.688	398.5	15.936	404.77	1.156	29.4						
		120					15.250	387.4	15.553	395.05	1.375	34.9						
		140					14.876	377.9	15.225	386.72	1.562	39.7						
		160					14.438	366.7	14.842	376.99	1.781	45.2						
		20					500	STD	20.00	508.0	20.31	515.9	19.250	489.0	19.303	490.30	0.375	9.5
XS	19.000		482.6	19.084	484.73	0.500		12.7										
40	18.812		477.8	18.920	480.57	0.594		15.1										
60	18.376		466.8	18.538	470.87	0.812		20.6										
80	17.938		455.6	18.155	461.14	1.031		26.2										
100	17.438		443.0	17.717	450.01	1.281		32.5										
120	17.000		431.8	17.334	440.28	1.500		38.1										
140	16.500		419.1	16.896	429.16	1.750		44.5										
160	16.062		408.0	16.513	419.43	1.969		50.0										
22	550		STD	22.00	558.8	22.34		567.4					21.250	539.8	21.303	541.10	0.375	9.5
		XS	21.000				533.4		21.084	535.53	0.500	12.7						
		60	20.250				514.4		20.428	518.87	0.875	22.2						
		80	19.750				501.7		19.990	507.75	1.125	28.6						
		100	19.250				489.0		19.553	496.65	1.375	34.9						
		120	18.750				476.3		19.115	485.52	1.625	41.3						
		140	18.250				463.6		18.678	474.42	1.875	47.6						
		160	17.750				450.8		18.240	463.30	2.125	54.0						
		24	600				STD		24.00	609.6	24.38	619.3	23.250	590.6	23.303	591.90	0.375	9.5
							XS						23.000	584.2	23.084	586.33	0.500	12.7
30	22.876			581.1	22.975	583.57	0.562	14.3										
40	22.624			574.6	22.755	577.98	0.688	17.5										
60	22.062			560.4	22.263	565.48	0.969	24.6										
80	21.562			547.6	21.826	554.38	1.219	31.0										
100	20.938			531.8	21.280	540.51	1.531	38.9										
120	20.376			517.6	20.788	528.02	1.812	46.0										
140	19.876			504.9	20.350	516.89	2.062	52.4										
160	19.312			490.5	19.857	507.37	2.344	59.5										

ASTM Code	Chemical Compositions %											Mechanical				Hardness Charpy	
	C	Mn	P	S	Si	Cr	Mo	Ni	Cu	V	Nb	Tensile MPa, ≥	Yield MPa, ≥	Elongation %	Reduce %	Brinell HB, ≤	J, ≥
A105	0.35	0.60-1.05	0.035	0.040	0.10-0.35	0.30	0.12	0.4	0.40	0.08	0.02	485	250	30	30	187	
A182 F11	0.05-0.15	0.30-0.60	0.030	0.030	0.50-1.00	1.00-1.50	1.44-0.65					415	205	20	45	121-174	
A182 F22	0.05-0.15	0.30-0.60	0.040	0.040	0.50	2.00-2.50	0.87-1.13					415	205	20	35	170	
A182 F304	0.08	2.00	0.045	0.030	1.00	18.0-20.0		8.0-11.0				515	205	30	50		
A182 F304L	0.030	2.00	0.045	0.030	1.00	18.0-20.0		8.0-13.0				485	170	30	50		
A182 F316	0.08	2.00	0.045	0.030	1.00	16.0-18.0	2.00-3.00	10.0-14.0				515	205	30	50		
A182 F316L	0.030	2.00	0.045	0.030	1.00	16.0-18.0	2.00-3.00	10.0-15.0				485	170	30	50		
A182 F51	0.030	2.00	0.030	0.020	1.00	21.0-23.0	2.5-3.5	4.5-6.5				620	450	25	45		
A182 F6a	0.15	1.00	0.040	0.030	1.00	11.5-13.5		0.50				585	380	18	35	167-229	
A193 B7	0.37-0.49	0.65-1.10	0.035	0.040	0.15-0.35	0.75-1.20						860	720	16	50	321	
A193 B7M	0.37-0.49	0.65-1.10	0.035	0.040	0.15-0.35	0.75-1.20	0.15-0.25					690	550	18	50	235	
A193 B8	0.08	2.00	0.045	0.030	1.00	18.0-20.0		8.0-11.0				515	205	30	50	223	
A193 B8M	0.08	2.00	0.045	0.030	1.00	16.0-18.0	2.00-3.00	10.0-14.0				515	205	30	50	223	
A193 B16	0.36-0.47	0.45-0.70	0.035	0.040	0.15-0.35	0.80-1.15	0.50-0.65		0.25-0.35			860	720	18	50	321	
A194 2H	≥0.40	1.00	0.040	0.050	0.04												
A194 2HM	≥0.40	1.00	0.040	0.050	0.04												
A194 8	0.08	2.00	0.045	0.030	1.00	18.0-20.0		8.0-11.0									
A194 8M	0.08	2.00	0.045	0.030	1.00	16.0-18.0	0.45-0.65	10.0-14.0									
A216 WCB	0.30	1.00	0.04	0.045	0.60	0.50	0.20	0.50	0.30	0.03		250	22	35			
A216 WCC	0.25	1.20	0.04	0.045	0.60	0.50	0.2	0.50	0.30	0.03		275	22	35			
A217 C5	0.20	0.40-0.70	0.04	0.045	0.75	4.00-6.50	0.45-0.65	0.50	0.50			415	18	35			
A217 CA15	0.15	1.00	0.040	0.040	1.50	11.5-14.0	0.50	1.00				450	18	30			
A217 WC6	0.05-0.20	0.50-0.80	0.04	0.045	0.60	1.00-1.50	0.45-0.65	0.50	0.50			275	20	35			
A217 WC9	0.05-0.18	0.40-0.70	0.04	0.045	0.60	2.00-2.75	0.90-1.20		0.50			275	20	35			
A276 410	0.08-0.15	1.00	0.040	0.030	1.00	11.5-13.5						480	275	20	45		
A276 420	≥0.15	1.00	0.040	0.030	1.00	12.0-14.0										241	
A320 L7	0.38-0.048	0.75-1.00	0.035	0.040	0.15-0.35	0.80-1.10	0.15-0.25					860	725	16	50		Avg:27; min:20
A320 L7M	0.38-0.048	0.75-1.00	0.035	0.040	0.15-0.35	0.80-1.10	0.15-0.25					690	550	18	50	235	Avg:27; min:20
A336 F22	0.05-0.15	0.30-0.60	0.025	0.025	0.50	2.00-2.50	0.90-1.10					310	19	40			
A350 LF1	0.30	0.60-1.35	0.035	0.040	0.15-0.30	0.30	0.12	0.40	0.40	0.08	0.02	205	28	38			Avg:18; min:14
A350 LF2	0.30	0.60-1.35	0.035	0.040	0.15-0.30	0.30	0.12	0.40	0.40	0.08	0.02	250	30	30			Avg:20; min:16
A351 CF3	0.03	1.50	0.040	0.040	2.00	17.0-21.0	0.50	8.0-12.0				485	205	35.0			
A351 CF3M	0.03	1.50	0.040	0.040	1.50	17.0-21.0	2.0-3.00	9.0-13.0				485	205	30.0			
A351 CF8	0.08	1.50	0.040	0.040	2.00	18.0-21.0	0.50	8.0-11.0				485	205	35.0			
A351 CF8M	0.08	1.50	0.040	0.040	1.50	18.0-21.0	2.0-3.00	9.0-12.0				485	205	30.0			
A351 CF8C	0.08	1.50	0.040	0.040	2.00	18.0-21.0	0.50	9.0-12.0				485	205	30.0			
A351 CN7M	0.07	1.50	0.040	0.040	1.50	19.0-22.0	2.0-3.00	27.5-30.5	3.0-4.0			425	170	35			
A352 LC1	0.25	0.50-0.80	0.04	0.045	0.60		0.45-0.65					450-620	240	24	35		Avg:18; min:14
A352 LC2	0.25	0.50-0.80	0.04	0.045	0.60			2.00-3.00				485-655	275	24	35		Avg:20; min:16
A352 LC3	0.15	0.50-0.80	0.04	0.045	0.60			3.00-4.00				485-655	275	24	35		Avg:20; min:16
A352 LCB	0.30	1.00	0.04	0.045	0.60	0.50	0.20	0.50	0.30	0.03		450-620	240	24	35		Avg:18; min:14
A352 LCC	0.25	1.20	0.04	0.045	0.60	0.50	0.20	0.50		0.03		485-655	275	24	35		Avg:20; min:16
A439 D2	3.00	0.70-1.25	0.08		1.50-3.00	1.75-2.75						400	205				

**HEADQUARTERS
COMPANY**

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