

GMK

API Cast & Forged
Steel Valves



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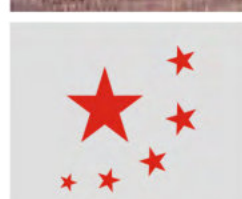
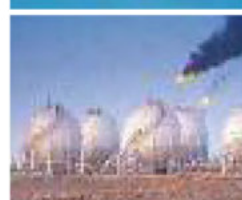
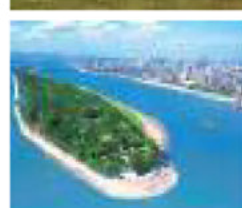
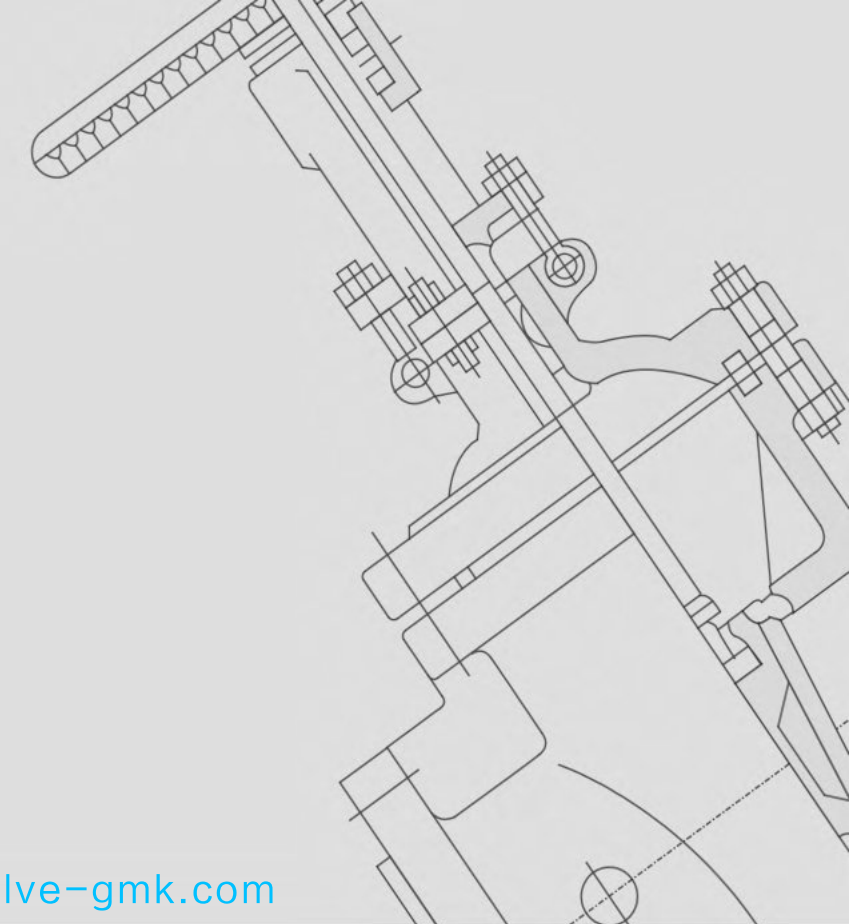
WHERE IS PIPELINE, WHERE IS GMK VALVE

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COMPANY PROFILE

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GMK VALVE works as a professional valve supplier, focusing on exporting abroad over 15 years. We are qualified with good conception by long-term dealing with different kinds of overseas clients and operating some government projects. We will always offer competitive price, nice quality, quick delivery time and also good service before and after sale.

Our main markets are Europe, America and Asia. We also export to Middle East, Africa etc and some other countries. The main products of our company are ball valve, gate valve, globe valve, check valve, butterfly valve, plug valve, and strainer valve. Product size is from 1/2" to 88" (DN15 to DN2200), pressure is from 150Lb to 2500Lb (PN1.0Mpa to PN42.0Mpa) and materials cover WCB, WCC, WC6, WC9, CF8, CF3, CF8m, CF3M, LCB, LCC, A105, 304, 316, 304L, 316L, F11, F22, LF2, F51, B148, ALLOY 20 etc. The products are widely applied in petroleum, chemical industry, natural gas, electric power, metallurgy, pharmacy, pulp & paper, urban construction and long transportation pipeline projects.

Our manufactory has advanced machining centers, CNC machine tools, metal cutting and processing equipment, physical and chemical testing equipment, nondestructive tester, spectrum analyzer, valve comprehensive performance tester and other equipment to ensure the products reach the purpose of zero leakage. Also it is certificated with ISO9001, API6D, CE/ PED.

We are consistently working hard to improve our existing products, pursue new ideas and ways to be a leading company in this rapidly changing market. We hope to make dramatic achievement in this market with our professional technique and valued experience.



CERTIFICATION



CONTENTS



01-04

Gate Valve, BB, CS
Cast Steel Gate Valve 150Lb/300Lb
Cast Steel Gate Valve 600Lb/900Lb
Cast Steel Gate Valve 1500Lb/2500Lb

A



05-08

Swing Check Valve, BB, CS
Swing, Cast Steel Check Valve 150Lb/300Lb
Swing, Cast Steel Check Valve 600Lb/900Lb
Swing, Cast Steel Check Valve 1500Lb/2500Lb

B



11-14

Globe Valve, BB, CS
Cast Steel Globe Valve 150Lb/300Lb
Cast Steel Globe Valve 600Lb/900Lb
Cast Steel Globe Valve 1500Lb/2500Lb

C



15-20

Forged Steel
Gate/Globe/Check Valves
Forged Steel Gate Valve 800Lb
Forged Steel Gate Valve 900Lb/1500Lb
Forged Steel Globe Valve 800Lb
Forged Steel Globe Valve 900Lb/1500Lb
Forged Steel Check Valve 800Lb
Forged Steel Check Valve 900Lb/1500Lb

D



21-25

Plug Valve
Pressure Balanced Plug Valve 150Lb/300Lb
Pressure Balanced Plug Valve 600Lb/900Lb/1500Lb
Sleeve Soft Sealed Plug Valve 150Lb/300Lb
Sleeve Soft Sealed Plug Valve 600Lb/900Lb

E



26-27

Butterfly Valve Series
Metal Sealed Butterfly Valve
150Lb/300Lb/600Lb

F

28-30

ANSI Class Pressure-Temperature Ratings 150Lb/300Lb

31

Materials Characteristic

32

NACE MRO175, NACE Resist SSC Valves

33

International Materials Standards

34-36

Flanged Ends 150Lb/300Lb

37-40

Ring-Joint Flanged Ends

31-43

Buttwelding Ends

44

Cast Steel Valves Gate Globe & Check Valves

Design

GMK cast steel gate valves are designed and manufactured to provide maximum service life and dependability. All gate valves are full ported and meet the design requirements of American Petroleum Institute standard API600&API 6D, British standard BS1414 & BS EN 1984 and generally, conform to American Society of Mechanical Engineers standard ASME B16.34. Valves are available in a complete range of body/bonnet materials and trims.

Ranges of materials

Standard body/bonnet materials include nine grades of carbon, low alloy and stainless steels. For special applications they can be supplied in other grades of alloy and stainless steel. There's a full range of trim materials to match any service. optional packing and gasket materials are available for a full range of service conditions.

Available Modifications For GMK Cast Steel Valves

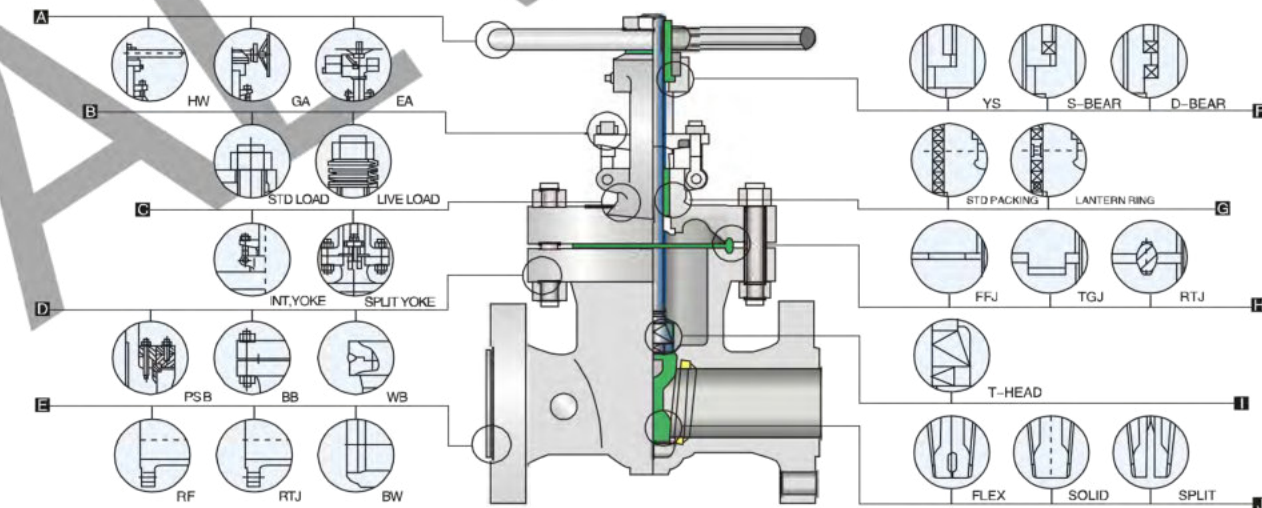
Trim Changes
End Connection Modifications
Packing and Gasket Change
Operator Mounting
Handwheel Extensions

Pressure Equalizing
By-Pass
Customer Specified Coatings
Weld End Bore Changes
Oxygen & Chlorine Clearing & Packaging

Cast Steel Gate Valves

Wedge Gate Valves

Pressure Seal Gate Valves



A Operation

Large handwheels for easy operation, also available with gearing, motor actuators, pneumatic or hydraulic actuators for more difficult services.

B Live Load Packing

In services requiring frequent cycling or with high pressure/temperature variations, live loading extends the service life between maintenance periods by requiring less stments. Belleville springs are employed to provide constant packing gland stress.

C OS&Y

Outside screw and yoke. Cast steel gate valve yoke integral with bonnet for 150Lb-8" 600Lb-6", 900Lb-4" & small.

D BB

bolted bonnet, welding bonnet and pressure seal bonnet in services requiring frequent cycling or with high pressure/temperature variations.

E End Connections

A choice of flanged, RTJ flanged or butt welding end for piping flexibility.

F Yoke sleeve

Extra long thread engagement between yoke sleeve and stem provide long thread life. valves of sizes larger than 150Lb-12", 300Lb-10", 600Lb-6", 900Lb/1500Lb/2500Lb-4" are regularly provided with roll bearing yokes.

G Lantern Ring And Double Packing Set

lantern ring leak-off fitting connection and double packing stack is optionally available for critical services.

H Body-to-Bonnet Joint

A flat face gasket joint is used in the 150lb valves. A male and female joint is used in 300lb to 600lb valves. ring joint is used in the body to bonnet connections in 900lb & higher rated valves.

I Stem

All wedge gate valves are provided with upset forged T-head stems. By forging the T-head, the stem at the stem-wedge connection is strengthened, this design also allows the wedge possibility of a bent stem jamming the wedge.

J Wedge

Integral guide rib faces assure self-centering of wedge. flexible wedge gate valve has a one-piece, twin-disc wedge, which is designed so that each half flexes independently. available in solid, flex split and his designs.

Applicable standards:

- STEEL GATE VALVES API 600/API6D
- STEEL GATE VALVES ISO 10434/ISO 14313
- 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

Design descriptions:

- FULL PORT DESIGN
- OS&Y OUTSIDE SRCEW AND YOKE
- BB.BOLTED BONNET
- FLEXIBLE WEDGE,FULLY GUIDED
- CHOICE OF SOLID OR SPLIT WEDGE
- RENEWABLE SEAT RINGS
- FORGED T-HEAD STEM
- RISING STEM AND NON-RISING HANDWHEEL
- FLANGED OR BUTTWELDING ENDS
- AVAILABLE WITH BG OPERATOR

Materials of parts

No	Part Name	Carbon Steel	ASTM Material 1 1/4cr- 1/2mo	Low Temperature Carbon Steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet	A216-WCB	A217-WC6	A352-LCB
3	Wedge	A216-WCB+CR13	A217-WC6+HF	A352-LCB+CR13
4	Stem	A182-F6a	CR-MO-V	A182-F6a
5	Seat ring	A105+CR13	A182-F11+HF	A350-LF2+CR13
6	Stem Backseat	A276-420	A276-304	A276-420
7	Bonnet Gasket	Spiral wound(Graphite+304)		
8	Bonnet Stud	A193-B7	A193-B16	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-7	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-304	A276-420
12	Gland Flange	A216-WCB	A217-WC6	A352-LCB
13	EyeBolt Pin	Carbon steel	A276-420	Carbon steel
14	Eyebolt	Carbon steel	A193-B7	Carbon steel
15	Eyebolt Nut	Carbon steel	A194-2H	Carbon steel
16	Grease Fitting	Brass+Steel		
17	YokeSleeve	Aluminum-Bronze		
18	Yokesleeve Jam nut	Carbon Steel		
19	Handwheel	Malleable Iron		
20	Handwheel Nut	Carbon Steel		

Note: 1) ductile ni-resist optional

2) wedge and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Dimensional datas of ANSI Class 150Lb

NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	26 650	28 700	30 750	32 800	36 900	in mm
L (RF)	7.00 178	7.50 191	8.00 203	9.00 229	10.50 267	11.50 292	13.00 330	14.00 356	15.00 381	16.00 406	17.00 432	18.00 457	20.00 508	22.00 559	24.00 610	24.00 610	28.00 711	28.00 711	in mm
L1 (BW)	85 216	9.50 241	11.12 283	12.00 305	15.88 403	16.50 419	18.00 457	19.75 502	22.50 572	24.00 610	26.00 660	28.00 711	32.00 813	34.00 864	36.00 914	36.00 914	38.00 965	40.00 1016	in mm
H (open)	15.25 386	17.00 434	18.88 480	23.00 584	30.50 765	37.62 956	45.50 1149	53.12 1350	59.38 1508	67.00 1703	74.50 1892	83.50 2119	98.25 2500	110.50 2806	116.50 2960	124.00 3150	129.00 3280	146.50 3720	in mm
Do	8 200	8 200	10 250	12 300	12 300	14 350	16 400	15 450	20 500	22 550	24 600	26 640	29 700	29 720	32 800	32 800	38 950	40 1000	in mm
wt(kg)	18 15	25 18	32 26	50 41	77 69	121 108	178 156	265 248	463 424	463 424	621 587	792 752	1521 1570	1521 1570	1838 1900	2261 3310	2490 2540	3310 3380	RF BW

Dimensional datas of ANSI Class 300Lb

NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	26 650	28 700	30 750	32 800	36 900	in mm
L/L1 (RF/BW)	8.50 216	9.50 241	11.12 283	12.00 305	15.88 403	16.50 419	18.00 457	19.75 502	30.00 762	33.00 838	36.00 914	39.00 991	45.00 1143	49.00 1245	53.00 1346	55.00 1397	60.00 1524	68.00 1727	in mm
L2 (RTJ)	9.12 232	10.12 257	11.75 298	12.62 321	16.50 419	17.12 435	18.62 473	20.38 518	30.62 778	33.62 854	36.62 930	39.75 1010	45.88 1165	50.00 1270	54.00 1372	56.00 1422	61.12 1553	69.12 1756	in mm
H (open)	16.12 410	17.88 453	20.00 509	24.00 612	31.75 805	39.38 1000	47.62 1210	55.75 1415	62.25 1580	67.88 1725	77.12 1960	86.38 2195	102.00 2590	117.00 2975	122.00 3100	126.00 3200	130.00 3300	152.00 3860	in mm
Do	8 200	8 200	10 250	12 300	14 350	16 400	18 450	20 500	22 550	22 550	24 600	26 640	29 700	29 720	32 800	32 800	38 950	40 1000	in mm
wt(kg)	23 17	35 26	50 39	71 53	144 113	209 164	322 256	482 390	683 565	950 805	1145 965	1635 1410	2660 2305	3090 2540	3310 2725	3595 3055	3720 3360	3985 3630	RF BW

Applicable Standards:

- STEEL GATE VALVES API 600/API6D
- STEEL GATE VALVES ISO 10434/ISO 14313
- 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

Design descriptions:

- FULL PORT DESIGN
- OS&Y OUTSIDE SRCEW AND YOKE
- BB.BOLTED BONNET
- FLEXIBLE WEDGE,FULLY GUIDED
- CHOICE OF SOLID OR SPLIT WEDGE
- RENEWABLE SEAT RINGS
- FORGED T-HEAD STEM
- RISING STEM AND NON-RISING HANDWHEEL
- FLANGED OR BUTTWELDING ENDS
- AVAILABLE WITH BG OPERATOR

Materials of parts

No	Part Name	Carbon Steel	ASTM Material 1 1/4cr- 1/2mo	Low Temperature Carbon Steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet	A216-WCB	A217-WC6	A352-LCB
3	Wedge	A216-WCB+CR13	A217-WC6+HF	A352-LCB+CR13
4	Stem	A182-F6a	CR-MO-V	A182-F6a
5	Seat Ring	A105+CR13	A182-F11+HF	A350-LF2+CR13
6	Stem Backseat	A276-420	A276-304	A276-420
7	Bonnet Gasket	Spiral Wound(Graphite+304)		
8	Bonnet Stud	A193-B7	A193-B16	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-7	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-304	A276-420
12	Gland Flange	A216-WCB	A217-WC6	A352-LCB
13	Eyebolt Pin	Carbon steel	A276-420	Carbon steel
14	Eyebolt	Carbon steel	A193-B7	Carbon steel
15	Eyebolt Nut	Carbon steel	A194-2H	Carbon steel
16	Grease Fitting	Brass+steel		
17	Yokesleeve	Aluminum-bronze		
18	Yokesleeve Jam Nut	Carbon Steel		
19	Handwheel	Malleable Iron		
20	Handwheel Nut	Carbon Steel		

Note: 1) Ductile Ni-resist optional

2) Wedge and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Dimensional datas of ANSI Class 600Lb

NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	26 650	28 700	30 750	32 800	36 900	in mm
L/L1 (RF/BW)	11.50 292	13.00 330	14.00 356	17.00 432	22.00 559	26.00 660	31.00 787	33.00 838	35.00 889	39.00 991	43.00 1092	47.00 1194	55.00 1397	57.00 1448	61.00 1549	65.00 1651	70.00 1778	82.00 2083	in mm
L2 (RTJ)	11.62 295	13.12 333	14.12 359	17.12 435	22.12 562	26.12 664	31.12 791	33.12 841	35.12 892	39.12 994	43.12 1095	47.25 1200	55.38 1407	57.50 1461	61.50 1562	65.50 1664	70.62 1794	82.62 2099	in mm
H (open)	16.50 418	18.75 476	20.38 518	25.50 646	33.00 840	40.38 1025	48.38 1230	57.00 1450	62.00 1575	70.62 1795	76.00 1930	87.00 2210	101.50 2580	105.00 2665	109.50 2780	114.00 2895	124.00 3150	140.00 3560	in mm
Do	8 200	10 250	10 250	12 300	18 450	20 500	24 600	24 600	24 600	24 600	26 640	26 640	29 720	29 720	32 800	32 800	38 950	40 1000	in mm
wt(kg)	36 29	52 42	67 53	112 83	170 125	393 310	610 472	890 730	1245 1055	1530 1240	1965 1625	2450 2030	2995 2590	3475 2855	3725 3065	4045 3440	4185 3780	4480 4085	RF BW

Dimensional datas of ANSI Class 900Lb

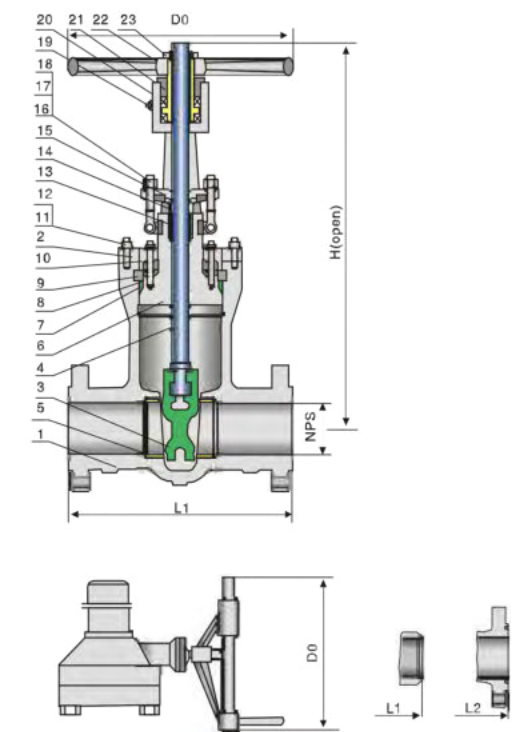
NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	in mm
L/L1 (RF/BW)	14.50 368	16.50 419	15.00 381	18.00 457	24.00 610	29.00 737	33.00 838	38.00 965	40.50 1029	44.50 1130	48.00 1219	52.00 1321	61.00 1549	in mm
L2 (RTJ)	14.62 371	16.62 422	15.12 384	18.12 460	24.12 613	29.12 740	33.12 841	38.12 968	40.88 1038	44.88 1140	48.50 1232	52.50 1334	61.75 1568	in mm
H (open)	19.62 498	21.50 547	22.50 573	26.62 678	35.50 900	4.50 1103	53.00 1345	60.00 1525	74.88 1900	81.00 2055	87.00 2215	101.00 2565	104.00 2640	in mm
Do	10 250	10 250	12 300	18 450	20 500	24 600	26 640	29 720	32 800	32 800	38 950	38 950	40 1000	in mm
wt(kg)	74 54	131 105	101 78	172 135	335 260	640 515	1100 920	1600 1380	2250 2010	2850 2565	3060 3485	3935 3250	49.00 4065	RF BW

Applicable Standards:

- STEEL GATE VALVES,API600/API 6D
- STEEL GATE VALVES, ISO 10434/ISO 14313
- 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

Design descriptions:

- PSB,PRESSURE SEAL BONNET
- FLEXIBLE WEDGE,FULLY GUIDED
- CHOICE OF SOLID OR SPLIT WEDGE
- RENEWABLE SEAT RINGS
- FORGED T-HEAD STEM
- RISING STEM AND NON-RISING HANDWHEEL
- FLANGED OR BUTTWELDING ENDS
- AVAILABLE WITH BG OPERATOR



Materials of parts

No	Part Name	ASTM Materials		
		Carbon Steel	1 1/4Cr-1/2Mo	18Cr-9Ni-2Mo
1	Body	A216-WCB	A217WC6	A351-CF8M
2	Yoke	A216-WCB	A217WC6	A351-CF8M
3	Wedge	A216-WCB+HF	A217WC6+HF	A351-CF8M+HF
4	Stem	A182F6a	CR-MO-V	A182-316
5	Seat Ring	A105+HF	A182F11+HF	A240-316+HF
6	Bonnet	A105	A182F11	A240-316
7	Bonnet Gasket	Steel Ring	304SS RING	316SS RING
8	Adapter Ring	Carbon Steel	A276-420	A276-316
9	Retainer	Carbon Steel	A276-420	A276-316
10	Yoke Cap	Carbon Steel	Alloy Steel	Stainless Steel
11	Bonnet Stud	A193B7	A193-B16	A193-B8M
12	Bonnet Stud Nut	A194-2H	A194-7	A194-8M
13	Packing	Graphite		
14	Gland	A276-420	A276-304	A276-316L
15	Gland Flange	A216WCB	A217WC6	A351-CF8M
16	Eyebolt Pin	Carbon Steel	A276-420	A276-316
17	Eyebolt	Carbon Steel	A193B7	A193B8
18	Eyebolt Nut	Carbon Steel	A194-2H	A194-8
19	Grease Fitting	Brass+Steel		
20	Yokesleeve	Aluminum-Bronze ²⁾		
21	Yokesleeve Jam Nut	Carbon Steel		Stainless Steel
22	Handwheel	Malleable Iron		
23	Handwheel Nut	Carbon steel		

Note:1)Graphite optional
2)Ductile Ni-resist optional
3)Wedge and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Dimensional datas of ANSI Class 1500Lb														
NPS	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	in
DN	50	65	80	100	150	200	250	300	350	400	450	500	600	mm
L/L1 (RF/BW)	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50	in
	368	419	470	546	705	832	991	1130	1257	1384	1537	1664	1943	mm
L2 (RTJ)	15.50	16.62	18.62	21.62	28.00	33.12	39.38	45.12	50.25	55.38	61.38	66.38	77.62	in
	371	422	473	549	711	841	1000	1146	1276	1407	1559	1686	1972	mm
H (open)	24.25	26.00	30.00	34.12	39.50	45.00	54.00	61.00	74.88	80.50	93.75	101.50	114.75	in
	615	658	760	868	1005	1145	1370	1550	1900	2050	2380	2580	2915	mm
Do	10	12	18	20	24	18	18	24	24	24	24	24	24	in
	250	300	450	500	600	460	460	600	600	600	600	600	600	mm
wt(kg)	116	166	209	296	510	920	1910	3145	4100	6200	8965	13100	15860	RF
	105	150	188	265	412	760	1640	2755	3200	5300	8070	11790	14275	BW

Dimensional datas of ANSI Class 2500Lb														
NPS	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	in
DN	50	65	80	100	150	200	250	300	350	400	450	500	600	mm
L/L1 (RF/BW)	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00	-	-	-	-	-	in
	451	508	578	673	914	1022	1270	1422	-	-	-	-	-	mm
L2 (RTJ)	17.88	20.50	23.00	26.88	36.50	40.88	50.88	56.88	-	-	-	-	-	in
	454	514	584	683	927	1038	1292	1445	-	-	-	-	-	mm
H (open)	24.88	29.00	35.00	41.50	57.00	63.38	81.75	89.75	-	-	-	-	-	in
	631	736	890	1055	1450	1610	2075	2280	-	-	-	-	-	mm
Do	12	18	20	20	24	24	24	24	-	-	-	-	-	in
	300	450	500	500	600	600	600	600	-	-	-	-	-	mm
wt(kg)	155	210	310	580	1600	2450	4570	7150	-	-	-	-	-	RF
	124	160	245	460	1310	2010	3800	6000	-	-	-	-	-	BW

Cast Steel Check Valves

- Swing Check Valves
- Pressure Seal Check Valves
- Water Check Valves

Design

GMK cast steel check valves are designed and manufactured to provide maximum service life and dependability. All check valves meet the design requirements of American Petroleum Institute standard API600 & 6D, BS EN 13709 and generally conform to American Society of Mechanical Engineers standard ASME B16.34. Valves are available in a complete range of body/cover materials and trims.

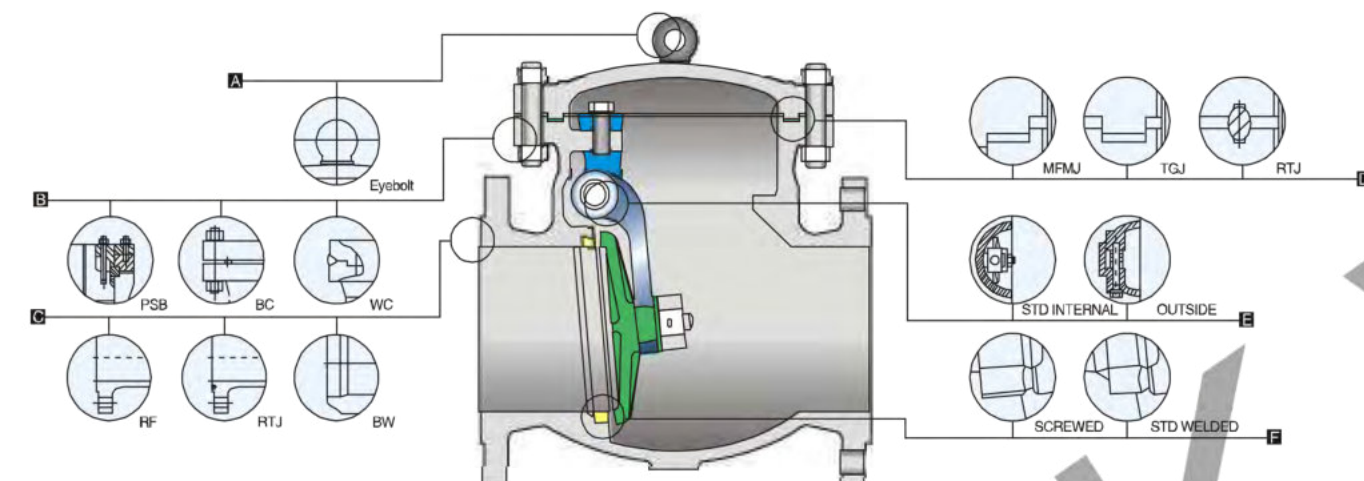
Available Modifications For GMK Cast Steel Valve

Trim changes
End connection modifications
Packing and gasket changes
Operator mounting
Handwheel extensions

Ranges of Materials

Standard body/cover materials include nine grades of carbon, low alloy and stainless steels, for special applications they can be supplied in other grades of alloy and stainless steel, there's a full range of trim materials to match any service optional packing and gasket materials are available for a full range of service conditions.

Pressure equalizing
Customer specified coatings
Weld end bore changes
Oxygen & chlorine cleaning & packaging



A Eyebolt

For 150Lb-8", 300Lb-8", 600Lb-6", 900Lb/1500Lb/2500Lb-4" & over.

B BC

Bolted cover, welded cover and pressure seal bonnet in services requiring frequent cycling or with high pressure/temperature variations.

C End Connections

A choice of flanged, RTJ flanged or butt welding end for piping flexibility.

D Body-to-Cover Joint

A male and female joint or tongue and groove joint is used 150Lb to 600Lb valves. Ring joint is used in the body to cover connection in 900Lb & higher rated valves.

E Outside Lever And Weight

All external hinge pin swing check valves 12" and smaller are available with an optional outside lever and weight, internal hinge available with all swing check valves.

F Seat Rings

Separate heavy duty, full ported rings for easy maintenance. Screwed or welded connection into body.

HCU weighted mechanical accumulator

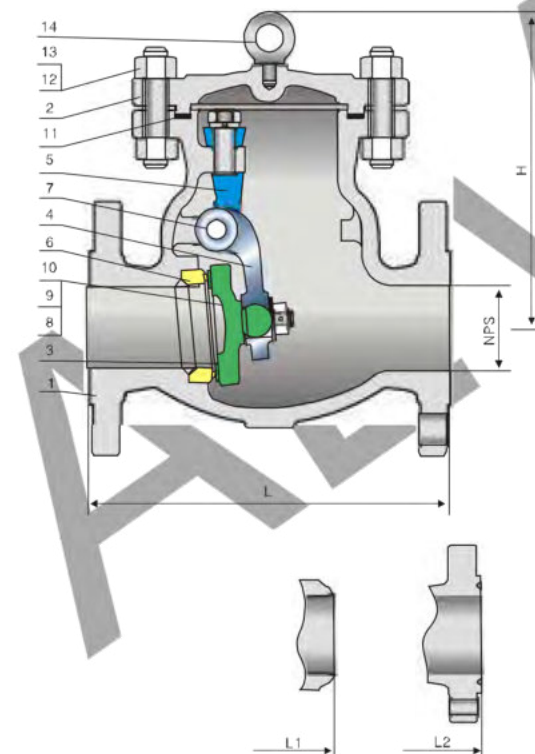
This design can be used to either dampen or assist closing of the check valve disc depending on orientation. by using the hydraulic control unit to buffer action the disc, the valve opens at lower flow rates.

Applicable Standards:

- STEEL CHECK VALVES, API 6D
- STEEL CHECK VALVES, ISO 14313
- 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

Design descriptions:

- BC, BOLTED COVER
- SWING TYPE, ANTI-ROTATION DISC
- RENEWABLE SEAT RINGS
- NON-PENETRATE DISC SHAFT
- HORIZONTAL OR VERTICAL SERVICE
- FLANGED OR BUTTWELDING ENDS



Materials of parts

No	Part Name	Carbon Steel	ASTM Materials 1 1/4Cr- 1/2Mo	Low Temperature Carbon Steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Cover	A216-WCB	A217-WC6	A352-LCB
3	Disc ¹⁾	A105-CR13	A182-F11+HF	A350-LF2+CR13
4	Hinge	A216-WCB	A217-WC6	A352-LCB
5	Fork Part	A216-WCB	A217-WC6	A352-LCB
6	Seat Ring	A105+CR13	A182-F11+HF	A350-LF2+CR13
7	Hinge Pin	A276-420	A276-304	A276-420
8	Disc Washer	Carbon Steel	A276-304	Carbon Steel
9	Disc Nut	Carbon Steel	A194-7	Carbon Steel
10	Disc Nut Pin	Carbon Steel	A276-420	Carbon Steel
11	Gasket	Spiral Wound (Graphite+304)		
12	Stud	A193-B7	A193-B16	A320-L7
13	Stud Nut	A194-2H	A194-7	A194-4
14	Eyebolt ²⁾	Carbon Steel		

Note: 1) Cast steel disc for NPS 4" and above.

2) NPS 6" & larger.

3) Disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Dimensional datas of ANSI Class 150Lb

NPS DN	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	36	in
	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	900	mm
L/L1 (RF/BW)	8.00	8.50	9.50	11.50	14.00	19.50	24.50	27.50	31.00	34.00	38.50	38.50	51.00	51.00	57.00	60.00	77.00	in
	203	216	241	292	356	495	622	699	787	864	978	978	1295	1295	1448	1524	1956	mm
L2 (RTJ)	8.50	9.00	10.00	12.00	14.50	20.00	25.00	28.00	31.50	34.50	39.00	39.00	51.50	-	-	-	-	in
	216	229	254	305	368	508	635	711	800	876	991	991	1308	-	-	-	-	mm
H	6.00	6.50	6.88	8.00	11.50	13.88	15.38	17.00	18.75	20.62	22.88	24.62	34.75	37.00	37.00	38.62	48.00	in
	152	165	175	204	293	353	390	432	475	525	582	627	883	940	940	980	1220	mm
wt(kg)	14	20	25	40	71	118	177	263	353	542	632	855	970	1600	1600	1990	2760	RF/RTJ
	10	12	17	29	57	96	143	227	295	468	552	755	831	1420	1420	1760	2230	BW

Dimensional datas of ANSI Class 300Lb

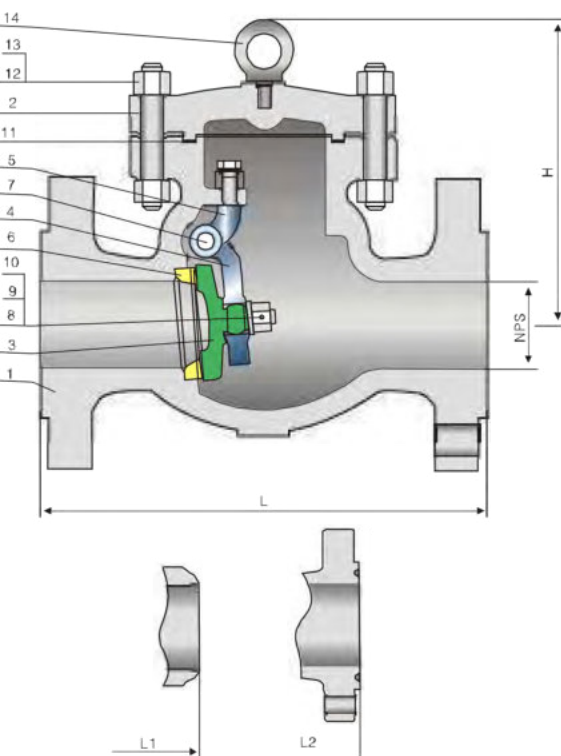
NPS DN	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	36	in
	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	900	mm
L/L1 (RF/BW)	10.50	11.50	12.50	14.00	17.50	21.00	24.50	28.00	33.00	34.00	38.50	40.00	53.00	53.00	59.00	62.75	82.00	in
	267	292	318	356	445	533	622	711	838	864	978	1016	1346	1346	1499	1594	2083	mm
L2 (RTJ)	11.12	12.12	13.12	14.62	18.12	21.62	25.12	28.62	33.62	34.62	39.12	40.75	53.88	54.00	60.00	63.75	-	in
	283	308	333	371	460	549	638	727	854	879	994	1035	1368	1372	1524	1619	-	mm
H	6.00	6.50	6.88	8.00	11.50	13.88	15.38	17.00	18.75	20.62	22.88	24.62	34.75	35.88	37.00	38.62	48.00	in
	152	165	175	204	292	353	390	432	475	525	582	627	883	910	940	980	1220	mm
wt(kg)	16	23	29	46	82	136	204	302	405	625	730	985	1115	1465	1840	2290	3180	RF/RTJ
	11	13	18	31	61	103	155	245	315	503	593	812	895	1205	1525	1895	2395	BW

Applicable Standards:

- STEEL CHECK VALVES, API 6D
- STEEL CHECK VALVES, ISO 14313
- 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

Design descriptions:

- BC, BOLTED COVER
- SWING TYPE, ANTI-ROTATION DISC
- RENEWABLE SEAT RINGS
- NON-PENETRATE DISC SHAFT
- HORIZONTAL OR VERTICAL SERVICE
- FLANGED OR BUTTWELDING ENDS



Materials of parts				
No	Part Name	Carbon Steel	ASTM Materials 1 1/4Cr- 1/2Mo	Low Temperature Carbon Steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Cover	A216-WCB	A217-WC6	A352-LCB
3	Disc ¹⁾	A216-WCB+CR13	A182-F11+HF	A350-LCB+CR13
4	Hinge	A216-WCB	A217-WC6	A352-LCB
5	Fork Part	A216-WCB	A217-WC6	A352-LCB
6	Seat Ring	A105+CR13	A182-F11+HF	A350-LF2+CR13
7	Hinge Pin	A276-420	A276-304	A276-420
8	Disc Washer	Carbon Steel	A276-304	Carbon Steel
9	Disc Nut	Carbon Steel	A194-7	Carbon Steel
10	Disc Nut Pin	Carbon Steel	A276-420	Carbon Steel
11	Gasket	Spiral Wound(Graphite+304)		
12	Stud	A193-B7	A193-B16	A320-L7
13	Stud Nut	A194-2H	A194-7	A194-4
14	Eyebolt ²⁾	Carbon Steel		

Note: 1) NPS 6" & larger.

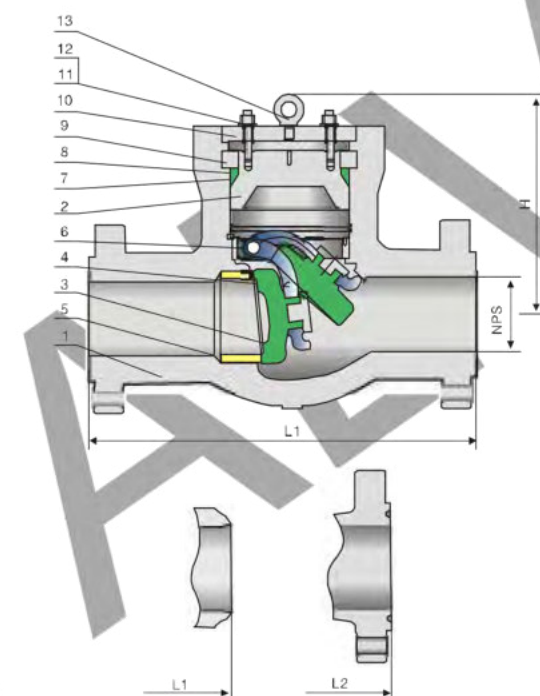
2) Disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Applicable Standards:

- STEEL CHECK VALVES, BS EN 13709/API 600
- 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

Design descriptions:

- PSB, PRESSURE SEAL BONNET
- FLEXIBLE DISC, FULLY GUIDED
- RENEWABLE SEAT RINGS
- FLANGED OR BUTTWELDING ENDS



Materials of parts

No	Part Name	Carbon Steel	ASTM Materials 1 1/4cr- 1/2Mo	18Cr-9Ni-2Mo
1	Body	A216-WCB	A217-WC6	A351-CF8M
2	Pres. Seal Bonnet	A216-WCB	A217-WC6	A351-CF8M
3	Disc	A105+HF	A182-F11+HF	A351-CF8M+HF
4	Hinge	A216-WCB	A217-WC6	A351-CF8M
5	Seat Ring	A105+HF	A182-F11+HF	A240-316+HF
6	Hinge Pin	A276-420	A276-304	A276-316
7	Bonnet Gasket ¹⁾	Steel Ring	304SS Ring	316SS RING
8	Adapter Ring	Carbon Steel	A276-420	A276-316
9	Retainer	Carbon Steel	A276-420	A276-316
10	Cover	Carbon Steel	Alloy Steel	Stainless Steel
11	Bonnet Stud	A193-B7	A193-B7	A193-B8M
12	Bonnet Stud Nut	A194-2H	A194-2H	A194-8M
13	Eyebolt	Carbon Steel		

Note: 1) graphite optional

2) disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Dimensional datas of ANSI Class 600Lb

NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	in mm
L/L1 (RF/BW)	11.50 292	13.00 330	14.00 356	17.00 432	22.00 559	26.00 660	31.00 787	33.00 838	35.00 889	39.00 991	43.00 1092	47.00 1194	55.00 1397	in mm
L2 (RTJ)	11.62 295	13.12 333	14.12 359	17.12 435	22.12 562	26.12 664	31.12 791	33.12 841	35.12 892	39.12 994	43.12 1095	47.25 1200	55.38 1407	in mm
H	7.50 190	8.00 205	8.75 222	10.00 255	14.50 368	17.50 445	19.25 490	21.38 540	23.38 595	25.75 655	28.75 730	31.00 785	43.50 1105	in mm
wt(kg)	24 16	35 19	44 26	70 44	125 87	207 147	310 220	460 350	615 452	945 720	1105 845	1495 1160	1695 1280	RF/RTJ BW

Dimensional datas of ANSI Class 900Lb

NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	in mm
L/L1 (RF/BW)	14.50 368	16.50 419	15.00 381	18.00 457	24.00 610	29.00 737	33.00 838	38.00 965	40.50 1029	44.50 1130	48.00 1219	52.00 1321	- -	in mm
L2 (RTJ)	14.62 371	16.62 422	15.12 384	18.12 460	24.12 613	29.12 740	33.12 841	38.12 968	40.88 1038	44.88 1140	48.50 1232	52.50 1334	- -	in mm
H	9.50 240	10.00 256	11.00 278	12.50 320	18.12 460	22.00 560	24.00 610	26.50 675	29.38 745	32.00 815	33.50 850	38.75 985	- -	in mm
wt(kg)	37 21	54 25	68 34	109 58	195 115	321 194	481 290	711 461	956 597	1468 950	1870 1210	2316 1533	- -	RF/RTJ BW

Dimensional datas of ANSI Class 1500Lb

NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	L/L1 (RF/BW)	L2 (RTJ)	H	WT(kg)
2	50	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	368	422	9.50	40
2 1/2	65	16.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	419	473	10.00	63
3	80	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	59.50	470	524	13.00	70
4	100	21.50	27.75	32.75	39.00	44.50	49.50	54.50	59.50	64.50	546	599	14.75	115
6	150	27.75	32.75	39.00	44.50	49.50	54.50	59.50	64.50	69.50	705	758	18.88	250
8	200	32.75	39.00	44.50	49.50	54.50	59.50	64.50	69.50	74.50	832	885	23.50	470
10	250	39.00	44.50	49.50	54.50	59.50	64.50	69.50	74.50	79.50	991	1044	26.00	740
12	300	44.50	49.50	54.50	59.50	64.50	69.50	74.50	79.50	84.50	1130	1183	29.12	1100
14	350	49.50	54.50	59.50	64.50	69.50	74.50	79.50	84.50	89.50	1257	1310	30.88	1410
16	400	54.50	59.50	64.50	69.50	74.50	79.50	84.50	89.50	94.50	1384	1437	32.88	1600
in	mm	in	in	in	in	in	in	in	in	in	mm	mm	in	mm

Dimensional datas of ANSI Class 2500Lb

NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	L/L1 (RF/BW)	L2 (RTJ)	H	WT(kg)
2	50	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00	-	451	454	10.75	50
2 1/2	65	20.00	22.75	26.50	36.00	40.25	50.00	56.00	64.50	-	508	514	13.25	76
3	80	22.75	26.50	36.00	40.25	50.00	56.00	64.50	74.50	-	578	584	13.75	85
4	100	26.50	36.00	40.25	50.00	56.00	64.50	74.50	84.50	-	673	683	15.12	165
6	150	36.00	40.25	50.00	56.00	64.50	74.50	84.50	94.50	-	914	927	19.50	460
8	200	40.25	50.00	56.00	64.50	74.50	84.50	94.50	104.50	-	1022	1038	24.62	900
10	250	50.00	56.00	64.50	74.50	84.50	94.50	104.50	114.50	-	1270	1292	28.00	1300
12	300	56.00	64.50	74.50	84.50	94.50	104.50	114.50	124.50	-	1422	1445	35.62	1800
14	350	-	-	-	-	-	-	-	-	-	-	-	-	-
16	400	-	-	-	-	-	-	-	-	-	-	-	-	-
in	mm	in	in	in	in	in	in	in	in	in	mm	mm	in	mm

Applicable Standards:

- STEEL CHECK VALVES, API 594/API 6D
- STEEL CHECK VALVES, ISO 14313
- STEEL VALVES, ASME B16.34
- FACE TO FACE, ASME B16.10
- END FLANGES, ASME B16.5
- INSPECTION AND TEST, API 598/API 6D

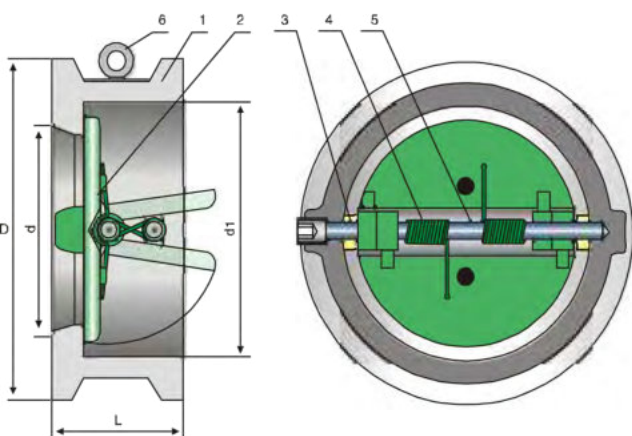
Design descriptions:

- ONE PIECE BODY
- BUTTERFLY SWING TYPE
- DUAL-PLATE DISC, LONG-PATTERN
- RENEWABLE SPLIT DISC
- HORIZONTAL OR VERTICAL SERVICE
- WAFER ENDS
- AVAILABLE WITH FLANGED ENDS

Materials of parts

No	Part Name	Carbon Steel	ASTM Materials 18Cr-9NiMo	Low Temperature Carbon Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Plate	A216-WCB+CR13	A351-CF8M+HF	A350-LCB+CR13
3	Stop Pin	A276-420	A276-304	A276-420
4	Back Spring	A313-304	A313-316	A313-304
5	Hinge Pin	A276-420	A276-304	A276-420
6	Eyebolt ⁽²⁾	Carbon Steel		

Note: 1) NPS 8" & larger.



Dimensional datas of ANSI Class 150Lb

NPS DN	2 50	2½ 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	in mm
L	2.38	2.62	2.88	2.88	3.88	5.00	5.75	7.12	7.25	7.50	8.00	8.62	8.75	in
	60	67	73	73	98	127	146	181	184	191	203	219	222	mm
D	4.00	4.88	5.38	6.75	8.62	10.88	13.25	16.00	17.62	20.12	21.50	23.75	28.12	in
	103	122	135	173	220	277	337	407	448	512	547	604	715	mm
d	2.00	2.50	3.25	4.00	6.00	8.00	10.00	12.00	13.75	15.75	17.75	19.75	23.62	in
	51	65	80	102	152	203	254	305	350	400	450	500	600	mm
D1	2.25	2.88	3.50	4.25	6.25	8.25	10.50	12.12	14.00	16.00	18.00	19.88	23.75	in
	56	73	88	108	160	210	266	310	355	405	455	505	605	mm
WT	2	3	4	6	13	25	39	54	80	117	138	163	331	kg

Dimensional datas of ANSI Class 300Lb

NPS DN	2 50	2½ 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	in mm
L	2.38	2.62	2.88	2.88	3.88	5.00	5.75	7.12	8.75	9.12	10.38	11.50	12.50	in
	60	67	73	73	98	127	146	181	222	232	264	292	318	mm
D	4.25	5.00	5.75	7.00	9.88	12.00	14.12	16.50	19.00	21.12	23.38	25.62	30.38	in
	110	128	147	179	249	305	359	420	483	537	594	652	772	mm
d	2.00	2.50	3.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	24.00	in
	51	65	80	102	152	8.25	254	305	350	400	450	500	600	mm
D1	2.25	2.88	3.50	4.25	6.38	203	10.50	12.25	14.00	16.00	18.00	20.00	24.00	in
	58	73	88	108	160	210	266	310	355	405	455	505	608	mm
WT	3	4	6	8	18	31	51	77	117	190	200	265	410	kg

Applicable Standards:

- STEEL CHECK VALVES, API 594/API 6D
- STEEL CHECK VALVES, ISO 14313
- STEEL VALVES, ASME B16.34
- FACE TO FACE, ASME B16.10
- END FLANGES, ASME B16.5
- INSPECTION AND TEST, API 598/API 6D

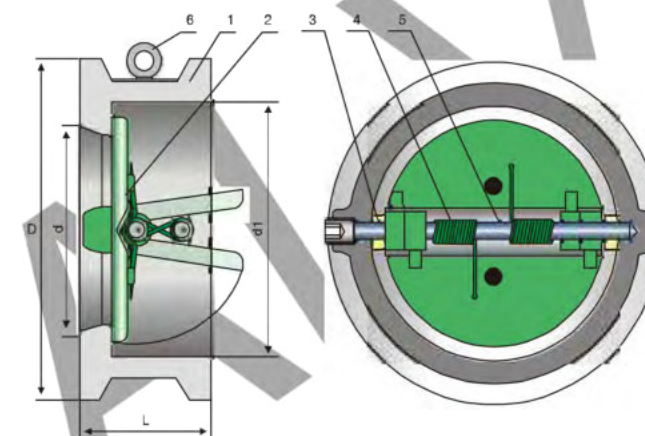
Design descriptions:

- ONE PIECE BODY
- BUTTERFLY SWING TYPE
- DUAL-PLATE DISC, LONG-PATTERN
- RENEWABLE SPLIT DISC
- HORIZONTAL OR VERTICAL SERVICE
- WAFER ENDS
- AVAILABLE WITH FLANGED ENDS

Materials of parts

No	Part Name	Carbon Steel	ASTM Materials 18Cr-9NiMo	Low Temperature Carbon Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Plate	A216-WCB+CR13	A351-CF8M+HF	A350-LCB+CR13
3	Stop Pin	A276-420	A276-304	A276-420
4	Back Spring	A313-304	A313-316	A313-304
5	Hinge Pin	A276-420	A276-304	A276-420
6	Eyebolt ⁽²⁾	Carbon Steel		

Note: 1) NPS 8" & larger.



Dimensional datas of ANSI Class 600Lb

NPS DN	2 50	2½ 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	in mm
L	2.38	2.62	2.88	3.12	5.38	6.50	8.38	9.00	10.75	12.00	in
	60	67	73	79	137	165	213	229	273	305	mm
D	4.38	5.00	5.75	7.50	10.38	12.50	15.62	17.88	19.25	22.12	in
	110	128	147	191	264	318	398	455	490	562	mm
d	2.00	2.50	3.00	4.00	6.00	7.88	9.88	12.00	13.25	15.25	in
	51	65	80	102	152	200	250	305	337	387	mm
D1	2.25	2.88	3.50	4.25	6.38	8.38	10.50	12.25	14.00	157.75	in
	58	73	88	108	162	212	266	312	355	400	mm
WT	4	5	8	11	26	55	95	140	223	360	kg

Dimensional datas of ANSI Class 900Lb

NPS DN	2 50	2½ 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	in mm
L	2.75	3.25	3.25	4.00	6.25	8.12	9.50	11.50	-	-	in
	70	83	83	102	159	206	241	292	-	-	mm
D	5.50	6.38	6.50	8.00	11.25	14.00	17.00	19.50	-	-	in
	140	162	165	204	286	356	432	495	-	-	mm
d	2.00	2.50	3.00	4.00	6.00	7.88	9.88	12.00	-	-	in
	51	62	80	102	152	200	250	305	-	-	mm
D1	2.25	2.88	3.50	4.25	6.38	8.38	10.50	12.25	-	-	in
	58	73	88	108	162	212	266	312	-	-	mm
WT	8	11	14	20	42	84	145	220	-	-	kg

Cast Steel & Pressure Seal Globe Valves

Design

GMK cast steel globe valves are designed and manufactured to provide maximum service life and dependability. All globe valve are full ported and meet the design requirements of American Petroleum Institute standard API600& 6D.BS EN 13709 and generally conform to American Society of Mechanical Engineers standard ASME B16.34 .Valves are available in a complete range of body/bonnet materials and trims.

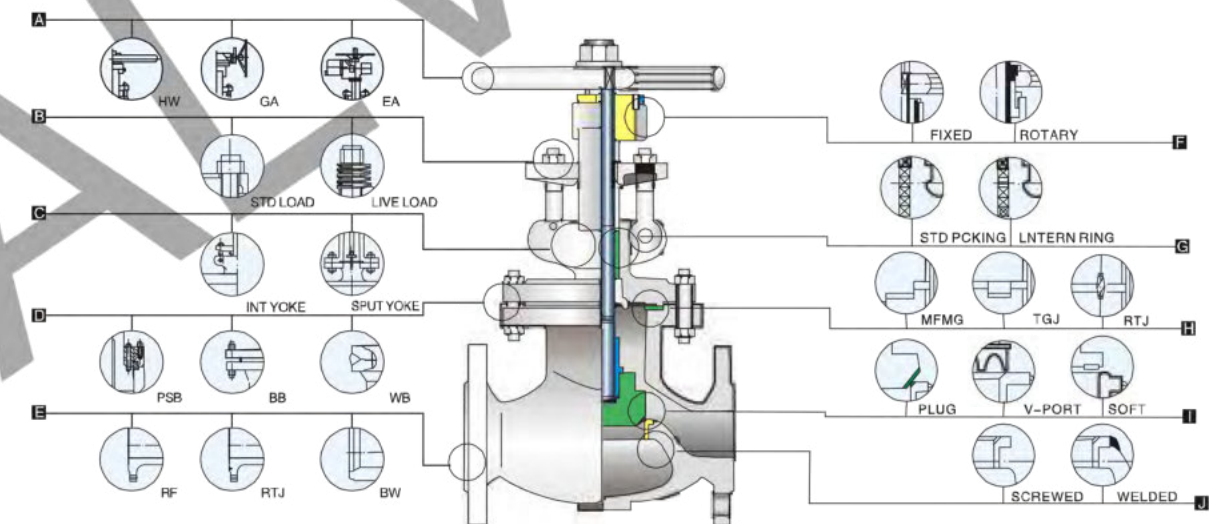
Ranger of Materials

Standard body/bonnet materials include nine grades of carbon, low alloy and stainless steel, for special applications they can be supplied in other grades of alloy and stainless steel, there's a full range of trim materials to match any service optional packing and gasket materials are available for a full range of service conditions.

Available Modifications for GMK Cast Globe Valves

Trim changes
End connection modifications
Packing and gasket changes
Operator mounting
Handwheel extensions

Pressure equalizing
By-pass
Customer specified coatings
Weld end bore changes
Oxygen & chlorine cleaning & packaging



A Operation

Large handwheels for easy operation. Also available with gearing, motor actuators, pneumatic or hydraulic actuators for more difficult services.

B Live Load Packing

In services requiring frequent cycling or with high pressure/temperature variations, live loading extends the service life between maintenance periods packing gland adjustments. Belleville spring are employed to provide constant packing gland stress.

C OS & Y

O outside screw and yoke. Cast steel globe valve yoke integral with bonnet for 10 & smaller.

D BB

Bolted bonnet welding bonnet and pressure seal bonnet in services requiring frequent cycling or with high pressure/temperature variations.

E End Connections

A choice of flanged, RTJ flanged or buttwelding end for piping flexibility.

F Yoke sleeve

Furnished in aluminum bronze to reduce operating torque. Most size furnished with ball bearing yoke sleeves.

G Lantern Ring And Double Packing Set

Lantern ring with leak-off fitting connection and double packing stack is optionally available for critical services.

H Body-to-Bonnet Joint

A male and female joint or tongue and groove joint is used 150Lb to 600Lb valves, ring joint is used in the body to bonnet connection in 900Lb&higher rated valves.

I Disc

Plug disc is stem guided on all size. Disc has a differential angle front the seat to provide a line contact for maximum sealing. The bottom of v-port disc is guided by the body seat ring for maximum disc stability in throttling applications, the soft teflon ring is excellent for lower temperature service where tight shut off required.

J Seat Rings

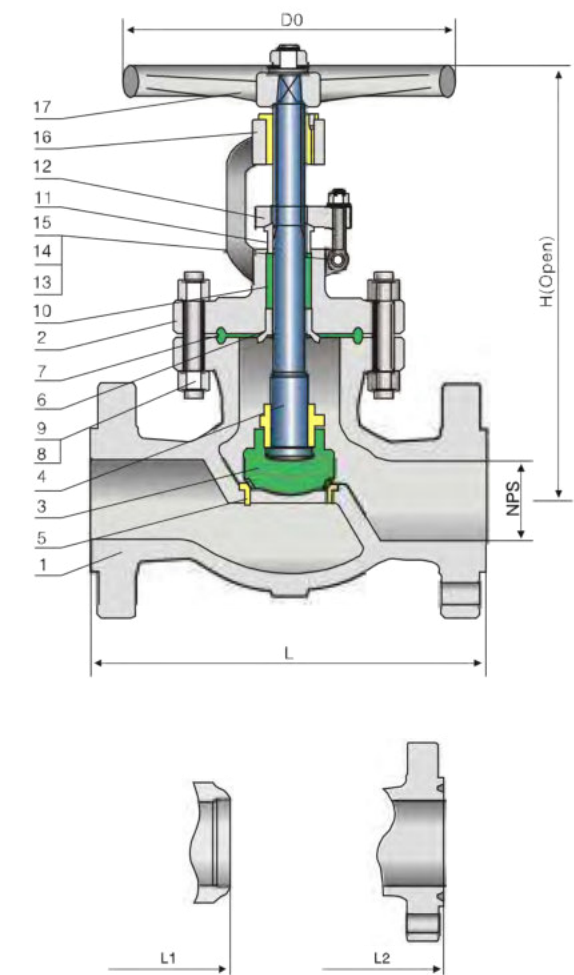
Separate heavy duty, full ported rings for easy maintenance. Screwed or welded connection into body.

Applicable Standards:

- STEEL GLOBE VALVES BS EN 13709/API 600
- 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

Design descriptions:

- STRAIGHT PATTERN BODY DESIGN
- OS&Y, OUTSIDE SCREW AND YOKE
- BB, BOLTED BONNET
- YOKE INTEGRAL WITH BONNET
- RISING STEM AND HANDWHEEL
- LOOSE DISC, CHOICE OF PLUG OR BALL
- RENEWABLE SEAT RING
- IMPACT HANDWHEEL FOR 10" & ABOVE
- HORIZONTAL SERVICE
- FLANGED OR BUTTWELDING ENDS
- AVAILABLE WITH BG OPERATOR



Materials of parts

No	Part Name	Carbon Steel	ASTM Materials 1 1/4Cr- 1/2Mo	Low Temperature Carbon Steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet	A216-WCB	A217-WC6	A352-LCB
3	Disc	A105+CR13	A182-F11+HF	A350-LF2+CR13
4	Stem	A182-F6a	CR-MO-V	A182-F6a
5	Seat Ring	A105+HF	A182-F11+HF	A350-LF2+HF
6	Stem Backseat	A276-420	A276-304	A276-420
7	Bonnet Gasket	Steel Ring	304SS Ring	Steel Ring
8	Bonnet Stud	A193-B7	A193-B16	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-7	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-304	A276-420
12	Gland Flange	A216-WCB	A217-WC6	A352-LCB
13	Eyebolt Pin	Carbon Steel	A276-420	Carbon Steel
14	Eyebolt	Carbon Steel	A193-B7	Carbon Steel
15	Eyebolt Nut	Carbon Steel	A194-2H	Carbon Steel
16	Yokesleeve		Aluminum-Bronze ¹⁾	
17	Handwheel		Malleable Iron	

Note: 1) Ductile Ni-resist optional

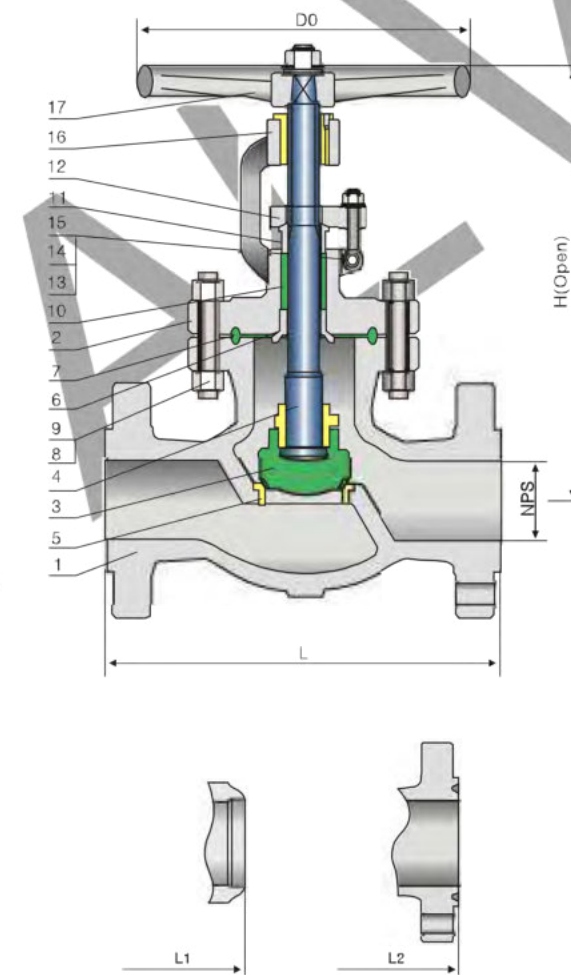
2) Disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Applicable Standards:

- STEEL GLOBE VALVES BS EN 13709/API 600
- 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

Design descriptions:

- STRAIGHT PATTERN BODY DESIGN
- OS&Y, OUTSIDE SCREW AND YOKE
- BB, BOLTED BONNET
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- RENEWABLE SEAT RING
- IMPACT HANDWHEEL FOR 10" & ABOVE
- HORIZONTAL SERVICE
- FLANGED OR BUTTWELDING ENDS
- AVAILABLE WITH BG OPERATOR



Materials of parts

No	Part Name	Carbon Steel	ASTM Materials 1 1/4Cr- 1/2Mo	Low Temperature Carbon Steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet	A216-WCB	A217-WC6	A352-LCB
3	Disc	A105+CR13	A182-F11+HF	A350-LF2+CR13
4	Stem	A182-F6a	CR-MO-V	A182-F6a
5	Seat Ring	A105+HF	A182-F11+HF	A350-LF2+HF
6	Stem Backseat	A276-420	A276-304	A276-420
7	Bonnet Gasket	Steel Ring	304SS Ring	Steel Ring
8	Bonnet Stud	A193-B7	A193-B16	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-7	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-304	A276-420
12	Gland Flange	A216-WCB	A217-WC6	A352-LCB
13	Eyebolt Pin	Carbon Steel	A276-420	Carbon Steel
14	Eyebolt	Carbon Steel	A193-B7	Carbon Steel
15	Eyebolt Nut	Carbon Steel	A194-2H	Carbon Steel
16	Yokesleeve		Aluminum-Bronze ¹⁾	
17	Handwheel		Malleable Iron	

Note: 1) Ductile Ni-resist optional

2) Disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Dimensional datas

NPS	DN	L/L1 (RF/BW)	L2 (RTJ)	H (open)	D0	WT(kg)	L/L1 (RF/BW)	L2 (RTJ)	H (open)	D0	WT(kg)
ANSI Class150Lb						ANSI Class300Lb					
2	50	8.00	203	8.00	203	15.00	380	7	180	18	14
2 1/2	65	8.50	216	8.50	216	21.00	535	10	240	30	22
3	80	9.50	241	9.50	241	17.50	445	11	280	41	33
4	100	11.50	292	11.50	292	20.25	515	11	280	64	43
6	150	16.00	406	16.00	406	22.00	560	13	320	86	72
8	200	19.50	495	19.50	495	24.25	615	13	320	110	88
10	250	24.50	622	24.50	622	32.00	815	16	400	280	245
12	300	27.50	698	27.50	698	35.88	910	18	450	380	345
14	350	31.00	787	31.00	787	48.38	1230	20	500	510	450
16	400	36.00	914	36.00	914	57.00	1450	24	600	740	665
in	mm	in	mm	in	mm	in	mm	in	mm	mm	mm

Dimensional datas

NPS	DN	L/L1 (RF/BW)	L2 (RTJ)	H (open)	D0	WT(kg)	L/L1 (RF/BW)	L2 (RTJ)	H (open)	D0	WT(kg)
ANSI Class600Lb						ANSI Class900Lb					
2	50	11.50	292	11.62	295	17.50	445	10	240	35	27
2 1/2	65	13.00	330	13.12	333	19.75	502	11	280	50	34
3	80	14.00	356	14.12	359	21.00	533	13	320	60	42
4	100	17.00	432	17.12	435	24.50	622	16	400	110	84
6	150	22.00	559	22.12	562	29.50	750	18	450	230	192
8	200	26.00	660	26.12	663	36.50	927	20	500	410	350
10	250	31.00	787	31.12	790	44.88	1140	24	600	770	680
12	300	33.00	838	33.12	841	53.12	1350	24	600	1140	1030
in	mm	in	mm	in	mm	in	mm	in	mm	mm	mm

Applicable Standards:

- STEEL GLOBE VALVES, BS EN 13709/API 600
- STEEL VALVES, ASME B16.34
- FACE TO FACE, ASME B16.10
- END FLANGES ASME B16.5
- BUTT WELDING ENDS, ASME B16.25
- INSPECTION AND TEST, API 598

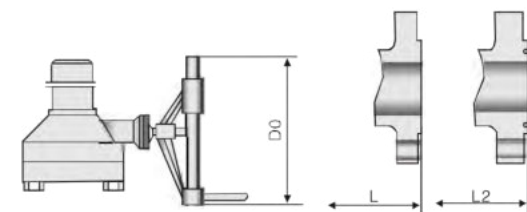
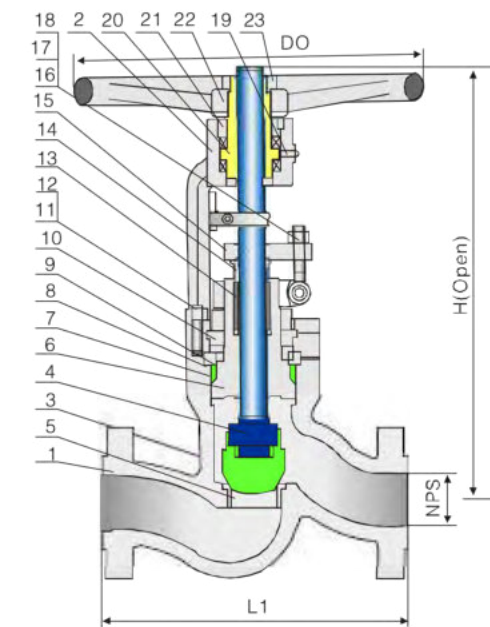
Design descriptions:

- PSB, PRESSURE SEAL BONNET
- OS&Y, OUTSIDE SCREW AND YOKE
- BB, BOLTED BONNET
- RENEWABLE SEAT RINGS
- RISING STEM AND HANDWHEEL
- FLANGED OR BUTT WELDING ENDS
- AVAILABLE WITH BG OPERATOR

Materials of parts

No	Part Name	ASTM Materials		
		Carbon Steel	1 1/4Cr- 1/2Mo	18Cr-9Ni-2Mo
1	Body	A216-WCB	A217-WC6	A351-CF8M
2	Yoke	A216-WCB	A217-WC6	A351-CF8M
3	Disc	A216-WCB+HF	A217-WC6+HF	A351-CF8M+HF
4	Stem	A182-F6a	CR-MO-V	A182-316
5	Seat Ring	A105+HF	A182-F11+HF	A240-316+HF
6	Bonnet	A105	A182-F11	A240-316
7	Bonnet Gasket ¹⁾	Steel Ring	304SS Ring	316SS Ring
8	Adapter Ring	Carbon Steel	A276-420	A276-316
9	Retainer	Carbon Steel	A276-420	A276-316
10	Yoke Cap	Carbon Steel	Alloy Steel	Stainless Steel
11	Bonnet Stud	A193-B7	A193-B16	A193-B8M
12	Bonnet Stud Nut	A194-2H	A194-7	A194-8M
13	Packing	Graphite		
14	Gland	A276-420	A276-304	A276-316L
15	Gland Flange	A216-WCB	A217-WC6	A351-CF8M
16	Eyebolt Pin	Carbon Steel	A276-420	A276-316
17	Eyebolt	Carbon Steel	A193-B7	A193-B8
18	Eyebolt Nut	Carbon Steel	A194-2H	A194-8
19	Grease Fitting	Brass+Steel		
20	Yokesleeve	Aluminum-Bronze ²⁾		
21	Yokesleeve Jam Nut	Carbon Steel		Stainless Steel
22	Handwheel	Malleable Iron		
23	Handwheel Nut	Carbon Steel		

Note: 1) Graphite optional
2) Ductile Ni-resist optional
3) Wedge and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



Dimensional datas

NPS	DN	L/L1 (RF/BW)	L2 (RTJ)	H (open)	D0				WT(kg)				L/L1 (RF/BW)	L2 (RTJ)	H (open)	D0				WT(kg)					
		ANSI Class1500Lb												ANSI Class2500Lb											
2	50	14.50	368	14.62	371	22.00	560	13	320	68	57	17.75	451	17.88	454	25.50	650	16	400	97	72				
2½	65	16.50	419	16.62	422	23.25	590	16	400	97	81	20.00	508	20.50	414	28.12	715	18	450	138	95				
3	80	18.50	470	18.62	473	29.50	750	18	450	116	95	22.75	578	23.00	584	32.50	825	20	500	167	108				
4	100	21.50	546	21.62	549	36.00	915	20	500	215	184	26.50	673	26.88	683	47.00	1195	24	600	305	196				
6	150	27.75	705	28.00	711	48.62	1235	24	600	445	347	36.00	914	36.50	927	70.50	1790	28	700	633	351				
8	200	32.75	832	33.12	841	65.00	1650	28	700	795	635	-	-	-	-	-	-	-	-	-	-				
in	mm	in	mm	in	mm	in	mm	in	mm	RF/RTJ	BW	in	mm	in	mm	in	mm	in	mm	RF/RTJ	BW				

Applicable Standards:

- 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

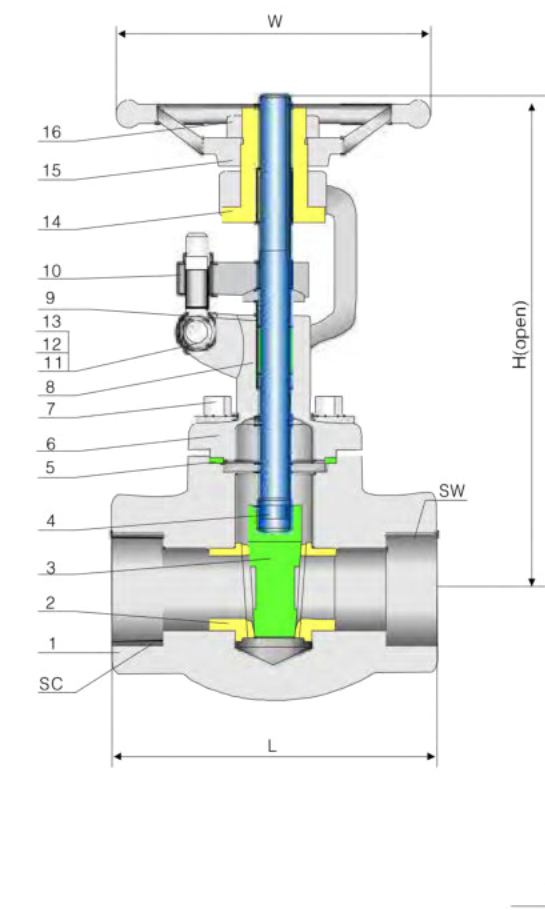
Design descriptions:

- OUTSIDE SCREW AND YOKE (OS&Y)
- BOLTED BONNET
- CHOICE OF WB, WELDED 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, BUTT WELDING ENDS
- FLANGED ENDS

Materials of parts

No	Part Name	C-Si	ASTM Materials 16Cr-12Ni-2Mo	1 1/4Cr- 1/2Mo-Si
1	Body	A105	A182-F316	A182-F11
2	Bonnet	A105	A182-F316	A182-F11
3	Wedge	A182-F6a	A182-F316	A182-F6a+HF
4	Stem	A276-410	A276-316	A276-410
5	Seat Ring	A276-410	A182-F316	A276-410+HF
6	Bonnet Gasket ¹⁾	Graphite+304	Graphite+316	Graphite+304
7	Bonnet Stud	A193-B7	A193-B8M	A193-B16
8	Packing	Graphite		
9	Gland	A276-410	A276-316	A276-410
10	Gland Flange	A105	A182-F316	A182-F11
11	Eyebolt Pin	A276-410	A276-316	A276-410
12	Eyebolt	A193-B7	A193-B8M	A193-B16
13	Eyebolt Nut	A194-2H	A194-8M	A194-2H
14	Yokesleeve	A276-410		
15	Handwheel	Malleable Iron		
16	Handwheel nut	Carbon Steel		

Note: 1) spiral wound construction



Dimensional datas

NPS DN	Unit	L1 ¹⁾	L(Flanged Ends)			d	SW		SC	H(open)	D0	WT ²⁾ (kg)
			150Lb	300Lb	600Lb		D	B	NPT	S		
3/8	in	3.12	4.00	5.50	6.50	0.394	0.693	0.378	3/8	0.540	6.00	4.00
10	mm	79	102	140	165	10	17.6	9.6		13.6	151	100
1/2	in	3.12	4.25	5.50	6.50	0.394	0.858	0.378	1/2	0.535	6.00	4.00
15	mm	79	108	140	165	10	21.8	9.6		13.6	151	100
3/4	in	3.62	4.62	6.00	7.50	0.531	1.067	0.500	3/4	0.547	6.25	4.00
20	mm	92	117	152	190	13.5	27.1	12.7		13.9	158	100
1	in	4.38	5.00	6.50	8.50	0.709	1.331	0.500	1	0.681	7.25	5.00
25	mm	111	127	165	216	18	33.8	12.7		17.3	185	125
1 1/4	in	4.75	5.50	7.00	9.00	0.945	1.677	0.500	1 1/4	0.709	9.38	6.25
32	mm	120	140	178	229	24	42.6	12.7		18	239	160
1 1/2	in	4.75	6.50	7.50	9.50	1.181	1.917	0.500	1 1/2	0.724	9.50	6.25
40	mm	120	165	190	241	30	48.7	12.7		18.4	243	160
2	in	5.50	7.00	8.50	11.50	1.437	2.406	0.626	2	0.756	11.00	7.00
50	mm	140	178	216	292	36.5	61.1	15.9		19.2	279	180

Notes: 1) BW, SW or SC.
2) 600Lb-RF/800Lb-(BW/SW/SC)

Applicable Standards:

- 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

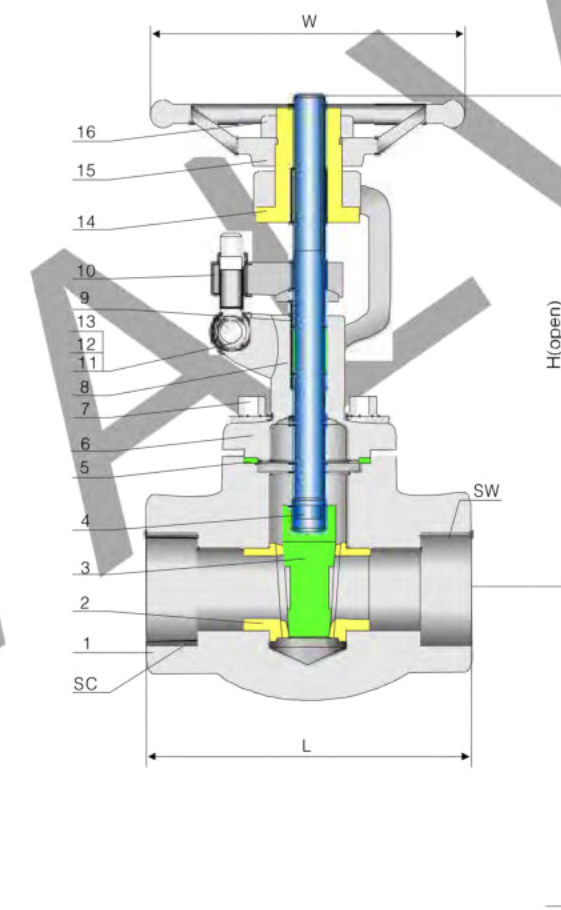
Design descriptions:

- OUTSIDE SCREW AND YOKE (OS&Y)
- BOLTED BONNET
- CHOICE OF WB, WELDED 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, BUTT WELDING ENDS
- FLANGED ENDS

Materials of parts

No	Part Name	C-Si	ASTM Materials 16Cr-12Ni-2Mo	1 1/4Cr- 1/2Mo-Si
1	Body	A105	A182-F316	A182-F11
2	Bonnet	A105	A182-F316	A182-F11
3	Wedge	A182-F6a	A182-F316	A182-F6a+HF
4	Stem	A276-410	A276-316	A276-410
5	Seat Ring	A276-410	A182-F316	A276-410+HF
6	Bonnet Gasket ¹⁾	Graphite+304	Graphite+316	Graphite+304
7	Bonnet Stud	A193-B7	A193-B8M	A193-B16
8	Packing	Graphite		
9	Gland	A276-410	A276-316	A276-410
10	Gland Flange	A105	A182-F316	A182-F11
11	Eyebolt Pin	A276-410	A276-316	A276-410
12	Eyebolt	A193-B7	A193-B8M	A193-B16
13	Eyebolt Nut	A194-2H	A194-8M	A194-2H
14	Yokesleeve	A276-410		
15	Handwheel	Malleable Iron		
16	Handwheel nut	Carbon Steel		

Note: 1) spiral wound construction



Dimensional datas

	NPS DN	L1	H(open)	W	WT ²⁾ (kg)	
	Conv.	Full			Bolted	Welede
900Lb	3/8		95	169	100	2.5 2.4
	1/2	3/8	111	197	125	4.3 4.2
	3/4	1/2	111	197	125	4.2 4.0
	1	3/4	120	236	160	6.6 6.3
1500Lb	1 1/4	1	120	246	160	8.8 8.7
	1 1/2	1 1/4	140	283	180	12.5 12.1
	2	1 1/2	178	330	200	17.2 17.2
		2	210	354	240	23.5 22.0

Applicable Standards:

- 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

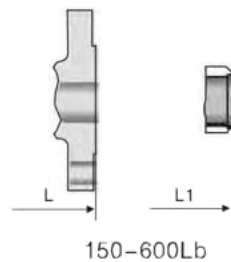
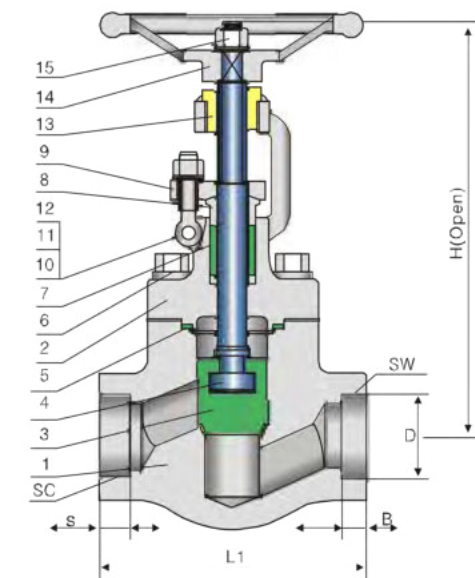
Design descriptions:

- OUTSIDE SCREW AND YOKE (OS&Y)
- BOLTED BONNET
- CHOICE OF WB, WELDED BONNET
- LOOSE DISC,CHOICE OF PLUG OR BALL
- 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

Materials of parts

No	Part Name	C-Si	ASTM Materials 16Cr-12Ni-2Mo	1 ¼Cr-½Mo-Si
1	Body	A105	A182-F316	A182-F11
2	Bonnet	A105	A182-F316	A182-F11
3	Disc	A182-F6a	A182-F316	A182-F6A+HF
4	Stem	A276-410	A276-316	A276-410
5	Bonnet Gasket ²⁾	Graphite+304	Graphite+316	Graphite+304
6	Bonnet Stud	A193-B7	A193-B8M	A193-B16
7	Packing	Graphite		
8	Gland	A276-410	A276-316	A276-410
9	Gland Flange	A105	A182-F316	A182-F11
10	Eyebolt Pin	A276-410	A276-316	A276-410
11	Eyebolt	A193-B7	A193-B8M	A193-B16
12	Eyebolt Nut	A194-2H	A194-8M	A194-2H
13	Yokesleeve	A276-410		
14	Handwheel	Malleable Iron		
15	Handwheel Nut	Carbon Steel		

Note: 1) seat integral with body
2)spiral wound construction



Dimensional datas

NPS DN	Unit	L1 ¹⁾	L(Flanged Ends)			d	SW		SC	H(open)	D0	WT ²⁾ (kg)
			150Lb	300Lb	600Lb		D	B	NPT	S		
3/8	in	3.12	4.00	6.00	6.50	0.354	0.693	0.378	3/8	0.540	6.50	4.00
10	mm	79	102	152	165	9	17.6	9.6		13.6	164	100
1/2	in	3.12	4.25	6.00	6.50	0.354	0.858	0.378	1/2	0.535	6.50	4.00
15	mm	79	108	152	165	9	21.8	9.6		13.6	164	100
3/4	in	3.62	4.62	7.00	7.50	0.512	1.067	0.500	3/4	0.547	6.50	4.00
20	mm	92	117	178	190	13	27.1	12.7		13.9	164	100
1	in	4.38	5.00	8.00	8.50	0.689	1.331	0.500	1	0.681	8.00	5.00
25	mm	111	127	203	216	17.5	33.8	12.7		17.3	203	125
1 ¼	in	4.75	5.50	8.50	9.00	0.906	1.677	0.500	1 ¼	0.709	8.88	6.25
32	mm	120	140	216	229	23	42.6	12.7		18	224	160
1 ½	in	6.00	6.50	9.00	9.50	1.142	1.917	0.500	1 ½	0.724	10.25	6.25
40	mm	152	165	229	241	29	48.7	12.7		18.4	260	160
2	in	6.75	8.00	10.50	11.50	1.378	2.406	0.626	2	0.756	11.88	7.00
50	mm	172	203	267	292	35	61.1	15.9		19.2	300	180

Notes: 1)BW, SW or SC.
2)600Lb-RF/800Lb-(BW/SW/SC).

Applicable Standards:

- 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

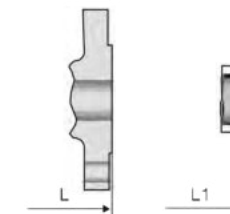
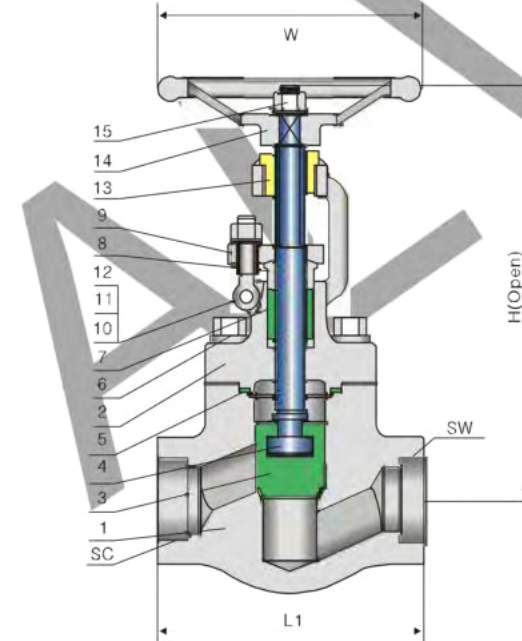
Design descriptions:

- OUTSIDE SCREW AND YOKE (OS&Y)
- BOLTED BONNET
- CHOICE OF WB, WELDED BONNET
- LOOSE DISC,CHOICE OF PLUG OR BALL
- 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

Materials of parts

No	Part Name	C-Si	ASTM Materials 16Cr-12Ni-2Mo	1 ¼Cr-½Mo-Si
1	Body	A105	A182-F316	A182-F11
2	Bonnet	A105	A182-F316	A182-F11
3	Disc	A182-F6a	A182-F316	A182-F6A+HF
4	Stem	A276-410	A276-316	A276-410
5	Bonnet Gasket ²⁾	Graphite+304	Graphite+316	Graphite+304
6	Bonnet Stud	A193-B7	A193-B8M	A193-B16
7	Packing	Graphite		
8	Gland	A276-410	A276-316	A276-410
9	Gland Flange	A105	A182-F316	A182-F11
10	Eyebolt Pin	A276-410	A276-316	A276-410
11	Eyebolt	A193-B7	A193-B8M	A193-B16
12	Eyebolt Nut	A194-2H	A194-8M	A194-2H
13	Yokesleeve	A276-410		
14	Handwheel	Malleable Iron		
15	Handwheel Nut	Carbon Steel		

Note: 1) seat integral with body
2)spiral wound construction



Dimensional datas

	NPS DN	L1	H(open)	W	WT ²⁾ (kg)	
	Conv.	Full			Bolted	Welede
900Lb	3/8		92	171	100	2.2 2.0
	1/2	3/8	111	207	125	3.7 3.4
	3/4	1/2	111	207	125	3.6 3.3
	1	3/4	120	240	160	6.8 6.0
1500Lb	1 ¼	1	152	258	160	7.6 5.6
	1 ½	1 ¼	172	330	180	11.6 10.3
	2	1 ½	200	355	200	15.0 14.2
		2	220	370	240	21.9 18.0

Applicable Standards:

- STEEL CHECK 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

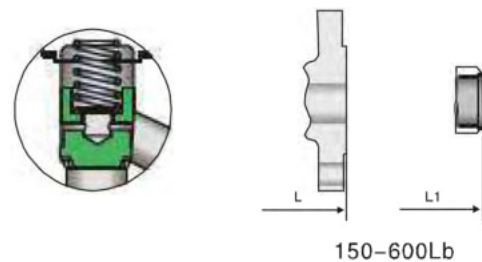
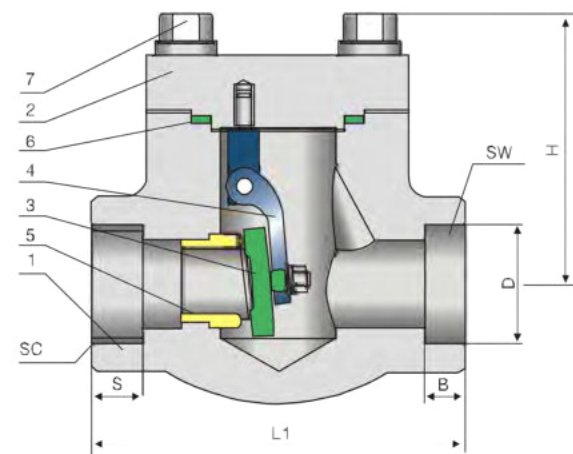
Design descriptions:

- BOLTED COVER
- CHOICE OF WB, WELDED COVER
- SEAT RINGS TYPE
- SEAT RINGS INTEGRAL WITH BODY OF LIFT
- HORIZONTAL OR VERTICAL SERVICE
- SW, SOCKET-WELDING ENDS
- SC, SCREWED ENDS
- BW, BUTTWELDING ENDS
- FLANGED ENDS

Materials of parts

No	Part Name	C-Si	ASTM Materials 16Cr-12Ni-2Mo	1 1/4Cr- 1/2Mo-Si
1	Body	A105	A182-F316	A182-F11
2	Cover	A105	A182-F316	A182-F11
3	Disc	A182-F6a	A182-F316	A182-F6A+HF
4	Hinge	A276-410	A276-316	A276-410
5	Seat	A276-410	A182-F316	A276-410+HF
6	Gasket ²⁾	Graphite+304	Graphite+316	Graphite+304
7	Stud	A193-B7	A193-B8M	A193-B16

Note: 1) lift type check valve seat ring integral with body.
2) spiral wound construction.



Dimensional datas

NPS DN	Unit	L1 ¹⁾	L(Flanged Ends)			d	SW	SC	H	WT ²⁾ (kg)		
			150Lb	300Lb	600Lb		D	B	NPT	S		
3/8	in	3.12	4.00	6.00	6.50	0.354	0.693	0.378	3/8	0.540	2.40	3.8/2.8
10	mm	79	102	152	165	9	17.6	9.6		13.6	61	
1/2	in	3.12	4.25	6.00	6.50	0.354	0.858	0.378	1/2	0.535	2.40	5.6/3.4
15	mm	79	108	152	165	10	21.8	9.6		13.6	61	
3/4	in	3.62	4.62	7.00	7.50	0.512	1.067	0.500	3/4	0.547	2.40	7.8/4.7
20	mm	92	117	178	190	13	27.1	12.7		13.9	61	
1	in	4.38	5.00	8.00	8.50	0.689	1.331	0.500	1	0.681	3.07	12.5/9.2
25	mm	111	127	203	216	17.5	33.8	12.7		17.3	78	
1 1/4	in	4.75	5.50	8.50	9.00	0.906	1.677	0.500	1 1/4	0.709	3.31	17/10.5
32	mm	120	140	216	229	23	42.6	12.7		18	84	
1 1/2	in	4.75	6.50	9.00	9.50	1.142	1.917	0.500	1 1/2	0.724	10.25	23.5/13.3
40	mm	120	165	229	241	30	48.7	12.7		18.4	3.98	
2	in	5.50	8.00	10.50	11.50	1.378	2.406	0.626	2	0.756	4.72	38.8/18.9
50	mm	140	203	267	292	35	61.1	15.9		19.2	120	

Applicable Standards:

- STEEL CHECK 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

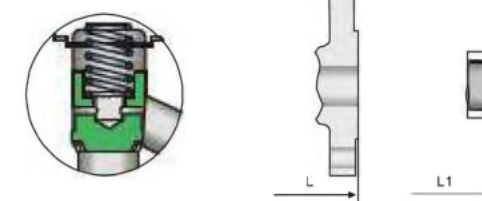
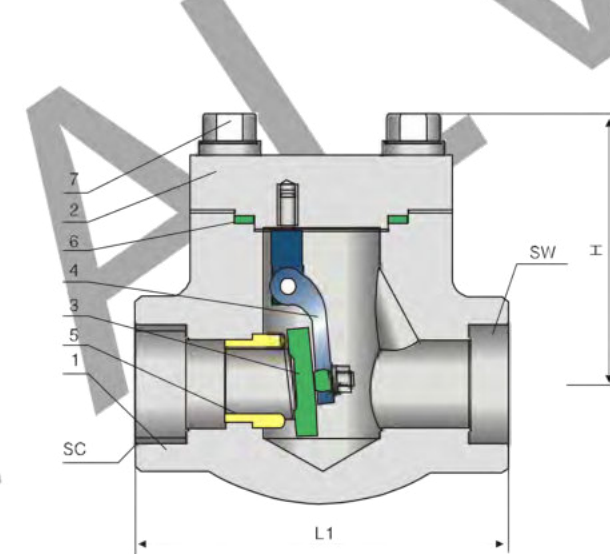
Design descriptions:

- BOLTED COVER
- CHOICE OF WB, WELDED COVER
- SEAT RINGS TYPE
- SEAT RINGS INTEGRAL WITH BODY OF LIFT
- HORIZONTAL OR VERTICAL SERVICE
- SW, SOCKET-WELDING ENDS
- SC, SCREWED ENDS
- BW, BUTTWELDING ENDS
- FLANGED ENDS

Materials of parts

No	Part Name	C-Si	ASTM Materials 16Cr-12Ni-2Mo	1 1/4Cr- 1/2Mo-Si
1	Body	A105	A182-F316	A182-F11
2	Cover	A105	A182-F316	A182-F11
3	Disc	A182-F6a	A182-F316	A182-F6A+HF
4	Hinge	A276-410	A276-316	A276-410
5	Seat	A276-410	A182-F316	A276-410+HF
6	Gasket ²⁾	Graphite+304	Graphite+316	Graphite+304
7	Stud	A193-B7	A193-B8M	A193-B16

Note: 1) lift type check valve seat ring integral with body.
2) spiral wound construction.



Dimensional datas

	NPS DN	L1	H(open)	WT ²⁾ (kg)
900Lb	3/8	92	79	3.1
	1/2	111	79	3.0
	3/4	111	79	3.6
	1	120	97	4.3
1500Lb	1 1/4	120	105	6.1
	1 1/2	140	120	8.8
	2	178	140	12.6

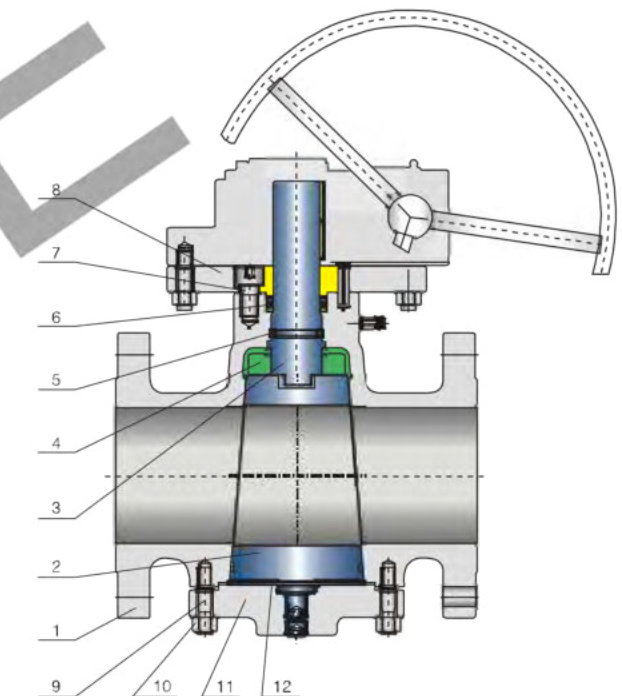
Cast Steel Plug Valves Series

Pressure Balanced Plug Valve
Sleeve Soft Sealed Plug Valve

Applicable Standards:

DESIGN & MANUFACTURE CONFORMS 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 chosen according to customers' requirement & working condition.

Plug Valve Introduction

1、 Usage.

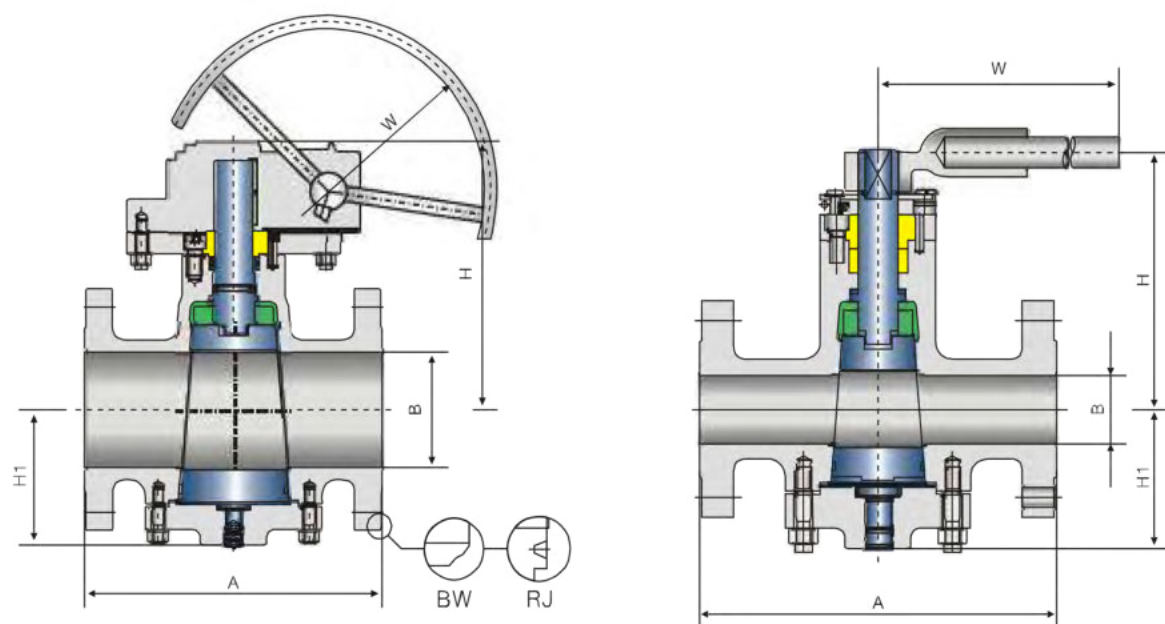
It is mainly used for storage and transportation of oil and gas in the chemical industry, metallurgy, paper making, food processing, shipbuilding and other industries, used to open or close, and with pneumatic and electrical devices can also achieve the long-distance operation, to ensure personal safety.

2、 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 CONFORMS 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

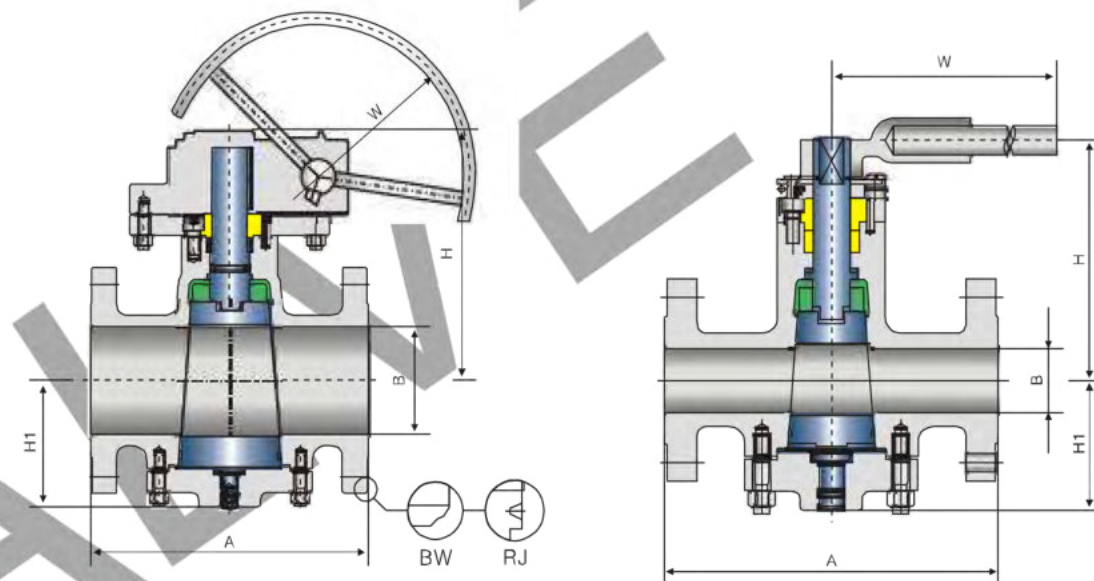
Dimensional datas

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	630	340	700	510	8486
★8	200	419	201	390	230	600	280	3208	★16	400	838	385	740	376	762	630	10696
★10	250	457	252	433	255	600	370	3258	★18	450	914	436	788	436	762	750	15940
★12	300	502	303	500	320	700	408	5202	★20	500	991	487	833	497	762	890	21040
									★24	600	1143	589	889	543	762	1035	24082

Note: ★Turbine drives

Applicable Standards:

DESIGN & MANUFACTURE CONFORMS 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									

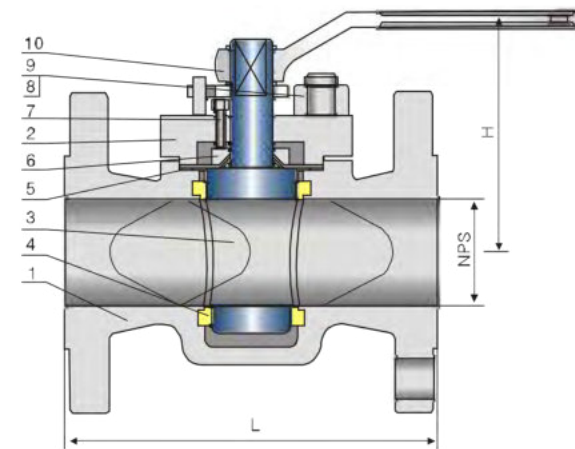
Note: ★Turbine drives

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

Design descriptions:

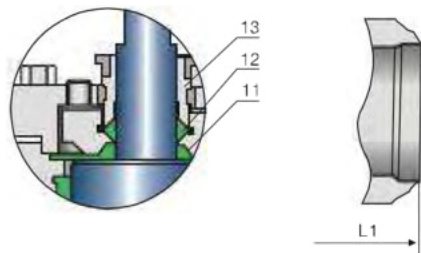
- RUGGED, HEAVY-DUTY BODY
- BOLTED BONNET CAP
- PTFE SLEEVED, TAPERED PLUG
- LARGE PORT OPENINGS
- NON-LUBRICATED
- STEM INTEGRAL WITH PLUG
- IN-LINE ADJUSTMENT
- FIRE SAFE CONSTRUCTION
- ANTI STATICS DEVICE
- STOPPER DEVICE
- RENEWABLE SEAT RING
- FLANGED OR BUTTWELDING ENDS
- AVAILABLE WITH WG OPERATOR



Materials of parts

No	Part Name	Carbon Steel	ASTM Materials 18Cr-9Ni-2Mo	Low Temperature 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



Dimensional datas

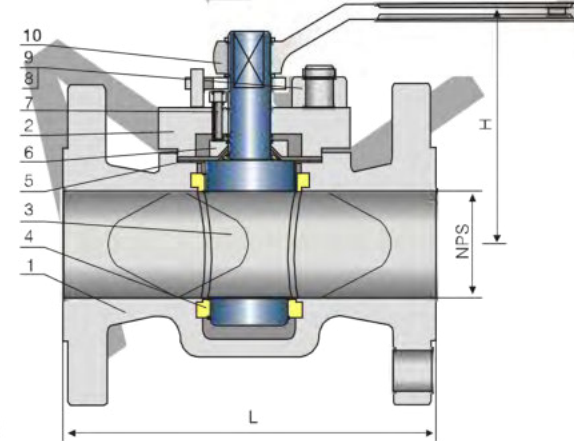
NPS	DN	ANSI Class150Lb										ANSI Class300Lb									
		L (RF)	L1 (BW)	H	W	WT(kg)		L (RF)	L1 (BW)	H	W	WT(kg)		L (RF)	L1 (BW)	H	W	WT(kg)			
2	50	7.00	178	10.50	267	6.00	150	13	320	17	13	8.5	216	10.50	267	6.00	150	13	320	17	13
2 1/2	65	7.50	191	12.00	305	6.50	165	14	350	20	14	9.5	241	12.00	305	6.50	165	14	350	20	14
3	80	8.00	203	13.00	330	7.12	180	16	410	25	17.5	11.0	283	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	12.0	305	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	16.0	403	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	16.5	419	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	18.0	457	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	20.0	502	25.00	635	26.75	680	15	380	300	247
in	mm	in	mm	in	mm	in	mm	in	mm	RF	BW	in	mm	in	mm	in	mm	in	mm	RF	BW

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

Design descriptions:

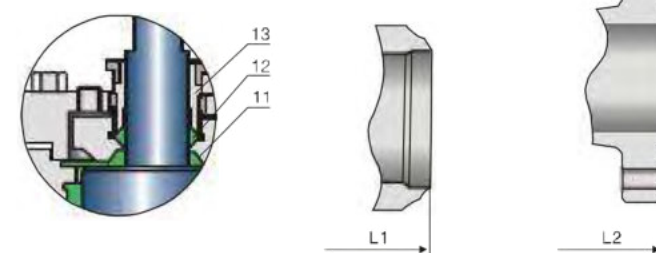
- RUGGED, HEAVY-DUTY BODY
- BOLTED BONNET CAP
- PTFE SLEEVED, TAPERED PLUG
- LARGE PORT OPENINGS
- NON-LUBRICATED
- STEM INTEGRAL WITH PLUG
- IN-LINE ADJUSTMENT
- FIRE SAFE CONSTRUCTION
- ANTI STATICS DEVICE
- STOPPER DEVICE
- RENEWABLE SEAT RING
- FLANGED OR BUTTWELDING ENDS
- AVAILABLE WITH WG OPERATOR



Materials of parts

No	Part Name	Carbon Steel	ASTM Materials 18Cr-9Ni-2Mo	Low Temperature Carbon Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet Cap	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	A216-WCB	A217-WC6	A352-LCB
12	Packing	Graphite		
13	Gland Flange	A216-WCB	A217-WC6	A352-LCB

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



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	14.50	368	14.62	371	6.12	155	14	350	52	32
2 1/2	65	13.00	330	13.12	333	6.75	170	16	410	33	235	16.50	419	16.62	422	6.75	170	16	410	60	34
3	80	14.00	356	14.12	359	7.25	185	13	320	387	23	15.00	381	15.12	384	7.25	185	13	320	70	47
4	100	16.00	432	16.12	435	15.38	390	13	320	75	46	18.00	457	18.12	460	15.38	390	13	320	92	55
6	150	19.50	559	19.62	562	20.88	530	13	320	142	97	24.00	610	24.12	613	20.88	530	13	320	195	120
8	200	23.50	660	23.62	664	23.25	590	14	350	250	167	29.00	737	29.12	740	23.25	590	14	350	320	197
10	250	26.50	787	26.62	791	24.88	630	15	350	365	227	33.00	838	33.12	841	24.88	630	15	380	455	277
12	300	30.00	838	30.12	841	27.12	690	15	380	515	354	38.00	965	38.12	968	27.12	690	15	380	625	405
in	mm	in	mm	in	mm	in	mm	in	mm	RF/RTJ	BW	in	mm	in	mm	in	mm	in	mm	RF/RTJ	BW

Butterfly Valve Series

High Performance Butterfly Valve

www.valve-gmk.com

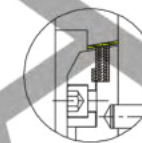
High Performance Butterfly Valve



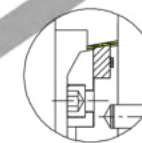
Applicable Standards:

DESIGN & MANUFACTURE CONFORMS 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

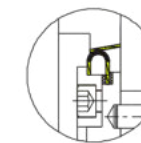
No	Part Name	No	Part Name
1	Body	10	Bottom end cover
2	Disc	11	Gasket
3	Clamp	12	Packing
4	Seat	13	Yoke
5	Ring	14	Nut
6	Screw	15	Bolt
7	Stem	16	Packing restrainer
8	Check pin	17	Flat key
9	Bushing sleeve	18	Bisect rings



Multiple arrangement
metal hard sealed structure



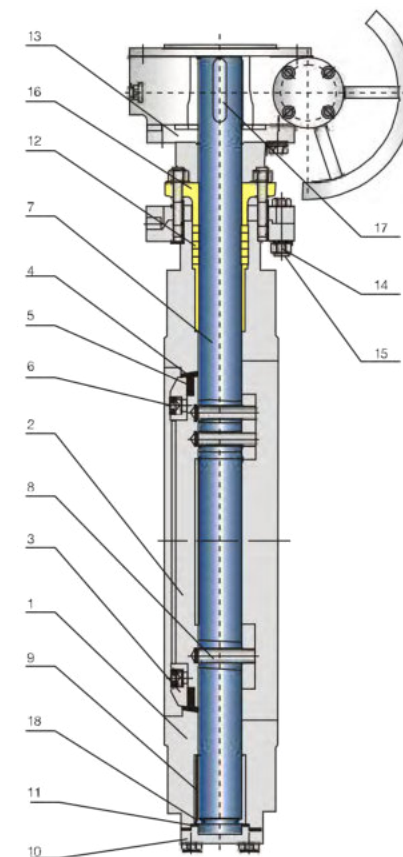
metal resilient sealed structure



U metal sealed structure



Triple Eccentric Structure Diagram.
Its main characteristic is turning with 0
friction, the torque generates resilient seal.



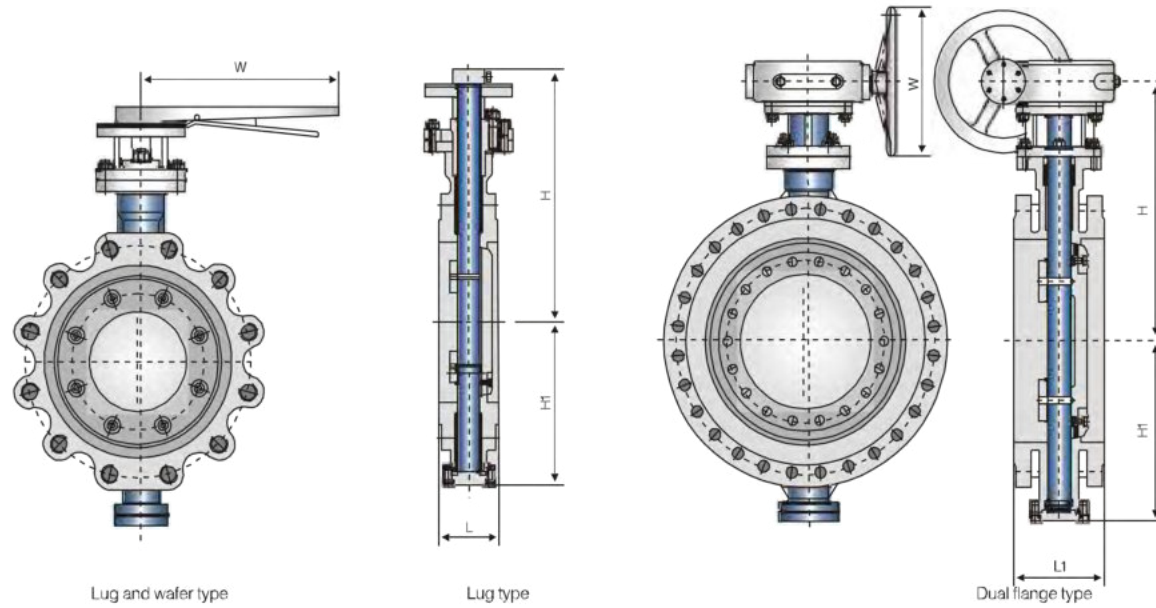
Features and Application:

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.

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.	



Dimensional datas

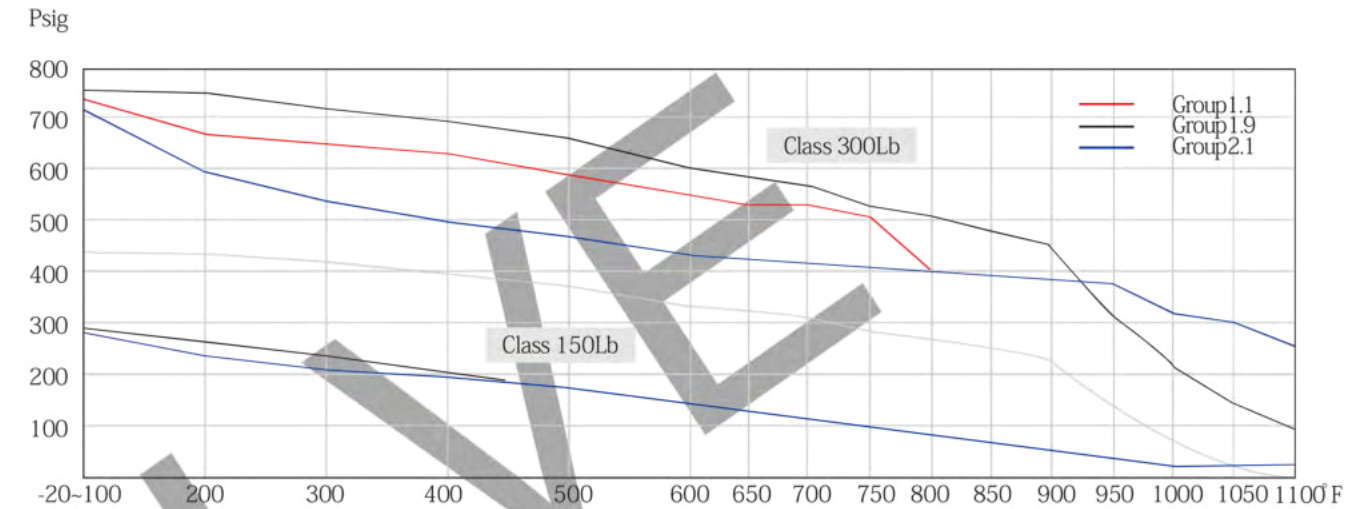
NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MT (Wafer) kg	T N.m	NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MT (Wafer) kg	T N.m
ANSI Class 150Lb																	
2	50	43	108	112	225	220	10	55	★16	400	102	216	352	540	600	160	4128
3	80	48	114	126	255	270	12	226	★18	450	114	222	386	585	600	200	5511
4	100	54	127	146	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	MT (Wafer) kg	T N.m	NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MT (Wafer) kg	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	MT (Wafer) kg	T N.m	NPS inch	DN	L mm	L1 mm	H1 mm	H mm	W mm	MT (Wafer) kg	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	512	897	600	898	25218
★8	200	102	230	295	490	600	154	4520	★20	500	216	350	563	1094	700	1266	31861
★10	250	117	250	342	580	600	297	7061	★24	600	232	390	622	1186	700	1622	46095



ASME B16.34 Maximum Allowable Non-Shock Pressure

Psig

TEMPERATURE		ASTM MATERIALS															
		ANSI Class 150Lb								ANSI Class 300Lb							
°F	°C	Group 1.1	Group 1.2	Group 1.3	Group 1.9	Group 1.10	Group 1.13	Group 2.1	Group 2.2	Group 1.1	Group 1.2	Group 1.3	Group 1.9	Group 1.10	Group 1.13	Group 2.1	Group 2.2
-20~100	-20~38	285	290	265	290	290	290	275	275	740	750	695	750	750	750	720	720
200	93	260	260	250	230	260	260	230	235	670	750	655	750	750	745	600	620
300	149	230	230	230	230	230	230	205	215	655	730	640	720	720	715	540	560
400	204	200	200	200	200	200	200	190	195	635	705	620	695	695	705	495	515
500	260	170	170	170	170	170	170	170	170	600	665	585	665	665	665	465	480
600	316	140	140	140	140	140	140	140	140	550	605	535	605	605	605	435	450
650	343	125	125	125	125	125	125	125	125	535	590	525	590	590	590	430	445
700	371	110	110		110	110	110	110	110	535	570		570	570	570	425	430
750	399	95	95		95	95	95	95	95	505	505		530	530	530	415	425
800	427	80	80		80	80	80	80	80	410	410		510	510	510	405	420
850	454				65	65	65	65	65				485	485	485	395	420
900	482				50	50	50	50	50				450	450	370	390	415
950	510				35	35	35	35	35				320	375	275	380	385
1000	538				20	20	20	20	20				215	260	200	320	350
1050	566				20	20	20	20	20				145	175	145	310	345
1100	593				20 ^a	20 ^a	20 ^a	20 ^a	20 ^a				95	110	100	255	305

TEST PRESSURE BY API 598

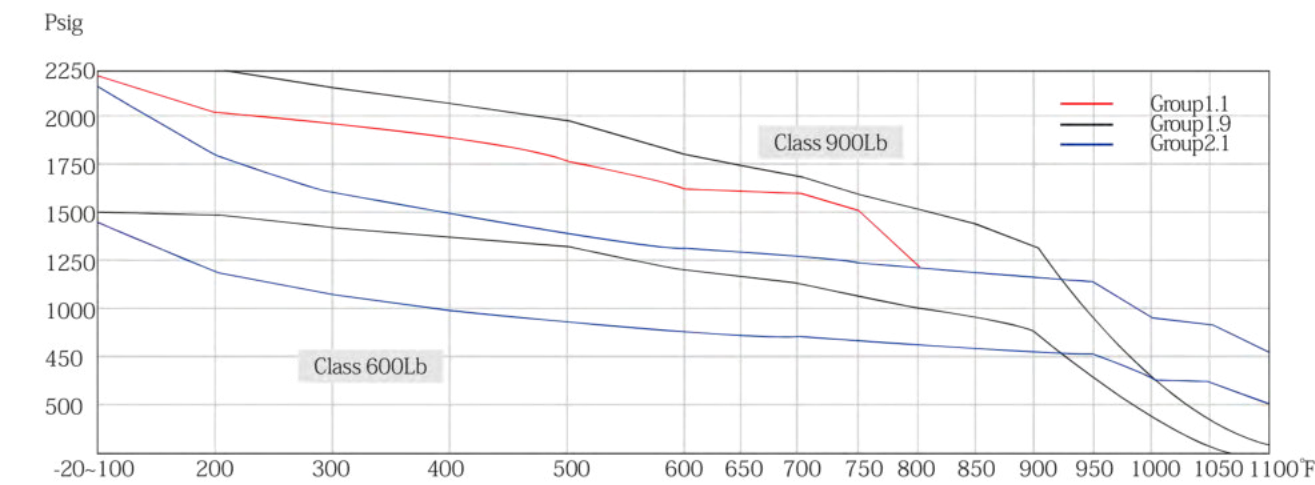
Hydrostatic shell test	450	450	400	450	450	450	425	425	1125	1125	1050	1125	1125	1125	1100	1100
Hydrostatic seal test	315	320	295	320	320	320	305	305	815	825	765	825	825	825	795	795
Air seat test	80± 20								80± 20							

Metric conversions by API STD 2564 pressure: 1 pound per square inch (psig) = 0.06894757 bar = 0.006894757 MPa temperature: °C = (5/9) °F - 32

ASME B16.34 Materials Group

Group 1.1	A105 ^{a)}	A216-WCB ^{e)}	
Group 1.2	A216-WCC ^{e)}	A352-LCC ^{a)}	
Group 1.3	A352-LCB ^{a)}		
Group 1.9	A217-WC6 ^{d)}		
Group 1.10	A217-WC9 ^{d)}		
Group 1.13	A217-C5		
Group 2.1	A182-F304	A351-CF8	A351-CF3 ^{b)}
Group 2.2	A182-F316	A352-CF8M	A351-CF3M ^{c)}

- a). Not to be used over 650 °F (343°C).
- b). Not to be used over 650 °F (427°C).
- c). Not to be used over 650 °F (538°C).
- b). Not to be used over 650 °F (593°C).
- e). Permissible, but not recommended for prolonged use above 800 °F (427°C).
- f). For welding end valve only, flanged end rating terminates at 1000 °F (538°C).



ASME B16.34 Maximum Allowable Non-Shock Pressure Psig

TEMPERATURE		ASTM MATERIALS															
		ANSI Class 600Lb								ANSI Class 900Lb							
°F	°C	Group 1.1	Group 1.2	Group 1.3	Group 1.9	Group 1.10	Group 1.13	Group 2.1	Group 2.2	Group 1.1	Group 1.2	Group 1.3	Group 1.9	Group 1.10	Group 1.13	Group 2.1	Group 2.2
-20~100	-20~38	1480	1500	1390	1500	1500	1500	1440	1440	2220	2250	2085	2250	2250	2250	2160	2160
200	93	1350	1500	1315	1500	1500	1490	1200	1240	2025	2250	1970	2250	2250	2235	1800	1860
300	149	1315	1455	1275	1445	1455	1430	1080	1120	1970	2185	1915	2165	2185	2150	1620	1680
400	204	1270	1410	1235	1385	1410	1410	995	1025	1900	2115	1850	2080	2115	2115	1490	1540
500	260	1200	1330	1165	1330	1330	1330	930	955	1795	1995	1745	1995	1995	1995	1395	1435
600	316	1095	1210	1065	1210	1210	1210	875	1640	1640	1815	1600	1815	1815	1815	1310	1355
650	343	1075	1175	1045	1175	1175	1175	860	1610	1610	1765	1570	1765	1765	1765	1290	1330
700	371	1065	1135		1135	1135	1135	850	1600	1600	1705		1705	1705	1705	1275	1305
750	399	1010	1010		1065	1065	1055	830	1510	1510	1510		1595	1595	1585	1245	1280
800	427	825	825		1015	1015	1015	805	1235	1235	1235		1525	1525	1525	1210	1265
850	454				975	975	965	790					1460	1460	1450	1190	1255
900	482				900	900	740	780					1350	1350	1110	1165	1245
950	510				640	755	550	765					955	1130	825	1145	1160
1000	538				430	520	400	640					650	780	595	965	1050
1050	566				290	350	290	615					430	525	430	925	1030
1100	593				190	220	200	515					290	330	300	770	915
TEST PRESSURE BY API 598																	
Hydrostatic shell test		2225	2250	2100	2250	2250	2250	2175	3350	3350	3375	3150	3375	3375	3250	3250	3250
Hydrostatic seal test		1630	1650	1530	1650	1650	1650	1585	2445	2445	2475	2295	2475	2475	2380	2380	2380
Air seat test		80± 20															

Metric conversions by API STD 2564 pressure: 1 pound per square inch (psig) = 0.06894757 bar = 0.006894757 MPa temperature: °C = (5/9)°F - 32

ASME B16.34 Materials Group			
Group 1.1	A105 ^{a)}	A216-WCB ^{e)}	
Group 1.2	A216-WCC ^{e)}	A352-LCC ^{a)}	
Group 1.3	A352-LCB ^{a)}		
Group 1.9	A217-WC6 ^{d)}		
Group 1.10	A217-WC9 ^{d)}		
Group 1.13	A217-C5		
Group 2.1	A182-F304	A351-CF8	A351-CF3 ^{b)}
Group 2.2	A182-F316	A352-CF8M	A351-CF3M ^{c)}

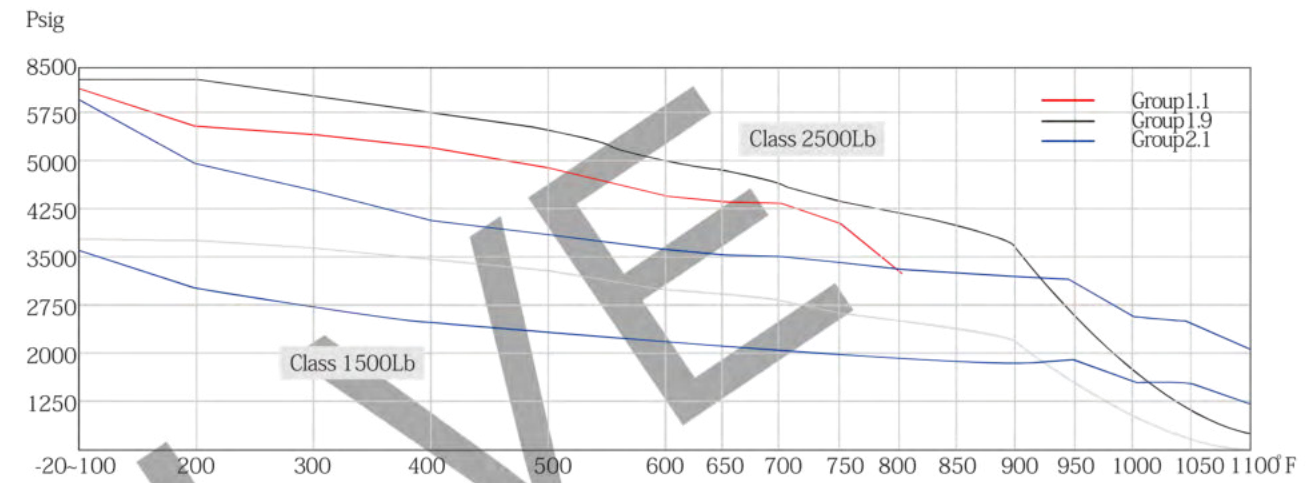
a). Not to be used over 650 °F (343°C).

b). Not to be used over 650 °F (427°C).

c). Not to be used over 650 °F (538°C).

b). Not to be used over 650 °F (593°C).

e). Permissible, but not recommended for prolonged use above 800 °F (427°C).



ASME B16.34 Maximum Allowable Non-Shock Pressure Psig

TEMPERATURE		ASTM MATERIALS															
		ANSI Class 1500Lb								ANSI Class 2500Lb							
°F	°C	Group 1.1	Group 1.2	Group 1.3	Group 1.9	Group 1.10	Group 1.13	Group 2.1	Group 2.2	Group 1.1	Group 1.2	Group 1.3	Group 1.9	Group 1.10	Group 1.13	Group 2.1	Group 2.2
-20~100	-20~38	3705	3750	3470	3750	3750	3750	3600	3600	6170	6250	5785	6250	6250	6250	6000	6000
200	93	3375	3750	3280	3750	3750	3725	3000	3095	5625	6250	5470	6250	6250	6205	5000	5160
300	149	3280	3640	3190	3610	3640	3580	2700	2795	5470	6070	5315	6015	6070	5965	4500	4660
400	204	3170	3530	3085	3465	3530	3530	2485	2570	5280	5880	5145	5775	5880	5880	4140	4280
500	260	2995	3325	2910	3325	3325	3325	2330	2390	4990	5540	4850	5540	5540	5540	3880	3980
600	316	2735	3025	2665	3025	3025	3025	2185	2255	4560	5040	4440	5040	5040	5040	3640	3760
650	343	2685	2940	2615	2940	2940	2940	2150	2220	4475	4905	4355	4905	4905	4905	3580	3700
700	371	2665	2840		2840	2840	2840	2125	2170	4440	4730		4730	4730	4730	3540	3620
750	399	2520	2520		2660	2660	2640	2075	2135	4200	4200		4430	4430	4400	3460	3560
800	427	2060	2060		2540	2540	2540	2015	2110	3430	3430		4230	4230	4230	3360	3520
850	454				2435	2435	2415	1980	2090				4060	4060	4030	3300	3480
900	482				2245	2245	1850	1945	2075				3745	3745	3085	3240	3460
950	510				1595	1885	1370	1910	1930				2655	3145	2285	3180	3220
1000	538				1080	1305	995	1605	1750				1800	2170	1655	2675	2915
1050	566				720	875	720	1545	1720				1200	1455	1200	2570	2865
1100	593				480	550	495	1285	1525				800	915	830	2145	2545
TEST PRESSURE BY API 598																	
Hydrostatic shell test		5575	5625	5225	5625	5625	5625	5400	5400	9275	9375	8700	9375	9375	9375	9000	9000
Hydrostatic seal test		4080	4125	3820	4125	4125	4125	2960	3960	6790	6875	6365	6875	6875	6875	6600	6600
Air seat test		80± 20															

Metric conversions by API STD 2564 pressure: 1 pound per square inch (psig) = 0.06894757 bar = 0.006894757 MPa temperature: °C = (5/9)°F - 32

ASME B16.34 Materials Group			
Group 1.1	A105 ^{a)}	A216-WCB ^{e)}	
Group 1.2	A216-WCC ^{e)}	A352-LCC ^{a)}	
Group 1.3	A352-LCB ^{a)}		
Group 1.9	A217-WC6 ^{d)}		
Group 1.10	A217-WC9 ^{d)}		
Group 1.13	A217-C5		
Group 2.1	A182-F304	A351-CF8	A351-CF3 ^{b)}
Group 2.2	A182-F316	A352-CF8M	A351-CF3M ^{c)}

a). Not to be used over 650 °F (343°C).

b). Not to be used over 650 °F (427°C).

c). Not to be used over 650 °F (538°C).

b). Not to be used over 650 °F (593°C).

e). Permissible, but not recommended for prolonged use above 800 °F (427°C).

Materials Characteristic																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
ASTM Specification		Chemical Analysis										Mechanical Properties				
		C	Mn	Si	P	S	Cr	Ni	Mo	Cu	V	Tensile	Yield	Elongation	Reduction	Hardness
		Carbon	Manganese	Silicon	Phosphorus	Sulfur	Chromium	Nickel	Molybdenum	Copper	Vanadium	Mpa	Mpa	%	of area,%	HB
Nominal or maximum,%												Min			Max	
Cast steel																
Carbon steel	A216-WCA	0.25	0.70	0.60	0.040	0.045	0.50	0.50	0.20	0.30	0.03	415-585	205	24	35	-
	A216-WCB	0.30	1.00	0.60	0.040	0.045	0.50	0.50	0.20	0.30	0.03	485-655	250	22	35	-
	A216-WCC	0.25	1.20	0.60	0.040	0.045	0.50	0.50	0.20	0.30	0.03	485-655	275	22	35	-
Cast steel																
Chrome-molybdenum steel	A217-WC1	0.25	0.50-0.80	0.60	0.040	0.045	0.35	0.45-0.65	0.45-0.65	0.50	-	450-620	240	24	35	-
	A217-WC6	0.05-0.20	0.50-0.80	0.60	0.040	0.045	1.00-1.50	0.50	0.45-0.65	0.50	-	485-655	275	20	35	-
	A217-WC9	0.02-0.18	0.40-0.70	0.60	0.040	0.045	2.00-2.75	0.50	0.90-1.20	0.50	-	485-655	275	20	35	-
	A217-C5	0.20	0.40-0.70	0.75	0.040	0.045	4.00-6.50	0.50	0.45-0.65	0.50	-	620-795	415	18	35	-
	A217-C12	0.20	0.35-0.65	1.00	0.040	0.045	8.00-10.0	0.50	0.90-1.20	0.50	-	620-795	415	18	35	-
Cast steel																
Ni alloy steel	A494 M-35-1	0.35	1.50	1.25	0.030	0.030	-	Allowance	-	26.0-33.0	Fe≤3.50	450	170	25	-	-
	A494 CW-6M	0.07	1.00	1.00	0.040	0.030	17.0-20.0	Allowance	17.0-20.0	-	Fe≤3.00	495	275	25	-	-
	A494 CY-40	0.40	1.50	3.00	0.030	0.030	14.0-17.0	Allowance	-	-	Fe≤11.0	185	195	30	-	-
Cast steel																
Stainless steel	A351-CF8	0.08	1.50	2.00	0.040	0.040	18.0-21.0	8.0-11.0	0.50	-	-	485	205	35	35	-
	A351-CF8M	0.08	1.50	1.50	0.040	0.040	18.0-21.0	9.0-12.0	2.0-3.0	-	-	485	205	30	30	-
	A351-CF3	0.03	1.50	2.00	0.040	0.040	17.0-21.0	8.0-12.0	0.50	-	-	485	205	35	35	-
	A351-CF3M	0.03	1.50	1.50	0.040	0.040	17.0-21.0	9.0-13.0	2.0-3.0	-	-	485	205	30	30	-
	A351-CN7M	0.07	1.50	1.50	0.040	0.040	19.0-22.0	27.5-30.5	2.0-3.0	3.0-4.0	-	450	170	35	35	-
Cast steel																
Carbon steel	A352-LCB	0.30	1.00	0.60	0.040	0.045	0.50	0.50	0.20	0.30	0.03	450-650	240	24	35	-
	A352-LCC	0.25	1.20	0.60	0.040	0.045	0.50	0.50	0.20	0.30	0.03	485-655	275	22	35	-
	A352-LC1	0.25	0.50-0.80	0.60	0.040	0.045	-	-	0.45-0.65	-	-	450-620	240	24	35	-
	A352-LC2	0.25	0.50-0.80	0.60	0.040	0.045	-	2.00-3.00	-	-	-	485-655	275	24	35	-
	A352-LC3	0.15	0.50-0.80	0.60	0.040	0.045	-	3.00-4.00	-	-	-	485-655	275	24	35	-
Forged steel																
Carbon steel	A105(N)	0.35	0.60-1.05	0.35	0.040	0.050	0.30	0.40	0.12	0.40	0.03	485	250	30	30	187
	A350-LF1	0.30	1.35	0.15-0.3	0.035	0.040	0.30	0.40	0.12	0.40	0.03	415-585	205	25	38	-
	A350-LF2	0.30	1.35	0.15-0.30	0.035	0.040	0.30	0.40	0.12	0.40	0.03	485-655	252	22	30	-
	A350-LF3	0.20	0.90	0.20-0.35	0.035	0.040	0.30	3.25-3.7	0.12	0.40	0.03	485-655	260	22	35	-
	A350-LF9	0.20	0.40-1.06	-	0.035	0.040	0.30	1.60-2.24	0.12	0.75-1.25	0.03	435-605	315	25	38	-
Forged steel																
Stainless steel	A182-F304	0.08	2.00	1.00	0.040	0.030	18.0-20.0	8.0-11.0	-	-	-	515	205	30	50	-
	A182-F316	0.08	2.00	1.00	0.040	0.030	16.0-18.0	10.0-14.0	2.0-3.0	-	-	515	205	30	50	-
	A182-F304L	0.03	2.00	1.00	0.045	0.030	18.0-20.0	8.0-13.0	-	-	-	485	170	30	50	-
	A182-F316L	0.03	2.00	1.00	0.045	0.030	16.0-18.0	10.0-15.0	2.0-3.0	-	-	485	170	30	50	-
Component part																
Trim	A276-304	0.08	2.00	1.00	0.045	0.030	18.0-20.0	8.0-10.5	-	-	-	515	205	40	50	-
	A276-316	0.05	2.00	1.00	0.045	0.030	16.0-18.0	10.0-14.0	2.0-3.0	-	-	485	170	40	50	-
	A276-410	0.15	1.00	1.00	0.040	0.030	11.5-13.5	-	-	-	-	480	275	20	45	-
	A276-420	0.15	1.00	1.00	0.040	0.030	12.0-14.0	-	-	-	-	-	-	-	-	241
	A182-F6A	0.15	1.00	1.00	0.040	0.030	11.5-13.5	0.50	-	-	-	585	380	18	35	167-229
Fastening piece																
Stud	A193-B7	0.37-0.49	0.65-1.10	0.15-0.35	0.035	0.040	0.75-1.20	-	0.15-0.25	-	-	860	720	16	50	-
	A193-B7M	0.37-0.49	0.65-1.10	0.15-0.35	0.035	0.040	0.75-1.20	-	0.15-0.25	-	-	690	550	18	50	235
	A193-B8	0.08	2.00	1.00	0.045	0.030	18.0-20.0	8.0-10.50	-	-	-	515	205	30	50	223
	A193-B8A	0.08	2.00	1.00	0.045	0.030	18.0-20.0	8.0-10.50	-	-	-	515	205	30	50	192
	A193-B8M	0.08	2.00	1.00	0.045	0.030	16.0-18.0	10.0-14.0	2.0-3.0	-	-	515	205	30	50	192
Nut	A320-L7	0.38-0.48	0.75-1.00	0.15-0.35	0.035	0.040	0.80-1.10	-	0.15-0.25	-	-	860	725	16	50	-
	A194-2H	≥0.40	1.00	0.40	0.040	0.050	-	-	-	-	-	-	-	-	-	248-352
	A194-2HM	≥0.40	1.00	0.40	0.040	0.050	-	-	-	-	-	-	-	-	-	159-237
	A194-7	0.37-0.49	0.65-1.00	0.15-0.35	0.040	0.040	0.75-1.20	-	0.15-0.25	-	-	-	-	-	-	248-352
	A197-8	0.08	2.00	1.00	0.045	0.030	18.0-12.0	8.0-10.5	-	-	-	-	-	-	-	126-300
	A194-8M	0.08	2.00	1.00	0.045	0.030	16.0-18.0	10.0-14.0	2.0-3.0	-	-	-	-	-	-	126-300

NACE Valves:

For service four gases of other hydrogen sulfide bearing hydrocarbon fluids, GMK offers NACE valves made of component materials specially heat treated and hardness-controlled in conformity with NACE MR 0175 standard. Typical NACE material configuration is shown. Below for GMK cast steel valve, a note should be taken as the fact that NACE hardness requirement conflicts with the one of valve seating surface specified by API600, Table 13. GMK steel valves are available only at user option.

The Demands About Resistant SSC(Sulfur Stress Crack)Material That Be Used For The Equipment That The Working Medium Include H S Carbon-HYdride Compound

No	Part Name	ASTM Material	NACE Hardness	API600 Hardness
1	Body	A216-WCB	≤HRC 22 (237 HB)	-
2	Bonnet/yoke	A216-WCB		-
3	Seat ring	A105 With 13cr overlay		≥250 HB*
4	Wedge/disc	A216-WCB/ A105 with 13cr overlay		≥250HB*
5	Stem	ANSI type410/A182-F6a	≤HRC 22 (237 HB)	≥200HB
6	Backseat bushing			≥250HB
7	Lantern ring			-
8	Gland			-
9	Bonnet gasket	316SS+Graphite	-	-
		316SS (RTJ)	≤HRC 22	-
10	Bonnet bolt	A193-B7	-	-
		A194-B7M	≤HRC 22	-
11	Bonnet nut	A194-2H	-	-
		A194-2HM	≤HRC 22	-

Minimum hardness differential of 50 HB between the seats.

All the cast steel valves in this catalogue can be manufactured according to NACE MR 0175 specification for sour oil and gas service.

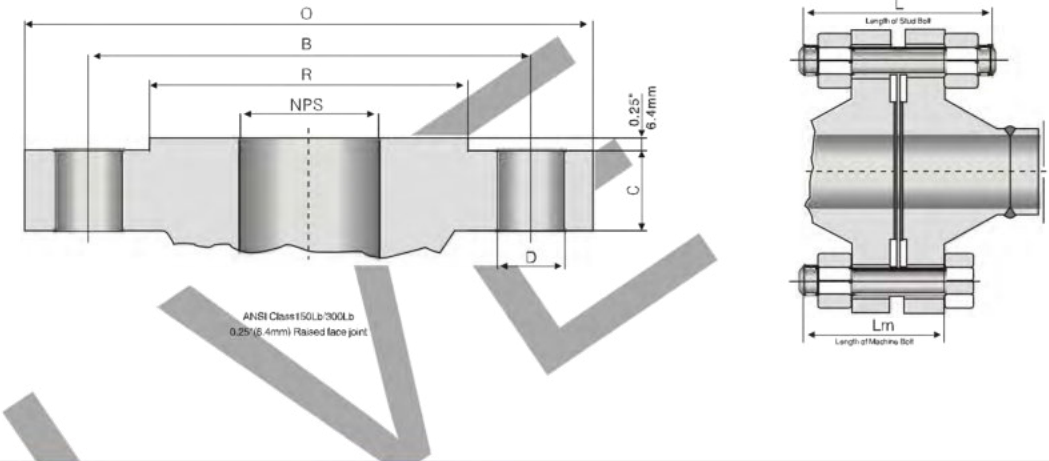
- All NACE valves meet API standard, except as modified to meet a HRC 22 maximum hardness requirements of NACE specification.
- Standard body and bonnet ASTM A216-WCB have the maximum carbon equivalent 0.43%.
- Seat rings are screwed in to eliminate potential hardness problem with welds and HAZ(HEAT AFFECTED ZONES).
- Bonnet gasket for ANSI class 150Lb gate valve only, bonnet gasket in flexible graphite with stainless steel 316 sheet reinforcement, for ANSI class 300Lb gate valve and ANSI class 150Lb and 300Lb globe and check valve, bonnet gasket in stainless steel 316 spiral wound with graphite filler.
- Standard trim is hardness controlled 13%cr steel with hard faced seats(api trim no.8).
- Standard bonnet bolting is class II nut and bolt.
- All NACE valves are further identified by additional works"NACE MR 0175" shown on the nameplate for traceability and certification of conformance.

Typical NACE Material Specifications are Shown In Above Table And Other Material Application Are Available At Customer's Option.

Spectrum test, Portable And Mobile On-Site Metal Analysers

International Materials Standards

Materials		United states	Germany			Great Britain		China
		ASTM/AISI/SAE/ASME	DIN NO	DIN TYPE	MATERIALNUMBER	BSNUMBER	BS GRADE	GB
Cast steel								
Carbon steel	A216-WCA	ASTM A216-WCA	1681	GS-38	1.042	1504-161	430	WCA
	A216-WCB	ASTM A216-WCB	17245	GS-C25	1.0619	1504-161	480	WCB
	A216-WCC							WCC
Cast steel								
Chrome-molybdenum steel	A217-WC1	ASTM A217-WC1	17245	GS-22Mo4	1.5419			ZG20Mo
	A217-WC6	ASTM A217-WC6	17245	GS-17CrMo55	1.7357			15CrMo
	A217-WC9	ASTM A217-WC9	17245	GS-18CrMo810	1.7379			12Cr1Mo1V
	A217-C5	ASTM A217-C5	VDeh SPW 595	GS-12CrMo195	17363	1504	625E	1Cr5Mo
	A217-C12	ASTM A217-C12	VDeh SPW 595	G-X120CrMo101	17389	1504	629E	9Cr1Mo
Ni alloy steel	A494 M-35-1							
	A494 CW-6M							
	A494 CY-40							
Cast steel								
Stainless steel	A351-CF8	ASTM A351-CF8	17445	G-X6CrNi189	1.4308	1504-304	C15	0Cr18Ni9
	A351-CF8M	ASTM A351-CF8M	17445	G-X6CrNiMo1810	1.4408	1504-316	C16	1Cr18Ni12Mo2Ti
	A351-CF3	ASTM A351-CF3	17440	G-X2CrNiN189	1.4306	970/1	304S 11	00Cr18Ni10
	A351-CF3M	ASTM A351-CS3M	17440	G-X2CrNiMoN1810	1.4404	2056	316S11	00Cr17Ni14Mo2
	A351-CN7M	ASTM A351-CN7M				1504	332C11E	
Cast steel								
Carbon steel	A352-LCB	ASTM A352-LCB	SFW 685	GS+21Mo5	1.1138			LCB
	A352-LCC	ASTM A352-LCC	17173	GS-26CrMo4	1.7219			LCC
	A352-LC1	ASTM A352-LC1				1504	245LT50	
	A352-LC2	ASTM A352-LC2						ZG0CRMNVA
	A352-LC3	ASTM A352-LC3	SEW 685	GS10Ni14	1.5638	1504-503	Lt60	
Forged steel								
Carbon steel	A105(N)	ASTM A105	17100	St50-2	1.005	1503	221-490	25
	A350-LF1	ASTM A350-LF1	SEW 680	TTS41	1.0437			
	A350-LF2	ASTM A350-LF2	17155	19Mn5	1.0482			
	A350-LF3	ASTM A350-LF3	17173	10Ni14	1.5367	1503	50Gr.490	
	A350-LF9	ASTM A350-LF9						
Forged steel								
Stainless steel	A182-F304	ASTM A182-F304	17440	X5CrNi189	1.4301	1503	304S31	0Cr18Ni9
	A182-F316	ASTM A182-F316	17440	X5CrNiMo1810	1.4401	1503	316S31	0Cr17Ni12Mo2
	A182-F304L	ASTM A182-F304L	17440	X2CrNi810	1.4311			00Cr18Ni10
	A182-F316L	ASTM A182-F316L	17440	X2CrNiMo1810	1.4404	1503	316S11	00Cr17Ni14Mo2
Component part								
Trim	A276-304	ASTM A276-304						0Cr18Ni9
	A276-316	ASTM A276-316						0Cr17Ni12Mo2
	A276-410	ASTM A276-410					1Cr13	
	A276-420	ASTM A276-420					2Cr13	
	A182-F6A	ASTM A182-F6A						2Cr13
Fastening piece								
Stud	A193-B7	ASTM A193-GRAD B7	17240	40CrMoV47	1.7711	1506-630	790	35CrMoA
	A193-B7M	ASTM A193 GRAD B7M						
	A193-B8	ASTM A193 GRAD B8	17440	X5CrNi189	1.4301			0Cr18Ni9
	A193-B8A							
	A193-B8M	ASTM A193 GRAD B8M	17245	X6CrNiMoTi17 12 2	1.4571	1506-316	S31	0Cr17Ni12Mo2
	A320-L7	ASTM A320 GRL7	17200	42CrMo4	1.7225	4882		42CrMo
	A194-2H	ASTM A194 GRAD 2H	17400	CK35	1.1181	1506-162		45
Nut	A194-2HM	ASTM A194 GRAD 2HM						
	A194-7	ASTM A194 GRAD7	17200	24CrMo5	1.7258	1506-162		20CrMo
	A197-8	ASTM A194 GRAD8	17245	X6CrNiMo17 12 2	1.4571	1506-316	S31	0Cr18Ni9
	A194-8M	ASTM A194-GR8M	17440	X5CrNiMo1810	1.4401			0Cr17Ni12Mo

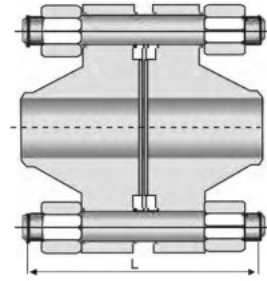
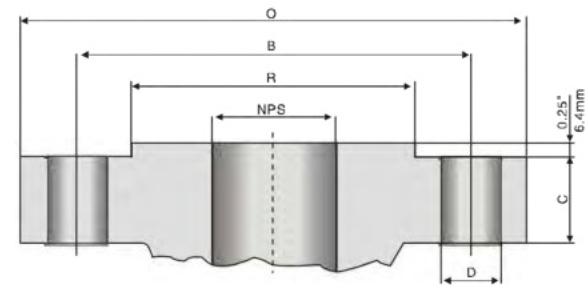


Class150Lb

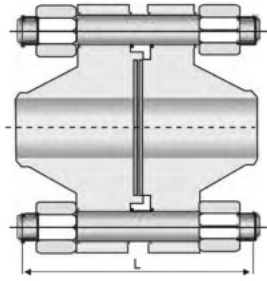
NPS		O		C		R		B		D		Bolt		L		Lm	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	QTY	Diam	in	mm	in	mm
2	50	6.00	152.4	0.75	19.1	3.62	91.9	4.75	120.7	0.75	19.1	4	5/8	3.25	82.6	2.75	69.9
2 1/2	65	7.00	177.8	0.88	22.4	4.12	104.6	5.50	139.7	0.75	19.1	4	5/8	3.50	88.9	3.00	76.2
3	80	7.50	190.5	0.94	23.9	5.00	127.0	6.00	152.4	0.75	19.1	4	5/8	3.50	88.9	3.00	76.2
4	100	9.00	228.6	0.94	23.9	6.19	157.2	7.50	190.5	0.75	19.1	8	5/8	3.50	88.9	3.00	76.2
5	125	10.00	254.0	0.94	23.9	7.31	185.7	8.50	215.9	0.88	22.4	8	3/4	3.75	95.3	3.25	82.6
6	150	11.00	279.4	1.00	25.4	8.50	215.9	9.50	241.3	0.88	22.4	8	3/4	4.00	101.6	3.25	82.6
8	200	13.50	342.9	1.12	28.4	10.62	269.7	11.75	298.5	0.88	22.4	8	3/4	4.25	108.0	3.50	88.9
10	250	16.00	406.4	1.19	30.2	12.75	323.9	14.25	362.0	1.00	25.4	12	7/8	4.50	114.3	4.00	101.6
12	300	19.00	482.6	1.25	31.8	15.00	381.0	17.00	431.8	1.00	25.4	12	7/8	4.75	120.7	4.00	101.6
14	350	21.00	533.4	1.38	35.1	16.25	412.8	18.75	476.3	1.12	28.4	12	1	5.25	133.4	4.50	114.3
16	400	23.50	596.9	1.44	36.6	18.50	469.9	21.25	539.8	1.12	28.4	16	1	5.25	133.4	4.50	114.3
18	450	25.00	635.0	1.56	39.6	21.00	533.4	22.75	577.9	1.25	31.8	16	1 1/8	5.75	146.1	5.00	127.0
20	500	27.50	698.5	1.69	42.9	23.00	584.2	25.00	635.0	1.25	31.8	20	1 1/8	6.25	158.8	5.50	139.7
24	600	32.00	812.88	1.88	47.8	27.25	692.2	39.50	749.3	1.38	35.1	20	1 1/4	6.75	171.5	6.00	152.4
26	650	34.25	871.3	2.00	50.8	29.50	749.3	41.75	806.5	1.38	35.1	24	1 1/4	7.25	184.2	6.50	165.1
28	700	36.50	927.1	2.81	71.4	31.50	800.1	34.00	863.6	1.38	35.1	28	1 1/4	8.50	215.9	7.75	196.9
30	750	38.75	984.3	2.94	74.7	33.75	857.3	36.00	914.4	1.38	35.1	28	1 1/4	9.00	228.6	8.00	203.2
32	800	41.75	1060.5	3.18	80.8	36.00	914.4	38.50	977.9	1.62	41.1	28	1 1/2	9.75	247.7	8.75	222.3
34	850	43.75	1111.3	3.25	82.6	38.00	965.2	40.50	1028.7	1.62	41.1	32	1 1/2	10.00	254.0	9.00	228.6
36	900	46.00	1168.4	3.56	90.4	40.25	1022.4	42.75	1085.9	1.62	41.1	32	1 1/2	10.50	266.7	9.50	241.3

Class300Lb

NPS		O		C		R		B		D		Bolt		L		Lm	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	QTY	Diam	in	mm	in	mm
2	50	6.50	165.1	0.88	22.4	3.62	91.9	5.00	127.0	0.75	19.1	8	5/8	3.50	101.6	3.00	76.2
2½	65	7.50	190.5	1.00	25.4	4.12	104.6	5.88	149.4	0.88	22.4	8	¾	4.00	114.3	3.25	82.6
3	80	8.25	209.6	1.12	28.4	5.00	127.0	6.62	168.1	0.88	22.4	8	¾	4.25	120.7	3.50	88.9
4	100	10.00	254.0	1.25	31.8	6.19	157.2	7.88	200.2	0.88	22.4	8	¾	4.50	127.0	3.75	95.3
5	25	11.00	279.4	1.38	35.1	7.31	185.7	9.25	235.0	0.88	22.4	8	¾	4.75	133.4	4.25	108.0
6	150	12.50	317.5	1.44	36.6	8.50	215.9	0.62	269.7	0.88	22.4	12	¾	4.75	139.7	4.25	108.0
8	200	15.00	381.0	1.62	41.1	10.62	269.7	13.00	330.2	1.00	25.4	12	7/8	5.50	152.4	4.75	120.7
10	250	17.50	444.5	1.88	47.8	12.75	323.9	15.25	387.4	1.12	28.4	16	1	6.25	171.5	5.50	139.7
12	300	20.50	520.7	2.00	50.8	15.00	381.0	17.75	450.9	1.25	31.8	16	1⅛	6.75	184.2	5.75	146.0
14	350	23.00	584.2	2.12	53.8	16.25	412.8	20.25	514.4	1.25	31.8	20	1⅛	7.00	190.5	6.25	158.8
16	400	25.50	647.7	2.25	57.2	18.50	469.9	22.50	571.5	1.38	35.1	20	1¼	7.50	203.2	6.50	165.1
18	450	28.00	711.2	2.38	60.5	21.00	533.4	24.75	628.7	1.38	35.1	24	1¼	7.75	209.3	6.75	171.5
20	500	30.50	774.7	2.50	63.5	23.00	584.2	27.00	685.8	1.38	35.1	24	1¼	8.00	222.3	7.25	184.2
24	600	36.00	914.4	2.75	69.9	27.25	692.2	32.00	812.8	1.62	41.1	24	1½	9.00	254.0	8.00	203.2
26	650	38.25	971.6	3.12	79.2	29.50	749.3	34.50	876.3	1.75	44.5	28	1⅝	10.25	285.8	9.25	235.0
28	700	40.75	1035.1	3.38	85.9	31.50	800.1	37.00	939.8	1.75	44.5	28	1⅝	10.75	298.5	9.75	247.7
30	750	43.00	1092.2	3.62	91.9	33.75	857.3	39.25	997.0	1.88	47.8	28	¾	11.50	317.5	10.50	266.7
32	800	45.25	1149.4	3.88	98.6	36.00	914.4	41.50	1054.1	2.00	50.8	28	1⅞	12.25	342.9	11.25	285.8
34	850	47.50	1206.5	4.00	101.6	38.00	965.2	43.50	1104.9	2.00	50.8	28	1⅞	12.75	349.3	11.75	298.5
36	900	50.00	1270.0	4.12	104.6	40.25	1022.4	46.00	1168.4	2.12	53.8	32	2	13.25	362.0	12.25	311.8



ANSI Class600Lb/900Lb
0.25"(6.4mm) Raised face joint



ANSI Class600Lb/900Lb
Male & female

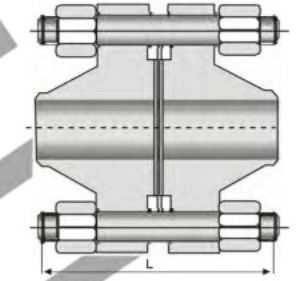
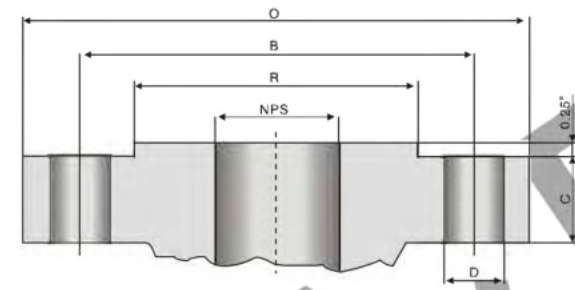
Class600Lb

NPS		O		C		R		B		D		Bolt		L		LRTJ		Lm	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	QTY	Diam	in	mm	in	mm	in	mm
2	50	6.50	165.1	1.00	25.4	3.62	91.9	5.00	127.0	0.75	19.1	8	5/8	4.25	108.0	4.00	101.6		
2 1/2	65	7.50	190.5	1.12	28.4	4.12	104.6	5.88	149.4	0.88	22.4	8	3/4	4.75	120.7	4.50	114.3		
3	80	8.25	209.6	1.25	31.8	5.00	127.0	6.62	168.1	0.88	22.4	8	3/4	5.00	127.0	4.75	120.7		
4	100	10.75	273.1	1.50	38.1	6.19	157.2	8.50	215.9	1.00	25.4	8	7/8	5.75	146.1	5.50	139.7		
5	125	13.00	330.2	1.75	44.5	7.31	185.7	10.50	266.7	1.12	28.4	8	1	6.50	165.1	6.25	158.8		
6	150	14.00	355.6	1.88	47.8	8.50	215.9	11.50	292.1	1.12	28.4	12	1	6.75	171.5	6.50	165.1		
8	200	16.50	419.1	2.19	55.6	10.62	269.7	13.75	349.3	1.25	31.8	12	1 1/8	7.50	190.5	7.25	184.2		
10	250	20.00	508.8	2.50	63.5	12.75	323.9	17.00	431.8	1.38	35.1	16	1 1/4	8.50	215.9	8.25	209.6		
12	300	22.00	558.8	2.62	66.5	15.00	381.0	19.25	489.0	1.38	35.1	20	1 1/4	8.75	222.3	8.50	215.9		
14	350	23.75	603.3	2.75	69.9	16.25	412.8	20.75	527.1	1.50	38.1	230	1 3/8	9.25	235.0	9.00	228.6		
16	400	27.00	685.8	3.00	76.2	18.50	469.9	23.75	603.3	1.62	41.1	20	1 1/2	10.00	254.0	9.75	247.7		
18	450	29.25	743.0	3.25	82.6	21.00	533.4	25.75	654.1	1.75	44.5	20	1 5/8	10.75	273.1	10.50	266.7		
20	500	32.00	812.8	3.50	88.9	23.00	584.2	28.50	723.9	1.75	44.5	24	1 5/8	11.25	285.8	11.00	279.4		
24	600	37.00	939.8	4.00	101.6	27.25	692.2	33.00	838.2	2.00	50.8	24	1 7/8	13.00	330.2	13.25	336.6		
26	650	40.00	1016.0	4.25	108.0	29.50	749.3	36.00	914.4	2.00	50.8	28	1 7/8	14.00	355.6	14.00	355.6		
28	700	42.25	1073.2	4.38	111.3	31.50	800.1	38.00	965.2	2.12	53.8	28	2	14.50	368.3	14.50	368.3		
30	750	44.50	1130.3	4.50	114.3	33.75	857.3	40.25	1022.4	2.12	53.8	28	2	15.00	381.0	14.75	374.7		
32	800	47.00	1193.8	4.62	117.3	36.00	914.4	42.50	1079.5	2.38	60.5	28	2 1/4	15.50	393.7	15.75	400.1		
34	850	49.00	1244.6	4.75	120.7	38.00	965.2	44.50	1130.3	2.38	60.5	28	2 1/4	16.25	412.8	16.25	412.8		
36	900	51.75	1314.5	4.88	124.0	40.25	1022.4	47.00	1193.8	2.62	66.5	28	2 1/2	15.75	400.1	16.75	425.5		

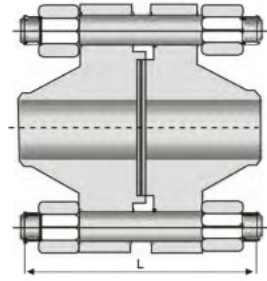
Class900Lb

NPS		O		C		R		B		D		Bolt		L		LRTJ		Lm	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	QTY	Diam	in	mm	in	mm	in	mm
2	50	8.50	215.9	1.50	38.1	3.62	91.9	6.50	165.1	1.00	25.4	8	7/8	5.75	146.1	5.75	146.1	5.50	139.7
2 1/2	65	9.62	244.3	1.62	41.1	4.12	104.6	7.50	190.5	1.12	28.4	8	1	6.25	158.8	6.25	158.8	6.00	152.4
3	80	9.50	241.3	1.50	38.1	5.00	127.0	7.50	190.5	1.00	25.4	8	7/8	5.75	146.1	5.75	146.1	5.50	139.7
4	100	11.50	292.1	1.75	44.5	6.19	157.2	9.25	235.0	1.25	31.8	8	1 1/8	6.75	171.5	6.75	171.5	6.50	165.1
5	125	13.75	349.3	2.00	50.8	7.31	185.7	11.00	279.4	1.38	35.1	8	1 1/4	7.50	190.5	7.50	190.5	7.25	184.2
6	150	15.00	381.0	2.19	55.6	8.50	215.9	12.50	317.5	1.25	31.8	12	1 1/8	7.50	190.5	7.75	196.9	7.25	184.2
8	200	18.50	469.9	2.50	63.5	10.62	269.7	15.50	393.7	1.50	38.1	12	1 3/8	8.75	222.3	8.75	222.3	8.50	215.9
10	250	21.50	546.1	2.75	69.9	12.75	323.9	18.50	469.9	1.50	38.1	16	1 3/8	9.25	235.0	9.25	235.0	9.00	228.6
12	300	24.00	609.6	3.12	79.2	15.00	381.0	21.00	533.4	1.50	38.1	20	1 3/8	10.00	254.0	10.00	254.0	9.75	247.7
14	350	25.25	641.4	3.38	85.9	16.25	412.8	22.00	558.8	1.62	41.1	20	1 1/2	10.75	273.1	11.00	279.4	10.50	266.7
16	400	27.75	704.9	3.50	88.9	18.50	469.9	24.25	616.0	1.75	44.5	20	1 5/8	11.25	285.8	11.50	292.1	11.00	279.4
18	450	31.00	787.4	4.00	101.6	21.00	533.4	27.00	685.8	2.00	50.8	20	1 7/8	12.75	323.9	13.25	336.6	12.50	317.5
20	500	33.75	857.3	4.25	108.0	23.00	584.2	29.50	749.3	2.12	53.8	20	2	13.75	349.3	14.25	362.0	13.50	342.9
24	600	41.00	1041.4	5.50	139.7	27.25	692.2	35.50	901.7	2.62	66.5	20	2 1/2	17.25	438.2	18.00	457.2	17.00	431.8

- a). NPS24" and smaller flanged ends by ANSI B16.5, NPS26" and larger by MSS SP-44.
b). Flange of 600Lb and 900Lb with the raised face of 0.06(1.6mm) is included in the smallest flange of thickness C.
c). The length L of the double-end bolt doesn't include the terminal length.
d). Flange gasket of the matching flange ASME B16.20.



ANSI Class600Lb/900Lb
0.25"(6.4mm) Raised face joint



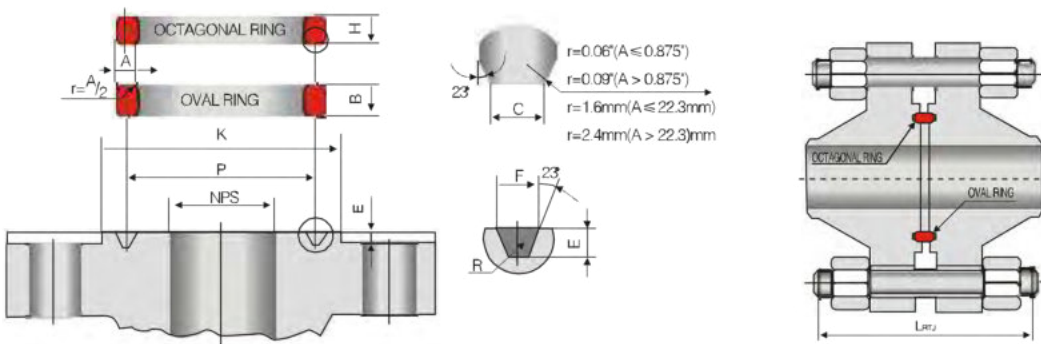
ANSI Class600Lb/900Lb
male & female

Class1500Lb

NPS		O		C		R		B		D		Bolt		L		LRTJ		Lm	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	QTY	Diam	in	mm	in	mm	in	mm
2	50	8.50	215.9	1.50	38.1	3.62	91.9	6.50	165.1	1.00	25.4	8	7/8	5.75	146.1	5.75	146.1	5.50	139.7
2 1/2	65	9.62	244.3	1.62	41.1	4.12	104.6	7.50	190.5	1.012	28.4	8	1	6.25	158.8	6.25	158.8	6.00	152.4
3	80	10.50	266.7	1.88	47.8	5.00	127.0	8.00	203.2	1.25	31.8	8	1 1/8	7.00	177.8	7.00	177.8	6.75	171.5
4	100	12.25	311.2	2.12	53.8	6.19	157.2	9.50	241.3	1.38	35.1	8	1 1/4	7.75	196.9	7.75	196.9	7.50	190.5
5	125	14.75	374.7	2.88	73.2	7.31	185.7	11.50	292.1	1.62	41.1	8	1 1/2	9.75	247.7	9.75	247.7	9.50	241.3
6	150	15.50	393.7	3.25	82.6	8.50	215.9	12.50	317.5	1.50	38.1	12	1 3/8	10.25	260.4	10.50	266.7	10.00	254.0
8	200	19.00	482.6	3.62	91.9	10.62	269.7	15.50	393.7	1.75	44.5	12	1 5/8	11.50	292.1	12.75	323.9	11.25	285.8
10	250	23.00	584.2	4.25	108.0	12.75	323.9	19.00	482.6	2.00	50.8	12	1 7/8	13.25	336.6	13.50	342.9	13.00	330.2
12	300	26.50	673.1	4.88	124.0	15.00	381.0	22.50	571.5	2.12	53.8	16	2	14.75	374.7	15.25	387.4	14.50	368.3
14	350	29.50	749.3	5.25	133.4	16.25	412.8	25.00	635.0	2.38	60.5	16	2 1/4	16.00	406.4	16.75	425.5	15.75	400.1
16	400	32.50	825.5	5.75	146.1	18.50	469.9	27.50	704.9	2.62	66.5	16	2 1/2	17.50	444.5	18.50	469.9	17.25	438.2
18	450	36.00	914.4	6.38	162.1	21.00	533.4	30.50	774.7	2.88	73.2	16	2 3/4	19.50	495.3	20.75	527.1	19.25	489.0
20	500	38.75	984.3	7.00	177.8	23.00	584.2	32.75	831.9	3.12	79.2	16	2	21.25	539.8	22.25	565.2	21.00	533.4
24	600	46.00	1168.4	8.00	203.2	27.25	692.2	39.00	990.6	3.62	91.9	16	3 1/2	24.25	616.0	25.50	647.7	24.00	609.6

Class2500Lb

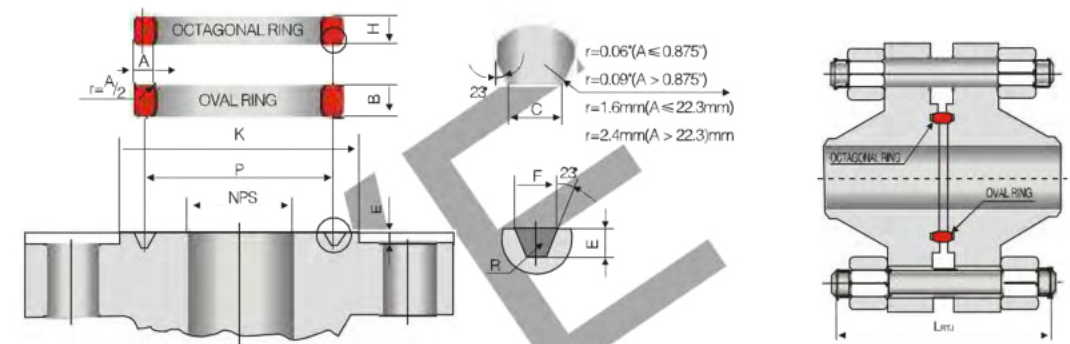
NPS		O		C		R		B		D		Bolt		L		L _{RTJ}		L _m	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	QTY	Diam	in	mm	in	mm	in	mm
2	50	9.25	235.0	2.00	50.8	3.62	91.9	6.75	171.5	1.12	28.4	8	1	7.00	177.8	7.00	177.8	6.75	171.5
2 ½	65	10.50	266.7	2.25	57.2	4.12	104.6	7.75	196.9	1.25	31.8	8	1 ⅛	7.75	196.9	8.00	203.2	7.50	190.5
3	80	12.00	304.8	2.62	66.5	5.00	127.0	9.00	228.6	1.38	35.1	8	1 ¼	8.75	222.3	9.00	228.6	8.50	215.9
4	100	14.00	355.6	3.00	76.2	6.19	157.2	10.75	273.1	1.62	41.1	8	1 ½	10.00	254.0	10.25	260.4	9.75	247.9
5	25	16.50	419.1	3.62	91.9	7.31	185.7	12.75	323.9	1.88	47.8	8	1 ¾	11.75	298.5	12.25	311.2	11.50	292.7
6	150	19.00	482.6	4.25	108.0	8.50	215.9	14.50	368.3	2.12	53.8	8	2	13.50	342.9	14.00	355.6	13.25	336.8
8	200	21.75	552.5	5.00	127.0	10.62	269.7	17.25	438.2	2.12	53.8	12	2	15.00	381.0	15.50	393.7	14.75	374.8
10	250	26.50	673.1	6.50	165.1	12.75	323.9	21.25	539.8	2.12	66.5	12	2 ½	19.25	489.0	20.00	508.0	19.00	482.7
12	300	30.00	762.0	7.25	184.2	15.00	381.0	24.38	619.3	2.88	73.2	12	2 ¾	21.25	539.8	22.00	558.8	21.00	533.4



Ring-Joint Flanged Ends

1	2	4	5	6	8	9	10	11	12	13	14	15	16	17											
ANSI Class-Lb						nular Groove								150Lb		300Lb 600Lb		900Lb		1500Lb		2500Lb			
150	300	600	900	1500	2500	No			E		F				K										
NPS							in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm			
2						R22	3.250	82.55	0.250	6.35	0.344	8.74	0.03	0.76	4.00	101.60									
	2	2				R23	3.250	82.55	0.312	7.92	0.469	11.91	0.03	0.76			4.25	107.95					4.50	114.3	
				2		R24	3.750	95.25	0.312	7.92	0.469	11.91	0.03	0.76							4.88	123.95			
					2	R26	4.000	101.60	0.312	7.92	0.469	11.91	0.03	0.76			5.00	127.00					5.25	133.35	
2 ½						R25	4.000	101.60	0.250	6.35	0.344	8.74	0.03	0.76	4.75	120.65									
	2 ½	2 ½				R26	4.000	101.60	0.312	7.92	0.469	11.91	0.03	0.76			5.00	127.00					5.25	133.35	
				2 ½		R27	4.250	107.95	0.312	7.92	0.469	11.91	0.03	0.76						5.38	136.65				
					2 ½	R28	4.375	111.13	0.375	9.53	0.531	13.49	0.03	0.76								5.88	149.35		
3						R29	4.500	114.30	0.250	6.35	0.344	8.74	0.03	0.76	5.25	133.35									
	3	3	3			R31	4.875	123.83	0.312	7.92	0.469	11.91	0.03	0.76			5.75	146.05	6.12	155.45					
					3	R32	5.000	127.00	0.375	9.53	0.531	13.49	0.06	1.52									6.62	168.15	
4						R36	5.875	149.23	0.250	6.35	0.344	8.74	0.03	0.76	6.75	171.45									
	4	4	4			R37	5.875	149.23	0.312	7.92	0.469	11.91	0.03	0.76			6.88	174.75	7.12	180.85					
					4	R38	6.188	157.18	0.438	11.13	0.656	16.66	0.06	1.52									8.00	203.20	
				4		R39	6.375	161.93	0.312	7.92	0.469	11.91	0.03	0.76						7.62	193.55				
5						R40	6.750	171.45	0.250	6.35	0.344	8.74	0.03	0.76	7.62	193.55									
	5	5	5			R41	7.125	180.98	0.312	7.92	0.469	11.91	0.03	0.76			8.25	209.55	8.50	215.90					
					5	R42	7.500	190.50	0.500	12.70	0.781	19.84	0.06	1.52									9.50	241.30	
					5	R44	7.625	193.68	0.312	7.92	0.469	11.91	0.03	0.76						9.00	228.60				
6						R43	7.625	193.68	0.250	6.35	0.344	8.74	0.03	0.76	8.62	218.95									
	6	6	6			R45	8.312	211.12	0.312	7.92	0.469	11.91	0.03	0.76			9.50	241.30	9.50	241.30					
					6	R46	8.312	211.12	0.375	9.53	0.531	13.49	0.06	1.52						9.75	247.65				
					6	R47	9.000	228.60	0.500	12.70	0.781	19.84	0.06	1.52								11.00	279.40		
8						R48	9.750	247.65	0.250	6.35	0.344	8.74	0.03	0.76	10.75	273.05									
	8	8	8			R49	10.625	269.88	0.312	7.92	0.469	11.91	0.03	0.76			11.88	301.75	12.12	307.85					
					8	R50	10.625	269.88	0.438	11.13	0.656	16.66	0.06	1.52						12.50					
					8	R51	11.000	279.40	0.562	14.27	0.906	23.01	0.06	1.52								13.38	339.85		

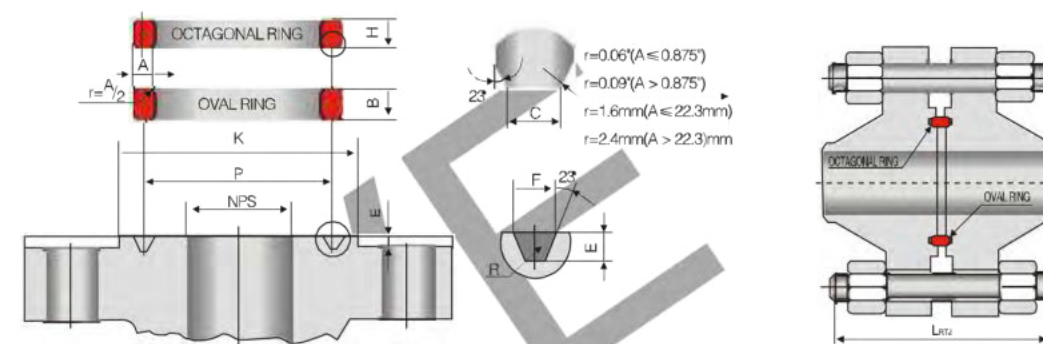
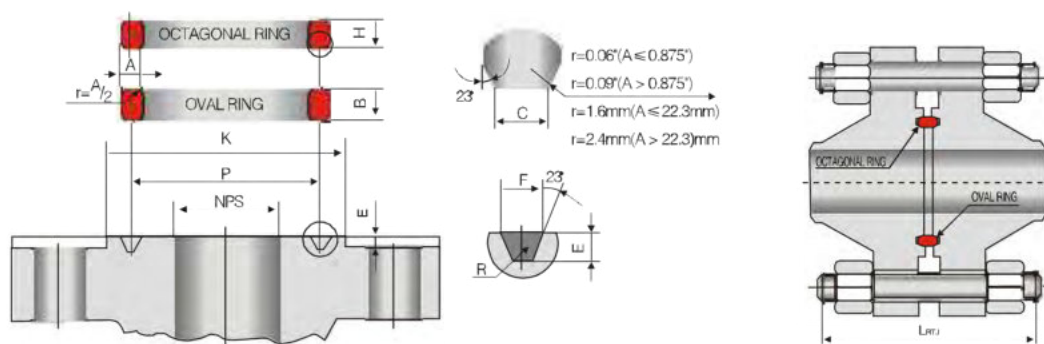
A) Please to see FLANGED ENDS for other connection dimension.
 B) Flange metal ring gasket of the matching flange ASME B16.20
 C) For the specification of NPS 2-21/2" of 900Lb will adopt the dimensions of 1500Lb.
 D) the length LRTJ of the double-end bolt don't include the terminal length.



Ring-Joint Flanged Ends

1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17								
ANSI Class-Lb						Annular Groove								150Lb		300Lb 600Lb		900Lb		1500Lb		2500Lb	
150	300	600	900	1500	2500	No	P		E		F		R		K								
NPS							in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
10						R52	12.00	304.80	0.250	6.35	0.344	8.74	0.03	0.76	13.00	330.20							
	10	10	10			R53	12.750	323.85	0.312	7.92	0.469	11.91	0.03	0.76			14.00	355.60	14.25	361.95			
				10		R54	12.750	323.85	0.438	11.13	0.656	16.66	0.06	1.52						4.62	371.35		
					10	R55	13.500	342.90	0.688	17.48	1.188	30.18	0.09	2.29								16.75	425.45
12						R56	15.000	381.00	0.250	6.35	0.344	8.74	0.03	0.76	16.00	406.40							
	12	12	12			R57	15.000	381.00	.312	7.92	0.469	11.91	0.03	0.76			16.25	412.75	16.50	49.10			
				12		R58	15.000	381.00	0.562	14.27	0.906	23.01	0.06	1.52						17.25	438.15		
					12	R60	16.000	406.00	0.688	17.48	1.312	33.32	0.09	2.29								19.50	495.30
14						R59	15.625	396.88	0.250	6.35	0.344	8.74	0.03	0.76	16.75	425.45							
	14	14				R61	16.500	419.10	0.312	7.92	0.469	11.91	0.03	0.76			18.00	457.20					
				14		R62	16.500	419.10	0.438	11.13	0.656	16.66	0.06	1.52					18.38	466.85			
					14	R63	16.500	419.10	0.625	15.88	1.062	26.97	0.09	2.29						19.25	488.95		
16						R64	17.785	454.03	0.250	6.35	0.344	8.74	0.03	0.76	19.00	482.60							
	16	16				R65	18.500	469.90	0.312	7.92	0.469	11.91	0.03	0.76			20.00	508.00					
				16		R66	18.500	469.90	0.438	11.13	0.656	16.66	0.06	1.52					20.62	523.75			
					16	R67	18.500	469.90	0.688	17.48	1.188	30.18	0.09	2.29							21.50	546.10	
18						R68	20.375	517.53	0.250	6.35	0.344	8.74	0.03	0.76	21.50	546.10							
	18	18				R69	21.000	533.40	0.312	7.92	0.469	11.91	0.03	0.76			22.62	574.55					
				18		R70	21.000	533.40	0.500	12.70	0.781	19.84	0.06	1.52					23.38	593.85			
					18	R71	21.000	533.40	0.688	17.48	1.188	30.18	0.09	2.29							24.12	612.65	
20						R72	22.000	558.80	0.250	6.35	0.344	8.74	0.03	0.76	23.50	596.90							
	20	20				R73	23.000	584.20	0.375	9.53	0.531	13.49	0.06	1.52			25.00	635.00					
				20		R74	23.000	584.20	0.500	12.70	0.781	19.84	0.06	1.52					25.50	647.70			
					20	R75	23.000	584.20	0.688	17.48	1.312	33.32	0.09	2.29							26.50	673.10	
24						R76	26.500	673.10	0.250	6.35	0.344	8.74	0.03	0.76	28.00	711.20							
	24	24				R77	27.250	692.15	0.438	11.13	0.656	16.66	0.06	1.52			29.50	749.30					
				24		R78	27.250	692.15	0.625	15.88	1.062	26.97	0.09	2.29					30.38	771.65			
					24	R79	27.250	692.15	0.812	20.62	1.438	36.53	0.09	2.29							31.25	793.75	

A) Please to see FLANGED ENDS for other connection dimension.
 b) Flange metal ring gasket of the matching flange ASME B16.20
 c) For the specification of NPS 2-21/2" of 900Lb will adopt the dimensions of 1500Lb.
 D) The length LRTJ of the double-end bolt don't include the terminal length.



Ring-Joint Flanged Ends

1	2	4	5	6	7	8	25	26	27	28	29	30	31	32	33	34											
ANSI Class-Lb						Metal joint ring								150Lb		300Lb		600Lb		900Lb		1500Lb		2500Lb			
150	300	600	900	1500	2500	No					H		C		L T J												
							in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
2						R22	0.313	7.95	0.56	14.22	0.50	12.70	0.206	5.23	3.75	95.25											
	2	2				R23	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75			4.00	101.60	4.25	107.95							
				2		R24	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75									5.75	146.05			
					2	R26	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75											7.00	177.80	
2 ½						R25	0.313	7.95	0.56	14.22	0.50	12.70	0.206	5.23	4.00	101.60											
	2 ½	2 ½				R26	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75			4.50	114.30	4.75	120.65					7.00	177.80	
				2 ½		R27	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75									6.25	158.75			
					2 ½	R28	0.500	12.70	0.56	14.22	0.69	17.53	0.341	8.66											8.00	203.20	
3						R29	0.313	7.95	0.69	17.53	0.50	12.70	0.206	5.23	4.00	101.60											
	3	3	3			R31	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75			4.75	120.65	5.00	127.00	5.75	146.05					
					3	R32	0.500	12.70	0.75	19.05	0.69	17.53	0.341	8.66											9.00	228.60	
					3	R35	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75									7.00	177.80			
4						R36	0.313	7.95	0.56	14.22	0.50	12.70	0.206	5.23	4.00	101.60											
	4	4	4			R37	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75			5.00	127.50	5.75	146.05	6.75	171.45					
					4	R38	0.625	15.88	0.88	22.35	0.81	20.57	0.413	10.49											10.25	260.35	
					4	R39	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75									7.75	196.85			
5						R40	0.313	7.95	0.56	14.22	0.50	12.70	0.206	5.23	4.25	107.95											
	5	5	5			R41	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75			5.25	133.35	6.50	165.10	7.50	190.50					
					5	R42	0.750	19.05	1.00	25.40	0.94	23.88	0.485	12.32											12.25	311.15	
					5	R44	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75									9.75	247.65			
6						R43	0.313	7.95	0.56	14.22	0.50	12.70	0.206	5.23	4.50	114.30											
	6	6	6			R45	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75			5.50	139.70	6.75	171.45	7.75	196.85					
					6	R46	0.500	12.70	0.75	19.05	0.69	17.53	0.341	8.66											14.00	355.60	
					6	R47	0.750	19.05	1.00	25.40	0.94	23.88	0.485	12.32									10.50	266.70			
8						R48	0.313	7.95	0.56	14.22	0.50	12.70	0.206	5.23	4.75	120.65											
	8	8	8			R49	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75			6.00	152.40	7.75	196.85	8.75	222.25					
					8	R50	0.625	15.88	0.88	22.35	0.81	20.57	0.413	10.49									12.75	323.85			
					8	R51	0.875	22.23	1.13	28.70	1.06	26.92	0.583	14.81											15.50	393.70	

Ring-Joint Flanged Ends

1	2	4	5	6	7	8	25	26	27	28	29	30	31	32	33	34						
ANSI Class-Lb						Metal joint ring						150Lb	300Lb	600Lb	900Lb	1500Lb	2500Lb					
150	300	600	900	1500	2500	No	A		B		H		C		LRTJ							
NPS							in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
10						R52	0.313	7.95	0.56	14.22	0.50	12.70	0.206	5.23	5.00	127.00						
	10	10	10			R53	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75			6.75	171.45	8.50	215.90	9.25	234.95
				10		R54	0.625	15.88	0.88	22.35	0.81	20.57	0.413	10.49							13.50	
					10	R55	1.125	28.58	1.44	36.58	1.38	35.05	0.780	19.81								2000
																						508.00
12						R56	0.313	7.95	0.56	14.22	0.50	12.70	0.206	5.23	5.25	133.35						
	12	12	12			R57	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75			7.25	184.15	8.75	222.25	10.00	254.00
				12		R57	0.875	22.23	1.13	28.70	1.06	26.92	0.583	14.81							15.25	387.35
					12	R60	1.250	31.75	1.56	39.62	1.50	38.10	0.879	22.33								2200
																						558.80
14						R59	0.313	7.95	0.56	14.22	0.50	12.70	0.206	5.23	5.75	146.05						
	14	14				R61	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75			7.50	190.50	9.25	234.95		
			14			R62	0.625	15.88	0.88	22.35	0.81	20.57	0.413	10.49						11.00	279.40	
				14		R63	1.000	25.40	1.44	33.27	1.25	31.75	0.681	17.30							16.75	425.45
16						R64	0.313	7.95	0.56	14.22	0.50	12.70	0.206	5.21	5.75	146.05						
	16	16				R65	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75			8.00	203.20	10.00	254.00		
			16			R66	0.625	15.88	1.00	22.35	0.81	20.57	0.413	10.49						11.50	292.10	
				16		R67	1.125	28.58	1.44	36.58	1.38	36.05	0.780	19.81							18.50	469.90
18						R68	0.313	7.95	0.56	14.22	0.50	12.70	0.206	5.23	6.25	158.75						
	18	18				R69	0.438	11.13	0.75	17.53	0.63	16.00	0.305	7.75			8.25	209.55	10.75	273.05		
			18			R70	0.750	19.05	1.00	25.40	0.94	23.88	0.485	12.32						13.25	336.55	
				18		R71	1.125	28.58	1.44	36.58	1.38	35.05	0.780	19.81							20.75	527.05
20						R72	0.313	7.95	0.56	14.22	0.50	12.70	0.206	5.23	6.75	171.45						
	20	20				R73	0.500	12.70	0.75	19.05	0.63	17.53	0.341	8.66			8.75	222.25	11.50	292.10		
			20			R74	0.750	19.05	1.00	25.40	0.94	23.88	0.485	12.32						14.25	361.95	
				20		R75	1.250	31.75	1.56	39.62	1.38	38.10	0.879	22.33							22.25	565.15
24						R76	0.313	7.95	0.56	14.22	0.50	12.70	0.206	5.23	7.25	184.15						
	24	24				R77	0.625	15.88	0.88	22.35	0.69	20.57	0.413	10.49			10.0	254.00	13.25	336.55		
			24			R78	1.000	25.40	1.31	33.27	0.94	31.75	0.681	17.30						18.00	457.20	
				24		R79	1.375	34.93	1.75	44.45	1.50	41.40	0.977	24.82							25.50	647.70

A). Please to see FLANGED ENDS for other connection dimension.

b). Flange metal ring gasket of the matching flange ASME B16.20

c). For the specification of NPS 2-21/2" of 900Lb will adopt the dimensions of 1500Lb.

D). The length LRTJ of the double-end bolt don't include the terminal length.

A). Please to see FLANGED ENDS for other connection dimension.

b). Flange metal ring gasket of the matching flange ASME B16.20

c). For the specification of NPS 2-21/2" of 900Lb will adopt the dimensions of 1500Lb.

D). The length LRTJ of the double-end bolt don't include the terminal length.

Nominal wall thickness	Use without backing ring	Use with continuous rectangular backing ring
≤0.88" (22.5mm)		
>0.88" (22.5mm)		

Class 150 and 300 valve which size equal to 12 inch and smaller and 12 inch valves which contract with standard wall pipe(0.375" thickness)are regularly machined. Unless there is other requirement.

Order for class 150 and 300 butt-welding valves which size equal to 14 and larger and class 400 and higher valve for all sizes, it should be specified the diameter of the pipe that contract with valves. If need backing ring, indicate specification.

Other types of weld end preparation would be furnished of specified.

ASME B16.25-Butt-Welding Ends

1 Nominal Pipe Diameter		2 Wall Thickness of pipe Number	3 Outside Diameter of Welding End		4 Outside Diameter of Welding End		5 Nominal Inside Diameter of Pipe		6 Machined Inside Diameter of Pipe		7 Nominal Wall Thickness	
NPS	DN	Number	Steel Valves		Forged ¹⁾		B		C		t	
in	mm		A		A ₁							
			in	mm	in	mm	in	mm	in	mm	in	mm
2 1/2	65	40	2.96	75	2.88	73.0	2.469	62.5	2.479	62.93	0.203	5.16
		80	2.96	75	2.88	73.0	2.323	59	2.351	59.69	0.276	7.01
		160	2.96	75	2.88	73.0	2.125	54	2.178	55.28	0.375	9.53
3	80	xxs	2.96	75	2.88	73.0	1.771	45	1.868	47.43	0.552	14.02
		40	3.59	91	3.50	88.9	3.068	78	3.081	78.25	0.216	5.49
		80	3.59	91	3.50	88.9	2.900	73.5	2.934	74.53	0.300	7.62
		160	3.59	91	3.50	88.9	2.624	66.5	2.692	68.38	0.438	11.13
3 1/2	90	xxs	3.59	91	3.50	88.9	2.300	58.5	2.409	61.19	0.600	15.24
		40	4.12	105	4.00	101.6	3.548	90	3.564	90.52	0.226	5.74
		80	4.12	105	4.00	101.6	3.364	85.5	3.402	86.42	0.318	8.08
4	100	40	4.62	117	4.50	114.3	4.026	102	4.044	102.73	0.237	6.02
		80	4.62	117	4.50	114.3	3.826	97	3.869	98.28	0.337	8.56
		120	4.62	117	4.50	114.3	3.624	92	3.692	93.78	0.438	11.13
		160	4.62	117	4.50	114.3	3.438	87.5	3.530	89.65	0.531	13.49
5	125	xxs	4.62	117	4.50	114.3	3.152	80	3.279	83.30	0.674	17.12
		40	5.69	144	5.56	141.3	5.047	128	5.070	128.80	0.258	6.55
		80	5.69	144	5.56	141.3	4.813	122	4.866	123.58	0.375	9.53
		120	5.69	144	5.56	141.3	4.563	116	4.647	118.04	0.500	12.70
		160	5.69	144	5.56	141.3	4.313	109.5	4.428	112.47	0.625	15.88
6	150	xxs	5.69	144	5.56	141.3	4.063	103	4.209	106.92	0.750	19.05
		40	6.78	172	6.62	168.3	6.065	154	6.094	154.82	0.280	7.11
		80	6.78	172	6.62	168.3	5.761	146.5	5.828	148.06	0.432	10.97
		120	6.78	172	6.62	168.3	5.501	140	5.600	142.29	0.562	14.27
		160	6.78	172	6.62	168.3	5.187	132	5.326	135.31	0.719	18.26
8	200	xxs	8.78	172	6.62	168.3	4.897	124.5	5.072	128.85	0.864	21.95
		40	8.78	223	8.62	219.1	7.981	203	8.020	203.75	0.322	8.18
		60	8.78	223	8.62	219.1	7.813	198.5	7.873	200.02	0.406	10.31
		80	8.78	223	8.62	219.1	7.625	193.5	7.709	195.84	0.500	12.70
		100	8.78	223	8.62	219.1	7.437	189	7.544	191.65	0.594	15.09
		120	8.78	223	8.62	219.1	7.187	182.5	7.326	186.11	0.719	18.26
		140	8.78	223	8.62	219.1	7.001	178	7.163	181.98	0.812	20.62
		xxs	8.78	223	8.62	219.1	6.875	174.5	7.053	179.16	0.875	22.23
		160	8.78	223	8.62	219.1	6.813	173	6.998	177.79	0.906	23.01
10	250	40	10.94	278	10.75	273.0	10.020	254.5	10.070	255.74	0.365	9.27
		60	10.94	278	10.75	273.0	9.750	247.5	9.384	249.74	0.500	12.70
		80	10.94	278	10.75	273.0	9.562	243	9.670	245.55	0.594	15.09
		100	10.94	278	10.75	273.0	9.312	236.5	9.451	240.01	0.719	18.26
		120	10.94	278	10.75	273.0	9.062	230	9.232	234.44	0.844	21.44
		140	10.94	278	10.75	273.0	8.750	222	8.959	227.51	1.000	25.40
		160	10.94	278	10.75	273.0	8.500	216	8.740	221.95	1.125	28.58

ASME B16.25-Butt-Welding Ends

1		2	3		4		5		6		7	
Nominal Pipe Diameter		Wall Thickness of pipe Number	Outside Diameter of Welding End				Nominal Inside Diameter of Pipe		Machined Inside Diameter of Pipe		Nominal Wall Thickness	
NPS	DN		Steel Valves		Forged ¹⁾							
in	mm		A		A ₁		B		C		t	
		in	mm	in	mm	in	mm	in	mm	in	mm	
12	300	STD	12.97	329	12.75	323.8	12.000	305	12.053	306.08	0.375	9.53
		40	12.97	329	12.75	323.8	11.938	303	11.999	304.72	0.406	10.31
		XS	12.97	329	12.75	323.8	11.750	298.5	11.834	300.54	0.500	12.70
		60	12.97	329	12.75	323.8	11.626	295	11.725	297.79	0.562	14.27
		80	12.97	329	12.75	323.8	11.374	289	11.505	292.17	0.688	17.48
		100	12.97	329	12.75	323.8	11.062	281	11.232	285.24	0.844	21.4
		120	12.97	329	12.75	323.8	10.750	273	10.959	278.31	1.00	25.40
		140	12.97	329	12.75	323.8	10.500	266.5	10.740	272.75	1.125	28.58
14	350	160	12.97	329	12.75	323.8	10.126	257	10.413	264.45	1.312	33.32
		STD	14.25	362	14.00	355.6	13.250	336.5	13.303	337.88	0.375	9.53
		40	14.25	362	14.00	355.6	13.124	333.5	13.192	335.08	0.438	11.13
		XS	14.25	362	14.00	355.6	13.000	330	13.084	332.34	0.500	12.70
		60	14.25	362	14.00	355.6	12.812	325.5	12.920	328.15	0.594	15.09
		80	14.25	362	14.00	355.6	12.500	317.5	12.646	321.22	0.750	19.05
		100	14.25	362	14.00	355.6	12.124	308	12.318	312.86	0.938	23.83
		120	14.25	362	14.00	355.6	11.812	300	12.044	305.93	1.094	27.79
16	400	140	14.25	362	14.00	355.6	11.500	292	11.771	299.00	1.250	31.75
		160	14.25	362	14.00	355.6	11.188	284	11.498	292.07	1.406	35.71
		STD	16.25	413	16.00	406.4	15.250	387.5	15.303	388.68	0.375	9.53
		40	16.25	413	16.00	406.4	15.000	381	15.084	383.14	0.500	12.70
		60	16.25	413	16.00	406.4	14.688	373	14.811	376.21	0.656	16.66
		80	16.25	413	16.00	406.4	14.312	363.5	14.482	367.84	0.844	21.44
		100	16.25	413	16.00	406.4	13.938	354	14.155	359.53	1.031	26.19
		120	16.25	413	16.00	406.4	13.562	344.5	13.826	351.18	1.219	30.96
18	450	140	16.25	413	16.00	406.4	13.124	333.5	13.442	341.43	1.438	36.53
		160	16.25	413	16.00	406.4	12.812	325.5	13.170	334.50	1.594	40.49
		STD	18.28	464	18.00	457.2	17.250	438	17.303	439.48	0.375	9.53
		XS	18.28	464	18.00	457.2	17.000	432	17.084	433.94	0.500	12.70
		40	18.28	464	18.00	457.2	16.876	428.5	16.975	431.19	0.562	14.27
		60	18.28	464	18.00	457.2	16.500	419	16.646	422.82	0.750	19.05
		80	18.28	464	18.00	457.2	16.124	409.5	16.318	414.46	0.938	23.83
		100	18.28	464	18.00	457.2	15.688	398.5	15.936	404.78	1.156	29.36
20	500	120	18.28	464	18.00	457.2	15.250	387.5	15.553	395.03	1.375	34.93
		140	18.28	464	18.00	457.2	14.876	378	15.225	386.77	1.562	39.67
		160	18.28	464	18.00	457.2	14.438	366.5	14.842	376.99	1.781	45.24
		STD	20.31	516	20.00	508.0	19.250	489	19.303	490.28	0.375	9.53
		XS	20.31	516	20.00	508.0	19.000	482.5	19.084	484.74	0.500	12.70
		40	20.31	516	20.00	508.0	18.812	478	18.920	480.55	0.594	15.09
		60	20.31	516	20.00	508.0	18.376	467	18.538	470.88	0.812	20.62
		80	20.31	516	20.00	508.0	17.938	455.5	18.155	461.13	1.031	29.19
22	550	100	20.31	516	20.00	508.0	17.438	443	17.717	450.02	1.281	32.54
		120	20.31	516	20.00	508.0	17.000	432	17.334	440.29	1.500	38.10
		140	20.31	516	20.00	508.0	16.500	419	16.896	429.17	1.750	44.45
		160	20.31	516	20.00	508.0	16.062	408	16.513	419.44	1.969	50.01
		STD	22.34	567	22.00	558.8	21.250	2520	21.303	541.08	0.375	9.53
		XS	22.34	567	22.00	558.8	21.000	533	21.084	535.54	0.500	12.70
		60	22.34	567	22.00	558.8	20.250	514	20.428	518.86	0.875	22.23
		80	22.34	567	22.00	558.8	19.750	502	19.990	507.75	1.125	28.58
22	550	100	22.34	567	22.00	558.8	19.250	488.5	19.553	496.63	1.375	34.93
		120	22.34	567	22.00	558.8	18.750	476	19.115	485.52	1.625	41.28
		140	22.34	567	22.00	558.8	18.250	464	18.678	474.41	1.875	47.63
		160	22.34	567	22.0	558.8	17.750	450.5	18.240	463.30	2.215	53.98

Nominal wall thickness	Use without backing ring	Use with continuous rectangular backing ring
≤0.88" (22.5mm)		
>0.88" (22.5mm)		

Class 150 and 300 valve which size equal to 12 inch and smaller and 12 inch valves which contract with standard wall pipe(0.375" thickness)are regularly machined. Unless there is other requirement.

Order for class 150 and 300 butt-welding valves which size equal to 14 and larger and class 400 and higher valve ro all sizes, it should be specified the diameter of the pipe that contract with valves. if need backing ring, indicate specification.

Other types of weld end preparation would be furnished of specified.

ASME B16.25-Butt-Welding Ends

1 Nominal Pipe Diameter		2 Wall Thickness of pipe Number	3 Outside Diameter of Welding End		4 Outside Diameter of Welding End		5 Nominal Inside Diameter of Pipe		6 Machined Inside Diameter of Pipe		7 Nominal Wall Thickness	
NPS	DN	Number	Steel Valves		Forged ¹⁾		B		C		t	
in	mm		A	mm	A ₁	mm						
24	600	STD	24.38	619	24.00	609.6	23.250	590.5	23.303	591.88	0.375	9.53
		XS	24.38	619	24.00	609.6	23.000	584	03.084	586.34	0.500	12.70
		30	24.38	619	24.00	609.6	22.876	581	22.975	583.59	0.562	14.27
		40	24.38	619	24.00	609.6	22.624	574.5	22.755	577.97	0.688	17.48
		60	24.38	619	24.00	609.6	22.062	560.5	22.263	565.49	0.969	24.61
		80	24.38	619	24.00	609.6	21.562	547.5	21.826	554.38	1.219	30.96
		100	24.38	619	24.00	609.6	20.938	532	21.280	540.49	1.531	38.89
		120	24.38	619	24.00	609.6	20.376	517.5	20.788	528.03	1.812	46.02
		140	24.38	619	24.00	609.6	19.876	505	20.350	516.91	2.062	52.37
26	650	160	24.38	619	24.00	609.6	19.312	490.5	19.857	504.37	2.344	59.54
		10	26.38	670	26.00	660.4	25.376	645.5	25.413	645.50	0.312	7.92
28	700	20	26.38	670	26.00	660.4	25.000	635	25.084	637.14	0.500	12.70
		10	28.38	721	28.00	711.2	27.376	695.5	27.413	696.30	0.312	7.92
30	750	20	28.38	721	28.00	711.2	27.000	686	27.084	687.94	0.500	12.70
		30	28.38	721	28.00	711.2	26.750	679.5	26.865	682.37	0.625	15.88
32	800	10	30.38	772	30.00	762.0	29.376	746	29.413	747.10	0.312	7.92
		20	30.38	772	30.00	762.0	29.000	736.5	29.084	738.74	0.500	12.70
34	850	30	30.38	772	30.00	762.0	28.750	730	28.865	733.17	0.625	15.88
		10	32.50	825	32.00	812.8	31.376	797	31.413	797.90	0.312	7.92
36	900	20	32.50	825	32.00	812.8	31.000	787.5	31.084	789.54	0.500	12.70
		30	32.50	825	32.00	812.8	30.750	781	30.865	783.97	0.625	15.88
38	950	40	32.50	825	32.00	812.8	30.624	778	30.755	781.17	0.688	17.48
		10	34.50	876	34.00	863.6	33.376	848	33.413	848.70	0.312	7.92
40	1000	20	34.50	876	34.00	863.6	33.000	838	33.084	840.34	0.500	12.70
		30	34.50	876	34.00	863.6	32.750	832	32.865	834.77	0.625	15.88
42	1050	40	34.50	876	34.00	863.6	32.624	828.5	32.755	831.97	0.688	17.48
		10	36.50	927	36.00	914.4	35.376	898.5	35.413	899.50	0.312	7.92
44	1100	20	36.50	927	36.00	914.4	35.000	889	35.084	891.14	0.500	12.70
		30	36.50	927	36.00	914.4	34.750	882.5	34.865	885.57	0.625	15.88
46	1150	40	36.50	927	36.00	914.4	34.500	876.5	34.646	880.02	0.750	19.05

Note: 1) Forged or machined component part
a.STD=standard wall thickness.
b.XS=intensifying wall thickness.
c.XXS=double intensifying wall thickness.

Size of Connection	Valve Type	Pressure Rating	Body/Bonnet Type	Type of Connection	Body Material	Operator	Trim Material
A	B	C	D	E	F	G	H
e.g: 6"	G G - 0 3		A	R	0 5	H	0 2

Example : Flanged 6" class 300 cast stainless steel full bore gate valve with trim 02.

The figure numbers shown on this key are designed to cover essential features of GMK valves.

Please use figure numbers to ensure prompt and accurate processing of your order.

A detailed description must accompany any special orders.

A	Size of Connection			
2"(50mm)	8"(200mm)	20"(500mm)	32"(800mm)	
2 1/2"(65mm)	10"(250mm)	22"(550mm)	34"(850mm)	
3"(80mm)	12"(300mm)	24"(600mm)	36"(900mm)	
4"(100mm)	14"(350mm)	26"(650mm)	40"(950mm)	
5"(125mm)	16"(400mm)	28"(700mm)	42"(1050mm)	
6"(150mm)	18"(450mm)	30"(750mm)	48"(1200mm)	
B	Valve Type			
GG-Gate Valve	GL-Globe Valve	YG-Y-Globe Valve		
BG-Bellows Globe Valve	SC-Swing Check Valve			
LC-Lift Check Valve	WC-Water Check Valve			
C	Pressure Rating			
01-ANSI 150	03-ANSI 300	06-ANSI 600		
09-ANSI 900	15-ANSI 1500	25-ANSI 2500		
D	Body/Bonnet Style			
A-Bolted bonnet(cast)	B-Extended bonnet			
C-Cast bolted bonnet bellows seal				
D-Pressure seal bonnet				
E	Type of Connection			
B-butt welding end	F-flat face flange end			
J-ring joint flange end	N-screwed end			
R-raised face flange end	S-socket welding end			
w-wafer				
F	Body Material			
01-WCB	02-WC6	03-WC9	04-C5	05-CF8
06-CF8M	07-CF3	08-CF3M	09-CG8M	10-CG3M
11-LCB	12-LCC	13-Monel	14-Hastelloy C	
15-Alloy 20	16-Tiannium		17-Special	

G	Operator		
H-Handwheel	G-Gear operator	P-Pneumatic actuator	
E-Electric actuator	S-Special		
H	Trim material		
Trim No.	Seat Ring or Surface	Wedge/Disc or Surface	Stem
01	13Cr	13Cr	ASTMA 182 F6a
02	18Cr-8Ni	18Cr-8Ni	ASTMA 182 F304
03	Stellite	18Cr-8Ni	ASTMA 182 F304
04	Stellite	13Cr	ASTMA 182 F6a
05	Stellite	Stellite	ASTMA 182 F6a
06	18Cr-8Ni-Mo	18Cr-8Ni-Mo	ASTMA 182 F316
07	Stellite	18Cr-8Ni-Mo	ASTMA 182 F316
08	Stellite	Stellite	ASTMA 182 F316
09	Monel	Monel	Ni Cu Alloy Monel
10	Alloy 20	Alloy 20	ASTMB473
11	Special	Special	Special