FLOWKS™

GATE VALVE & CHECK VALVE
GLOBE VALVE &STRAINER

FLOWKS, HOW QUALITY LASTS!

FLOWKS™

FLOWKS VALVE INC.

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Represented By:

API 6D TUV CE TS TS TUV ISO

ABOUT US

Flowks Valve is a manufacturer specializing in all kinds of industrial valves. After years of experience in supplying valves for distributors and projects, Flowks Valve has been recognized as a skilled and responsible supplier. The reputation relies on our strict inspection procedure from CAD design, material purchasing, machining, assembling, hydraulic & air testing to packing & delivery. Each step is carried out by our experienced and dedicated craftsmen.

We offer various types of valves with different materials, including special materials like MONEL, INCONEL, duplex, copper, bronze, etc. They are manufactured according to standards such as API,ANSI,DIN,BS,and JIS.

We are capable of supplying valves with special testings and treatments like radiographic examnation (RT), ultrasonic examnation (UT), dye penetrant testing, low temperature impact testing, XYLON coating and PTFE coating.

Our valves have been widely used in different types of industries. We could also offer OEM service. If you find anything interesting here, please do not hesitate to contact us. What you will get is quality products with competitive prices. Look forward to having a chance to serve your esteemed company.

CONTENTS

FLOWKS™

■LANTERN RING

A lantern ring is used to provide further integrity to the gland packing area in gate and globe valves, to prevent escape of medium to the atmosphere. This finds application in stringent environmental conditions or in the case of potentially harmful medium.

The lantern ring is provided between two sets of packing rings, with a leak-off plug that gives the option of removal of possible leakage, from the lower packing rings. And a sealing fluid can be introduced through the plug to prevent incidental leakage through the lower packing rings.

Lantern rings service a useful purpose. But, since they are a possible source of shaft scoring, it is advisable to restrict their usage to essential applications.

■GEAR OPERATORS

Flowks gate and globe valves are supplied with fully-enclosed bevel gear operators as a standard for sizes and class ratings as show in the table below . Gear operators are available as an option in other sizes too.

■GEAR OPERATOR SELECFION

VALVE TYPE	CLASS	API 600		ASME B 16.34	
		STANDARD	OPTIONAL	STANDARD	OPTIONAL
GATE	150	24"& above	14"- 20"	-	-
	300	20"& above	14"-18"	-	-
	600	16"& above	8"-14"	-	-
	900	8"& above	-	10"& above	6"& 8"
	1500	6"& above	-	10"& above	6"& 8"
	2500	-	-	8"& above	6"
GLOBE	150	10"& above	-	-	-
	300	10"& above	-	-	-
	600	6"& above	-	-	-
	900	-	-	-	-
	1500	-	-	-	-

■ELECTRIC ACTUATOR

Electric actuators may be used with Flowks valves in all sizes and class ratings. For correct selection of actuator, please specify details of line pressure, differential pressure when closed, power supplier requirements and actuator accessories.

■POSITION INDICATOR

Valves can be provided with position indicators as a visible means to indicate the “open” and “closed” positions. Typically, for gate valves, the indicator is in the form of a pointer traveling along a fixed scale.

■LOCKING DEVICES

Locking devices are used to secure a hand wheel in a fixed position, to prevent accidental operation of a valve. The locking arrangement typically allows the use of chain to secure the valve.

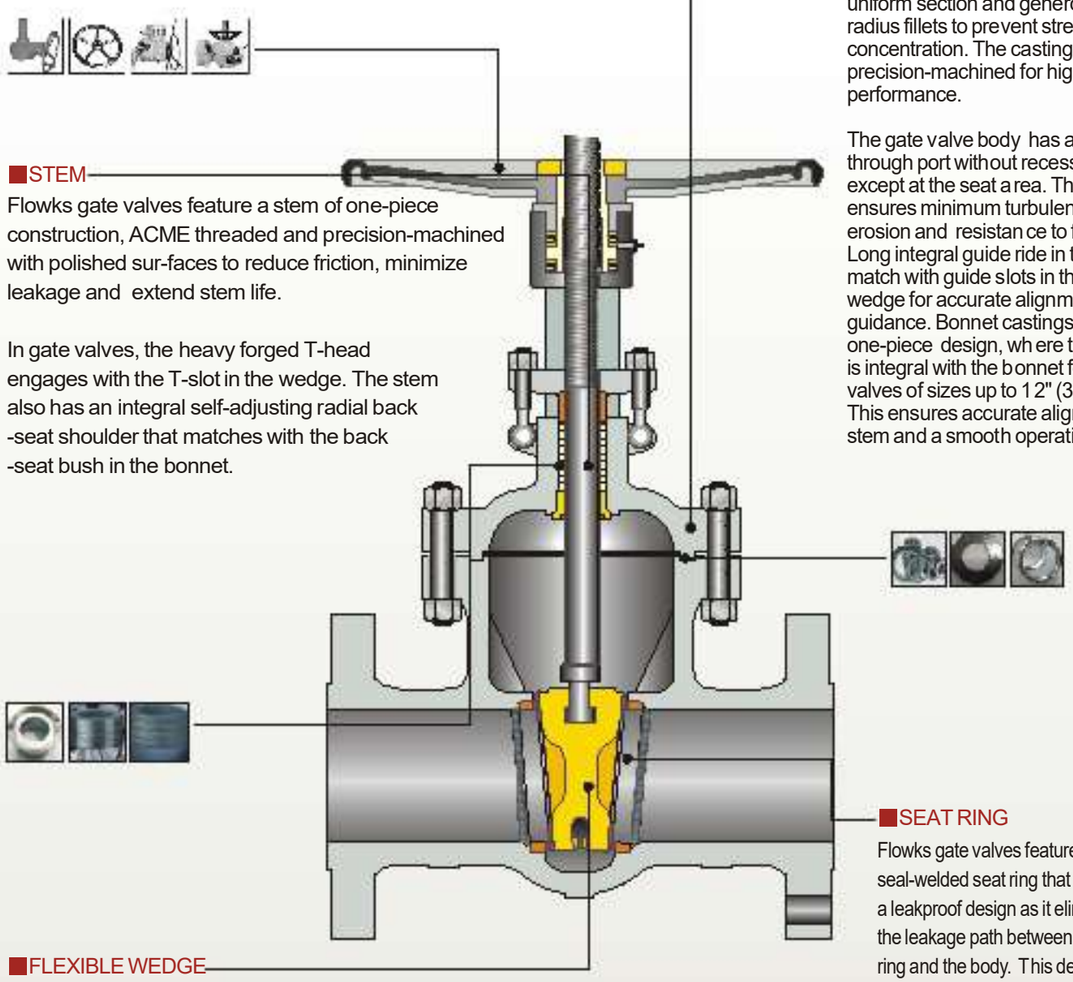
■BYPASS

A bypass serves two purposes:
1.in steam services, to warm up the line before opening the main valve.
2.in steam and other lines, to balance the pressure on both sides of the main valve wedge or disc to bring down the valve opening torque.
As an option, almost all Flowks valves can be furnished with bypass. The bypass can be a gate valve or a globe valve, with a pressure/temperature rating and material equal to that of main valve.

■SIZE CHART

MAIN VALVE	2" to 4"	5" to 8"	10" or higher
BYPASS VALVE	1/2"	3/4"	1"

The bypass is installed to the side of the main valve with the stems of both valves in parallel and pointing upward.



STEM

Flowks gate valves feature a stem of one-piece construction, ACME threaded and precision-machined with polished sur-faces to reduce friction, minimize leakage and extend stem life.

In gate valves, the heavy forged T-head engages with the T-slot in the wedge. The stem also has an integral self-adjusting radial back -seat shoulder that matches with the back -seat bush in the bonnet.

BODY AND BONNET

The body and bonnet are cast with uniform section and generous radius fillets to prevent stress concentration. The castings are precision-machined for high performance.

The gate valve body has a straight through port without recesses except at the seat area. This ensures minimum turbulence, erosion and resistance to flow. Long integral guide ride in the body match with guide slots in the wedge for accurate alignment and guidance. Bonnet castings are of one-piece design, where the yoke is integral with the bonnet for gate valves of sizes up to 12" (300mm). This ensures accurate alignment of stem and a smooth operation.

FLEXIBLE WEDGE

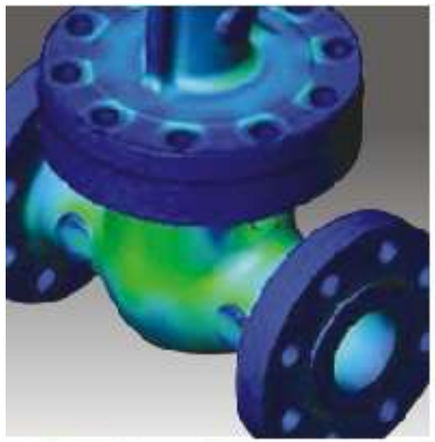
Flowks gate valves feature a one-piece cast flexible wedge that minimizes stress concentration. Wedge flexibility ensures tight seating over a wide range of differential pressures and temperatures. It also adjusts to slight misalignments caused by pipeline deflections and thermal deformation. The stem-to-wedge thrust is applied close to the wedge centre, This reduces lateral stem loading and provides for more accurate wedge movement.

SEAT RING

Flowks gate valves feature a seal-welded seat ring that offers a leakproof design as it eliminates the leakage path between the seat ring and the body. This design is superior to threaded seats which can loosen up due to temperature fluctuations, corrosion or vibration and result in leakage. Threaded seat rings are optional.

Body material and working temperature

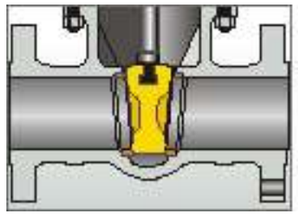
Material	ASTM Specification	Working Temperature
Carbon Steel	ASTM A216 Gr.WCB	-29℃to 427℃(-200F to 8000F)
1-1/4 Cr -1/2 Mo	ASTM A217 Gr.WC6	-29℃to 593℃(-200F to 11000F)
2-1/4 Cr -1 Mo	ASTM A217 Gr.WC9	-29℃to 593℃(-200F to 11000F)
5 Cr - 1/2 Mo	ASTM A217 Gr.C5	-29℃to 649℃(-200F to 12000F)
9 Cr - 1 Mo	ASTM A217 Gr.C12	-29℃to 649℃(-200F to 12000F)
9 Cr - 1 Mo-1/4 V	ASTM A217 Gr.C12A	-29℃to 649℃(-200F to 12000F)
Low-temperature Steel	ASTM A352 Gr.LCB/LCC	-46℃to 343℃(-500F to 6500F)
Austenitic Stainless Steel 18-8 (Type 304)	ASTM A351 Gr.CF8M	-196℃to 649℃(-3200F to 12000F)
Austenitic Stainless Steel 16Cr-12Ni-2Mo (Type 316)	ASTM A351 Gr.CF8M	-196℃to 649℃(-3200F to 12000F)



Design description:

Flowks gate valve is offered in a variety of material to suit different requirements. These material includes carbon steel , alloy steel and stainless steel for body and bonnet. Special material like duplex SS is available. Material of trim is offered with API trim No. 1, trim No. 2, trim No. 5, trim No. 8 and trim No. 10. For special trim material, please contact us for details.

SOLED WEDGE VS FLEXIBLE WEDGE



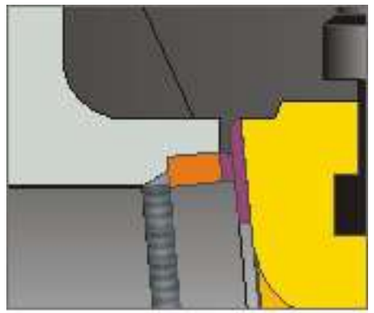
CLASSICAL SOLID WEDGE

- Wedge may cause severe jamming at temperatures over 200° F (93℃).
- Suitable for small sizes (1/2-2", 15-50mm).
- Wedge will stick when valve is closed hot and allowed to cool.
- No compensation for deformation of body due to pressure temperature or pipe stresses.
- Difficult to make valve tight on both seats due to seat face distortion.

FLEXIBLE ROUND WEDGE

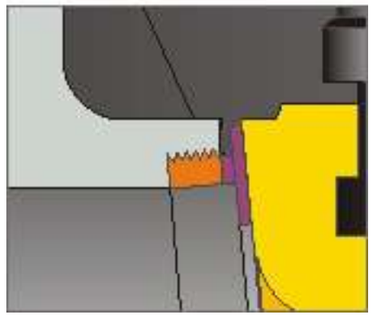
- Universal use for temperatures up to 1000° F(538℃)
- Flexibility compensates for seat face distortion.
- Compensates for deformation of body due to pipe stresses.
- Long cycle life.
- Ideal for processes with big temperature fluctuations.
- Assures valve tightness on both seats over wide range of pressures.
- Stem to wedge connection is inside the sealing faces supporting the wedge ears during opening. More robust with less mass.

SEAL WELDED SEATS VS SCREWED-IN SEATS



STANDARD GROUND AND LAPPED SEAL WELDED SEAT RINGS FACED WITH STELLITE 6

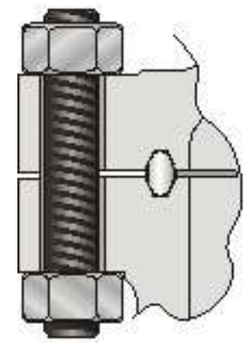
- Welded-in leak proof.
- Weld quality 100% tested.
- Stable performance.
- Ground and lapped to 2 RMS finish after weld-in.
- Standardized use for steam up to 1000° F(538℃), oil and gas.
- Easier to be replaced.



COMPETING SCREWED-IN SEATS

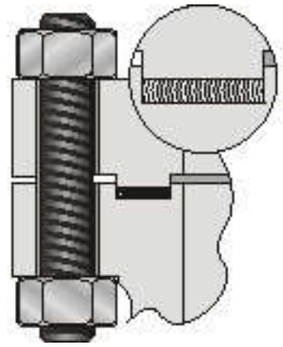
- Can loosen up due to corrosion and cause substantial leakage.
- Replacement is difficult if not impossible.
- Threads can corrode and cause leakage.
- Seat is unsecured from unscrewing
- Seat can become loose due to temperature fluctuations, corrosion or vibration, and can leak.
- Not suitable for steam service. Steam and other fluids will wire draw body threads of loose seats beyond repair.

BODY GASKET OF GATE, GLOBE CHECK VALVE



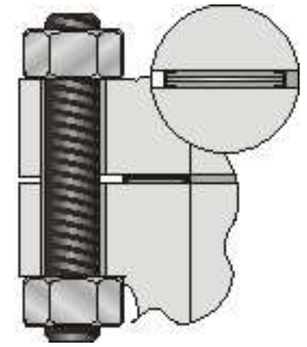
Structure 1:

For Class 900, Class 1500 and Class 2500



Structure 2:

For Class 300, Class 600 and Class 900



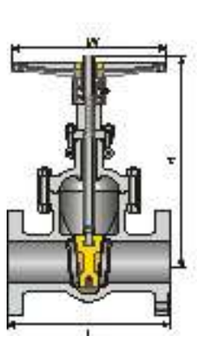
Structure 3:

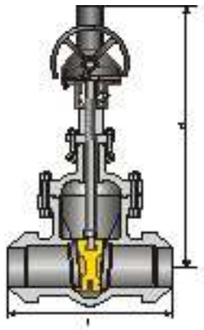
For Class 150

GATE VALVE DIMENSION

FLOWKS™

BW= Butt weld
FL = Flanged
H = Center-to-Top,
Open





CLASS 150 GATE VALVE

DN	in	A RF	B BW	R RTJ	N.m	H	W	W1	WT1(HW)	WT2(Gear)
50	2	178	216	191	12	389	200	-	19	-
65	2 1/2	191	241	203	13	439	200	-	25	-
80	3	203	283	216	13	500	250	-	33	-
100	4	229	305	241	15	594	250	-	49	-
150	6	267	403	279	27	777	350	310	77	104
200	8	292	419	305	36	975	350	310	123	150
250	10	330	457	343	63	1161	400	310	188	215
300	12	356	502	368	84	1389	450	310	288	315
350	14	381	572	394	131	1554	550	460	385	435
400	16	406	610	419	151	1811	600	460	500	552
450	18	432	660	445	235	2103	650	460	601	653
500	20	457	711	470	285	2299	700	460	764	816
550	22	—	—	—	-	2454		460	885	1000
600	24	508	813	521	341	2609	750	460	1007	1185
650	26	559	864	—	602	2967	-	600	-	1532
700	28	610	914	—	-	3327	-	600	-	1880
750	30	610a	914	—	-	3607	-	600	-	2300
800	32	711	965	—	1079	3708	-	600	-	2550
850	34	762	1016	—	-	3815	-	600	-	2970
900	36	711b	1016	—	1479	3924	-	600	-	3390

CLASS 300 GATE VALVE

DN	in	A RF	B BW	R RTJ	N.m	H	W	W1	WT1(HW)	WT2(Gear)
50	2	216	216	232	15	429	200	-	25	-
65	2 1/2	241	241	257	16	505	200	-	30	-
80	3	283	283	298	18	531	250	-	48	-
100	4	305	305	321	21	630	280	310	73	100
150	6	403	403	419	42	800	350	310	130	186
200	8	419	419	435	86	1008	400	310	208	235
250	10	457	457	473	128	1240	450	310	334	386
300	12	502	502	518	215	1471	500	310	450	502
350	14	762	762	778	289	1646	600	460	704	756
400	16	838	838	854	423	1842	600	460	923	965
450	18	914	914	930	537	1958	650	460	1131	1224
500	20	991	991	1010	649	2195	750	460	1345	1400
550	22	1092	1092	1114	-	2395	850	600	1733	1892
600	24	1143	1143	1165	1009	2598	900	600	2122	2385
650	26	1245	1245	1270	1451	2845	-	600	-	2842
700	28	1346	1346	1372	-	3099	-	600	-	3300
750	30	1397	1397	1422	-	3320	-	600	-	3550
800	32	1524	1524	1553	3140					
850	34	1626	1626	1654	-					
900	36	1727	1727	1756	4293					

CLASS 600 GATE VALVE

DN	in	A RF	B BW	R RTJ	N.m	H	W	W1	WT1(HW)	WT2(Gear)
50	2	292	292	295	20	589	250	-	32	-
65	2 1/2	330	330	333	23	630	250	250	52	65
80	3	356	356	359	-	668	280	250	60	87
100	4	432	432	435	50	914	300	250	107	134
150	6	559	559	562	68	1080	450	300	216	268
200	8	660	660	664	183	1267	500	300	399	451
250	10	787	787	791	270	1511	650	450	605	657
300	12	838	838	841	479	1791	750	450	851	893
350	14	889	889	892	650	1857	900	450	1177	1232
400	16	991	991	994	988	2162	900	450	1513	1568
450	18	1092	1092	1095	1243	2261	-	750	-	1980
500	20	1194	1194	1200	1512	2705	-	750	-	2480
550	22	1295	1295	1305	-	-	-	750	-	-
600	24	1397	1397	1407	2185	2809	-	750	-	3850
650	26	1448	1448	1461	3053					
700	28	1549	1549	1562	-					
750	30	1651	1651	1664	-					
800	32	1778	1778	1794	5452					
850	34	1930	1930	1946	-					
900	36	2083	2083	2099	7675					

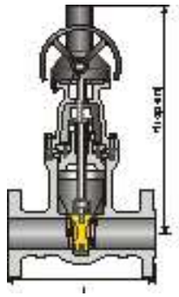
CLASS 900 GATE VALVE

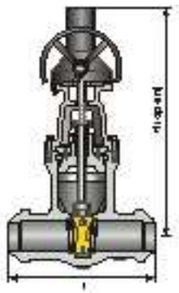
DN	in	A RF	B BW	R RTJ	N.m	H	W	W1	WT1(HW)	WT2(Gear)
50	2	368	368	371	24	594	280	-	70	-
65	2 1/2	419	419	422	39	752	280	250	110	113
80	3	381	381	384	56	757	300	250	140	167
100	4	457	457	460	64	864	350	300	200	227
150	6	610	610	613	118	1013	500	460	358	410
200	8	737	737	740	243	1275	650	460	550	600
250	10	838	838	841	427	1542	700	460	1000	1100
300	12	965	965	968	783	1781	900	460	1215	1310
350	14	1029	1029	1038	1163	2027	900	600	1600	1700
400	16	1130	1130	1140	1331	2261	900	600	2150	2330
450	18	1219	1219	1232	-					
500	20	1321	1321	1334	-					
550	22	—	—	—	-					
600	24	1549	1549	1568	-					

CLASS 1500 GATE VALVE

DN	in	A RF	B BW	R RTJ	N.m	H	W	W1	WT1(HW)	WT2(Gear)
50	2	368	368	371	32	511	280	-	75	99
65	2 1/2	419	419	422	54	561	300	250	124	158
80	3	470	470	473	76	620	350	250	175	202
100	4	546	546	549	108	729	400	300	270	300
150	6	705	705	711	167	1001	500	460	520	575
200	8	832	832	841	426	1130	750	460	820	915
250	10	991	991	1000	801	1661	900	600	1560	1750
300	12	1130	1130	1146	1268	1839	900	600	1900	2120
350	14	1257	1257	1276	2078	-	-	600	-	2600
400	16	1384	1384	1407	2392	-	-	600	-	3450
450	18	1537	1537	1559	-					
500	20	1664	1664	1686	-					
550	22	—	—	—	-					
600	24	1943	1943	1972	-					

BW= Butt weld
FL = Flanged
H = Center-to-Top,
Open





CLASS 900 PRESSURE SEAL GATE VALVE

DN	in	A RF	B BW	R RTJ	N.m	H	W	W1	WT1(HW)	WT2(Gear)
80	3	381	305	384	24	594	280	-	70	-
100	4	457	356	460	39	752	280	250	110	113
150	6	610	508	613	56	757	300	250	140	167
200	8	737	660	740	64	864	350	300	200	227
250	10	838	787	841	118	1013	500	460	358	410
300	12	965	914	968	243	1275	650	460	550	600
350	14	1029	991	1038	427	1542	700	460	1000	1100
400	16	1130	1092	1140	783	1781	900	460	1215	1310
450	18	1219		1232	1163	2027	900	600	1600	1700
500	20	1321		1334	1331	2261	900	600	2150	2330
600	24	1549		1568						
650	26	1574								
700	28	1663								
750	30	1778								
800	32	1854								
900	36	2032								

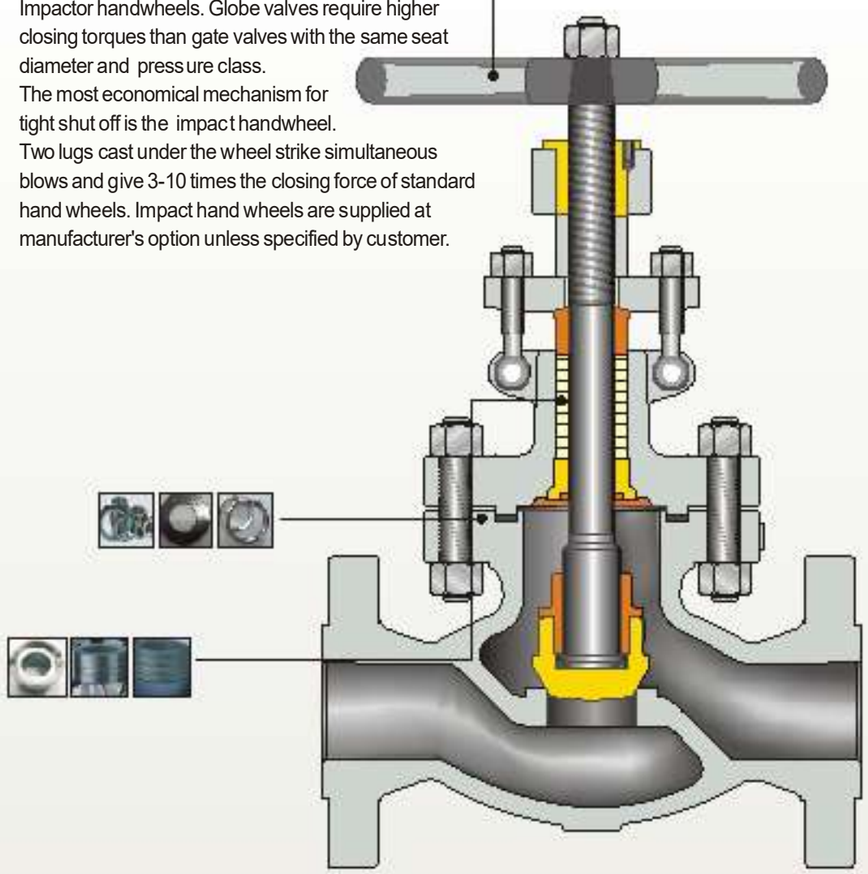
Class 1500 PRESSURE SEAL GATE VALVE

DN	in	A RF	B BW	R RTJ	N.m	H	W	W1	WT1(HW)	WT2(Gear)
80	3	470	305	473	32	511	280	-	75	99
100	4	546	406	549	54	561	300	250	124	158
150	6	705	559	711	76	620	350	250	175	202
200	8	832	711	841	108	729	400	300	270	300
250	10	991	864	1000	167	1001	500	460	520	575
300	12	1130	991	1146	426	1130	750	460	820	915
350	14	1257	1067	1276	801	1661	900	600	1560	1750
400	16	1384	1194	1407	1268	1839	900	600	1900	2120
450	18	1537	1346	1559	2078	-	-	600	-	2600
500	20	1664	1473	1686	2392	-	-	600	-	3450
600	24	1943		1972						
650	26	2033								
700	28	2209								
750	30	2286								
800	32	2413								
900	36	2565								

Class 2500 PRESSURE SEAL GATE VALVE

DN	in	B BW	N.m	H	W1	WT2(Gear)
80	3	368	110	700	350	135
100	4	457	194	750	450	210
150	6	610	381	887	450	271
200	8	762	727	1097	500	650
250	10	914	1398	1450	600	1600
300	12	1041	1980	1610	600	2450
350	14	1118	2593	2076	600	4570
400	16	1245	3952	2281	600	7150
450	18	1397	5735			
500	20		7804			
600	24		11798			

Impactor handwheels. Globe valves require higher closing torques than gate valves with the same seat diameter and pressure class.
The most economical mechanism for tight shut off is the impact handwheel.
Two lugs cast under the wheel strike simultaneous blows and give 3-10 times the closing force of standard hand wheels. Impact hand wheels are supplied at manufacturer's option unless specified by customer.



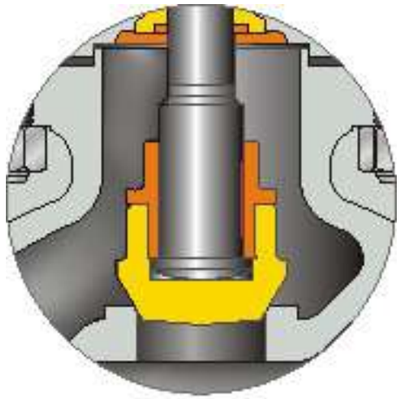
Globe valve is force sealed type. When valve is closed, disc shall be under pressure, to ensure the shutoff of sealing face. When medium enter under the disc, the force to be overcame is the frition force between stem and packing, and the thrust caused by medium. The force to close valve is larger than that of to open valve, which cause the larger diameter of stem, to prevent stem bending.

- Rotating Stem with precision ACME threads and burnished finish. Valve suitable for horizontal installation.
- Universal Trim.Flowks povides wide ranges of Trim material including Trim 1 to very special alloys.
- Seat face Stellited, ground and lapped to a mirror finish. Conical seat machined to 8 RMS.
- Flat disc. Floating stem-disc engagement, hard faced with 13 CR,Stellite 6, SS 316 or Monel, ground and lapped with seat. Disc in SS 316 hard faced with Stellite 6 also available.
- Body and bonnet joint accurately machined. Fully enclosed gasket. Gland has two-piece construction for easy alignment.
- Rotating Stem nut. ASTM B62, renewable in-line.
- Torque arm. To reduce wear on packing rings, to enable better sealing and to reduce torque.

GLOBE VALVE DESIGN FEATURES

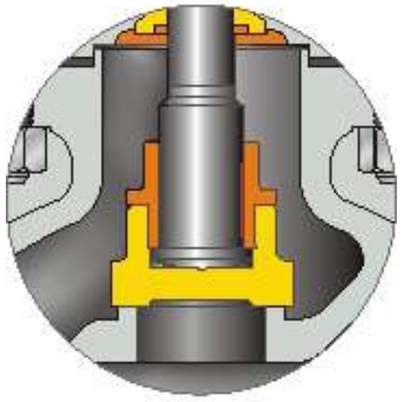
Conical Seat

- Line contact seal.
- Contact pressure increase by 1.5 - 5 with same stems and yokes.
- Seat has greater elasticity.
- Lower closing torques.
- Recommended for high pressure-temperature.



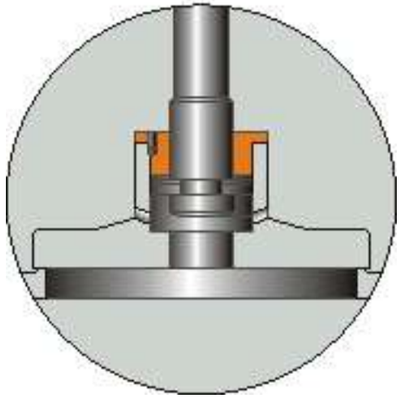
Flat Seat

- Machining, lapping to close tolerances is easy.
- Flatness tolerance is easily to be controlled.
- Wide contact area.
- Disc is guided by the mating surface of the seat.
- Hard thrust pad prevents galling.
- Faster maintenance in-line. Flat seating faces can be lapped and checked for flatness easier.

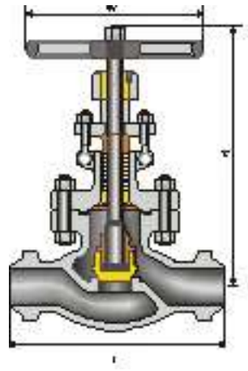


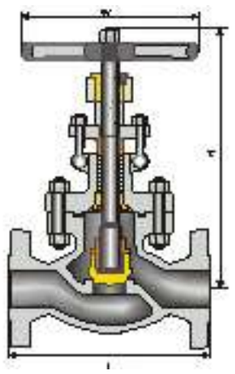
Inverse Flow Disc

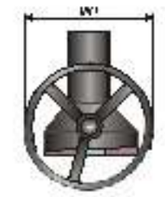
- Double discs
- For size larger than 8"
- For high pressure service
- Easy sealing

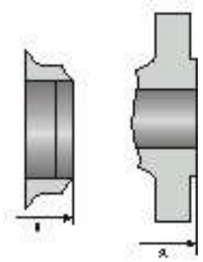


GLOBE VALVE DIMENSION









CLASS 150 GLOBE VALVE

DN	in	A RF	B BW	R RTJ	N.m	H	W	W1	WT1(HW)	WT2(Gear)
40	1 1/2	165	165	178	16	328	200	-	22	-
50	2	203	203	216	19	360	250	-	32	-
65	2 1/2	216	216	229	29	405	250	-	38	-
80	3	241	241	254	45	485	300	-	62	-
100	4	292	292	305	67	520	350	-	104	-
150	6	406	406	419	245	600	400	400	154	174
200	8	495	495	508	385	787	450	400	308	330
250	10	622	622	635	601	862	500	450	539	575
300	12	698	698	711	649	1346	550	500	819	855
350	14	787	-	-	1982	1549	600	600	1085	1185
400	16	914	-	-		1778	800	750	1294	1394
450	18	977	-	-						
500	20	977	-	-						

CLASS 300 GLOBE VALVE

DN	in	A RF	B BW	R RTJ	N.m	H	W	W1	WT1(HW)	WT2(Gear)
40	1 1/2	229	229	241	24	350	200	-	28	-
50	2	267	267	283	30	391	250	-	48	-
65	2 1/2	292	292	308	51	420	300	-	56	-
80	3	318	318	333	84	492	350	-	82	-
100	4	356	356	371	145	620	450	400	154	178
150	6	444	444	460	617	793	550	500	240	270
200	8	559	559	575	1126	1145	650	550	319	352
250	10	622	622	638	1988	1260	700	600	632	672
300	12	711	711	727	-	1404	800	750	946	1000

CLASS 600 GLOBE VALVE

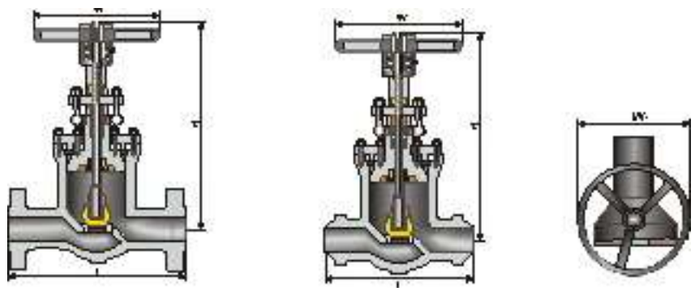
DN	in	A RF	B BW	R RTJ	N.m	H	W	W1	WT1(HW)	WT2(Gear)
40	1 1/2	241	241	245	30	551	250	-	32	-
50	2	292	292	295	66	630	280	-	42	-
65	2 1/2	330	330	333	103	681	300	-	63	-
80	3	356	356	359	175	749	400	400	107	135
100	4	432	432	435	819	1151	550	500	240	275
150	6	559	559	562	1208	1250	650	550	375	425
200	8	660	660	664	2266	1400	700	550	680	750
250	10	787	787	-	4140	1549	750	600	900	1000
300	12	838	838	-						

CLASS 900 GLOBE VALVE

DN	in	A RF	B BW	R RTJ	H	W	W1	WT1(HW)	WT2(Gear)
50	2	368	-	371	620	300	-	55	-
65	21/2	419	254	422	643	300	-	68	-
80	3	381	305	384	721	350	300	95	128
100	4	457	356	460	851	400	380	138	175
150	6	610	508	613	1224	550	500	390	460
200	8	737	660		1349	650	550	774	850
250	10	838	787		1549	1000	600	1250	1325
300	12	965	914		1750	1000	700	1535	1625

CLASS 1500 GLOBE VALVE

DN	in	A RF	B BW	R RTJ	H	W	W1	WT1(HW)	WT2(Gear)
50	2	368	216	371	620	400	350	73	105
65	2 1/2	419	254	423	643	400	350	130	178
80	3	470	305	473	721	500	500	151	201
100	4	546	406	549	851	600	550	172	235
150	6	705	559	711	1224	700	635	467	540
200	8	832	711	841	1349	850	650	1225	1325
250	10	991	864	1000	1549	1200	750	1635	1750



H = Center-to-Top, Open

CLASS 900 PRESSURE SEAL GLOBE VALVE

DN	in	A RF	B BW	R RTJ	H	W	W1	WT1(HW)	WT2(Gear)
50	2	368	-	-	620	300	-	55	-
65	3	419	-	384	643	300	-	68	-
80	3	381	305	460	721	350	300	95	128
100	4	457	356	613	851	400	380	138	175
150	6	610	508	730	1224	550	500	390	460
200	8	737	660	841	1349	650	550	774	850
250	10	838	787		1549	1000	600	1250	1325
300	12	965	914		1750	1000	700	1535	1625

CLASS 1500 PRESSURE SEAL GLOBE VALVE

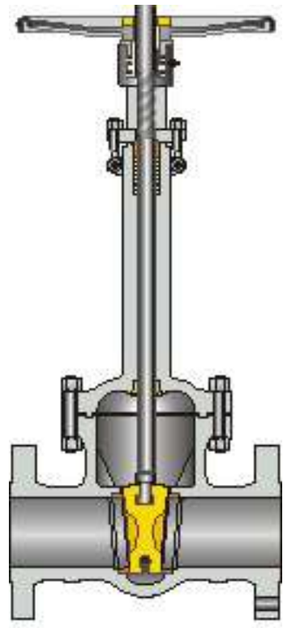
DN	in	A RF	B BW	R RTJ	H	W	W1	WT1(HW)	WT2(Gear)
50	2	368	216	-	620	400	350	73	105
65	2 1/2	419	254	473	643	400	350	130	178
80	3	470	305	549	721	500	500	151	201
100	4	546	406	711	851	600	550	172	235
150	6	705	559	841	1224	700	650	467	540
200	8	832	711	1000	1349	850	650	1225	1325
250	10	991	864		1549	1200	750	1635	1750

CLASS 2500 PRESSURE SEAL GLOBE VALVE

DN	in	A RF	B BW	R RTJ	H	W1	WT2(Gear)
50	2	451	279	454	720	400	176
65	2 1/2	508	330	511	546	500	264
80	3	578	368	581	885	550	308
100	4	673	457	681	1260	650	759
150	6	914	610	918	1905	650	1990
200	8	1022	762	1027	2465	650	4390

Cast Cryogenic Gate, Globe and Check Valves
Austenitic Stainless Steel 2-30" (50-750 mm)
Pressure Class 150-1500

The production, transport and storage of liquefied gases such as oxygen, nitrogen, argon, natural gas, hydrogen or helium (down to -425° F), presents several technical problems. Flowks specially adapted extended bonnet cast valves offer safe and efficient service.



Materials:

- Body and bonnet: Austenitic stainless steel castings used for bodies and bonnets offer excellent impact strength, minimal heat loss and protection against corrosion.
- Stem: Austenitic stainless steel. To reduce galling, stems are also offered in A479 grade XM-19 with high tensile strength even at extreme low temperatures, excellent low friction and galling free movement at points of stem contact.
- Wetted parts: All Austenitic stainless steel and Stellite 6.
- Stem nut/yoke bushing: ASTM B62.
- Packing: PTFE or graphite packing protected from freezing by a column of insulating gas.
- Seating faces: Stellite 6 is used to prevent seizing and galling. When extremely tight shut off is required, globe and check valves are supplied with Neoflon, PTFE or other soft inserts.
- Bolting: Strain hardened Austenitic stainless steel.

Design description:

- Extended bonnets with sufficient gas column length, usually specified by customer, are supplied for all valves to keep stem packing at sufficient distance away from the cold fluid to remain functional.
- Flexible wedges with Stellite seating faces for cryogenic service(gate valve).
- Neoflon inserts are available for globe, piston, and swing check discs.
- Cleaning: All cryogenic valves are thoroughly degreased and cleaned and pipe ends are sealed to prevent contamination.

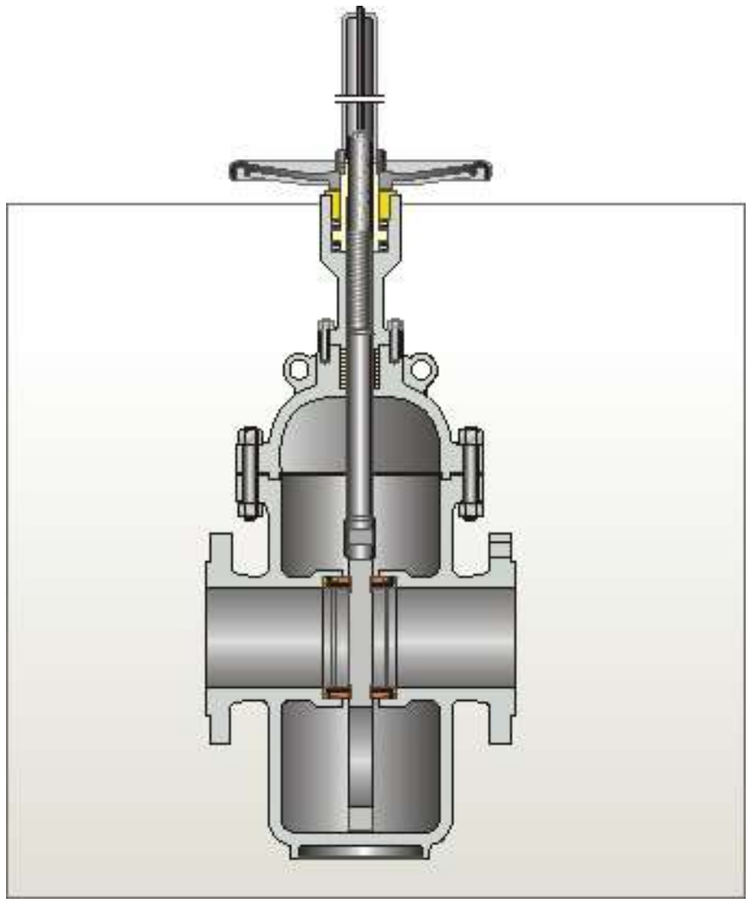
Table of liquefied gases

Type	Boiling Point °C	Boiling Point °F	Liquid Density lb/ft.3	Type	Boiling Point °C	Boiling Point °F	Liquid Density lb/ft.3
Natural gas(LNG)	-168	-270	26	Air	-194.4	-318	57.87
Methane(CH_4)	-161.5	-258	26.20	Nitrogen(N)	-195.8	-320	50.45
Oxygen(O_2)	-182.9	-296	71.20	Hydrogen(H_2)	-252.8	-423	4.43
Argon(Ar)	-185.9	-303	87.40	Helium(He)	-268.9	-452	7.82
Carbon Dioxide(CO_2)	-78.5	-109	50.60	Absolutezero	-273.16	-460	-

As we continuously endeavor to improve our products, the data given herein are subject to change without notice.

SLAB GATE VALVE

Cast Carbon, Stainless or Alloy Steel
Slab Gate Valve , 2-36" (50-900 mm)
ASME Class 150, 300 and 600



DESIGN SPECIFICATIONS

ITEM

Wall thickness and general valve design
Pressure-temperature rating
Face to face dimensions for butt weld and flanged valves
Flange design
Butt welding design
Test and Inspection

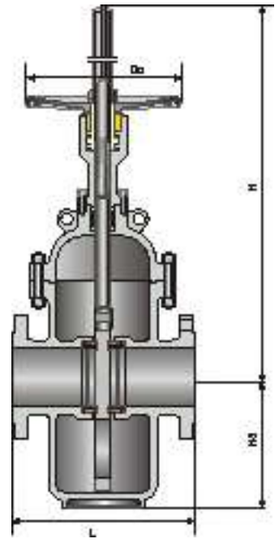
APPLICABLE SPECIFICATION

API 600, API 6D, BS1414
ASME B16.34
ASME B16.10
ASME B16.5
ASME B16.25
API 598

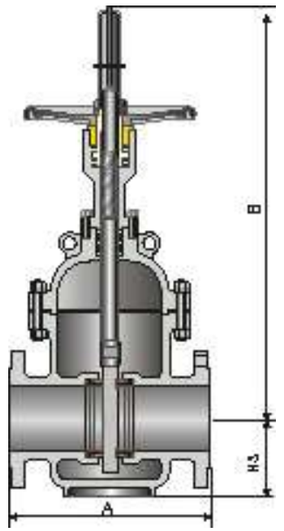
DESIGN FEATURES

- A double sealing seat system of PTFE-to-metal and metal-to-metal is available, and PTFE can also clean the disc.
- Pilot port is optional. With a pilot port, the sealing will be protected from medium in both fully open and fully closed service.
- For metal seated, sealant injection is applied to ensure zero leakage.
- Smaller torque and low flow resistance compared to common gate valve.
- Fully open port, convenient for pipe cleaning.

DIMENSIONS OF SLAB GATE VALVE WITH PILOT PORT



H = Center-to-Top,Open



BW= Butt weld
FL = Flanged
H = Center-to-Top,Open

CLASS 150 GATE VALVE

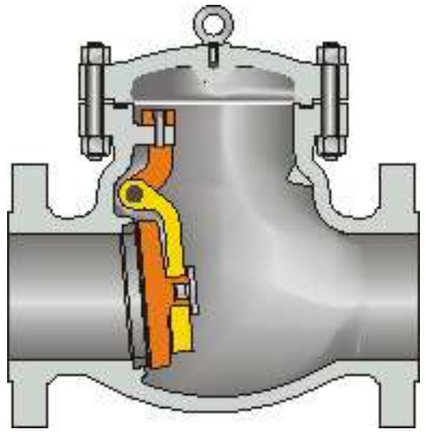
SIZE	Flange	Hand-operated		Geared driving	Non-diversion Hole type	Diversion hole type
in mm	L	H	Do		H3	H1
1	127	360	180	-	60	85
1-1/4	140	375	180	-	71	103
1-1/2	165	410	250	-	75	115
2	178	450	250	-	85	122
2-1/2	190	550	300	-	91	154
3	203	610	300	-	109	169
4	229	700	300	BA-0	121	193
6	267	895	350	BA-0	178	283
8	292	1130	350	BA-0	211	352
10	330	1290	400	BA-0	215	440
12	356	1480	450	BA-0	245	514
14	381	1660	500	BA-1	280	602
16	406	1850	500	BA-1	310	678
18	432	2080	600	BA-1	346	785
20	457	2300	700	BA-1	363	855
24	508	2680	800	BA-2	442	1045
28	610	3080	800	BA-2	505	1190
32	660	3491	1000	BA-2	560	1350
36	711	3897	1000	BA-3	610	1510
40	811	4317	1200	BA-3	715	1715

CLASS 300 GATE VALVE

SIZE	Flange	Hand-operated		Geared driving	Non-diversion Hole type	Diversion hole type
in mm	L	H	Do		H3	H1
1	165	370	180	-	70	90
1-1/4	178	385	180	-	80	115
1-1/2	190	420	250	-	85	130
2	216	458	250	-	100	137
2-1/2	241	555	300	-	106	169
3	283	615	300	-	124	184
4	305	710	300	BA-0	146	218
6	403	900	350	BA-0	206	311
8	419	1135	350	BA-0	241	382
10	457	1401	400	BA-0	251	476
12	502	1580	450	BA-0	281	545
14	762	-	-	BA-1	325	645
16	838	-	-	BA-1	360	728
18	914	-	-	BA-1	400	800
20	991	-	-	BA-1	430	930
24	1143	-	-	BA-2	497	1100
28	1346	-	-	BA-2	560	1260
32	1524	-	-	BA-2	620	1420
36	1727	-	-	BA-3	610	1510

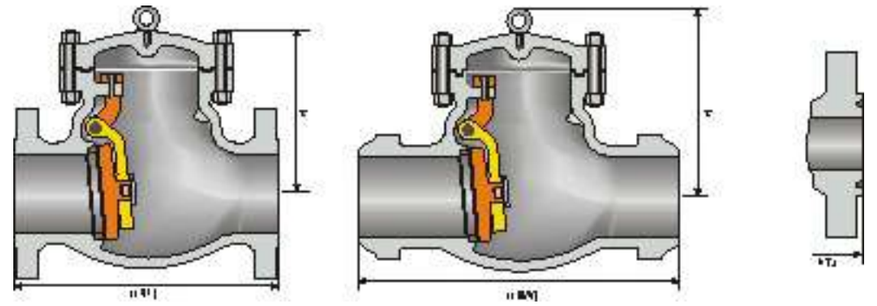
CLASS 600 GATE VALVE

SIZE	Flange	Hand-operated		Geared driving	Non-diversion Hole type	Diversion hole type
in mm	L	H	Do		H3	H1
2	292	468	300	BA-0	108	158
2-1/2	330	565	300	BA-0	125	190
3	356	625	350	BA-0	145	225
4	432	720	350	BA-0	165	255
6	559	910	400	BA-0	220	330
8	660	1145	500	BA-1	280	410
10	787	1411	500	BA-1	330	490
12	838	1590	600	BA-1	380	570
14	889	-	-	BA-2	430	650
16	991	-	-	BA-2	480	735
18	1092	-	-	BA-2	530	810
20	1194	-	-	BA-2	580	905



Design description:

- Body and cover. Precision machined castings.
- Body and cover joint. Accurately machined, fully enclosed gasket
- Disc. Robust one-piece construction to withstand the severe shock of check valve service. Hard faced with 13CR, Stellite 6, SS 316, or Monel, ground and lapped to mirror finish. Sizes 2-6" (50-150 mm) may have solid13 CR disc.
- Disc assembly. Disc is fastened securely to disc hanger with a lock nut and cotter pin. Disc is free to rotate to avoid localized wear. Disc hanger is supported on a sturdy disc carrier hinge pin of excellent bearing guality. All parts are accessible from top for easy service.



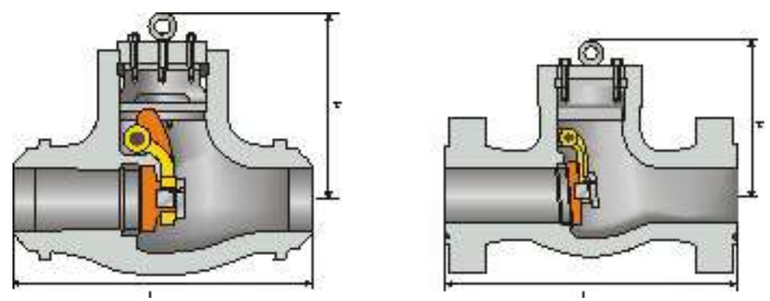
H = Center-to-Top, Open
L= Face-to-face

CLASS 150 CHECK VALVE

DN	in	A RF	B BW	R RTJ	H	WT1
50	2	203	203	216	155	19
65	2 1/2	216	216	229	170	26
80	3	241	241	254	180	29
100	4	292	292	305	220	46
150	6	356	356	368	268	77
200	8	495	495	508	310	163
250	10	622	622	635	348	220
300	12	699	699	711	378	356
350	14	787	787	800	401	428
400	16	864	864	876	460	555
450	18	978	978	991	504	775
500	20	978	978	991	564	835
550	22	1067	1067	1080	648	
600	24	1295	1295	1308	679	1180
650	26	1295	1295	—	729	
700	28	1448	1448	—	853	
750	30	1524	1524	—	889	1725
900	36	1956	1956	—	1054	2800

CLASS 300 CHECK VALVE

DN	in	A RF	B BW	R RTJ	H	WT1
50	2	267	267	283	160	21
65	3	292	292	308	189	30
80	3	318	318	333	199	39
100	4	356	356	371	227	69
150	6	445	445	460	278	125
200	8	533	533	549	323	210
250	10	622	622	638	382	307
300	12	711	711	727	434	450
350	14	838	838	854	511	680
400	16	864	864	879	521	840
450	18	978	978	994	572	1025
500	20	1016	1016	1035	629	1320
550	22	1118	1118	1140	711	1960
600	24	1346	1346	1368	940	2515
650	26	1346	1346	1372	1092	4515
700	28	1499	1499	1524		
750	30	1594	1594	1619		
900	36	2083	2083	—		



H =Center-to-Top, Open
L= Face-to-face

CLASS 600LB CHECK VALVE (S.P and Bolted)

DN	in	A RF	B BW	R RTJ	H(Bolted Cover)	H(S.P Cover)	wt1
50	2	292	292	295	183	241	36
65	2 1/2	330	330	333	201	264	50
80	3	356	356	359	227	269	70
100	4	432	432	435	260	318	122
150	6	559	559	562	325	399	270
200	8	660	660	664	394	587	465
250	10	787	787	791	490	607	675
300	12	838	838	841	528	696	880
350	14	889	889	892	574	749	950
400	16	991	991	994	660	729	1230
450	18	1092	1092	1095	721	729	1635
500	20	1194	1194	1200	747	818	2140
550	22	1295	1295	1305	965	818	3200
600	24	1397	1397	1407			
650	26	1448	1448	1461			
700	28	1600	1600	1613			
750	30	1651	1651	1664			
900	36	2083	2083	—			

CLASS 900 CHECK VALVE (S.P and Bolted)

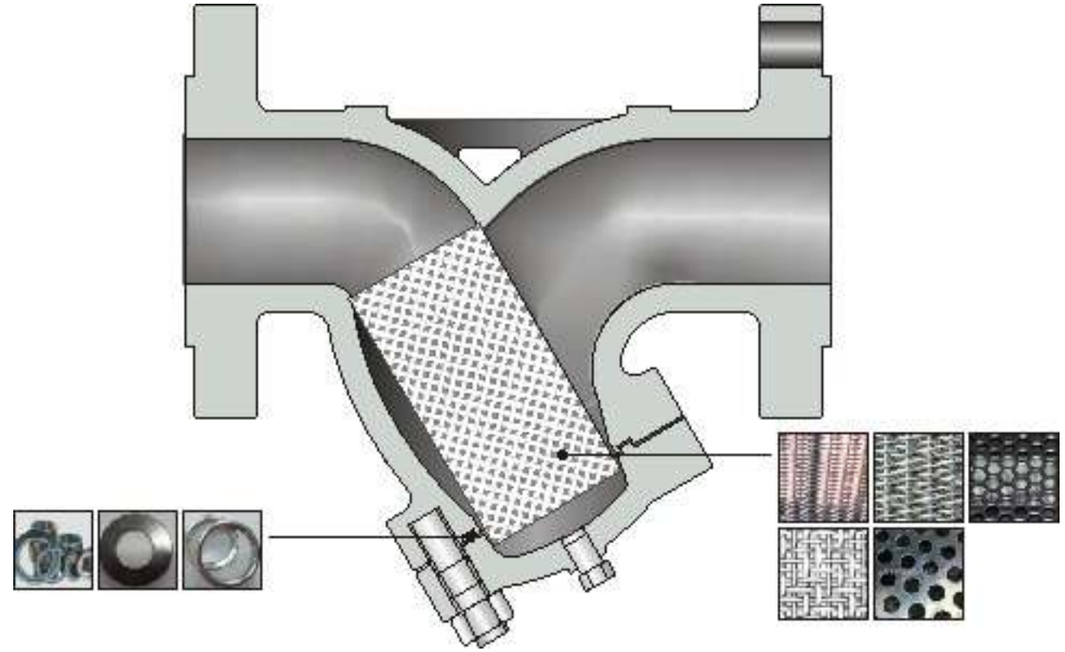
DN	in	A RF	B BW	R RTJ	H(Bolted Cover)	H(S.P Cover)	wt1
50	2	368	368	371	267	267	70
65	2 1/2	419	419	422	292	292	110
80	3	381	381	384	292	292	100
100	4	457	457	460	307	318	150
150	6	610	610	613	338	399	305
200	8	737	737	740	462	587	510
250	10	838	838	841	502	607	810
300	12	965	965	968	582	696	1120
350	14	1 029	1 029	1 038	650	749	1733
400	16	1 130	1 130	1 140	711	729	2395
450	18	1 219	1 219	1 232	787	813	3220
500	20	1 321	1 321	1 334	851	869	3960
600	24	1 549	1 549	1 568	935	965	5750

CLASS 1500 CHECK VALVE

DN	in	A RF	B BW	R RTJ	H(Bolted Cover)	H(S.P Cover)	wt1
50	2	368	368	371	267	267	85
65	2 1/2	419	419	422	297	292	120
80	3	470	470	473	295	295	150
100	4	546	546	549	356	368	245
150	6	705	705	711	466	483	550
200	8	832	832	841	541	564	1010
250	10	991	991	1 000	579	607	155
300	12	1130	1130	1 146	673	696	2280
350	14	1257	1257	1 276	729	749	3210
400	16	1384	1384	1 407	813	843	4365
450	18	1537	1537	1 559	906	919	5877
500	20	1664	1664	1 686	1011	1011	7260
600	24	1943	1943	1 972	1130	1130	10470

CLASS 2500 CHECK VALVE

DN	in	A RF	B BW	R RTJ	H(Bolted Cover)	H(S.P Cover)	wt1
50	2	451	451	454		417	145
65	3	508	508	514		419	240
80	3	578	578	584		442	330
100	4	673	673	683		483	650
150	6	914	914	927		516	1400
200	8	1 022	1 022	1 038		714	2420
250	10	1 270	1 270	1 292		853	3750
300	12	1 422	1 422	1 445		1003	5500
350	14	—	—	—			
400	16	—	—	—			
450	18	—	—	—			
500	20	—	—	—			
550	22	—	—	—			
600	24						

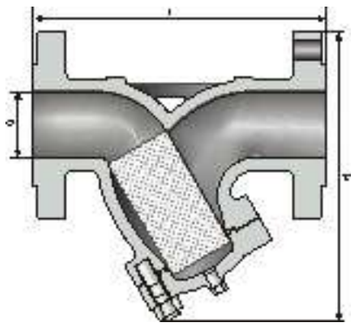


MAIN PARTS AND MATERIALS

NO	Part name	CARBON STEEL	STAINLESS STEEL		
1	Body	WCB	CF8	CF8M	CF3M
2	Cover	WCB	CF8	CF8M	CF3M
3	Net	SS304	SS304	SS316	SS316L
4	Filler	A105	SS304	SS316	SS316L
5	Gasket		PTFE,GRAPHITE		
6	Stud Bolt	A193-B7	A193-B8		
7	Nut	A194-2H	A194-8		

APPLICATION SPECIFICATIONS

1. Design and manufacture conform to API6D;ASME B16.34
2. Face to face dimension:ASME B16.10
3. Flange dimension: ASME B16.5
4. BW dimension: ASME B16.25
5. Test & inspection:API 598
6. Material:ANSI/ASTM



CLASS 150 STRAINER

CLASS	L	d	H	Effective FilteringArea (m^2)
1/2	130	13	69	0.00185
3/4	150	19	72	0.00281
1	160	25	78	0.00343
11/4	180	32	95	0.00486
11/2	200	38	105	0.00767
2	203	51	188	0.01161
21/2	216	64	205	0.02111
3	241	76	218	0.03029
4	292	102	255	0.04063
5	342	127	290	0.05523
6	406	152	335	0.07709
8	495	203	420	0.11967
10	622	254	495	0.19155
12	698	305	550	0.26738
14	787	337	610	0.30926
16	914	387	675	0.40946
18	978	438	750	0.55638
20	1016	489	805	0.65385

CLASS 300 STRAINER

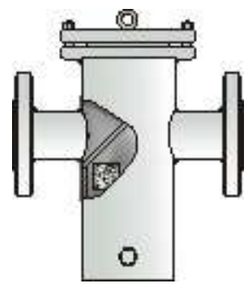
CLASS	L	d	H	Effective FilteringArea (m^2)
1/2	130	13	69	0.00185
3/4	150	19	72	0.00281
1	160	25	78	0.00343
11/4	180	32	95	0.00486
11/2	200	38	105	0.00767
2	267	51	200	0.01161
21/2	292	64	217	0.02111
3	318	76	230	0.03029
4	356	102	277	0.04063
5	400	127	312	0.05523
6	445	152	357	0.07709
8	559	203	442	0.11967
10	622	254	517	0.19155
12	711	305	572	0.26738
14	838	337	635	0.30926
16	914	387	698	0.40946
18	-	438	775	0.55638
20	1016	489	830	0.65385

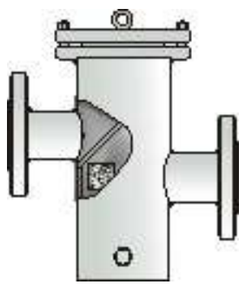
CLASS 600 STRAINER

CLASS	L	d	H	Effective FilteringArea (m^2)
1/2	165	13	89	0.00185
3/4	191	19	92	0.00281
1	216	25	98	0.00343
11/4	229	32	115	0.00486
11/2	241	38	125	0.00767
2	292	51	213	0.01161
21/2	330	64	230	0.02111
3	256	76	243	0.03029
4	432	102	280	0.04063
5	508	127	315	0.05523
6	559	152	360	0.07709
8	660	203	445	0.11967
10	787	254	528	0.19155
12	838	305	575	0.26738
14	889	337	635	0.30926
16	991	387	700	0.40946
18	1092	438	775	0.55638
20	1194	489	830	0.65385

CLASS 900 STRAINER

CLASS	L	d	H	Effective FilteringArea (m^2)
1/2	216	13	89	0.00185
3/4	229	19	92	0.00281
1	254	25	98	0.00343
11/4	279	32	115	0.00486
11/2	305	38	125	0.00767
2	368	51	223	0.01161
21/2	419	64	240	0.02111
3	381	76	260	0.03029
4	457	102	295	0.04063
5	559	127	335	0.05523
6	610	152	380	0.07709
8	737	203	459	0.11967
10	838	254	550	0.19155
12	965	305	605	0.26738
14	1029	324	650	0.30926
16	1130	375	735	0.40946
18	1219	425	801	0.55638
20	1575	473	850	0.65385





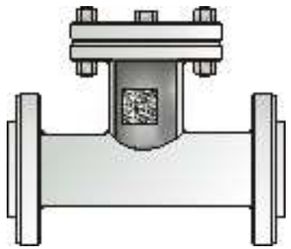
PN1.6~4.0Mpa DN20~250
BodyMeterial:CS SS

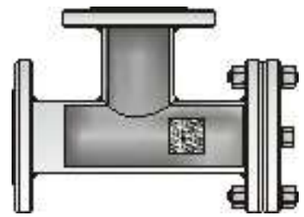
CLASS 150 STRAINER

CLASS	L	H	H1	H2	W
3/4~1	260	250	150	80	M16
1-1/4	300	285	180	70	M16
1-1/2	330	340	230	100	M16
2	330	370	280	110	M16
2-1/2	340	425	285	110	M16
3	400	425	285	130	M16
4	420	520	365	140	M16
6	500	580	380	170	M16
8	550	700	460	210	M16
10	650	860	625	240	M22

CLASS 300 STRAINER

CLASS	L	H	H1	W
3/4"~1"	260	250	150	M16
1-1/4"	300	285	180	M16
1-1/2"	330	340	230	M16
2"	330	370	280	M16
2-1/2	340	425	285	M16
3	400	425	285	M16
4	420	520	365	M16
6	500	580	380	M16
8	550	700	460	M16
10	650	860	625	M22





CLASS 150 STRAINER VALVE

CLASS	L	H	W
2	230	115	R3/8"
21/2	260	130	R3/8"
3	280	140	R3/4"
4	350	175	R3/4'
6	450	225	M20 1.5
8	500	250	M20 1.5
10	590	295	M20 1.5
12	680	340	M20 1.5
14	790	395	M22 1.5
16	850	425	M22 1.5
20	1000	500	M22 1.5
24	1200	600	M22 1.5

CLASS 150 STRAINER VALVE

CLASS	L	H	W
2	230	115	R3/8"
21/2	260	130	R3/8"
3	280	140	R3/4"
4	350	175	R3/4'
6	450	225	M20 1.5
8	500	250	M20 1.5
10	590	295	M20 1.5
12	680	340	M20 1.5
14	790	395	M22 1.5
16	850	425	M22 1.5
20	1000	500	M22 1.5
24	1200	600	M22 1.5

As we continuously endeavor to improve our products, the data given herein are subject to change without notice.