

Technological Innovation, science and technology is the productivity



ZHEJIANG ZHONGBO VALVE MFG CO.,LTD.



Selecting manual of production

**ZHEJIANG
ZHONGBO VALVE
MFG CO.,LTD.**

www.zbvalve.com

Selecting manual of production

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DEVELOPMENT



Enterprise Culture:

Build up perfect enterprise image, create rich enterprise value, Seek excellence, get creditable, take clients as the center, rely on the union and mutual cooperation spirit of the whole staff, keep operating and improving, continue pursuing quality products, perfect the after-sales services, create rich social value.

Our values :

Whether yesterday, today or in the future, we always adhering to the principle of "quality first uncompromising integrity". Meanwhile we appreciate the care and support from the society in every step of its growth, besides try our best to repay for the society, push the enterprise forward and be enthusiastic in the public welfare, all of which are considered as our obligatory duty and responsibilities.



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ZHONGBO VALVE



BRIEF INTRODUCTION

Zhejiang Zhongbo Valve Mfg. Co., Ltd located in Lishui economic develop zone, covers area of 20,000 square meters. It is a valve company specializing in the manufacturing and distribution of various ball valves, gate valves, globe valves and ect.

The main products of our company includes hard seal ball valves, double eccentric semi-ball valves, four-way ball valves, three-way ball valves, Trunnion mounted ball valves, floating ball valves, forged steel ball valves, porcelain ball valve, integrated inclined face ball valve, axis-flow check valve, anti-theft gate valve, ANSI gate valve, globe valve, check valve etc. more than 30 varieties, totaling over 160 series and one thousand specifications products. The products adopt API, ANSI, BS, DIN, JIN, GB and JB etc. Domestic and international standard to product. The product diameter varies from 1/2" to 40" (DN15~1000mm). The pressure grade varies from 150Lb to 2500Lb (0.6MPa~42.0MPa). The working temperature is within the range of -196°C~680°C. The materials for main body of valves are cast steel, Alloy steel, stainless steel, super low carbon manufacture according to special requirements of customers. The products are in accordance with the industry standard, and they are the ideal products for petrochemical industry, chemical industry, construction, metallurgy, environmental protection and electric power etc. Industries.

To be accommodated with the development of market economy, by carrying out the brand strategy, we have more perfect quality assurance and after-sales service system, by keeping the service tenet of "Surviving by quality, seeking benefit by science and technology, human-orientated, getting reputation by sincerity", our company sincerely hopes to establish business cooperation relationship with customers, welcome new and old customers to visit us.



PERFECT PRODUCTION EQUIPMENTS, SOPHISTICATED TECHNICAL PERSONNEL



Go forward one step every day, sincerely provide services forever.
We are ready all the time to provide you with the most satisfactory services.

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How To Order

Example:

Sample	8	G	P	9	B	05	A	-	B
Code	I	II	III	IV	V	VI	VII		VIII

I	Valve NPS	Design standard
NPS	Nominal pipe size	API, ANSI
DN	Nominal diameter	BS, EN, DIN

II	Valve type
G	Gate valve
B	Ball vave
C	Check valve
GL	Globe
P	Plug valve
S	Strainer

III	Special code ¹⁾		Suitable valve
R	Reduced port		
C	Cryogenic		
P	Pressure seal		G/C/GL Valve
N	Non-rising stem		G/GL Valve
B	Bellows type		
A	Adjustment-type disc		Globe valve
M	Trunnion mounted		
T	Top entry		Ball valve
W	All-welded		
V	Vertical	Lift type	Check valve
H	Horizontal		
D	Dual-plate, butterfly type		
S	Single-plate		
Y	Y-type		Strainer

IV	ANSI Pound Class	PN Nominal pressure
0		PN 1.6MPa
1	ANSI Class 150Lb	PN 2.0MPa
2		PN 2.5MPa
3	ANSI Class 300Lb	PN 5.0MPa
4		PN 4.0MPa
5	ANSI Class 400Lb	PN 6.3MPa
6	ANSI Class 600Lb	PN 10.0MPa
8	ANSI Class 800Lb	
9	ANSI Class 900Lb	PN 15.0MPa
15	ANSI Class 1500Lb	PN 25.0MPa
25	ANSI Class 2500Lb	PN 42.0MPa

ZBV valve figure number is comprised of significant numbers and etters that describe the configurations of valves. When ordering, we recommend you to select figure numbers to make your requirements more distinct. However a detailed description must accompany any special orders.

V	Type of connection	Stand code
F	Raised face flange end	RF
L	Flat face flange end	FF
R	Ring joint flange end	RTJ
B	Butt welding end	BW
S	Socket welding end	SW
T	Screwed end, internal thread, NPT	SC
W	Wafer type	WF

VI	Code	API CN	Trim material		Brinell Hardness	Stem material
			Surface			
			Closure member	Seat		
01	1		13Cr	13Cr	250 HB min	13Cr
02	2		18Cr-8Ni	18Cr-8Ni	Not specified	18Cr-8Ni
03	3		20Cr-20Ni	20Cr-20Ni	Not specified	20Cr-20Ni
04	4		13Cr	13Cr	750 HB min	13Cr
05	5		HF	HF	350 HB min	13Cr
06	6		13Cr	CuNi	250 HB/175 HB min	13Cr
07	7		13Cr	13Cr	250 HB/750 HB min	13Cr
08	8		13Cr	HF	250 HB/350 HB min	13Cr
09	9		NiCu alloy	NiCu alloy	Not specified	NiCu alloy
10	10		18Cr-8Ni-Mo	18Cr-8Ni-Mo	Not specified	18Cr-8Ni-Mo
11	11		NiCu alloy	HF	350 HB min	NiCu alloy
12	12		18Cr-8Ni-Mo	HF	350 HB min	18Cr-8Ni-Mo
13	13		19Cr-29Ni	19Cr-29Ni	Not specified	19Cr-29Ni
14	14		19Cr-29Ni	HF	350 HB min	19Cr-29Ni
50	/		A105+ENP2)	Soft seat1)	Not specified	13Cr
55	/		13Cr	Soft seat1)	Not specified	13Cr
56			18Cr-8Ni	Soft seat1)	Not specified	13Cr
57	/		18Cr-8Ni	Soft seat1)	Not specified	18Cr-8Ni
58	/		18Cr-8Ni-Mo	Soft seat1)	Not specified	13Cr
59	/		18Cr-8Ni-Mo	Soft seat1)	Not specified	18Cr-8Ni-Mo
00 ³⁾	/		/	/	/	/

Notes:
a. Soft seat including PTFE, NYLON and PEEK, see part list for details.
b. ENP=Electroless nickel plating.
c. Other materials can be used upon discussion between buyer and manufacturer.



How To Order



Ball Valve, CS, FL (Floating)

VII	Shell material							
Code	ASTM Spec. grade	Nominal designation	Service recommendations	Min. TEMP		Min. TEMP		
				°F	°C	°F	°C	
A	A216-WCB	Cast carbon steel	W.O.G(Water, oil & gas)steam and general service	-20	-29	800	425	
B	A352-LCB	Cast carbon steel	Low temperature and general service	-50	-46	650	343	
C	A352-LCC	Cast carbon steel	Low temperature and general service	-50	-46	650	343	
D	A217-WC6	Chrome-molybdenum steel 1 1/4Cr- 1/2Mo	High temperature steam oil vapour and general service	-20	-29	1100	593	
E	A217-WC9	Chrome-molybdenum steel 2 1/4Cr-1Mo	High temperature steam oil vapour and general service	-20	-29	1100	593	
F	A217-C5	Chrome-molybdenum steel 5Cr- 1/2Mo	Corrosive erosive oil refinery service	-20	-29	1200	649	
G	A217-C12	Chrome-molybdenum steel 9Cr-1Mo	Corrosive erosive oil refinery service	-20	-29	1200	649	
K	A351-CF8	Cast stainless steel 18Cr-10Ni, 304 SS	Corrosive or extremely high temperature noncorrosive services between -450 °F (-268 °F) and 1200 ° F(649 °F). Above 1000 ° F(540 ° F) specify carbon content of 0.04% or greater.	-425	-254	1004	540	
L	A351-CF8M	Cast stainless steel 18Cr-10Ni-2Mo, 316 SS		-425	-254	1004	540	
M	A351-CF3	Cast stainless steel 18Cr-10Ni, 304L SS		-425	-254	800	425	
N	A351-CF3M	Cast stainless steel 18Cr-10Ni-2Mo, 316L SS		-425	-254	850	454	
P	A351-CN7M	Cast stainless steel 19Cr-29Ni, Alloy-20	Corrosion resistance	-20	-29	842	450	
R	A494 M-35-1	Cast Ni alloy steel monel	Weldable grade, good resistance to corro sion by all common organic acids and salt water	-20	-29	750	400	
U	A494 CW-6M	Cast Ni alloy steel hastelloy C	Good resistance to strong oxidation conditions. Good properties at high temperatures, high resistance to formic, phosphoric, sulphurous and sulfuric acids.	-20	-29	1200	649	
V	A494 CY-40	Cast Ni alloy steel inconel	Very good for high temperature service. Good resistance to strongly corrosive media.	-20 -40	-29 -40	1200 800	649 425	
FA	A105(N)	Forged carbon steel	W.O.G(Water, oil & gas)steam and general service	-50	-46	650	343	
FB	A350-LF2	Forged carbon steel	W.O.G(Water, oil & gas)and general service					
FD	A182-F11	Chrome-molybdenum steel 1 1/4Cr- 1/2 Si	High temperature, steam oil vapour and general service	-40	-40	1100	593	
FK	A2182-F304	Forged stainless steel 18Cr-10Ni-2Mo, 304 SS	Corrosive or extremely high tem- perature non-corrosive services between -450° F (-268°C) and 1200° F (649°C). Above1000° F (540°C) specify carbon content of 0.04% or greater.	-425	-254	1004	540	
FL	A182-F316	Forged stainless steel 18Cr-10Ni-2Mo, 316 SS		-425	-254	1004	540	
FM	A182-F304L	Forged low carbon stainless steel 18Cr-10Ni, 304L SS		-425	-254	800	425	
FN	A182-F316L	Forged low carbon stainless steel 18Cr-10Ni, 316L SS		-425	-254	1004	540	
Notes: The soft seal valve maximum working temperature depending upon the seat material.			Seat material	R.PTFE	-320	-196	250	121
				NYLON	-58	-50	176	80
				PEEK	-185	-120	483	250

VIII	Actuator device
B	Bevel gear actuator
W	Worm gear actuator
G	General electric actuator
EX	Explosion-proof electric actuator
P	Double pneumatic actuator
PS	Single pneumatic actuator
H	Hydraulic actuator
EH	Electro-hydraulic actuator
PH	Pneumatic-hydraulic actuator
E	electric actuator

Notes:

- a. N/A For handwheel or lever operated.
b. N/A For check valve and strainer.

Design

ZBV Steel ball valve are designed and manufactured to provide maximum service life and dependability. All ball valves are full ported and meet the design requirements of American petroleum institute standard API 608 & API 6D, British standard BS 5351 and gene-rally conform to American society of mechanical engineers standard ASME B16.34. Valves are available in a complete range of body/bonnet materials and trims.

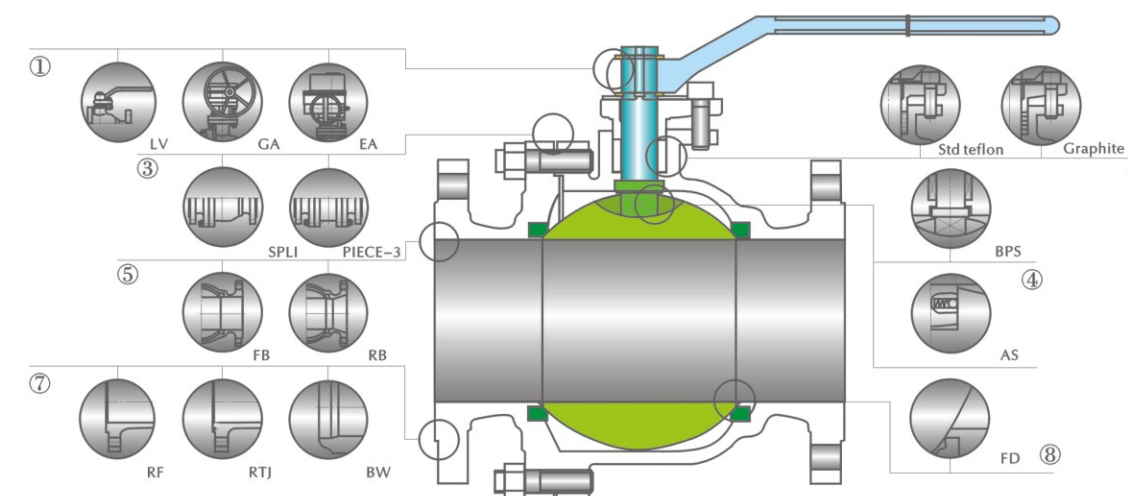
Rang of Materials

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 LYV Cast Steel Valve

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

Pressure equlizing
AS or FD
Customer specified coatings
Weld end bore changes
Oxygen & chlorine cleaning & packaging



① Operating

Extended lever for easy operation. Also available withgearing, motor actuators, pneumatic or hydraulic actuators for more difficult services.

② Packing

STD Packing multiple V-TEFLON packing, combined with live loading, maintains packing compression under high-cycle and severe service appl-ications. Graphite packing use situation for high-temperature.

③ Body & bonnet

Split or 3-piece, split body & bonnet for 12" & small. Disassemble easily for repair or replacement of internal components

④ BPS

Blow-out proof stem. Apressure -safe stem shoulder design that protects against failure under excess pressure.

⑤ Bore

Full bore or reduced bore. Full-bore design provides exceptional flow control.

⑥ AS

Anti static. A metallic contact is always granted between ball and stem/body to discharge eventual statics build-opduring service.

⑦ End connections

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

⑧ FD

Fire durable. Designed to API 607 or BS 6755 to grant their opera-tion suitability in case of fire. Secondary metal-to-metal seal acts as backup if primary seal is destroyed by fire. Valves ordered for compliance with API 607 will be provided with graphite packing and gaskets.



Cast Steel Ball Valve 150Lb

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Floating ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator

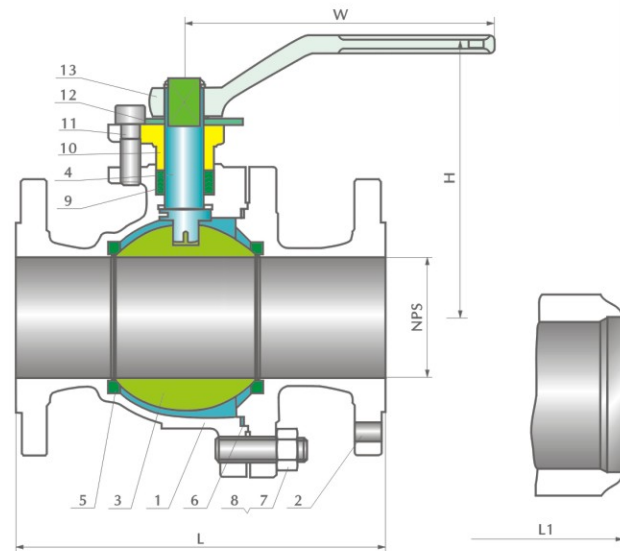


Fig. No:

B1F56A B1F59L B1F56B
B1B56A B1B59L B1B56B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat ring	R.PTFE		
6	Bonnet gasket	Graphite+304 ¹⁾	PTFE	Graphite+304 ¹⁾
7	Bonnet stud	A193-B7	A193-B8	A320-L7
8	Bonnet stud nut	A194-2H	A194-8	A194-4
9	Packing	PTFE		
10	Gland flange	A216-WCB	A351-CF8M	A352-LCB
11	Gland bolt	A193-B7	A193-B8	A193-B7
12	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
13	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.

Dimensions data

Size	in	1/2	3/4	1	1 1/2	2	2 1/2	3	4	6	8	10	12
	mm	15	20	25	40	50	65	80	100	150	200	250	300
L (RF)	in	4.25	4.62	5.00	6.50	7.00	7.50	8.00	9.00	15.50	18.00	21.00	24.00
	mm	108	117	127	165	178	190	203	229	394	457	533	610
L1 (BW)	in	5.50	6.00	6.50	7.50	8.50	9.50	11.12	12.00	18.00	20.50	22.00	25.00
	mm	140	152	165	190	216	241	283	305	457	521	559	635
H	in	3.34	3.46	3.74	4.88	5.51	7.48	7.48	8.66	12.59	13.58	13.50	16.50
	mm	85	88	95	125	140	190	190	220	320	345	345	420
W	in	5.51	5.9	6.89	9.45	9.45	12.99	12.99	14.56	33.46	47.24	47.24	47.24
	mm	140	150	175	240	240	330	330	370	850	1200	1200	1200
WT (Kg)	RF	2.3	3	4.5	7	9.5	15	19	33	93	160	200	280
	BW	1.8	2.8	3.7	6.2	8.5	14	21	35	98	170	225	295



Cast Steel Ball Valve 300Lb

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Floating ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator

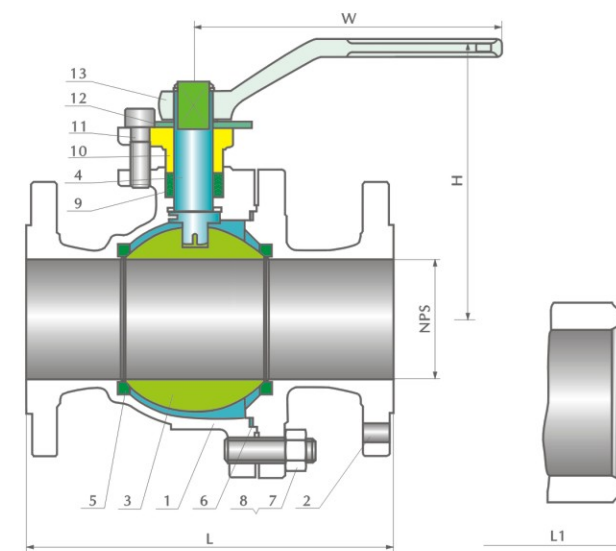


Fig. No:

B3F56A B3F59L B3F56B
B3B56A B3B59L B3B56B
B3R56A B3R59L B3R56B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat ring	R.PTFE		
6	Bonnet gasket	Graphite+304 ¹⁾	PTFE	Graphite+304 ¹⁾
7	Bonnet stud	A193-B7	A193-B8	A320-L7
8	Bonnet stud nut	A194-2H	A194-8	A194-4
9	Packing	PTFE		
10	Gland flange	A216-WCB	A351-CF8M	A352-LCB
11	Gland bolt	A193-B7	A193-B8	A193-B7
12	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
13	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.

Dimensions data

Size	in	1/2	3/4	1	1 1/2	2	2 1/2	3	4	6	8	10	12
	mm	15	20	25	40	50	65	80	100	150	200	250	300
L (RF)	in	5.50	6.00	6.50	7.50	8.50	9.50	11.12	12.00	15.88	19.75	22.38	25.50
	mm	140	152	165	190	216	241	283	305	403	502	568	648
L1 (BW)	in	5.50	6.00	6.50	7.50	8.50	9.50	11.12	12.00	18.00	20.50	22.00	25.00
	mm	140	152	165	190	216	241	283	305	457	521	559	635
H	in	3.34	3.46	3.74	4.88	5.51	6.69	7.48	8.66	12.59	14.56	14.56	16.50
	mm	85	88	95	125	140	190	190	220	320	370	370	420
W	in	5.51	5.9	6.89	9.45	9.45	12.99	12.99	14.56	33.46	47.24	47.24	47.24
	mm	140	150	175	240	240	330	330	370	850	1200	1200	1200
WT (Kg)	RF	2.5	3.5	5.5	10.5	14.5	23.5	30	55	118	200	250	330
	BW	1.8	2	3.2	5.5	8.7	15	18	36	85	152	182	232



Cast Steel Ball Valve 600Lb



Ball Valve, FS, FL (Floating)

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Floating ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with gw operator

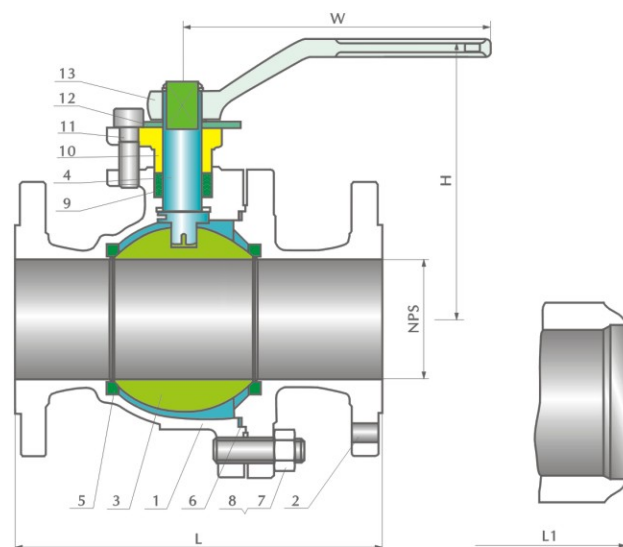


Fig. No:

B6F56A B6F59L B6F56B
B6B56A B6B59L B3656B
B6R56A B6R59L B6R56B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	Ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat ring	R.PTFE		
6	Bonnet gasket	Graphite+304 ¹⁾	PTFE	Graphite+304 ¹⁾
7	Bonnet stud	A193-B7	A193-B8	A320-L7
8	Bonnet stud nut	A194-2H	A194-8	A194-4
9	Packing	PTFE		
10	Gland flange	A216-WCB	A351-CF8M	A352-LCB
11	Gland bolt	A193-B7	A193-B8	A193-B7
12	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
13	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.

Design

ZBV Steel ball valve are designed and manufactured to provide maximum service life and dependability. All ball valves are full ported and meet the design requirements of American petroleum institute standard API 608 & API 6D, British standard BS 5351 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.

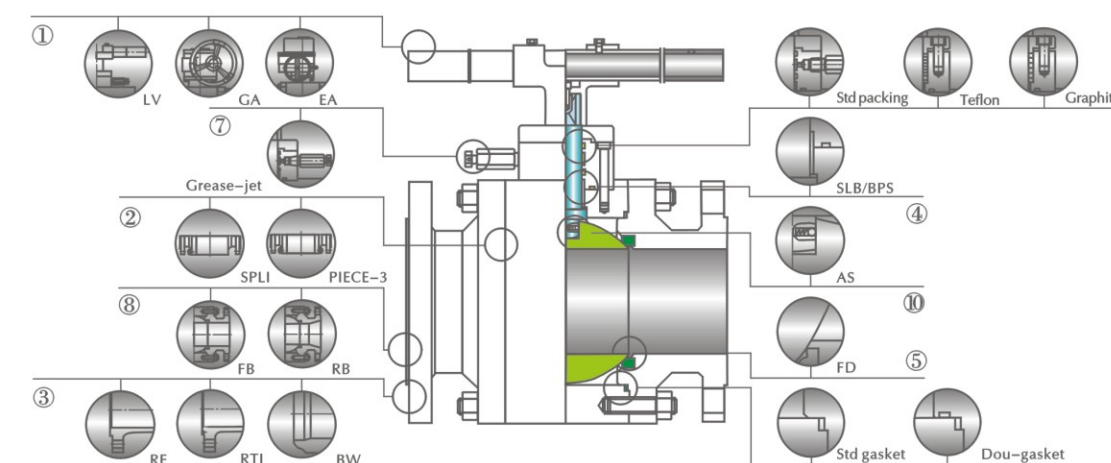
Available Modifications for ZBV Cast Steel Valve

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

Rang 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.

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



① Operating

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

② Body & bonnet

Split or 3-piece, split body & bonnet for 8" & small. Disassembles easily for repair or replacement of internal components

③ End connections

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

④ SLB

Self-Lubrication bearing. Non-maintenance, easy operation, low torque and longer life.

⑤ FD

Fire durable. Designed to API 607 or BS 6755 to grant their operation suitability in case of fire. Secondary metal-to-metal seal acts as backup if primary seal is destroyed by fire. Valves ordered for compliance with API 607 will be provided with graphite packing and gaskets.

⑥ BPS

Blow-out proof stem. A Pressure-safe stem shoulder design that protects against failure under excess pressure.

⑦ Grease-Jet joint

Installed in prescriptive part accord with the apply and satisfied with ecumenical situations and realize seal in spot with maintenance easily.

⑧ BORE

Full bore or reduced bore. Full-bore design provides exceptional flowcontrol.

⑨ Packing

STD Packing adopt high-performance rubber seal ring, STD Packing and TEFLON use situation for smooth pressure. With spring apply high-pressure situation. Graphite packing use situation for high-temperature

⑩ AS

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

⑪ GASKET

STD Gasket or DOU-Gasket. STD Gasket adopt high-performance rubber seal ring. Dou-Gasket adopt high-performance rubber sealing and spiral wound graphite.

Dimensions data

Size	in mm	1/2	3/4	1	1 1/2	2	2 1/2	3	4	6	8	10	12
		15	20	25	40	50	65	80	100	150	200	250	300
L/L1 (RF/BW)	in	6.50	7.50	8.50	9.50	11.50	13.00	14.00	17.00	22.00	-	-	-
	mm	165	190	216	241	292	330	356	432	559	-	-	-
L2 (RTJ)	in	-	-	-	-	11.62	13.12	14.12	17.12	22.12	-	-	-
	mm	-	-	-	-	295	333	359	435	562	-	-	-
H	in	3.34	3.46	3.74	5.31	7.08	8.07	9.05	10.82	11.38	-	-	-
	mm	85	88	95	135	180	205	230	275	289	-	-	-
W	in	5.51	5.9	6.89	9.45	15.75	15.75	19.68	23.62	33.46	-	-	-
	mm	140	150	175	240	400	400	500	600	850	-	-	-
WT (Kg)	RF/RTJ	3.3	4.5	7.2	13.5	19	31	39	71	153	-	-	-
	BW	2.6	3.1	4.8	8	13	22	27	53	120	-	-	-



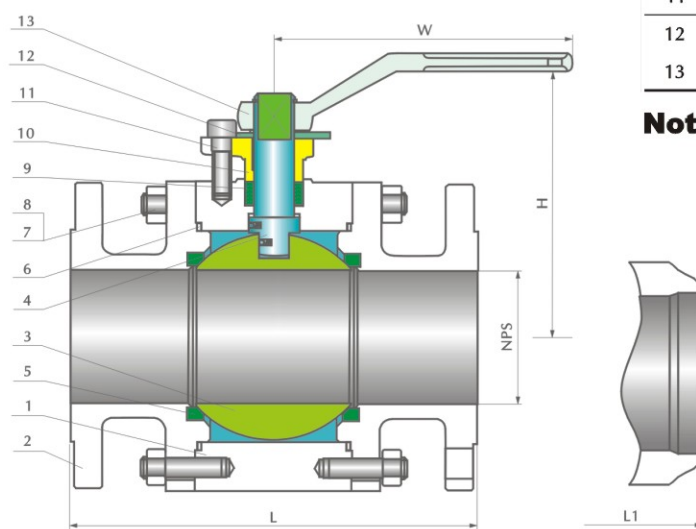
Forged Steel Ball Valve 150Lb

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Floating ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator



Dimensions data

Size	in	1/2	3/4	1	1 1/2	2	2 1/2	3	4	6	8	10	12
	mm	15	20	25	40	50	65	80	100	150	200	250	300
L (RF)	in	4.25	4.62	5.00	6.50	7.00	7.50	8.00	9.00	15.50	18.00	21.00	24.00
	mm	108	117	127	165	178	190	203	229	394	457	533	610
L1 (BW)	in	5.50	6.00	6.50	7.50	8.50	9.50	11.12	12.00	18.00	20.50	22.00	25.00
	mm	140	152	165	190	216	241	283	305	457	521	559	635
H	in	3.34	3.46	3.74	4.88	5.51	6.11	7.48	8.58	12.52	11.00	12.62	15.38
	mm	75	95	95	115	135	155	185	205	275	280	320	390
W	in	5.35	6.85	7.28	8.26	9.52	12.99	15.75	19.68	33.46	47.24	47.24	47.24
	mm	136	174	185	210	242	330	400	500	850	1200	1200	1200
WT (Kg)	RF	3.1	4.1	6	9.5	12.8	20	26	45	126	216	270	378
	BW	2.6	3.9	5.2	8.7	1.8	19	28	47	131	226	295	393

Fig. No:

B1F56FA B1F59FL B1F56FB
B1B56FA B1B59FL B1B56FB

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A105	A182-F316	A350-LF2
2	Bonnet	A105	A182-F316	A350-LF2
3	Ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat ring	R.PTFE		
6	Bonnet gasket	Graphite+304 ²⁾	PTFE	Graphite+304 ²⁾
7	Bonnet stud	A193-B7	A193-B8	A320-L7
8	Bonnet stud nut	A194-2H	A194-8	A194-4
9	Packing	PTFE		
10	Gland	A105	A182-F316	A350-LF2
11	Gland bolt	A193-B7	A193-B8	A193-B7
12	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
13	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.



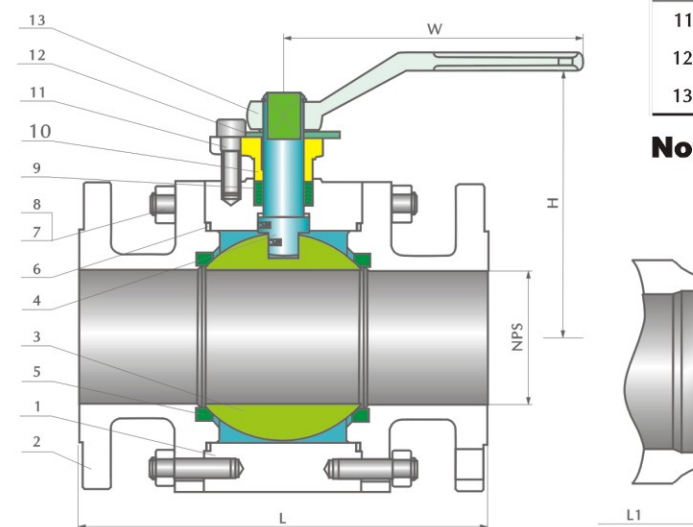
Forged Steel Ball Valve 300Lb

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Floating ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator



Dimensions data

Size	in	1/2	3/4	1	1 1/2	2	2 1/2	3	4	6	8	10	12
	mm	15	20	25	40	50	65	80	100	150	200	250	300
L (RF)	in	5.50	6.00	6.50	7.50	8.50	9.50	11.12	12.00	15.88	19.75	22.38	25.50
	mm	140	152	165	190	216	241	283	305	403	502	568	648
L1 (BW)	in	5.50	6.00	6.50	7.50	8.50	9.50	11.12	12.00	18.00	20.50	22.00	25.00
	mm	140	152	165	190	216	241	283	305	457	521	559	635
H	in	3.34	3.46	3.74	4.88	5.51	6.11	7.48	8.58	12.52	11.00	12.62	15.38
	mm	75	95	95	115	135	155	185	205	275	280	320	390
W	in	5.35	6.85	7.28	8.26	9.52	12.99	15.75	19.68	33.46	47.24	47.24	47.24
	mm	136	174	185	210	242	330	400	500	850	1200	1200	1200
WT (Kg)	RF	3.5	4.6	6.7	10.5	14.5	22	29	50	141	242	302	423
	BW	2.8	3.1	4.4	5.5	8.7	13.5	17	31	108	194	234	325

Fig. No:

B3F56FA B3F59FL B3F56FB
B3B56FA B3B59FL B3B56FB
B3R56FA B3R59FL B3R56FB

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A105	A182-F316	A350-LF2
2	Bonnet	A105	A182-F316	A350-LF2
3	Ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat ring	R.PTFE		
6	Bonnet gasket	Graphite+304 ²⁾	PTFE	Graphite+304 ²⁾
7	Bonnet stud	A193-B7	A193-B8	A320-L7
8	Bonnet stud nut	A194-2H	A194-8	A194-4
9	Packing	PTFE		
10	Gland	A105	A182-F316	A350-LF2
11	Gland bolt	A193-B7	A193-B8	A193-B7
12	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
13	Handle	Carbon steel		

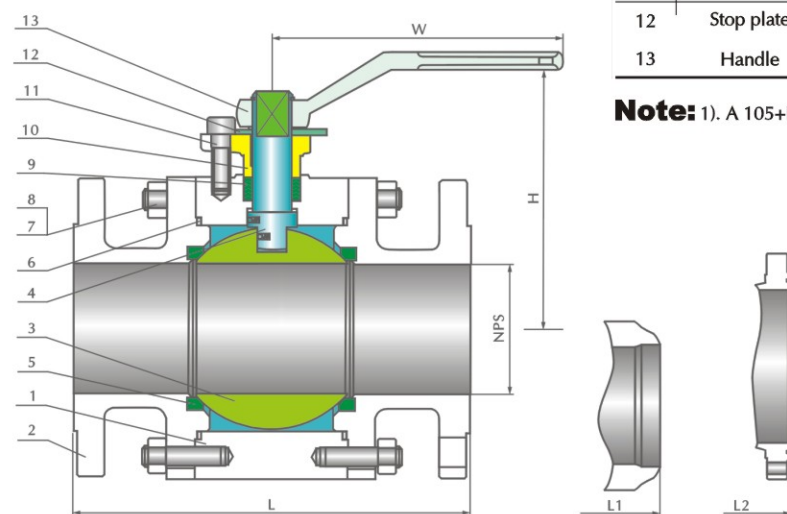
Note: 1). A 105+ENP optional ; 2). Spiral wound construction.

**Applicable standards:**

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Floating ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator

**Dimensions data**

Size	in	1/2	3/4	1	1 1/2	2	2 1/2	3	4	6	8	10	12
	mm	15	20	25	40	50	65	80	100	150	200	250	300
L/L1 (RF/BW)	in	6.50	7.50	8.50	9.50	11.50	13.00	14.00	17.00	22.00	-	-	-
	mm	165	190	216	241	292	330	356	432	559	-	-	-
L2 (RTJ)	in	-	-	-	-	11.62	13.12	14.12	17.12	22.12	-	-	-
	mm	-	-	-	-	295	333	359	435	562	-	-	-
H	in	3.34	3.46	3.74	4.88	5.51	6.69	7.48	8.58	10.38	-	-	-
	mm	75	105	105	120	140	170	195	235	262	-	-	-
W	in	5.35	7.28	7.28	9.44	12.99	15.75	19.68	23.62	33.46	-	-	-
	mm	136	185	185	240	330	400	500	600	850	-	-	-
WT (Kg)	RF	4.5	5.5	8	12.5	18	27	35	61	172	-	-	-
	BW	3.8	4.1	5.6	7	12	18	23	43	139	-	-	-

Fig. No:

B6F56FA B6F59FL B6F56FB
B6B56FA B6B59FL B6B56FB
B6R56FA B6R59FL B6R56FB

Materials of parts

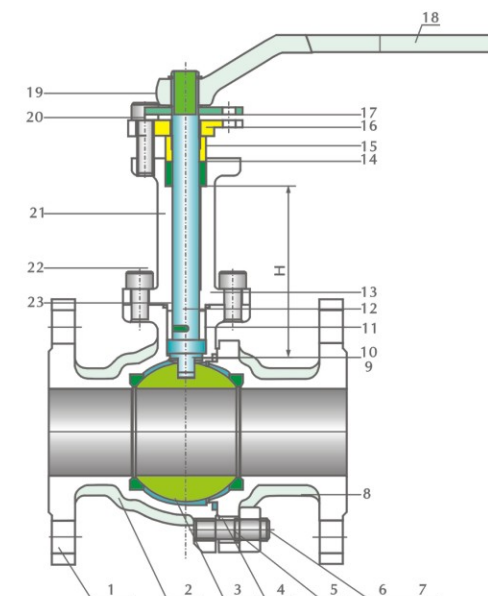
NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A105	A182-F316	A350-LF2
2	Bonnet	A105	A182-F316	A350-LF2
3	Ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat ring	R.PTFE		
6	Bonnet gasket	Graphite+304 ²⁾	PTFE	Graphite+304 ²⁾
7	Bonnet stud	A193-B7	A193-B8	A320-L7
8	Bonnet stud nut	A194-2H	A194-8	A194-4
9	Packing	PTFE		
10	Gland	A105	A182-F316	A350-LF2
11	Gland bolt	A193-B7	A193-B8	A193-B7
12	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
13	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.

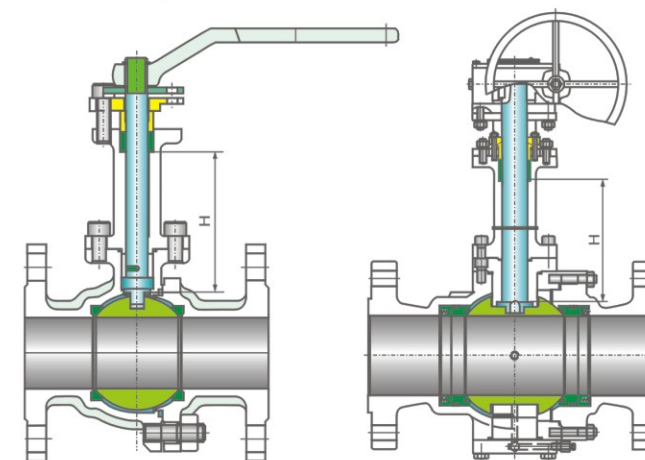
Cryogenic ball valve major features

The cryogenic ball valve is applicable to different pipeline of Class 150 ~ Class1500, PN16 ~ PN100, JIS10K ~ JIS20K. By adopting different materials, the cryogenic ball valve is applicable to different working temperature and medium. The minimum temperature for the ball valve is -196°C. The operation of the ball valve can be manual operated, gear operated, pneumatic operated and motor operated. The end connection usually is flanged ends. However, the welded ends are also optional.

Cryogenic ball valve is used for low temperature working condition, especially for some hazard media, such as liquidized natural gas. Our company has been experienced in the design, manufacturing, inspection and test of cryogenic ball valve.

**Main parameter specification**

Design and Manufacture: API 6D, ASME B16.34(BS5351), API 608, MSS-SP-72
Face to Face Dimension: ASME B16.10, API 6D
Flange Connection Dimension: ASME B16.5, NPS ≥ 26" PER ASME B16.47
BW Connection Dimension: ASME B16.25
Test and Inspection: API 598, API 6D
Fire-Safe Design: API 607/6FA
Anti-Static Design & Anti Blow-Out Stem



QF1041931B1~QF1041931B6

QF1347931B II 1~QF1347931B II 6

Main material

NO.	PART NAME	Material
		-46°C ~ -196°C
1	Left Body	A352-LCB, LCC, LC3, A351-CF8, CF8M
2	Seat	PTFE, RPTFE, PEEK, PPL, POM, KARBATE, NYLON, MOLON, DEVLON
3	Ball	A182-F304, F316
4	O-Ring	VITON
5	Gasket	Flexible Graphite+304, Flexible Graphite+316, PTFE
6	Bolt	A320-L7, A193-B8, B8M
7	Nut	A194-4, 8, 8M
8	Right Body	A352-LCB, LCC, LC3, A351-CF8, CF8M
9	Small Spring	SS304, SS316
10	Small Ball	PTFE
11	Thrust Washer	A182-F6, F314, F316
12	Stem	A182-F6, F304, F316
13	Gasket	Flexible Graphite, PTFE
14	Packing	Flexible Graphite, PTFE
15	Gland	1025, stainless steel
16	Gland-Flange	A352-LCB, LCC, LC3, A351-CF8, CF8M
17	Limited Plate	1025
18	Lever	1035, stainless steel
19	Screw	A320-L7, A193-B8, B8M
20	Screw	A320-L7, A193-B8, B8M
21	Extend bonnet	A352-LCB, LCC, LC3, A351-CF8, CF8M
22	Screw	A320-L7, A193-B8, B8M
23	Bushing	A182-F6, F304, F316

Dimensions data

Size (in)	H(*)		
	≥ -60°C	≥ -100°C	< -100°C
1/2	90	110	130
3/4	100	110	140
1	100	120	150
1 1/2	110	130	160
2	110	130	170
3	120	150	190
4	130	160	200
6	140	170	220
8	140	170	220
10	150	180	240
12	150	180	240
14	160	190	250
16	160	190	250
18	160	190	250
20	170	200	260
24	170	200	260

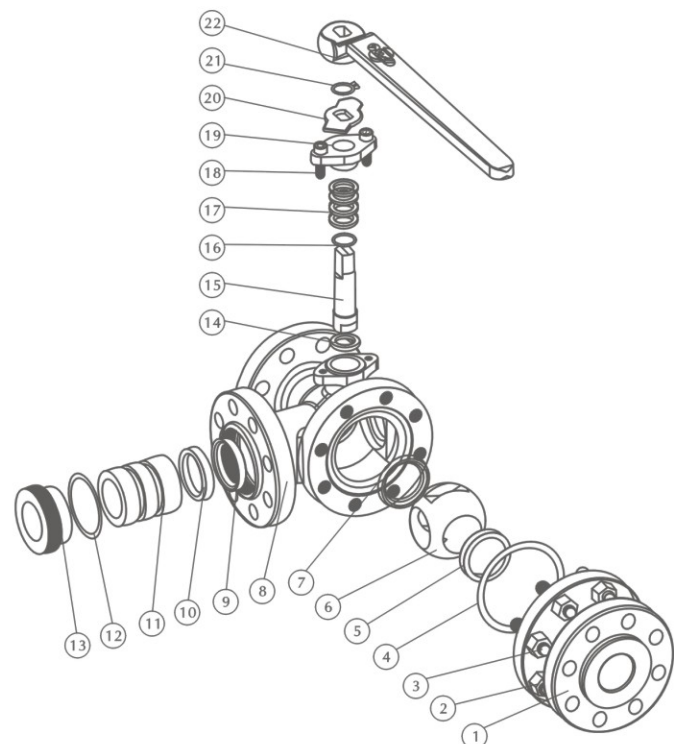
***the extension part for low temperature service can be designed acc.to clients requirement.

Function:

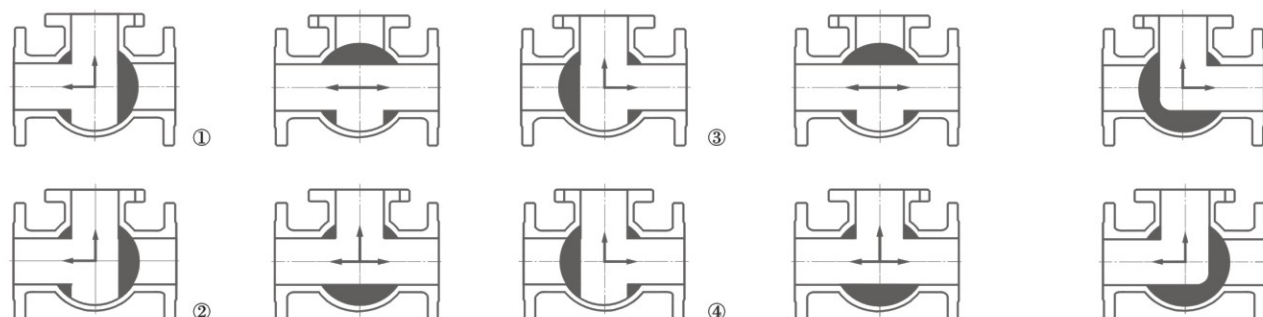
Three-way ball valves are used to switch over, mix and divide the flow of corrosive or noncorrosive liquid, gas or powdery mediums. Upon opening and closing, the smooth flow channel effects less pressure loss, making operation quite labor-saving and maintenance fairly easy. The five types of flow direction (figure on the right, 1 for L-shaped and 4 for T-shaped) to meet different technical requirements. It can be hand, air and electrically operated.

Structural Features:

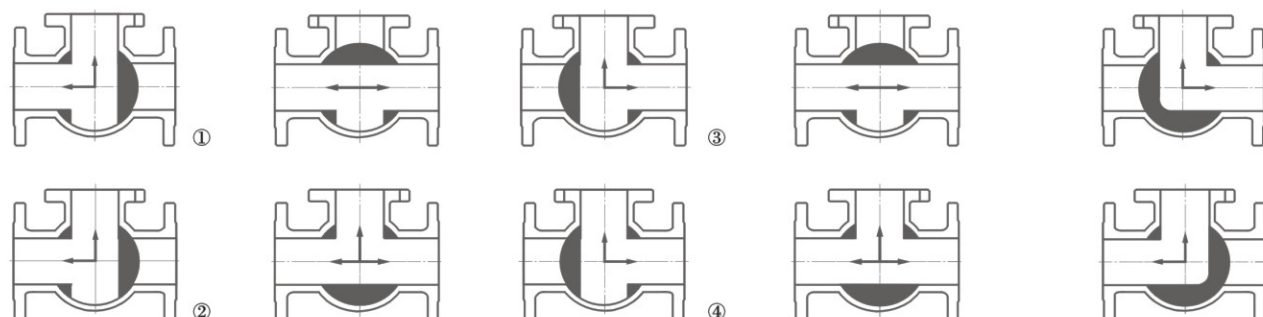
- 1、Valve seat can be designed into four-side seated float ball and fixed ball, with smooth fluid state and reliable seal;
- 2、The structure may be designed into side installed type and top installed type, with two way seal, no series flow upon switch-over of flow direction;
- 3、Anti-flyout design of valve stem;
- 4、Antistatic design;
- 5、Two position (ON and OFF) lockup design.



T type



L type



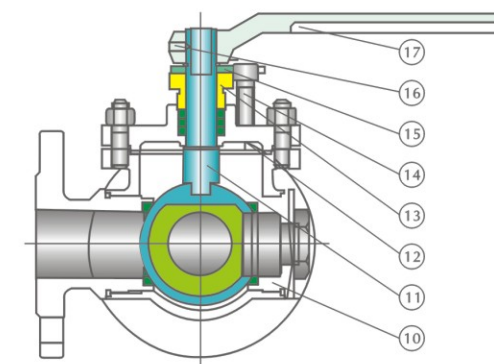
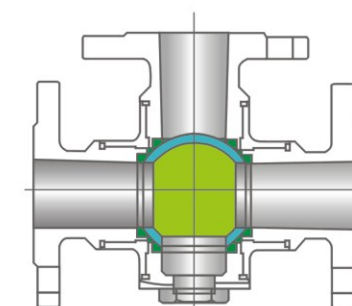
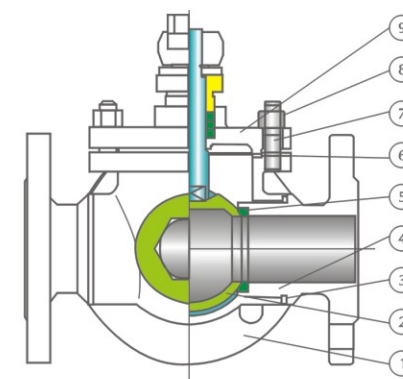
3-Way ball valve manufacture norms

Standards	API Series
Design standards	ANSI B 16.34
Pressure Temperature rating	ANSI B 16.34
Face to face dimensions	Company Standard
Flange ends	ASME B 16.5
Inspection and test	API598

Structural drawing (Side entry floating type explosion drawing)

No.	Name of part
1	Bonnet
2	Nut
3	Bolt
4	Gasket
5	Seat ring1
6	Ball
7	Seat ring2
8	Body
9	Seat ring3
10	Seat ring4
11	Seat
12	O-ring
13	Insert plug
14	Stem washer
15	Stem
16	Gasket
17	Stem packing
18	Gland Bolt
19	Gland
20	Stop plate
21	Snap ring
22	Lever

Structural drawing(Top entry floating type)



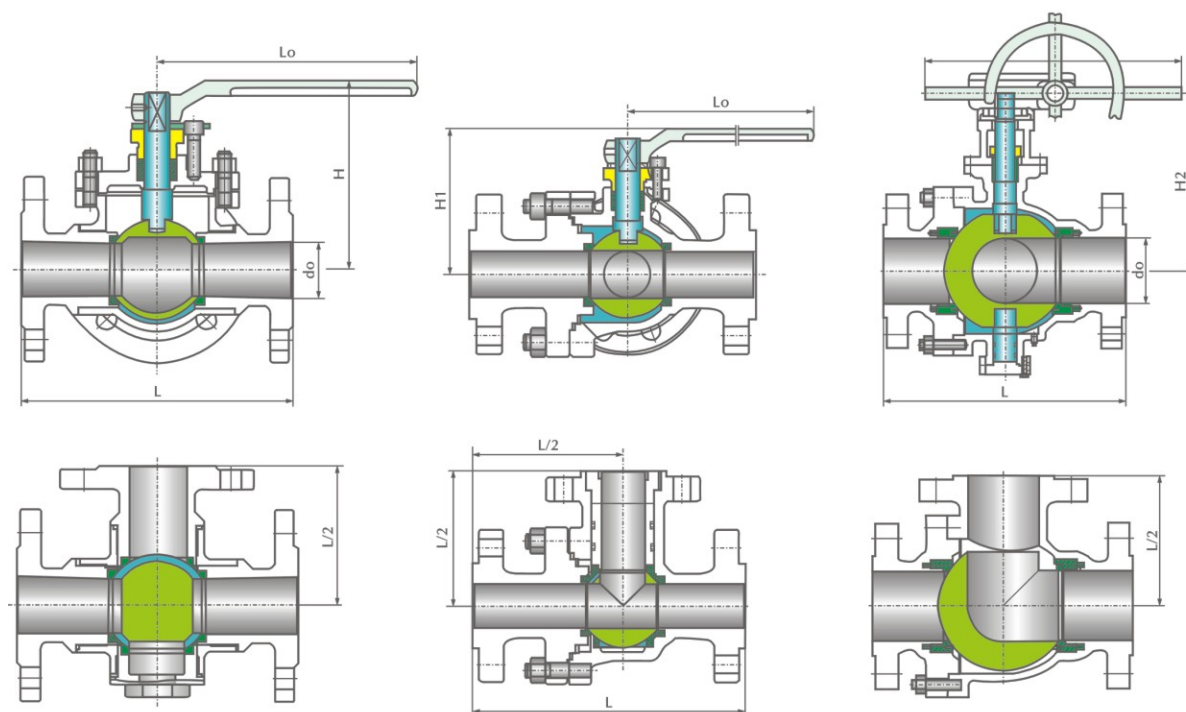
Main material

No.	Name of part	No.	Name of part
1	Body	10	Seat retainer
2	Ball	11	Stem
3	O-ring	12	Stem packing
4	Adapter	13	Packing gland
5	Seat ring	14	Stop screw
6	Gasket	15	Stop plate
7	Bolt	16	Set screw
8	Nut	17	Lever
9	Bonnet		

Supply scope

Nominal size		Class	
DN	in	150	300
15	1/2	●	●
20	3/4	●	●
25	1	●	●
32	1 1/4	●	●
40	1 1/2	●	●
50	2	●	●
65	2 1/2	●	●
80	3	●	●
100	4	●	●
125	5	●	●
150	6	☆	☆
200	8	☆	☆
250	10	☆	☆

Note: ● stands for handle operated valves;
 ☆ stands for gearbox operated valves;
 – stands for no option of this.
 Those not covered in the table can be custom made to users' requirements.



Main outline dimensions

CLASS 150

mm

DN	NPS	L	do	H	H1	H2	Lo	W	Weight(kg)
15	1/2	140	13	90	70	/	160	/	3
20	3/4	150	15	106	86	/	230	/	4
25	1	160	25	109	88	/	230	/	6
32	1 1/4	/	32	125	106	/	400	/	10
40	1 1/2	210	38	149	132	/	400	/	14
50	2	220	51	154	137	/	400	/	20
65	2 1/2	250	64	189	162	/	700	/	25
80	3	260	76	198	170	/	700	/	32
100	4	330	102	254	229	/	1050	/	45
125	5	430	127	273	247	/	1050	/	/
150	6	510	152	/	/	314	/	450	/
200	8	580	203	/	/	430	/	600	/
250	10	670	250	/	/	475	/	600	/

CLASS 300

mm

DN	NPS	L	do	H	H1	H2	Lo	W	Weight(kg)	
									PN2.5	PN4.0
15	1/2	140	13	90	70	/	160	/	3	3
20	3/4	150	15	106	86	/	230	/	4	4
25	1	160	25	109	88	/	230	/	6.5	6.5
32	1 1/4	/	32	125	106	/	400	/	11	11
40	1 1/2	210	38	149	132	/	400	/	15	15
50	2	220	51	154	137	/	400	/	21.5	21.5
65	2 1/2	250	64	189	162	/	700	/	/	/
80	3	260	76	198	170	/	700	/	35	35
100	4	330	102	254	229	/	1050	/	49	49
125	5	430	127	273	247	/	1050	/	/	/
150	6	510	152	/	/	314	/	450	/	/
200	8	580	203	/	/	430	/	600	/	/
250	10	670	250	/	/	475	/	600	/	/

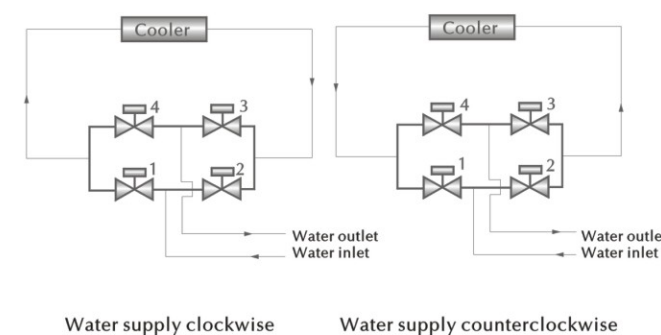


Figure1

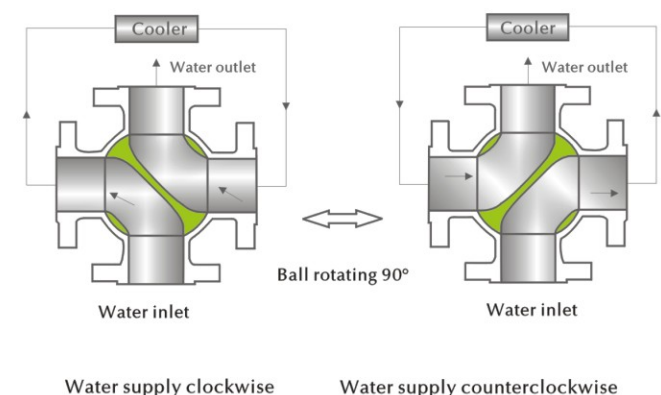


Figure2

Function:

FUNCTION Four-way ball valve is also called multi-way water service rotary valve in power stations, and air reversing change over valve in petrochemical system. They are applicable for circulating system of liquid, gas, dust, slurry and medium containing solid particles. For example, the forward and reverse circulating water supply system of unit cooler in power station. The conventional piping for forward and reverse circulating water supply has the defects of large occupation, high cost, complicated operation (to operate four valves for each changeover), for forward water supply, valve 1 and 3 to be opened and valve 2 and 4 to be closed, for reverse water supply, valve 2 and 4 to be opened and valve 1 and 3 to be closed. (See figure 1). Use of four-way ball valve instead of the conventional piping and valve group can simplify operational procedures, lower the cost, facilitate the control and improve its asynchronism. (See figure 2)

Structural Features:

- 1、Designed to meet the process of forward and reverse water supply of coolers in electric power system, with suitable and dependable functions;
- 2、Top mounted fixed ball four-side seated valve core, with sound sealing performance, resistance to sand abrasion, and long service life;
- 3、Electric and pneumatic operation (switched to hand operation if necessary);
- 4、Facilitated control. Good information channel and operating interface between control cabinet and valve, and upper-level machine. If requested, automatic sitchover of forward and reverse water supply may be actualized by a certain interval.

Control System:

Four-way ball valve may be field controlled, or through control cabinet or central control system for remote centralized control. The functions of control interface as follows:

I Switch

- 1、Power Switch
- 2、Field Control/Remote Control Changeover Switch
- 3、Manual Circulation/Automatic Circulation Changeover Switch

II Button

- 1、Forward Water Supply
- 2、Reverse Water Supply
- 3、Pause

4-way ball valve manufacture norms

Standards	API series
Design codes	ANSI B16.34
Pressure/Temperature rating	ANSI B16.34
Face to face dimensions	ASME B16.10
Flange ends	ASME B16.5
Inspection test	API 598



Four Way Ball Valve



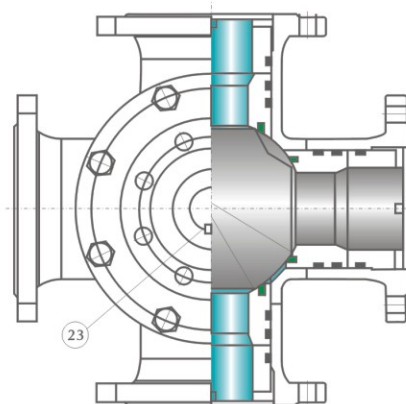
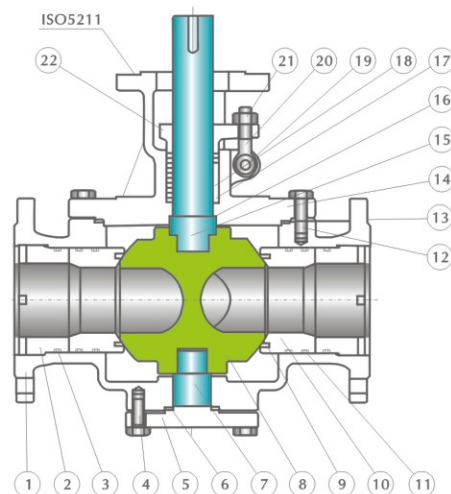
Four Way Ball Valve

Indicator Light

- 1、Power Indicator
 - 2、Forward Water Supply Indicator
 - 3、Reverse Water Supply Indicator
 - 4、Middle Position Pause Indicator (Flash and Alarm upon Over-time Pause)
 - 5、Valve or Electric Fitting Jammed Over-moment Indicator (Flash and Alarm)
- IV Opening Indicator
V Communication with Upper Machine

Electrical Parameters:

Power supply AC 380V/50HZ, ambient temperature -20~+40°C, relative humidity =90% (at 25%), level of protection IP67, schematic electrical diagram subject to instruction manual.



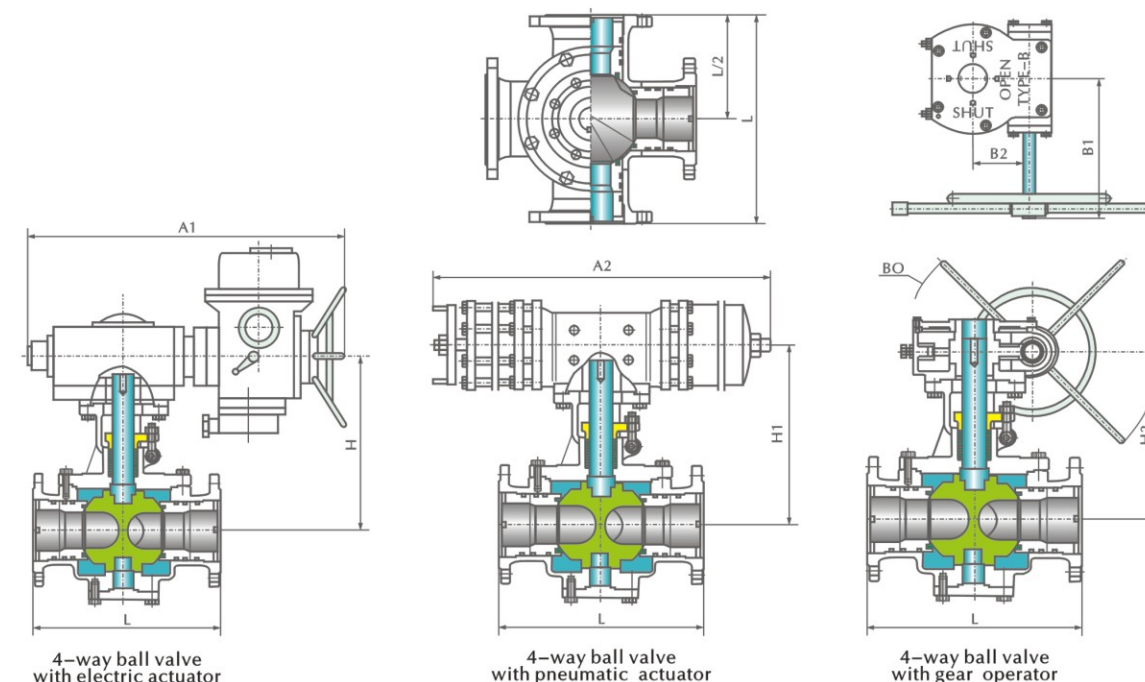
Main parts materials

No.	Name of part	Material		
		Carbon steel	Stainless steel	Low temperature steel
1	Body	A216 WCB	A351 CF8M	A352 LCB
2	Insert	A105+ENP	A182 F316	A350 LF3
3	O-ring	Viton		
4	Screw	A193 B7	A193 B8	A320 L7
5	End plate	A105+ENP	A182 F316	A350 LF3
6	Gasket	Flexible graphite+SS		
7	Lower stem	A182 F6a	A182 F316	A182 F316
8	Ball	A105+ENP	A182 F316/A351 CF8M	A350 LF3/A352 LCB
9	Seat ring	PTFE/RPTFE		
10	Seat retainer	A105+ENP	A182 F316	A350 LF3
11	O-ring	Viton		
12	Bolt	A193 B7	A193 B8	A320 L7
13	Body gasket	Flexible graphite+SS		
14	Bonnet	A216 WCB	A351 CF8M	A352 LCB
15	Stem	A182 F6a	A182 F316	A182 F316
16	Thrust washer	PTFE+SS		
17	Packing gasket	A182 F6a	/	A182 F6a
18	Stem packing	Flexible graphite/PTFE		
19	Pin	A182 F6a		
20	Eyebolt	A193 B7	A193 B8	A320 L7
21	Eyebolt	A194 2H	A194 8	A 194 4
22	packing gland	A216 WCB	A351 CF8M	A352 LCB
23	Key	ANSI 1215		

Supply scope

Nominal size		Class	
DN	in	150Lb	PN1.0\1.6\2.5MPa
50	2	△/★/☆	△/★/☆
65	2 1/2	△/★/☆	△/★/☆
80	3	△/★/☆	△/★/☆
100	4	△/★/☆	△/★/☆
125	5	△/★/☆	△/★/☆
150	6	△/★/☆	△/★/☆
200	8	△/★/☆	△/★/☆
250	10	△/★/☆	△/★/☆
300	12	△/★/☆	△/★/☆
350	14	△/★/☆	△/★/☆
400	16	△/★/☆	△/★/☆
450	18	△/★/☆	△/★/☆
500	20	△/★/☆	△/★/☆

Note: ● stands for handle operated valves;
★ stands for gearbox operated valves;
— stands for no option of this.
Those not covered in the table can be custom made to users' requirements.



Main outline dimensions PN1.0 1.6MPa

DN	NPS	L	do	H	A1	H1	A2	H2	Bo	B1	B2	Weight(kg)
												G.O
50	2	265	51	220	433	217	405	200	250	106	52	28
65	2 1/2	280	64	295	433	248	405	260	250	106	52	48
80	3	310	76	367	433	335	574	320	250	106	52	87
100	4	370	102	440	520	412	574	400	300	143	80	137
125	5	440	127	535	520	495	756	500	300	143	80	240
150	6	510	152	660	520	613	756	600	400	200	108	270
200	8	580	203	870	520	824	756	800	400	200	108	585
250	10	665	250	1080	896	1025	1060	1000	600	200	108	765
300	12	760	305	1200	896	1176	1060	1160	600	200	108	1121
350	14	850	337	1250	896	1239	1360	1225	800	330	140	1450
400	16	940	387	1420	910	1388	1360	1350	800	330	140	1780
450	18	1050	438	1610	910	1596	1360	1575	800	330	140	2435
500	20	1180	489	1830	910	1725	2910	1750	1000	370	220	3108

CLASS150

DN	NPS	L	do	H	A1	H1	A2	H2	Bo	B1	B2	Weight(kg)
												G.O
50	2	265	51	390	433	217	405	200	250	106	52	28.5
65	2 1/2	280	64	420	433	248	405	260	250	106	52	49
80	3	350	76	490	520	335	574	320	250	106	52	87
100	4	420	102	570	520	412	574	400	300	143	80	139
125	5	490	127	680	520	495	756	500	300	143	80	240
150	6	580	152	830	896	613	756	600	400	200	108	270
200	8	640	203	1020	896	824	756	800	400	200	108	585
250	10	740	250	1140	896	1025	1060	1000	600	200	108	765
300	12	820	305	1220	896	1176	1060	1200	600	200	108	1125
350	14	910	337	1390	910	1239	1360	1225	800	330	140	1455
400	16	1000	387	1580	910	1388	1360	1350	800	330	140	1785
450	18	1150	438	1790	910	1596	1360	1575	800	330	140	2467
500	20	1300	489	1960	936	1725	2910	1750	1000	370	220	3150

Flange dimensions refe to Annexes.

Application:

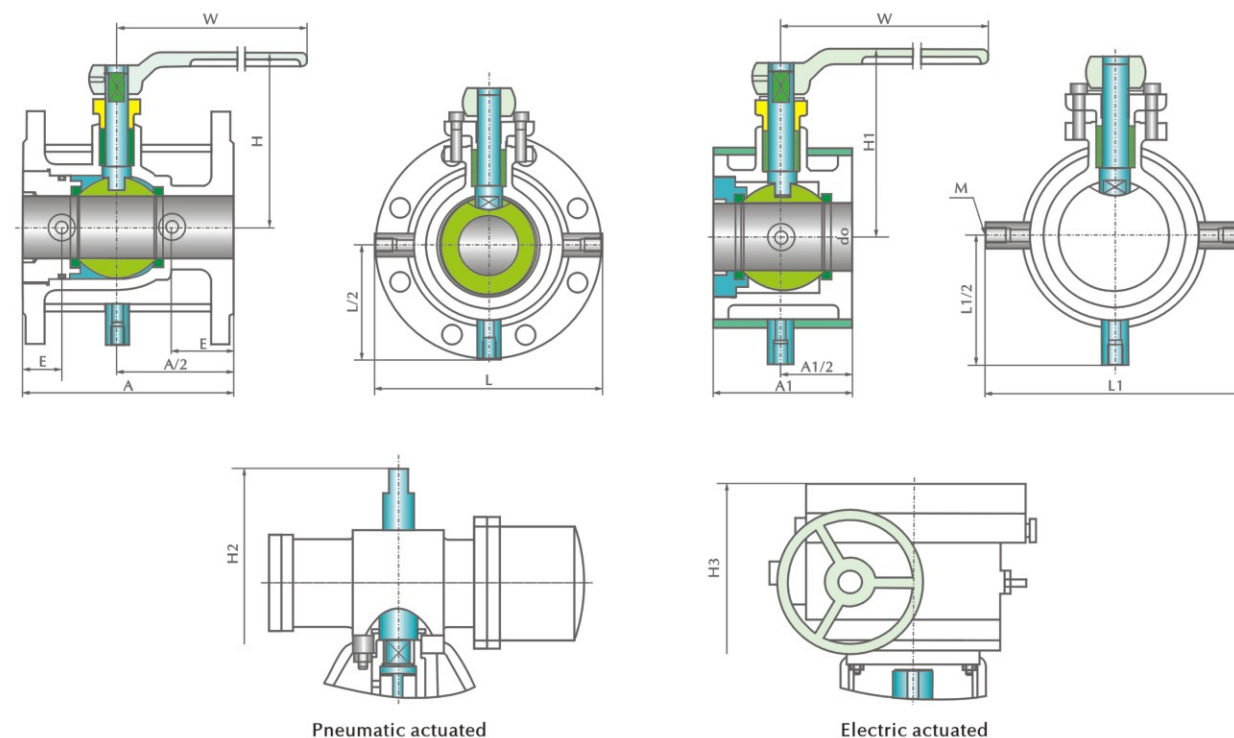
Jacketed ball valves are mainly used in the industries of petroleum, chemicals, pharmaceuticals, metallurgy, electric power and etc. to handle high viscosity medium that can be solidified at ordinary temperature. The jacket of ball valve is welded between the seal faces at both ends of the valve. On the side and at the bottom of the valve there are standard connection ports for jacket. Provided with a jacket, the types of end connection may be flanged and wafer. Steam or other heat insulating mediums may freely pass through the jacket, to ensure pasty mediums smoothly through the valve.

Structural Features:

- 1、To prevent the pasty medium in pipeline from being solidified and to lower the heat loss of the low-temperature medium in pipeline.
- 2、The carbon steel pipe welded jackets are more over pressure resistance and reliable than cast ones.
- 3、Thanks to the conformity of valve diameter and pipe inside diameter, medium makes linear linear flow of low resistance, most suitable for easily solidified and highly viscous liquid mediums.
- 4、One-piece structure of ball valve body, small volume and lightweight compared with their counterparts.

Wafer ball valve manufacture norms

Standards	API series
Design codes	ANSI B16.34
Pressure/temperature rating	ANSI B16.34
Face to face dimensions	ASME B16.10
Flange ends	ASME B16.5
Inspection and test	API598



Main outline dimensions CLASS 150

DN	NPS	A	A1	do	H	H1	H2	H3	W	M	L	L1	E	Flange size	Weight (kg)
															Lever (PN16)
15	1/2	110	50	15	63	101	126	/	130	ZG3/4	147	110	58.5	DN40(11/2)	7.04
20	3/4	117	55	20	82	101	126	/	160	ZG3/4	147	117	58.5	DN40(11/2)	7.74
25	1	127	60	25	85	106	137	/	160	ZG3/4	156	127	63.5	DN50(2)	10.7
40	1 1/2	165	80	40	100	125	169	/	230	ZG3/4	181	165	62.5	DN65(2 1/2)	14.5
50	2	178	90	51	153	135	179	576	230	ZG3/4	218	178	68	DN80(3)	17.9
80	3	229	120	76	195	217	258	643	400	ZG3/4	275	229	82	DN150(6)	37.3
100	4	254	140	102	213	265	322	715	700	ZG3/4	300	254	83	DN200(8)	56
150	6	292	160	152	235	355	415	848	1100	ZG3/4	403	292	95	DN250(10)	93
200	8	330	180	203	342	410	527	903	1500	ZG3/4	492	330	100	DN300(12)	160

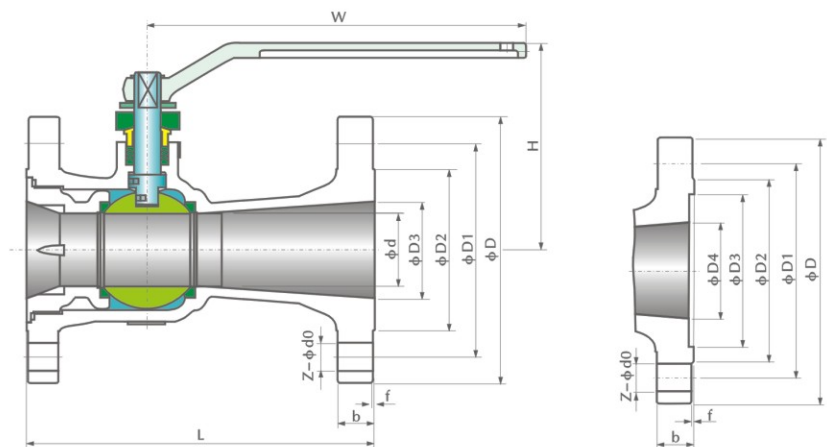
CLASS 300

DN	NPS	A	A1	do	H	H1	H2	H3	W	M	L	L1	E	Flange size	Weight (kg)
															Lever (PN40)
15	1/2	110	50	15	63	101	126	/	130	ZG3/4	147	110	58.5	DN40(11/2)	7.24
20	3/4	117	55	20	82	101	126	/	160	ZG3/4	147	117	58.5	DN40(11/2)	8.24
25	1	127	60	25	85	106	137	/	160	ZG3/4	156	127	63.5	DN50(2)	11.5
40	1 1/2	165	80	40	100	125	169	/	230	ZG3/4	181	165	62.5	DN65(2 1/2)	18.4
50	2	178	90	51	153	135	179	576	230	ZG3/4	218	178	68	DN80(3)	25.1
80	3	229	120	76	195	217	258	643	400	ZG3/4	275	229	82	DN150(6)	55.4
100	4	254	140	102	213	265	322	715	700	ZG3/4	300	254	83	DN200(8)	76.4
150	6	292	160	152	235	355	415	848	1100	ZG3/4	403	292	95	DN250(10)	118
200	8	330	180	203	342	410	527	903	1500	ZG3/4	492	330	100	DN300(12)	200



Application

One piece body ball valve is suitable for use on various kinds of pipelines of Class150 to Class300, PN16 to PN40, JIS10K to JIS20K to turn off or on the pipeline medium, of which operation manners are of manual, worm gear, pneumatic or electric actuators, being of flange connection with reduced bore.



Main connection dimensions and weights

Class	Size		Dimensions(mm)											Weight (kg)
	DN	NPS	L	d	D	D1	D2	D3	b	f	Z-φ d0	W	H	
Class150 PN20	40	1 ^{1/2}	165	28	127	98.5	73	38	14.5	1.6	4-15	150	100	6
	50	2	178	38	152	120.5	92	51	16	1.6	4-19	200	132	8
	65	2 ^{1/2}	190	50	178	139.5	105	64	17.5	1.6	4-19	250	142	12
	80	3	203	57	190	152.5	127	76	19.5	1.6	4-19	300	163	15
	100	4	229	76	229	190.5	157	102	24	1.6	8-19	350	178	29
	150	6	394	102	279	241.5	216	152	25.5	1.6	8-22	500	230	54
Class300 PN50	40	1 ^{1/2}	190	28	156	114.5	73	38	21	1.6	4-22	150	100	9
	50	2	216	38	165	127	92	51	22.5	1.6	8-19	200	132	11
	65	2 ^{1/2}	241	50	190	149	105	64	25.5	1.6	8-22	250	142	15
	80	3	283	57	210	168.5	127	76	29	1.6	8-22	300	164	22
	100	4	305	76	254	200	157	102	32	1.6	8-22	350	183	40
	150	6	403	102	318	270	216	152	37	1.6	12-22	500	230	81

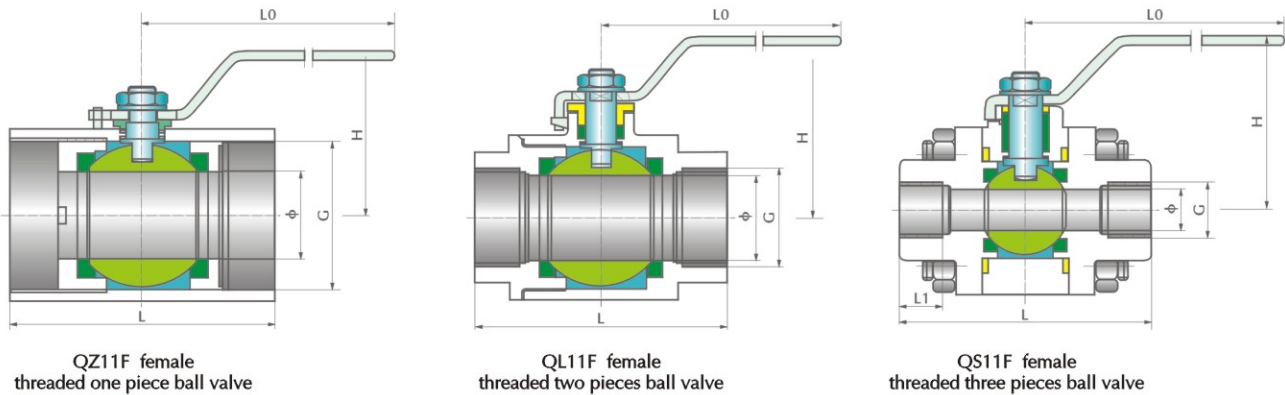
Note: This table flange size according to ASME B16.5 standard. According to the user request, the flange size also may according to GB/T9112~9124, HG20615~20626, the SH 3,406 designs manufactures.



Application

Female threaded ball valves are suitable for use on pipelines of medium or low pressure to turn off or swith on pipeline medium. Operation manners are in general of manual, and pneumatic or electric actuators are available. Based on design structures, the valves get divided into three pieces, two pieces, and one piece types.

Main sizes and weights



Dimensions data

Structures	Size		Rc	Dimensions (mm)				Weight(kg)
	DN	NPS		L	dΦ	Lo	H	
Three pieces	10	3/8	3/8	60	10	95	57	0.4
	15	1/2	1/2	94	13	110	68	0.5
	20	3/4	3/4	110	19	110	70	0.7
	25	1	1	123	25	140	80	1.2
	32	1 1/4	1 1/4	132	32	140	85	1.9
	40	1 1/2	1 1/2	147	38	180	100	2.7
	50	2	2	170	50	180	110	3.9
	65	2 1/2	2 1/2	186	64	200	130	7.1
Two pieces	80	3	3	206	76	250	150	11.5
	100	4	4	240	100	250	170	20.5
	10	3/8	3/8	55	10	95	57	0.3
	15	1/2	1/2	65	13	110	68	0.4
	20	3/4	3/4	78	19	110	70	0.6
	25	1	1	88	25	140	80	1.0
	32	1 1/4	1 1/4	105	32	140	85	1.6
	40	1 1/2	1 1/2	112	38	180	100	2.3
One piece	50	2	2	125	50	180	110	3.3
	65	2 1/2	2 1/2	165	64	200	130	6.0
	80	3	3	184	76	250	150	9.8
	10	3/8	3/8	39	6	70	35	0.2
	15	1/2	1/2	57	9	95	44	0.3
	20	3/4	3/4	59	12	95	47	0.4
	25	1	1	71	16	110	55	0.6
	32	1 1/4	1 1/4	80	20	110	60	1.1
	40	1 1/2	1 1/2	83	25	140	75	1.5
	50	2	2	100	32	140	80	2.8



Ball Valve, CS, TM (Trunnion Mounted)



Cast Steel Ball Valve 150Lb

Design

ZBV Steel ball valve are designed and manufactured to provide maximum service life and dependability. All ball valves are full ported and meet the design requirements of American petroleum institute standard API 608 & API 6D, British standard BS 5351 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.

Available Modifications for ZBV Cast Steel Valve

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

Range 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.

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

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Three piece body for 12" & above
Trunnion mounted ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator

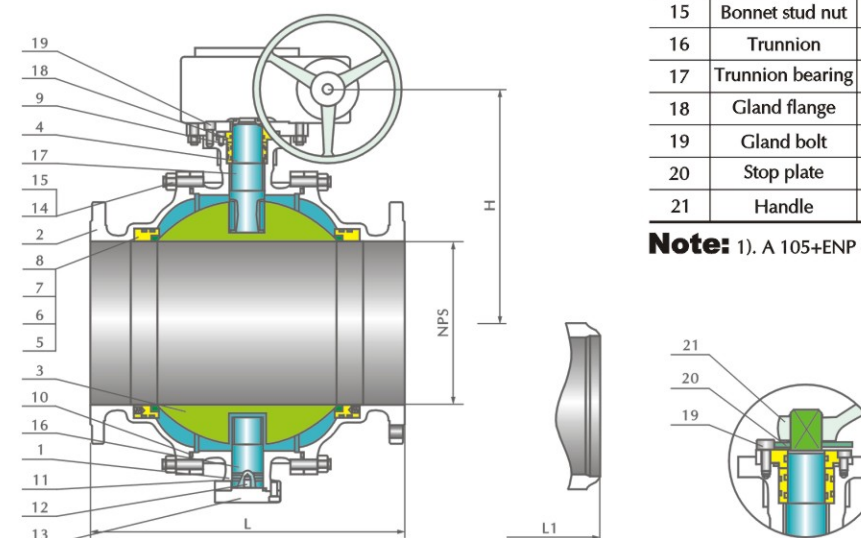
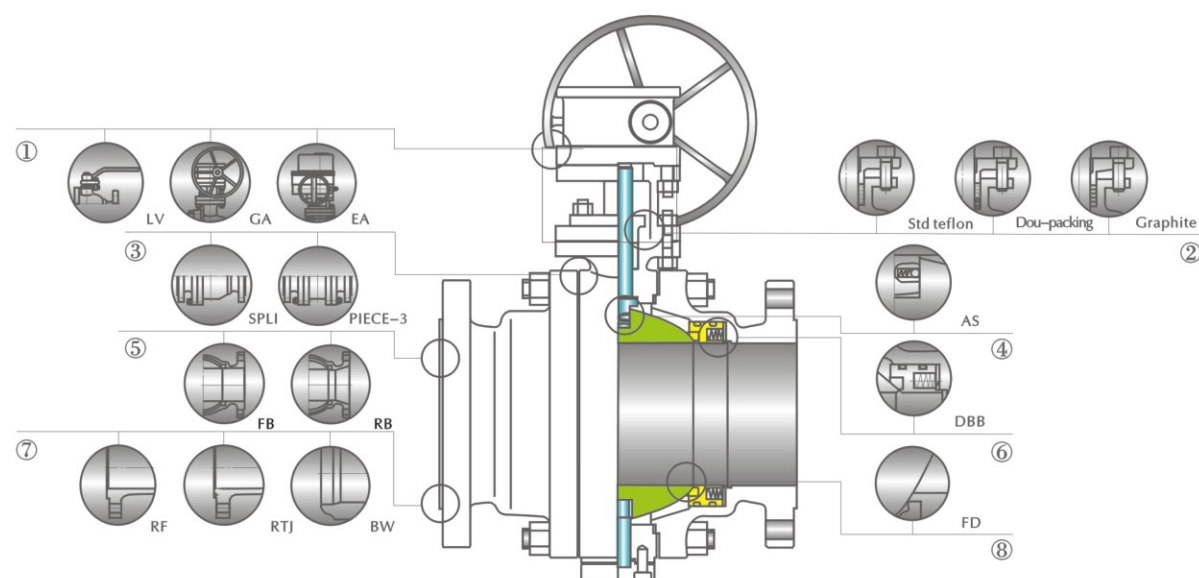
Fig. No:

BM1F56A BM1F59L BM1F56B
BM1B56A BM1B59L BM1B56B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Class filled PTFE		
7	Seat spring	17-7PH	Inconel X-750	17-7PH
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	304	316	304
13	Grounding plunger	A216-WCB	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland flange	A216-WCB	A351-CF8M	A352-LCB
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.



① Operating

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

② Packing

STD Packing multiple V-Teflon packing, combined with live loading, maintains packing compression under high cycle and severe service applications. Graphite packing use situation for high-temperature.

③ Body & bonnet

Split or 3-piece, split body & bonnet for 12" & small. Disassembles easily for repair or replacement of internal components

④ AS

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

⑤ Bore

Full bore or reduced bore. Full-bore design provides exceptional flow control.

⑥ DDB

Double block & bleed. The body cavity is isolated when the ball is in either fully closed or fully opened position, the medium entrapped in it can easily be bled to avoid over pressure.

⑦ End connections

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

⑧ FD

Fire durable. Designed to API 607 or BS 6755 to grant their operation suitability in case of fire. Secondary metal-to-metal seal acts as backup if primary seal is destroyed by fire. Valves ordered for compliance with API 607 will be provided with graphite packing and gaskets.

Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L (RF)	in	7.00	7.50	8.00	9.00	15.50	18.00	21.00	24.00	27.00	30.00	34.00	36.00	42.00	45.00	49.00	51.00	54.00	60.00
	mm	178	190	203	229	394	457	533	610	686	762	864	914	1067	1143	1245	1295	1372	1524
L1 (BW)	in	8.50	9.50	11.12	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00	68.00
	mm	216	241	283	305	457	521	559	635	762	838	914	991	1143	1245	1346	1397	1524	1727
H	in	7.00	7.50	8.25	9.25	20.88	24.62	25.62	30.75	31.00	36.25	38.25	43.38	5.25	50.75	55.12	64.12	70.88	80.75
	mm	177	190	210	235	530	625	650	780	790	920	970	1100	1150	1290	1400	1630	1840	2050
W	in	14	16	20	20	24	24	24	24	32	32	32	32	32	32	32	32	32	32
	mm	350	400	500	500	600	600	600	600	800	800	800	800	800	800	800	800	800	800
WT (Kg)	RF	15	19	27	38	81	140	160	205	260	390	510	750	1200	1400	1860	2100	2530	2970
	BW	13.5	15.5	24.5	32.5	76	132	147	182	241	370	495	726	1125	1250	1640	1930	2390	2760



Cast Steel Ball Valve 300Lb

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Three piece body for 12" & above
Trunnion mounted ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator

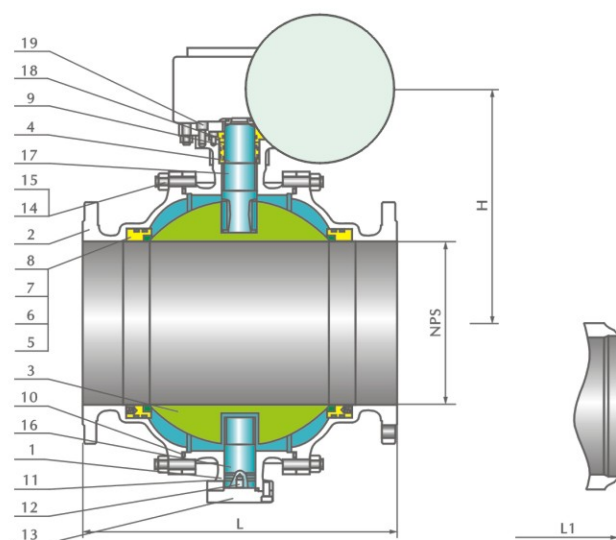


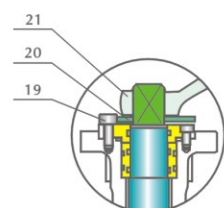
Fig. No:

BM3F56A BM3F59L BM3F56B
BM3B56A BM3B59L BM3B56B
BM3R56A BM3R59L BM3R56B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Class filled PTFE		
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A216-WCB	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland flange	A216-WCB	A351-CF8M	A352-LCB
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.



Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L (RF)	in	8.50	9.50	11.12	12.00	15.88	19.75	22.38	25.50	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00	-
	mm	216	241	283	305	403	502	568	648	762	838	914	991	1143	1245	1346	1397	1524	-
L1 (BW)	in	8.50	9.50	11.12	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00	-
	mm	216	241	283	305	403	521	559	635	762	838	914	991	1143	1245	1346	1397	1524	-
H	in	7.00	7.50	8.25	9.25	20.88	24.62	25.62	30.75	31.00	36.25	38.25	43.38	45.25	50.75	55.12	64.12	70.88	-
	mm	177	190	210	235	530	625	650	780	790	920	970	1100	1150	1290	1400	1630	1800	-
W	in	14	16	20	20	24	24	24	24	32	32	32	32	32	32	32	32	32	-
	mm	350	400	500	500	600	600	600	600	800	800	800	800	800	800	800	800	800	-
WT (Kg)	RF	19	24	34	48	101	175	200	255	325	485	635	935	1500	1750	2225	2450	2870	-
	BW	14	16	25	34	82	145	155	185	238	375	516	782	1280	1375	1825	2180	2260	-



Cast Steel Ball Valve 600Lb

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Three piece body for 12" & above
Trunnion mounted ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator

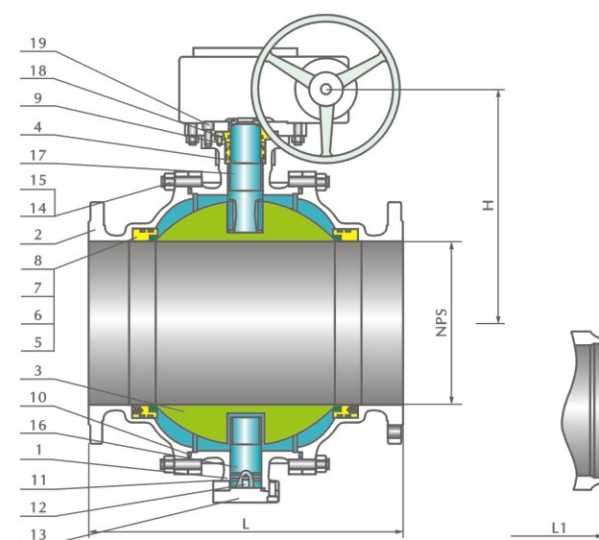


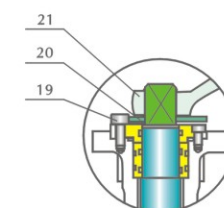
Fig. No:

BM6F56A BM6F59L BM6F56B
BM6B56A BM6B59L BM6B56B
BM6R56A BM6R59L BM6R56B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Class filled PTFE		
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A216-WCB	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland flange	A216-WCB	A351-CF8M	A352-LCB
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.



Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700
L/L1 (RF/BW)	in	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	57.00	61.00
	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397	1448	1549
L2 (RTJ)	in	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38	57.50	61.50
	mm	295	333	359	435	562	664	791	841	892	994	1095	1200	1407	1461	1562
H	in	7.12	7.62	8.50	9.50	21.52	25.00	26.12	31.12	31.88	36.38	38.75	44.50	46.62	52.50	57.00
	mm	180	193	215	241	540	635	665	790	810	925	985	1130	1185	1335	1450
W	in	14	16	20	20	24	24	24	24	32	32	32	32	32	32	32
	mm	350	400	500	500	600	600	600	600	800	800	800	800	800	800	800
WT (Kg)	RF/RTJ	26	35	58	81	142	287	540	780	1000	1300	1700	2100	3400	3800	4500
	BW	19	25	42	51	82	200	395	610	805	1010	1350	1656	2775	3125	3790



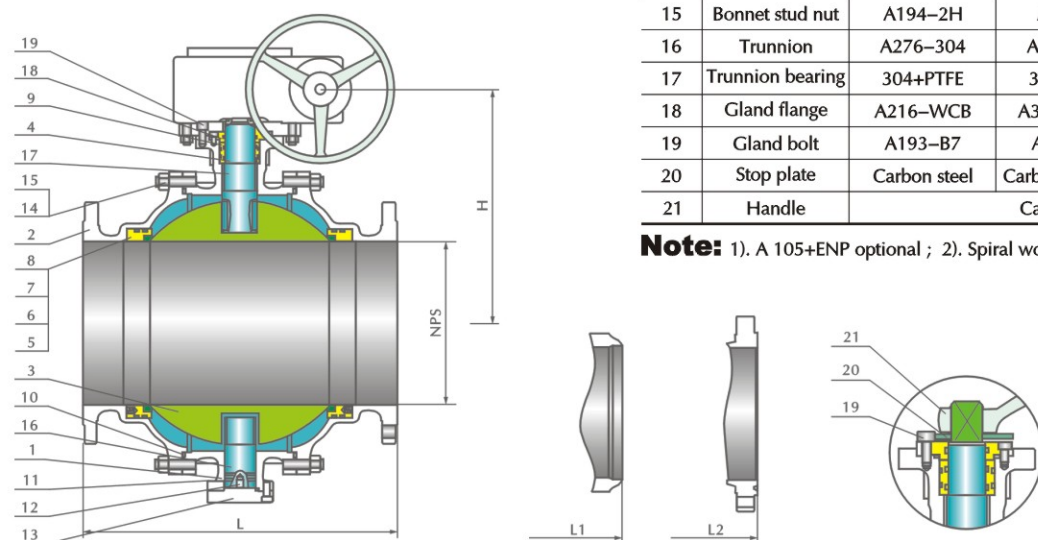
Cast Steel Ball Valve 900Lb

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Three piece body for 12" & above
Trunnion mounted ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator



Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L/L1 (RF/BW)	in	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
	mm	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549
L2 (RTJ)	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	40.88	44.88	48.50	52.50	61.75
	mm	371	422	384	460	613	740	841	968	1038	1140	1232	1334	1568
H	in	8.62	9.25	10.25	15.38	25.75	30.25	31.75	38.00	38.50	45.00	47.00	53.50	56.00
	mm	219	235	260	390	655	770	805	965	980	1145	1195	1360	1425
W	in	20	20	20	24	24	24	24	32	32	32	32	32	32
	mm	500	500	500	600	600	600	600	800	800	800	800	800	800
WT (Kg)	RF/RTJ	31	43	68	98	171	345	650	940	1205	1565	2050	2535	3950
	BW	23	31	51	61	102	240	480	735	965	1215	1625	1995	3335

Fig. No:

BM9F56A BM9F59L BM9F56B
BM9B56A BM9B59L BM9B56B
BM9R56A BM9R59L BM9R56B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Class filled PTFE		
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A216-WCB	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland flange	A216-WCB	A351-CF8M	A352-LCB
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.



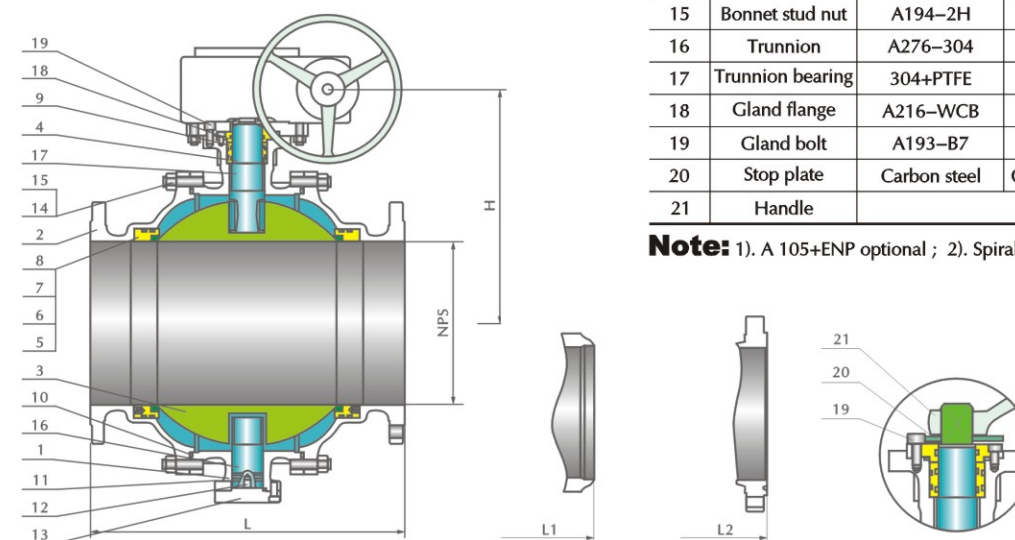
Cast Steel Ball Valve 1500Lb

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Three piece body for 12" & above
Trunnion mounted ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator



Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16
	mm	50	65	80	100	150	200	250	300	350	400
L/L1 (RF/BW)	in	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50
	mm	368	419	470	546	705	832	991	1130	1257	1384
L2 (RTJ)	in	14.62	16.62	18.62	21.62	28.00	33.12	39.38	45.12	50.25	55.38
	mm	371	422	473	549	711	841	1000	1146	1276	1407
H	in	11.25	12.00	13.25	20.00	33.50	39.38	41.12	49.38	50.00	58.50
	mm	285	306	338	506	852	1000	1045	1255	1270	1485
W	in	20	20	24	24	24	32	32	32	32	32
	mm	500	500	600	600	600	800	800	800	800	800
WT (Kg)	RF/RTJ	49	67	106	153	268	540	1020	1475	1885	2455
	BW	33	44	73	87	145	345	685	1050	1385	1735

Fig. No:

BM15F56A BM15F59L BM15F56B
BM15B56A BM15B59L BM15B56B
BM15R56A BM15R59L BM15R56B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Class filled PTFE		
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A216-WCB	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland flange	A216-WCB	A351-CF8M	A352-LCB
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.



Cast Steel Ball Valve 2500Lb



Ball Valve, FS, TM (Trunnion Mounted)

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Three piece body for 12" & above
Trunnion mounted ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator

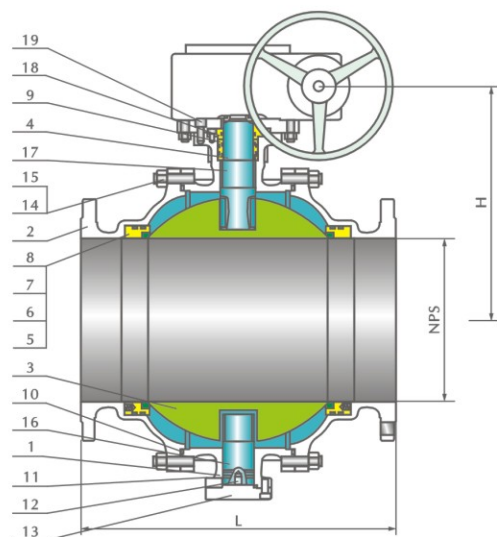


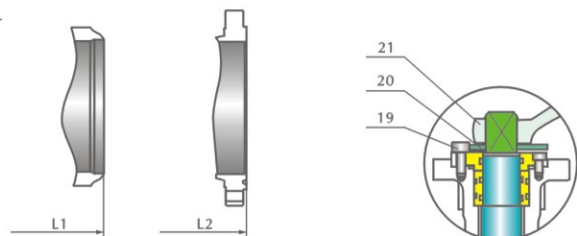
Fig. No:

BM25F56A BM25F59L BM25F56B
BM25B56A BM25B59L BM25B56B
BM25R56A BM25R59L BM25R56B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet	A216-WCB	A351-CF8M	A352-LCB
3	ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Class filled PTFE		
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A216-WCB	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland flange	A216-WCB	A351-CF8M	A352-LCB
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.



Dimensions data

Size	in mm	2	2 1/2	3	4	6	8	10	12	14	16
		50	65	80	100	150	200	250	300	350	400
L/L1 (RF/BW)	in	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00	-	-
	mm	451	508	578	673	914	1022	1270	1422	-	-
L2 (RTJ)	in	17.88	21.25	23.00	26.88	36.50	40.88	50.88	56.88	-	-
	mm	454	540	584	683	927	1038	1292	1445	-	-
H	in	12.00	12.88	14.25	21.25	35.88	42.12	44.00	53.00	-	-
	mm	304	327	362	540	911	1070	1120	1345	-	-
W	in	20	24	24	24	32	32	32	32	-	-
	mm	500	600	600	600	800	800	800	800	-	-
WT (Kg)	RF/RTJ	55	76	120	173	302	612	1150	1665	-	-
	BW	41	55	91	110	182	430	855	1315	-	-

Design

ZBV Steel ball valve are designed and manufactured to provide maximum service life and dependability. All ball valves are full ported and meet the design requirements of American petroleum institute standard API 608 & API 6D, British standard BS 5351 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.

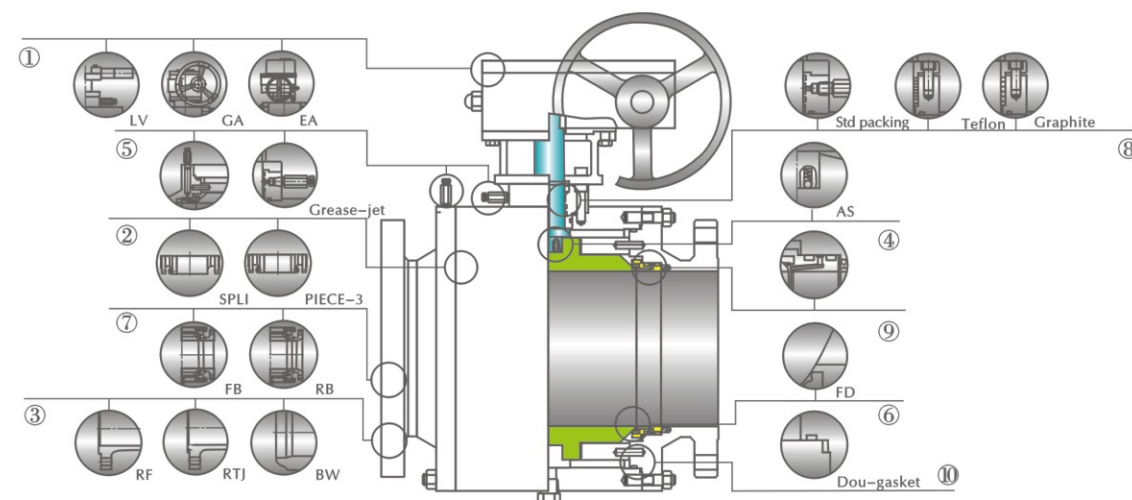
Available Modifications for ZBV Cast Steel Valve

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

Rang 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.

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



① Operating

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

② Body & bonnet

Split or 3-piece, split body & bonnet for 8" & small. Disassembles easily for repair or replacement of internal components.

③ End connections

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

④ AS

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

⑤ Grease-Jet joint

Installed in prescriptive part accord with the apply and satisfied with ecumenical situations and realize seal in spot with maintenance easily.

⑥ FD

Fire durable. Designed to API 607 or BS 6755 to grant their operation suitability in case of fire. Secondary metal-to-metal seal acts as backup if primary seal is destroyed by fire. Valves ordered for compliance with API 607 will be provided with graphite packing and gaskets.

⑧ Packing

STD Packing adopt high-performance rubber seal ring, STD Packing and TEFLON use situation for smooth pressure. With spring apply high-pressure situation. Graphite packing use situation for high-temperature.

⑨ DDB

Double block & bleed. The body cavity is isolated when the ball is in either fully closed or fully opened position, the medium entrapped in it can easily be bled to avoid over pressure.

⑦ BORE

Full bore or reduced bore. Full-bore design provides exceptional flow control.

⑩ GASKET

Adopt high-performance rubber seal ring and spiral wound graphite.



Forged Steel Ball Valve 150Lb

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Three piece body for 12" & above
Trunnion mounted ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator

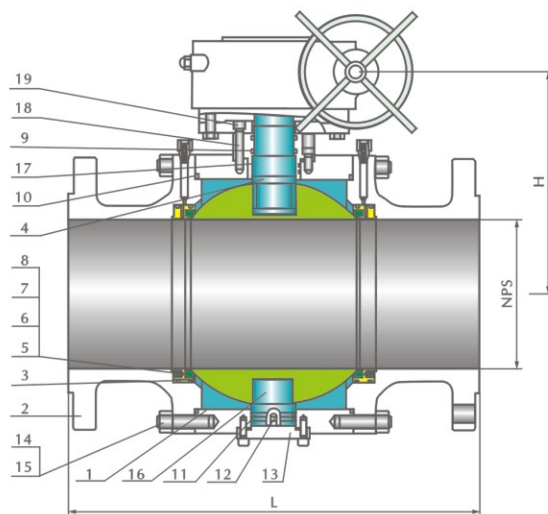


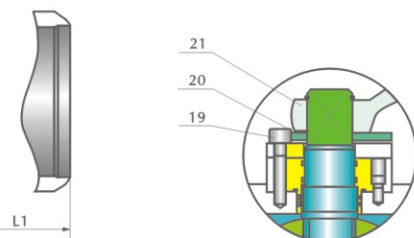
Fig. No:

BM1F56FA BM1F59FL BM1F56FB
BM1B56FA BM1B59FL BM1B56FB

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A105	A182-F316	A350-LF2
2	Bonnet	A105	A182-F316	A350-LF2
3	ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Class filled PTFE		
7	Seat spring	17-7PH	Inconel X-750	17-7PH
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	304	316	304
13	Grounding plunger	A182-F304	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland	A105	A182-F316	A350-LF2
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.



Dimensions data

Size	in mm	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
		50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L (RF)	in	7.00	7.50	8.00	9.00	15.50	18.00	21.00	24.00	27.00	30.00	34.00	36.00	42.00	45.00	49.00	51.00	54.00	60.00
	mm	178	190	203	229	394	457	533	610	686	762	864	914	1067	1143	1245	1295	1372	1524
L1 (BW)	in	8.50	9.50	11.12	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00	68.00
	mm	216	241	283	305	457	521	559	635	762	838	914	991	1143	1245	1346	1397	1524	1727
H	in	4.00	6.00	7.00	9.25	9.88	11.00	12.62	15.38	16.50	21.88	23.62	25.00	28.00	29.50	31.50	34.00	36.00	38.50
	mm	120	150	180	235	250	280	320	390	420	555	600	635	710	750	800	865	915	980
W	in	16	16	24	24	24	24	32	32	32	32	32	32	40	40	40	40	40	40
	mm	400	400	600	600	600	600	800	800	800	800	800	800	1000	1000	1000	1000	1000	1000
WT (Kg)	RF/RTJ	28	35	55	80	190	290	445	570	780	1520	2300	2500	3950	4890	6300	7100	8950	13500
	BW	25	28	49	71	182	277	423	553	747	1481	2266	2460	3904	4939	6362	8149	9000	13570



Forged Steel Ball Valve 300Lb

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Three piece body for 12" & above
Trunnion mounted ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator

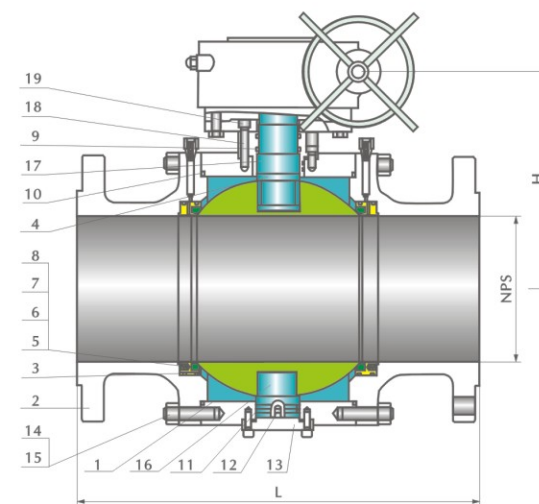


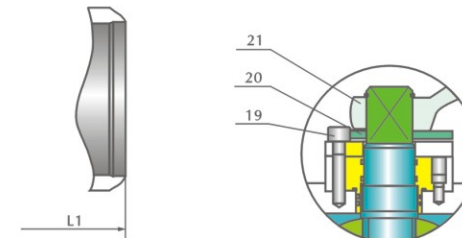
Fig. No:

BM3F56FA BM3F59FL BM3F56FB
BM3B56FA BM3B59FL BM3B56FB
BM3R56FA BM3R59FL BM3R56FB

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A105	A182-F316	A350-LF2
2	Bonnet	A105	A182-F316	A350-LF2
3	ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Class filled PTFE		
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A182-F304	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland	A105	A182-F316	A350-LF2
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.



Dimensions data

Size	in mm	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
		50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L (RF)	in	8.50	9.50	11.12	12.00	15.88	19.75	22.38	25.50	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00	-
	mm	216	241	283	305	403	502	568	648	762	838	914	991	1143	1245	1346	1397	1524	-
L1 (BW)	in	8.50	9.50	11.12	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00	49.00	53.00	55.00	60.00	-
	mm	216	241	283	305	403	521	559	635	762	838	914	991	1143	1245	1346	1397	1524	-
H	in	4.00	6.00	7.00	9.25	9.88	11.00	12.62	15.38	16.50	21.88	23.62	25.00	28.00	29.50	31.50	34.00	36.00	-
	mm	120	150	180	235	250	280	320	390	420	555	600	635	710	750	800	865	915	-
W	in	16	16	24	24	24	24	32	32	32	32	32	32	40	40	40	40	40	-
	mm	400	400	600	600	600	600	800	800	800	800	800	800	1000	1000	1000	1000	1000	-
WT (Kg)	RF/RTJ	30	40	60	90	200	325	490	690	990	1810	2620	2860	4430	5430	6810	7655	9590	-
	BW	24	31	49	72	169	280	424	598	872	1665	2440	2635	4075	4880	6225	7115	9230	-



Forged Steel Ball Valve 600Lb

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Three piece body for 12" & above
Trunnion mounted ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator

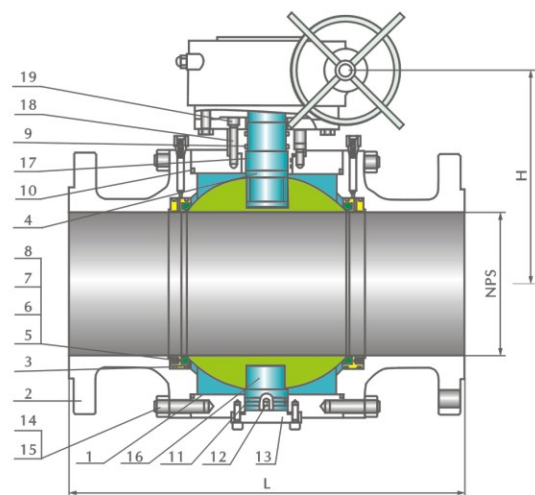


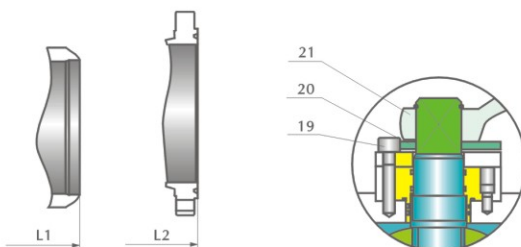
Fig. No:

BM6F56FA BM6F59FL BM6F56FB
BM6B56FA BM6B59FL BM6B56FB
BM6R56FA BM6R59FL BM6R56FB

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A105	A182-F316	A350-LF2
2	Bonnet	A105	A182-F316	A350-LF2
3	ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Class filled PTFE		
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A182-F304	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland	A105	A182-F316	A350-LF2
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.



Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700
L/L1 (RF/BW)	in	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	57.00	61.00
	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397	1448	1549
L2 (RTJ)	in	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38	57.50	61.50
	mm	295	333	359	435	562	664	791	841	892	994	1095	1200	1407	1461	1562
H	in	6.50	7.00	7.88	11.00	12.25	14.00	16.12	18.00	19.25	21.00	24.88	25.62	30.12	31.88	34.62
	mm	165	180	200	280	310	355	410	455	490	535	630	650	765	810	880
W	in	16	24	24	24	32	32	32	32	32	32	40	40	40	40	40
	mm	400	600	600	600	800	800	800	800	800	800	1000	1000	1000	1000	1000
WT (Kg)	RF/RTJ	34	53	65	125	245	505	640	910	1380	2250	3400	3850	4900	6700	8300
	BW	27	43	49	95	188	418	495	740	1185	1960	3050	3406	4275	6025	7590



Forged Steel Ball Valve 900Lb

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Three piece body for 12" & above
Trunnion mounted ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator

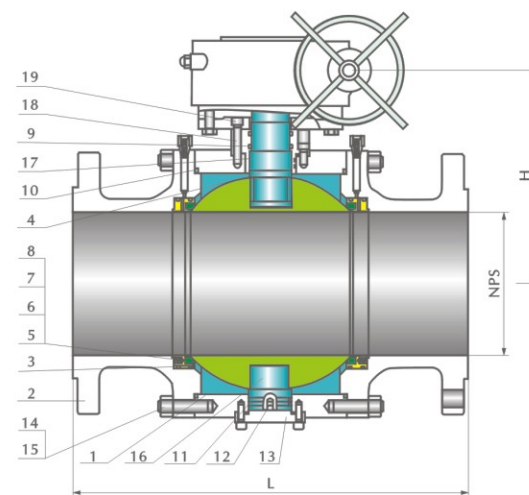


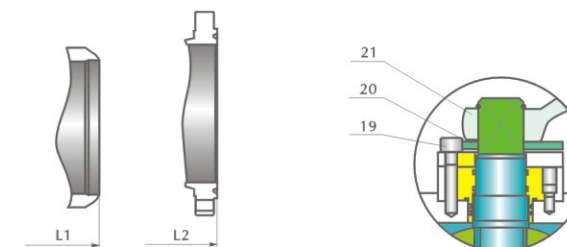
Fig. No:

BM9F56FA BM9F59FL BM9F56FB
BM9B56FA BM9B59FL BM9B56FB
BM9R56FA BM9R59FL BM9R56FB

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A105	A182-F316	A350-LF2
2	Bonnet	A105	A182-F316	A350-LF2
3	ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Class filled PTFE		
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A182-F304	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland	A105	A182-F316	A350-LF2
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.



Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L/L1 (RF/BW)	in	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
	mm	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549
L2 (RTJ)	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	40.88	44.88	48.50	52.50	61.75
	mm	371	422	384	460	613	740	841	968	1038	1140	1232	1334	1568
H	in	6.72	7.50	8.25	11.38	12.62	15.38	17.00	18.50	20.88	24.00	26.00	27.50	30.75
	mm	170	190	210	290	320	390	430	470	530	610	660	700	780
W	in	24	24	24	32	32	32	32	32	32	40	40	40	40
	mm	600	600	600	800	800	800	800	800	800	1000	1000	1000	1000
WT (Kg)	RF/RTJ	45	65	73	135	360	650	930	1350	1890	3100	4300	4950	7100
	BW	37	53	56	98	291	545	760	1145	1650	2750	3875	4410	6485



Forged Steel Ball Valve 1500Lb

Applicable standards:

Steel ball valves, API 608/API 6D
Steel ball valves, ISO 14313
Fire durable, API 607
Anti static, API 608
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
BB, Bolted bonnet, split body
Three piece body for 12" & above
Trunnion mounted ball type
Blow-out proof stem
Fire durable construction
Anti static device
Stopper device
ISO 5211 Mounting pad
Flanged or butt welding ends
Available with wg operator

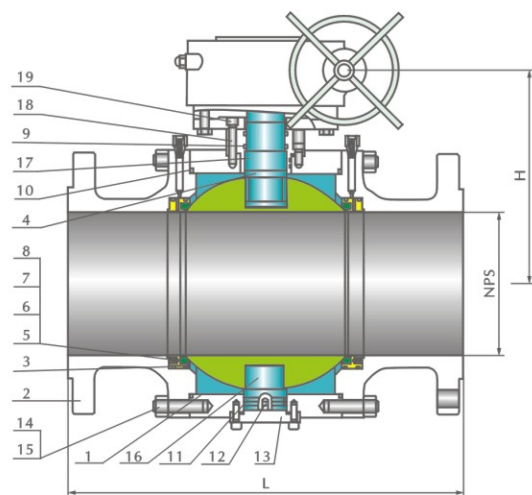


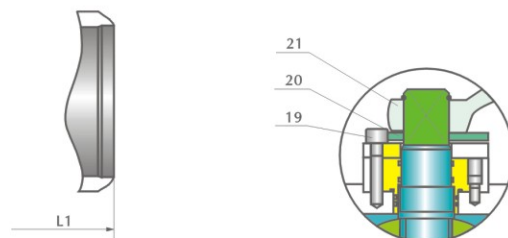
Fig. No:

BM15F56FA BM15F59FL BM15F56FB
BM15B56FA BM15B59FL BM15B56FB
BM15R56FA BM15R59FL BM15R56FB

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A105	A182-F316	A350-LF2
2	Bonnet	A105	A182-F316	A350-LF2
3	ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Class filled PTFE		
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A182-F304	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland	A105	A182-F316	A350-LF2
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.



Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16
	mm	50	65	80	100	150	200	250	300	350	400
L/L1 (RF/BW)	in	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50
	mm	368	419	470	546	705	832	991	1130	1257	1384
L2 (RTJ)	in	14.62	16.62	18.62	21.62	28.00	33.12	39.38	45.12	50.25	55.38
	mm	371	422	473	549	711	841	1000	1146	1276	1407
H	in	6.75	7.50	8.25	11.38	13.00	15.75	17.38	22.00	25.25	27.12
	mm	170	190	210	290	330	400	440	560	640	690
W	in	24	24	32	32	32	32	32	40	40	40
	mm	600	600	800	800	800	800	800	1000	1000	1000
WT (Kg)	RF/RTJ	55	75	95	150	540	880	1360	1980	3100	4650
	BW	40	55	65	115	420	865	1025	1555	2600	3930



Forged Steel Ball Valve 2500Lb

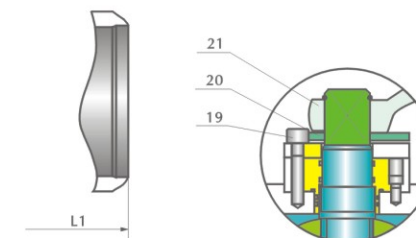
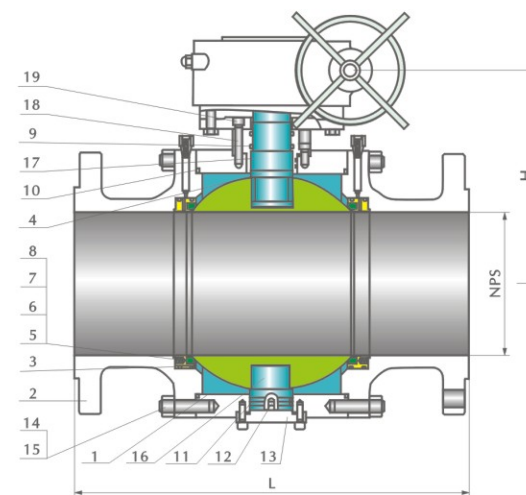
Fig. No:

BM25F56FA BM25F59FL BM25F56FB
BM25B56FA BM25B59FL BM25B56FB
BM25R56FA BM25R59FL BM25R56FB

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A105	A182-F316	A350-LF2
2	Bonnet	A105	A182-F316	A350-LF2
3	ball	A182-F304 ¹⁾	A182-F316	A182-F304 ¹⁾
4	Stem	A276-304	A276-316	A276-304
5	Seat	A105+ENP	A182-F316	A350-LF2+ENP
6	Stem insert	Class filled PTFE		
7	Seat spring	A313-304	Inconel X-750	A313-304
8	Seat O-ring	NBR	Viton	Viton
9	Stem O-ring	NBR	Viton	Viton
10	Bonnet gasket	Graphite+304 ²⁾	Graphite+316 ²⁾	Graphite+304 ²⁾
11	Bonnet O-ring	NBR	Viton	Viton
12	Antistatic spring	A313-304	A313-316	A313-304
13	Grounding plunger	A182-F304	A182-F316	A182-F304
14	Bonnet stud	A193-B7	A193-B8	A320-L7
15	Bonnet stud nut	A194-2H	A194-8	A194-4
16	Trunnion	A276-304	A276-316	A276-304
17	Trunnion bearing	304+PTFE	316+PTFE	304+PTFE
18	Gland	A105	A182-F316	A350-LF2
19	Gland bolt	A193-B7	A193-B8	A193-B7
20	Stop plate	Carbon steel	Carbon steel+Zn	Carbon steel
21	Handle	Carbon steel		

Note: 1). A 105+ENP optional ; 2). Spiral wound construction.



Dimensions data

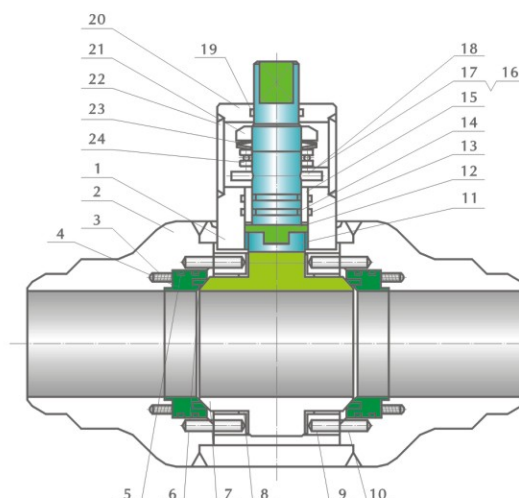
Size	in	2	2 1/2	3	4	6	8	10	12	14	16
	mm	50	65	80	100	150	200	250	300	350	400
L/L1 (RF/BW)	in	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00	-	-
	mm	451	508	578	673	914	1022	1270	1422	-	-
L2 (RTJ)	in	17.88	21.25	23.00	26.88	36.50	40.88	50.88	56.88	-	-
	mm	454	540	584	683	927	1038	1292	1445	-	-
H	in	7.50	9.00	11.00	14.12	15.75	18.88	20.50	26.38	-	-
	mm	190	230	280	360	400	480	520	670	-	-
W	in	24	32	32	32	32	40	40	40	-	-
	mm	600	800	800	800	800	1000	1000	1000	-	-
WT (Kg)	RF/RTJ	68	95	120	185	675	1100	1650	2300	-	-
	BW	54	74	91	122	555	918	1355	2950	-	-



Full-welded Underground Ball Valve

Applicable standards:

Pressure temperature rating, ASME B16.34、BS5351
Shell thickness, ASME B16.34、BS5351
Pore hole dimension, API 6D、BS5351
Face to face, ASME B16.10、API 6D
Connection dimension, ASME B16.5、BS1560
Test and inspection conform to, API 6D、BS5146
Main materials, A105、LF2、F304、F316、F304L、F316L



Main part materials list

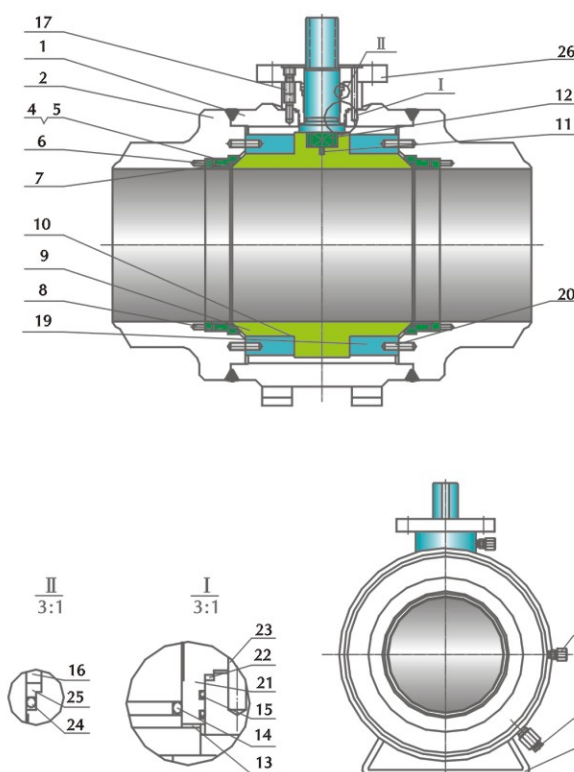
NO.	Part name	Carbon steel	Low Temp. steel	Stainless steel
1	Body	ASTM A105	ASTM A350 LF2	ASTM A182 F316
2	Bonnet	ASTM A105	ASTM A350 LF2	ASTM A182 F316
3	Spring	17-7PH	17-7PH	Inconelx-750
4	Seat retainer	ANSI A105	ASTM A350 LF2+ENP	ASTM A182 F316
5	O-ring	VITON	VITON	VITON
6	Ring	RPTFE	RPTFE	RPTFE
7	Ball	ASTM A105+ENP	ASTM 350 LF2+ENP	ASTM A182 F316
8	Sliding bearing	304+PTFE	304+PTFE	316+PTFE
9	Backing	ASTM A105	ASTM A350 LF2+ENP	ASTM A182-F316
10	Backing rubber	ANSI 1045	ASTM A350 LF2+ENP	ASTM A182-F316
11	Connector fitting	ASTM A105	ASTM A350 LF2+ENP	ASTM A182-F316
12	Stem	A182-F6a	A182-F6a	ASTM A182 F316
13	O-ring	VITON	VITON	VITON
14	O-ring	VITON	VITON	VITON
15	Bushing	ASTM A182 F316	ASTM A182 F316	ASTM A182 F316
16	Stopper	ASTM A105	ASTM A350 LF2+ENP	ASTM A182-F316
17	Screw	ASTM A193-B7/B7M	ASTM A193-7M	ASTM A193-B8
18	Set stud	ANSI 1045	ANSI 1045	A276-316
19	O-ring	VITON	VITON	VITON
20	Coping	ASTM A105	ASTM A350 LF2+ENP	ASTM A182-F316
21	Locking nut	ASTM A194-2H/2HM	ASTM A194 7M	ASTM A194-2HW/8
22	Extend pipe	ANSI 1025	ANSI 1025	A276-316
23	Butterfly spring washer	ASTM A182-304	ASTM A182-F304	ASTM A182 F316
24	Ball thrust bearing	Assembly	Assembly	Assembly



Full Welded Forging Steel Ball Valve 150/300Lb

Applicable standards:

Pressure temperature rating, ASME B16.34、BS5351
Shell thickness, ASME B16.34、BS5351
Pore hole dimension, API 6D、BS5351
Face to face, ASME B16.10、API 6D
Connection dimension, ASME B16.5、BS1560
Test and inspection conform to, API 6D、BS5146
Main materials, A105、LF2、F304、F316、F304L、F316L



Main part materials list

NO.	Part name	Carbon steel	Low Temp. steel	Stainless steel
1	Body	ASTM A105	ASTM A350 LF2	ASTM A182 F316
2	Bonnet	ASTM A105	ASTM A350 LF2	ASTM A182 F316
3	Inject valve	ANSI 1045	ASTM A1045	A276-316
4	O-ring	VITON	VITON	VITON
5	O-ring	VITON	VITON	VITON
6	Seat retainer	ASTM A105+ENP	ASTM A350 LF2+ENP	ASTM A182 F316
7	Ring	RPTFE	RPTFE	RPTFE
8	Spring	Inconelx-750	Inconelx-750	Inconelx-750
9	Ball	17-7PH	17-7PH	ASTM A182 F316
10	Sliding bearing	304+PTFE	304+PTFE	316+PTFE
11	Static spring	A276-316	A276-316	A276-316
12	Stem	A182-F6a	A182-F6a	ASTM A182 F316
13	Gasket	304+PTFE	304+PTFE	316+PTFE
14	O-ring	VITON	VITON	VITON
15	O-ring	VITON	VITON	VITON
16	Packing	Graphite	Grqphite	Graphite
17	Screw	ASTM A193-B7/B7M	ASTM A193-7M	ASTM A193-B8
18	Waste valve	ANSI 1045	ANSI 1045	ASTM A182 F316
19	Backing	ASTM A105	ASTM A350 LF2+ENP	ASTM A182-F316
20	Backing pin	ANSI 1045	ASTM A350 LF2+ENP	ASTM A182-F316
21	Upper bushing	ASTM A105	ASTM A350 LF2+ENP	ASTM A182 F316
22	Gasket	304+Graphite	304+Graphite	316+Graphite
23	Positioning pin	ANSI 1045	ANSI 1045	A276-316
24	O-ring	VITON	VITON	VITON
25	Packing seat	ASTM A182-F6a	ASTM A182-F6a	ASTM A182 F316
26	Coupling plate	ASTM A105	ASTM A350 LF2	ASTM A182 F316
27	Base frame	ANSI 1025	ANSI 1025	ANSI 1025

Dimensions data

Class	Size	in	2	3	4	6	8	10	12	14	16	18	20	24
			50	80	100	150	200	250	300	350	400	450	500	600
		mm	2	3	4	6	8	10	12	13.25	15.25	17.25	19.25	23.25
	d	mm	50	76.2	101.6	152	203	254	305	337	387	438	489	591
150/ 300Lb	L	in	8.5	11.125	12	18	20.5	22	25	30	33	36	39	45
		mm	216	283	305	457	521	559	635	762	838	914	991	1143
	H1	in	7.08	7.87	8.86	11.42	12.40	12.99	16.93	18.30	19.49	23.03	24.01	25
		mm	180	200	225	285	315	330	430	465	495	585	610	635
	H2	in	7.48	8.27	8.66	11.42	12.80	16.14	17.13	18.90	19.88	23.81	24.06	25.98
		mm	190	210	220	290	325	410	435	480	505	605	625	660
	H3	in	7.68	8.27	8.46	-	-	-	-	-	-	-	-	-
		mm	195	210	215	-	-	-	-	-	-	-	-	-
	W	in	13.78	15.75	19.69	-	-	-	-	-	-	-	-	-
		mm	350	400	500	-	-	-	-	-	-	-	-	-



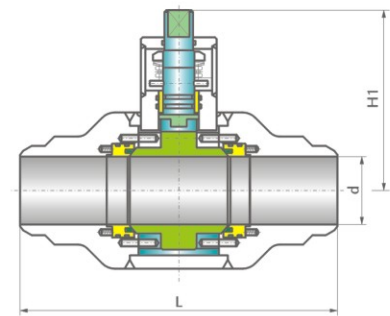
Full Welded Forging Steel Ball Valve 600Lb



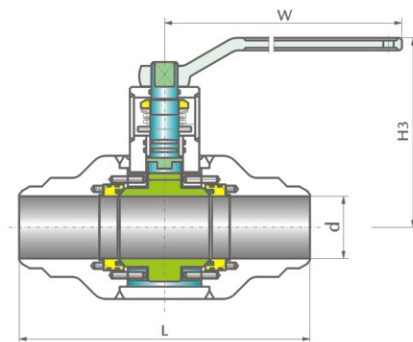
Full Welded Forging Steel Ball Valve 900/1500Lb

Main part materials list

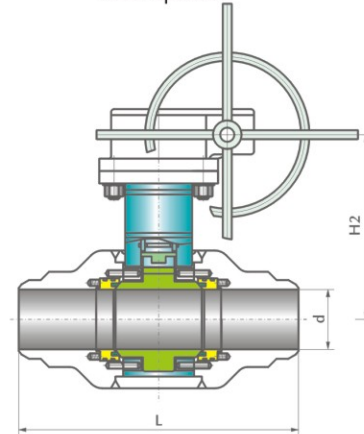
NO.	Part name	Carbon steel	Low Temp. steel	Stainless steel
1	Body	ASTM A105	ASTM A350 LF2	ASTM A182 F316
2	Bonnet	ASTM A105	ASTM A350 LF2	ASTM A182 F316
3	Inject valve	ANSI 1045	ASTM A1045	A276-316
4	O-ring	VITON	VITON	VITON
5	O-ring	VITON	VITON	VITON
6	Seat retainer	ASTM A105 + ENP	ASTM A350 LF2+ENP	ASTM A182 F316
7	Ring	RPTFE	RPTFE	RPTFE
8	Spring	Inconelx-750	Inconelx-750	Inconelx-750
9	Ball	17-7PH	17-7PH	ASTM A182 F316
10	Sliding bearing	304+PTFE	304+PTFE	316+PTFE
11	Static spring	A276-316	A276-316	A276-316
12	Stem	A182-F6a	A182-F6a	ASTM A182 F316
13	Gasket	304+PTFE	304+PTFE	316+PTFE
14	O-ring	VITON	VITON	VITON
15	O-ring	VITON	VITON	VITON
16	Packing	Graphite	Grqphite	Graphite
17	Screw	ASTM A193-B7/B7M	ASTM A193-7M	ASTM A193-B8
18	Waste valve	ANSI 1045	ANSI 1045	ASTM A182 F316
19	Backing	ASTM A105	ASTM A350 LF2+ENP	ASTM A182-F316
20	Backing pin	ANSI 1045	ASTM A350 LF2+ENP	ASTM A182-F316
21	Upper bushing	ASTM A105	ASTM A350 LF2+ENP	ASTM A182 F316
22	Gasket	304+Graphite	304+Graphite	316+Graphite
23	Positioning pin	ANSI 1045	ANSI 1045	A276-316
24	O-ring	VITON	VITON	VITON
25	Packing seat	ASTM A182-F6a	ASTM A182-F6a	ASTM A182 F316
26	Coupling plate	ASTM A105	ASTM A350 LF2	ASTM A182 F316
27	Base frame	ANSI 1025	ANSI 1025	ANSI 1025



Standard



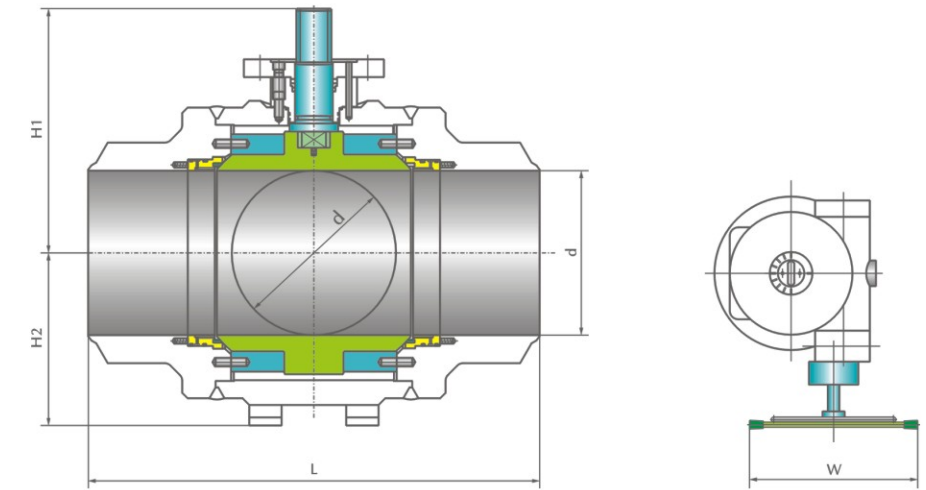
Lever operated



Worm operated

Dimensions data

Class	Size	in	2	3	4	6	8	10	12	14	16	18	20	24
		mm	50	80	100	150	200	250	300	350	400	450	500	600
	d	in	2	3	4	6	8	10	12	13.25	15.25	17.25	19.25	23.25
		mm	50	76.2	101.6	152	203	254	305	337	387	438	489	591
600Lb	L	in	11.5	14	17	22	26	31	33	35	39	43	47	55
		mm	292	356	432	559	660	787	838	889	991	1092	1194	1397
	H1	in	7.08	7.87	8.86	11.22	12.40	12.99	16.93	18.30	19.49	23.03	24.01	25
		mm	180	200	225	285	315	330	430	465	495	585	610	635
	H2	in	7.48	8.27	8.66	11.42	12.80	16.14	17.13	18.90	19.88	23.81	24.06	25.98
		mm	190	210	220	290	325	410	435	480	505	605	625	660
	H3	in	7.68	8.27	8.46	-	-	-	-	-	-	-	-	-
		mm	195	210	215	-	-	-	-	-	-	-	-	-
	W	in	23.62	39.37	59.05	-	-	-	-	-	-	-	-	-
		mm	600	1000	1500	-	-	-	-	-	-	-	-	-



Class	Size	in	6	8	10	12	14	16	18	20	24
		mm	150	200	250	300	350	400	450	500	600
	d	in	6	8	10	12	12.75	14.75	16.75	18.625	22.5
		mm	152	203	254	305	324	375	425.5	473	571.5
	L	in	24	29	33	38	405	44.5	48	52	61
		mm	610	737	838	965	1029	1130	1219	1321	1549
	H1	in	12	15.6	16.93	18.3	21.45	24.21	26.97	29.52	35.23
		mm	305	395	430	465	545	615	685	750	895
	H2	in	11.81	15.74	16.93	17.91	24.45	24.21	23.39	26.97	30.51
		mm	300	400	430	455	545	615	645	685	775
	W	in	27.8	31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5
		mm	705	800	800	800	800	800	800	800	800
	WT(Kg)		330	595	935	1485	1955	2975	4010	4710	8285

Class	Size	in	6	8	10	12	14	16	-	-	-
		mm	150	200	250	300	350	400	-	-	-
	d	in	5.75	7.625	9.5	11.375	12.5	14.25	-	-	-
		mm	146	194	241	289	317.5	362	-	-	-
	L	in	27.75	32.75	39	44.5	49.5	54.5	-	-	-
		mm	705	832	991	1130	1257	1384	-	-	-
	H1	in	14.96	19.29	20.07	22.05	25	26.97	-	-	-
		mm	380	490	510	560	635	685	-	-	-
	H2	in	11.81	15.75	16.93	18.11	21.65	24.40	-	-	-
		mm	300	400	430	460	550	620	-	-	-
	W	in	31.5	31.5	31.5	31.5	31.5	31.5	-	-	-
		mm	800	800	800	800	800	800	-	-	-
	WT(Kg)		503	795	1615	1945	3350	4615	-	-	-



Double Block and Bleed Valve 300Lb/600Lb



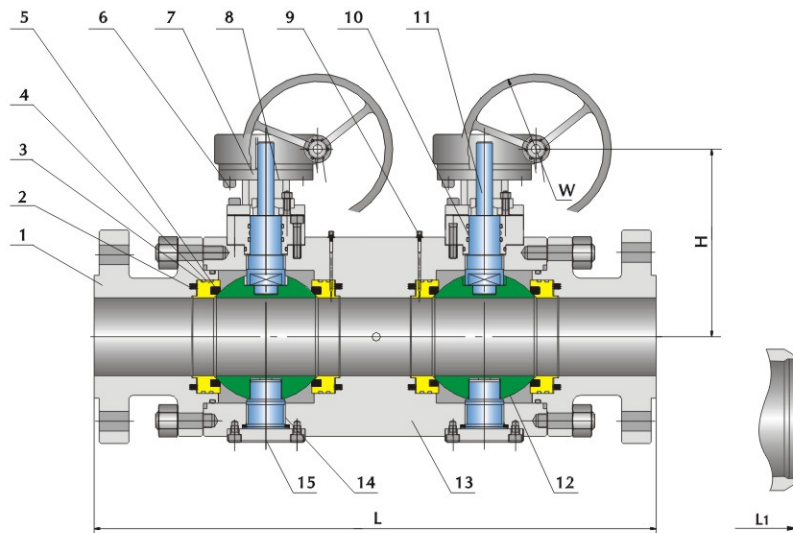
Gate Valve, BB, CS

Applicable Standards

- ★ STEEL BALL VALVES API 6D
- ★ END FLANGES, ASME B16.5
- ★ STEEL VALVES, ASME B16.34
- ★ FACE TO FACE ASME B16.10
- ★ INSPECTION AND TEST API 598

Design Description

- ▲ DESIGN DESCRIPTION
- ▲ FULL PORT DESIGN
- ▲ BOLTED BONNET SPLIT BODY
- ▲ THREE PIECES BODY
- ▲ TRUNNION MOUNTED BALL TYPE
- ▲ BLOW OUT PROOF STEM
- ▲ FIRE SAFE CONSTRUCTION
- ▲ ANTI STATICS DEVICE
- ▲ STOPPER DEVICE
- ▲ ISO 5211 MOUNTING PAD
- ▲ FLANGED OR BUTT WELDING ENDS
- ▲ AVAILABLE WITH LEVER



Materials of Parts

No	Part Name	ASTM Material				
		Carbon Steel	Alloy Steel	Stainless Steel		
1	Bonnet	ASTM A105	A352-LCB	A217+WC6	A351-CF8	A351-CF8M
2	Spring	17-7PH	17-7PH	X-750	X-750	X-750
3	Seat O Ring	Viton	Viton1)	Viton	Viton1)	Viton
4	Seat	ASTM A105+ENP	A350-LF2+ENP	A182+F316	A182-F304	A182-F316
5	Seat ring	PTFE	PTFE	R.PTFE	Glass Filled PTFE	
6	Stud	A193-B7	A320-L7	A193-B7	A193-B8	A193-B8
7	Connection plate	ASTM A105	A352-LCB	A217-WC6	A351-CF8	A351-CF8M
8	Packing case	F4				
9	Grease injection valve	SS				
10	Stem O-Ring	Viton	Viton	Viton	Viton	Viton
11	Stem	A182 F6a	A276-304	A276-316	A276-304	A276-316
12	Ball	ASTM A105+ENP	A182-F304	A182-F316	A182-F304	A182-F316
13	Body	ASTM A105	A352-LCB	A217-WC6	A351-CF8	A351-CF8M
14	Trunnion	A276-304		A276-316	A276-304	A276-316
15	Lower cover	ASTM A105	A352-LCB	A217-WC6	A351-CF8	A351-CF8M

Dimensions Data ANSI Class 300Lb

NPS	4	6	8	10	12	14	16	18	20	24	in
L/L ₁	27.55	35.43	41.33	47.24	51.96	55.90	63.77	71.65	78.74	83.46	in
	700	900	1050	1200	1320	1420	1620	1820	2000	2120	mm
H	7.00	10.70	15.66	19.48	22.83	24.60	26.37	27.48	33.07	41.33	in
	178	272	398	495	580	625	670	698	840	1050	mm
W	9.84	11.81	11.81	13.77	13.77	17.71	17.71	21.65	21.65	25.59	in
	250	300	300	350	350	450	450	550	550	650	mm

Dimensions Data ANSI Class 600Lb

NPS	4	6	8	10	12	14	16	18	20	24	in
L/L ₁	28.34	36.22	43.30	49.21	55.11	59.05	66.92	74.80	80.70	93.58	in
	720	920	1100	1250	1400	1500	1700	1900	2050	2377	mm
H	9.25	11.81	14.72	17.51	20.15	21.65	24.21	27.48	29.52	31.88	in
	235	300	374	445	512	550	615	698	750	810	mm
W	11.81	13.77	13.77	17.71	17.71	21.65	21.65	21.65	25.59	25.59	in
	300	350	350	450	450	550	550	550	650	650	mm

Design

ZBV cast steel valve 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 API 600 & API 6D, British Standard BS 1414 & 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.

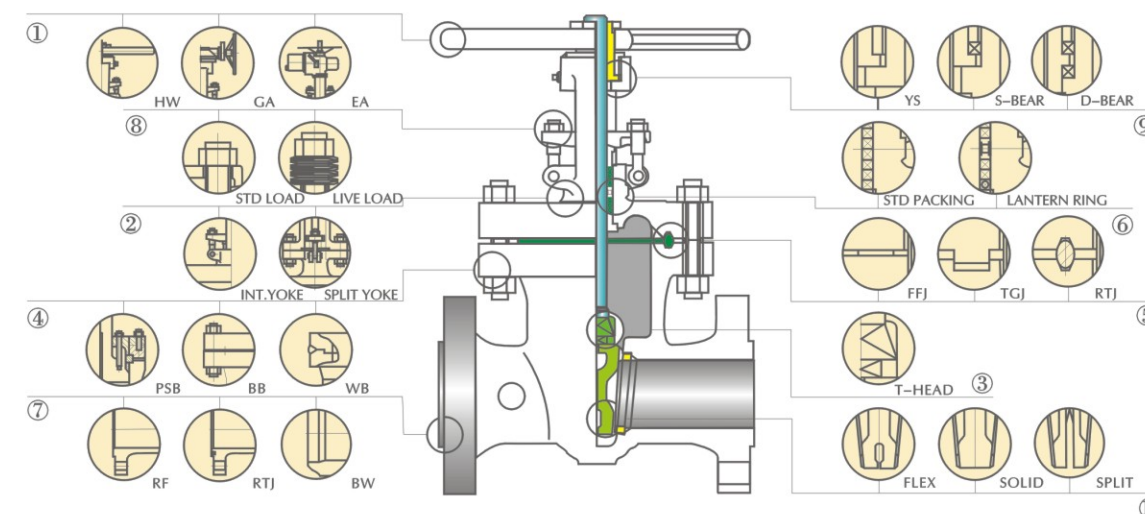
Rang of Materials

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 ZBV Cast Steel Valve

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

Pressure Equilizing
By-pass Customer Specified Coatings
Weld End Bore Changes
Oxygen & Chlorine cleaning & Packaging



① Operating

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

② OS & Y

Outside Screw and Yoke. Cast steel gate valve yoke integral with bonnet for 150 Lb-8", 300Lb-8", 600Lb-6", 900Lb-4" & Small.

③ 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 to self-align, eliminating the possibility of a bent stem jamming the wedge.

④ BB

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

⑤ 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 connection in 900Lb & higher rated valves.

⑥ Lantern ring and double packing set

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

⑦ End Connections

A choice of Flanged, RTJ flanged or Butt-welding end for piping flexibility.

⑧ 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 frequent packing gland adjustments. Belleville springs are employed to provide constant packing gland stress.

⑨ Yokesleeve

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

⑩ 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.



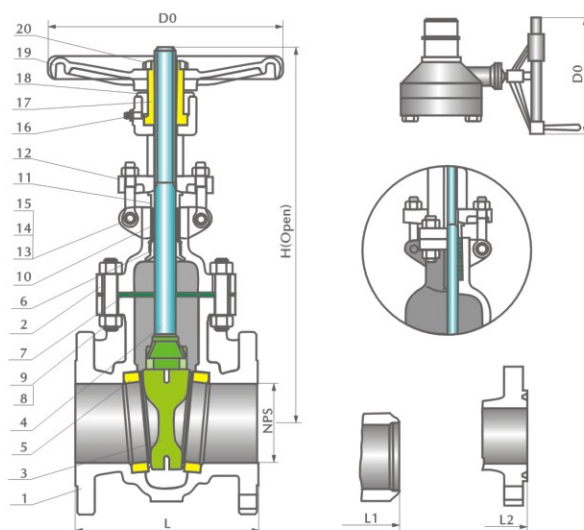
Cast Steel Gate Valve 150Lb

Applicable standards:

Steel gate valves, API 600/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
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
OS & Y, Outside screw 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 butt welding ends
Available with bg operator



Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L (RF)	in	7.00	7.50	8.00	9.00	10.50	11.50	13.00	14.00	15.00	16.00	17.00	18.00	20.00	22.00	24.00	24.00	28.00	28.00
	mm	178	191	203	229	267	292	330	356	381	406	432	457	508	559	610	610	711	711
L1 (BW)	in	8.5	9.50	11.12	12.00	15.88	16.50	18.00	19.75	22.50	24.00	26.00	28.00	32.00	34.00	36.00	36.00	38.00	40.00
	mm	216	241	283	305	403	419	457	502	572	610	660	711	813	864	914	914	965	1016
L2 (RTJ)	in	7.5	8	8.5	9.5	11	12	13.5	14.5	15.5	16.5	17.5	18.5	20.5	—	24.5	24.5	26.5	28.5
	mm	191	203	216	242	279	305	343	368	394	419	445	470	521	—	622	622	673	724
H (Open)	in	15.25	17.00	18.88	23.00	30.50	37.62	45.50	53.12	59.38	67.00	74.50	83.50	98.25	110.50	116.50	124.00	129.00	146.50
	mm	368	434	480	584	765	956	1149	1350	1508	1703	1892	2119	2500	2806	2960	3150	3280	3720
D0	in	8	8	10	12	12	14	16	18	20	22	24	26	29	29	32	32	38	40
	mm	200	200	250	300	300	350	400	450	500	550	600	640	720	720	800	800	950	1000
WT(kg)	RF	18	25	32	50	77	121	478	265	363	463	621	792	1190	1521	1838	2261	2490	3310
	BW	15	18	26	41	69	108	156	248	330	424	587	752	1144	1570	1900	3310	2540	3380

Fig. No:

G1F01A G1F05D G1F01B
G1B01A G1B05D G1B01B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	11/4Cr-1/2Mo	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 ¹⁾		
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.



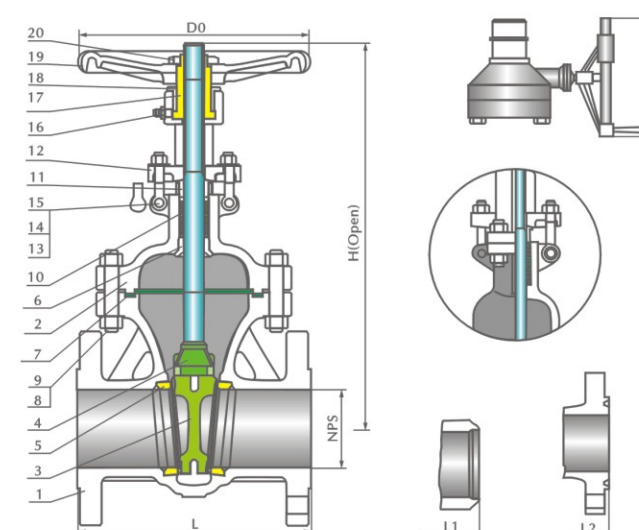
Cast Steel Gate Valve 300Lb

Applicable standards:

Steel gate valves, API 600/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
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
OS & Y, Outside screw 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 butt welding ends
Available with bg operator



Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36	40	42	48
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050	1200
L/L1 (RF/BW)	in	8.50	9.50	11.12	12.00	15.88	16.50	18.00	19.75	22.50	24.00	26.00	28.00	32.00	34.00	36.00	36.00	38.00	40.00	46.00	50.00	58.00
	mm	216	241	283	305	403	419	457	502	572	610	660	711	813	864	914	914	965	1016	1168	1270	1472
L2 (RTJ)	in	9.12	10.12	11.75	12.62	16.50	17.12	18.62	20.38	23.00	24.62	26.62	29.75	33.62	36.62	39.75	45.88	50.00	56.00	61.12	69.12	—
	mm	232	257	298	321	419	435	473	518	593	625	678	759	854	930	1010	1165	1270	1422	1553	1756	—
H (OPEN)	in	16.12	17.88	20.00	24.00	31.75	39.38	47.62	55.75	62.25	67.88	77.12	86.38	102.00	117.00	122.00	126.00	130.00	152.00	188.63	198.13	217.38
	mm	410	453	509	612	805	1000	1210	1415	1580	1725	1960	2195	2590	2975	3100	3200	3300	3860	4791	5032	5522
D0	in	8	8	10	12	14	16	18	20	22	24	26	29	29	32	32	38	40	48	54	60	72
	mm	200	200	250	300	350	400	450	500	550	600	640	720	720	800	800	950	1000	1200	1370	1520	1830
WT (Kg)	RF/RTJ	23	35	50	71	144	209	322	482	683	950	1145	1635	2660	3090	3310	3595	3720	3985	4860	5500	6400
	BW	17	26	39	53	113	164	256	390	565	805	965	1410	2305	2540	2725	3055	3360	3630	4560	5100	5900

Fig. No:

G3F01A G3F05D G3F01B
G3B01A G3B05D G3B01B
G3R01A G3R05D G3R01B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	11/4Cr-1/2Mo	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 ¹⁾		
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.



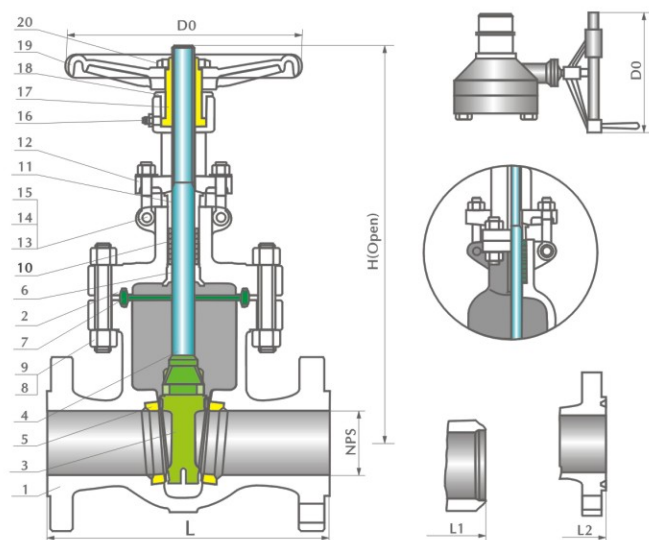
Cast Steel Gate Valve 600Lb

Applicable standards:

Steel gate valves, API 600/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
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
OS & Y, Outside screw 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 butt welding ends
Available with bg operator



Dimensions data

Size	in mm	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	32	36
		50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L/L1 (RF/BW)	in	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	57.00	61.00	65.00	70.00	82.00
	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397	1448	1549	1651	1778	2083
L2 (RTJ)	in	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38	57.50	61.50	65.50	70.62	82.62
	mm	295	333	359	435	562	664	791	841	892	994	1095	1200	1407	1461	1562	1664	1794	2099
H (OPEN)	in	16.50	18.75	20.38	25.50	33.00	40.38	48.38	57.00	62.00	70.62	76.00	87.00	101.50	105.00	109.50	114.00	124.00	140.00
	mm	418	476	518	646	840	1025	1230	1450	1575	1795	1930	2210	2580	2665	2780	2895	3150	3560
D0	in	8	10	10	12	18	20	24	24	24	26	26	29	29	32	32	38	40	
	mm	200	250	250	300	450	500	600	600	600	640	640	720	720	800	800	950	1000	
WT (Kg)	RF/RTJ	36	52	67	112	170	393	610	890	1245	1530	1965	2450	2995	3475	3725	2045	4185	4480
	BW	29	42	53	83	125	310	472	730	1055	1240	1625	2030	2590	2855	3065	3440	3780	4085

Fig. No:

G6F01A G6F05D G6F01B
G6B01A G6B05D G6B01B
G6R01A G6R05D G6R01B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	1 1/4Cr- 1/2Mo	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	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	Grease fitting	Brass+steel		
17	Yokesleeve	Aluminum-Bronze ¹⁾		
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.



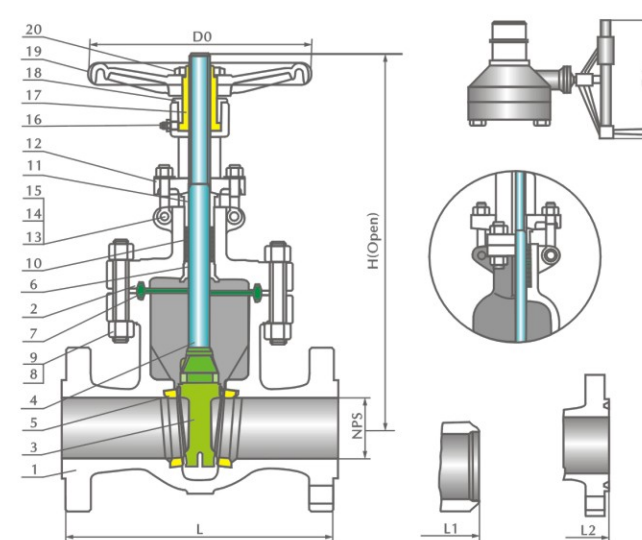
Gate Valve, BB, CS 900Lb

Applicable standards:

Steel gate valves, API 600/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
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
OS & Y, Outside screw 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 butt welding ends
Available with bg operator



Dimensions data

Size	in mm	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
		50	65	80	100	150	200	250	300	350	400	450	500	600
L/L1 (RF/BW)	in	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
	mm	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549
L2 (RTJ)	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	40.88	44.88	48.50	52.50	61.75
	mm	371	422	384	460	613	740	841	968	1038	1140	1232	1334	1568
H (OPEN)	in	19.62	21.50	22.50	26.62	35.50	43.50	53.00	60.00	74.88	81.00	87.00	101.00	104.00
	mm	498	547	573	678	900	1103	1345	1525	1900	2055	2215	2565	2640
D0	in	10	10	12	18	20	24	26	29	32	32	38	38	40
	mm	250	250	300	450	500	600	640	720	800	800	950	950	1000
WT (Kg)	RF/RTJ	74	131	101	172	335	640	1100	1600	2250	2850	3060	3835	4900
	BW	54	105	78	135	260	515	920	1380	2010	2565	2485	3250	4065

Fig. No:

G9F05A G9F05D G9F05B
G9B05A G9B05D G9B05B
G9R05A G9R05D G9R05B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	1 1/4Cr- 1/2Mo	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+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	Grease fitting	Brass+steel		
17	Yokesleeve	Aluminum-Bronze ¹⁾		
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.



Cast Steel Gate Valve 1500Lb

Applicable standards:

Steel gate valves, API 600/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
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
OS & Y, Outside screw 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 butt welding ends
Available with bg operator

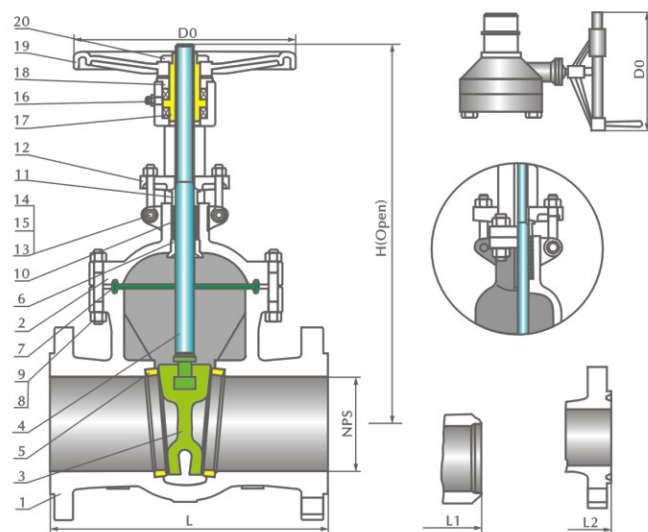


Fig. No:

G15F05A G15F05D G15F05B
G15B05A G15B05D G15B05B
G15R05A G15R05D G15R05B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	11/4Cr-1/2Mo	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+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	Grease fitting	Brass+steel		
17	Yokesleeve	Aluminum-Bronze ¹⁾		
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.

Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L/L1 (RF/BW)	in	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
	mm	368	419	470	546	705	832	991	1130	1257	1384	1537	1664	1943
L2 (RTJ)	in	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
	mm	371	422	473	549	711	841	1000	1146	1276	1407	1559	1686	1972
H (OPEN)	in	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
	mm	615	658	760	868	1005	1145	1370	1550	1900	2050	2380	2580	2915
D0	in	10	12	18	20	24	18	18	24	24	24	24	24	24
	mm	250	300	450	500	600	460	460	600	600	600	600	600	600
WT (Kg)	RF/RTJ	116	166	209	296	510	920	1910	3145	4100	6200	8965	13100	15860
	BW	105	150	188	265	412	760	1640	2755	3200	5300	8070	11790	14275



Gate Valve, BB, CS 2500Lb

Applicable standards:

Steel gate valves, API 600/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
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

Full port design
OS & Y, Outside screw 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 butt welding ends
Available with bg operator

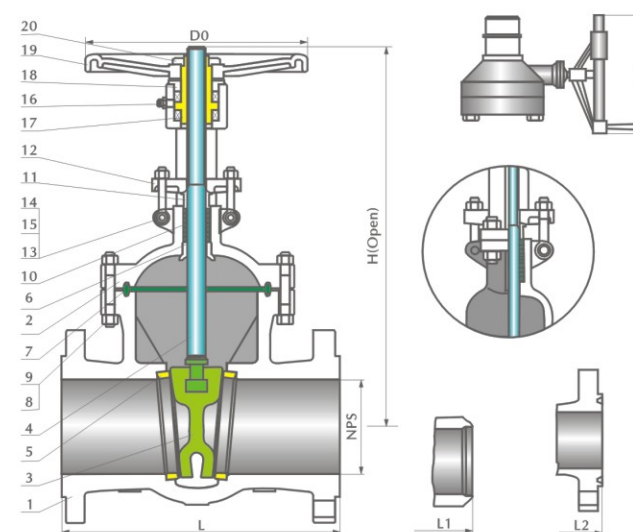


Fig. No:

G25F05A G25F05D G25F05B
G25B05A G25B05D G25B05B
G25R05A G25R05D G25R05B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	11/4Cr-1/2Mo	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+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	Grease fitting	Brass+steel		
17	Yokesleeve	Aluminum-Bronze ¹⁾		
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.

Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L/L1 (RF/BW)	in	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00	-	-	-	-	-
	mm	451	508	578	673	914	1022	1270	1422	-	-	-	-	-
L2 (RTJ)	in	17.88	20.50	23.00	26.88	36.50	40.88	50.88	56.88	-	-	-	-	-
	mm	454	514	584	683	927	1038	1292	1445	-	-	-	-	-
H (OPEN)	in	21.88	29.00	35.00	41.50	57.00	63.38	81.75	89.75	-	-	-	-	-
	mm	631	736	890	1055	1450	1610	2075	2280	-	-	-	-	-
D0	in	12	18	20	20	24	24	24	24	-	-	-	-	-
	mm	300	450	500	500	600	600	600	600	-	-	-	-	-
WT (Kg)	RF/RTJ	155	210	310	580	1600	2450	4570	7150	-	-	-	-	-
	BW	124	160	245	460	1310	2010	3800	6000	-	-	-	-	-



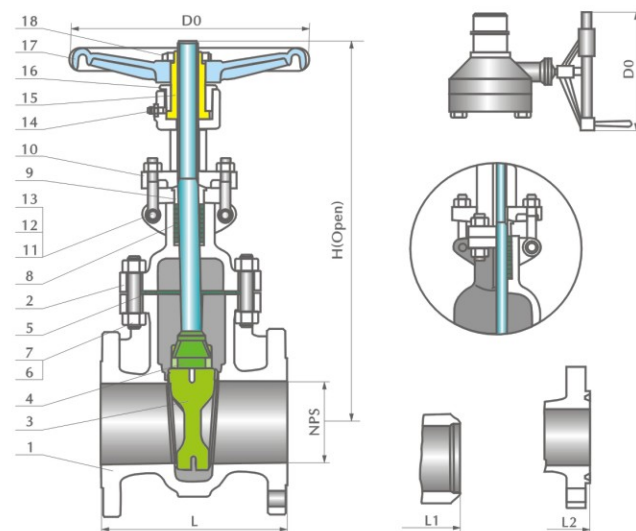
Cast Stainless Steel Gate Valve 150Lb

Applicable standards:

Steel gate valves, API 603
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 description:

Full port design
OS & Y, Outside screw and yoke
BB, Bolted bonnet
Flexible wedge, fully guided
Choice of solid or split wedge
Seat ring integral with body
Forged T-head stem
Rising stem and non-rising handwheel
Flanged or butt welding ends
Available with bg operator



Dimensions data

Size	in	11/2	2	21/2	3	4	6	8	10	12	14	16
	mm	40	50	65	80	100	150	200	250	300	350	400
L (RF)	in	6.50	7.00	7.50	8.00	9.00	10.50	11.50	13.00	14.00	15.00	16.00
	mm	165	178	190	203	229	267	292	330	356	381	406
L1 (BW)	in	7.00	7.50	8.00	8.50	9.50	11.00	12.00	13.50	14.50	15.50	16.50
	mm	178	191	203	216	242	280	305	343	369	394	419
H (Open)	in	11.75	15.25	17.00	18.88	23.00	30.50	37.62	45.50	53.12	59.38	67.00
	mm	300	386	434	480	584	765	956	1149	1350	1508	1703
D0	in	6	8	8	10	12	12	14	16	18	20	22
	mm	140	200	200	250	300	300	350	400	450	500	550
WT (Kg)	BW	9.2	15	21	27	42	64.5	101	149	221	303	387
	RF/RTJ	8	12.5	15	21.5	34	58	90	130.5	207	275	355

Fig. No:

G1F02K G1F10L G1F10N
G1B02K G1B10L G1B10N

Materials of parts

NO	Part name	ASTM Material		
		18Cr-18Ni	18Cr-9Ni-2Mo	17Cr-9Mo-2Mo
1	Body	A351-CF8	A351-CF8M	A351-CF3M
2	Bonnet	A351-CF8	A351-CF8M	A351-CF3M
3	Wedge	A351-CF8	A351-CF8M	A351-CF3M
4	Stem	A182-F304	A182-F316	A182-F316L
5	Bonnet gasket ¹⁾	Graphite+304	Graphite+316	Graphite+316L
6	Bonnet stud	A193-B8	A193-B8M	A193-B8M
7	Bonnet stud nut	A194-8	A194-8M	A194-8M
8	Packing ²⁾	Graphite		
9	Gland	A276-304	A276-316	A276-316L
10	Gland flange	A351-CF8	A351-CF8M	A351-CF8M
11	Eyebolt pin	A276-304	A276-316	A276-316
12	Eyebolt	A193-B8	A193-B8	A193-B8
13	Eyebolt nut	A194-8	A194-8	A194-8
14	Grease fitting	Carbon steel ni plated		
15	Yokesleeve	Aluminum-bronze ³⁾		
16	Yokesleeve jam nut	A276-304		
17	Handwheel	Malleable iron		
18	Handwheel nut	Carbon steel		

Note:

- 1). Seat wound construction. Teflon optional.
- 2). Teflon optional.
- 3). Ductile Ni-resist optional.
- 4). Wedge and seat(Integral with body)may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



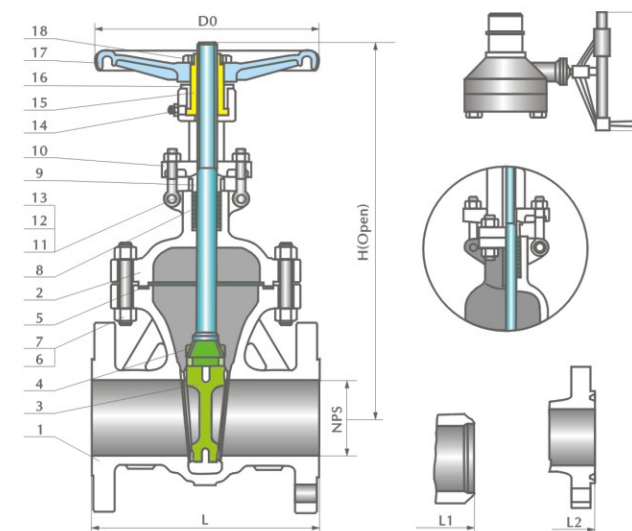
Cast Stainless Steel Gate Valve 300Lb

Applicable standards:

Steel gate valves, API 603
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 description:

Full port design
OS & Y, Outside screw and yoke
BB, Bolted bonnet
Flexible wedge, fully guided
Choice of solid or split wedge
Seat ring integral with body
Forged T-head stem
Rising stem and non-rising handwheel
Flanged or butt welding ends
Available with bg operator



Dimensions data

Size	in	11/2	2	21/2	3	4	6	8	10	12	14	16
	mm	40	50	65	80	100	150	200	250	300	350	400
L/L1 (RF/BW)	in	7.50	8.50	9.50	11.12	12.00	15.88	16.50	18.00	19.75	30.00	33.00
	mm	190	216	241	283	305	403	419	457	502	762	838
L2 (RTJ)	in	—	9.12	10.12	11.75	12.62	16.50	17.12	18.62	20.38	30.62	33.62
	mm	—	232	257	298	321	419	435	473	518	778	854
H (Open)	in	9.88	16.12	17.88	20.00	24.00	31.75	39.38	47.62	55.75	62.25	67.88
	mm	251	410	453	509	612	805	1000	1210	1415	1580	1725
D0	in	6	8	8	10	10	14	16	18	20	22	22
	mm	140	200	200	250	250	350	400	450	500	550	550
WT (Kg)	BW	10.5	20	30	43	61	123	179	276	413	585	813
	RF/RTJ	8.5	14.5	22.5	33	45.5	97	140	219	334	484	689

Fig. No:

G3F02K G3F10L G3F10N
G3B02K G3B10L G3B10N
G3R02K G3R10L G3R10N

Materials of parts

NO	Part name	ASTM Material		
		18Cr-18Ni	18Cr-9Ni-2Mo	17Cr-9Mo-2Mo
1	Body	A351-CF8	A351-CF8M	A351-CF3M
2	Bonnet	A351-CF8	A351-CF8M	A351-CF3M
3	Wedge	A351-CF8	A351-CF8M	A351-CF3M
4	Stem	A182-F304	A182-F316	A182-F316L
5	Bonnet gasket ¹⁾	Graphite+304	Graphite+316	Graphite+316L
6	Bonnet stud	A193-B8	A193-B8M	A193-B8M
7	Bonnet stud nut	A194-8	A194-8M	A194-8M
8	Packing ²⁾	Graphite		
9	Gland	A276-304	A276-316	A276-316L
10	Gland flange	A351-CF8	A351-CF8M	A351-CF8M
11	Eyebolt pin	A276-304	A276-316	A276-316
12	Eyebolt	A193-B8	A193-B8	A193-B8
13	Eyebolt nut	A194-8	A194-8	A194-8
14	Grease fitting	Carbon steel ni plated		
15	Yokesleeve	Aluminum-bronze ³⁾		
16	Yokesleeve jam nut	A276-304		
17	Handwheel	Malleable iron		
18	Handwheel nut	Carbon steel		

Note:

- 1). Seat wound construction. Teflon optional.
- 2). Teflon optional.
- 3). Ductile Ni-resist optional.
- 4). Wedge and seat(Integral with body)may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



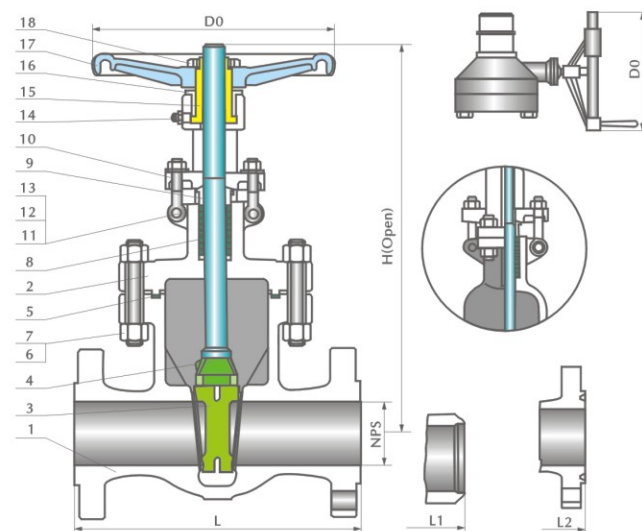
Cast Stainless Steel Gate Valve 600Lb

Applicable standards:

Steel gate valves, API 603
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 description:

Full port design
OS & Y, Outside screw and yoke
BB, Bolted bonnet
Flexible wedge, fully guided
Choice of solid or split wedge
Seat ring integral with body
Forged T-head stem
Rising stem and non-rising handwheel
Flanged or butt welding ends
Available with bg operator



Dimensions data

Size	in	11/2	2	2 1/2	3	4	6	8	10	12	14	16
	mm	40	50	65	80	100	150	200	250	300	350	400
L (RF)	in	9.50	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00
	mm	241	292	330	356	432	559	660	787	838	889	991
L1 (BW)	in	—	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12
	mm	—	295	333	359	435	562	664	791	841	892	994
H (Open)	in	9.88	16.50	18.75	20.38	25.50	33.00	40.38	48.38	57.00	62.00	70.62
	mm	251	418	476	518	646	840	1025	1230	1450	1575	1795
D0	in	8	8	10	10	12	18	20	24	24	24	24
	mm	200	200	250	250	300	450	500	600	600	600	600
WT (Kg)	BW	16.5	32	46	59	99	151	348	540	789	1103	1359
	RF/RTJ	9.5	26	37	47	74	111	275	418	647	935	1098

Fig. No:

G6F02K G6F10L G6F10N
G6B02K G6B10L G6B10N
G6R02K G6R10L G6R10N

Materials of parts

NO	Part name	ASTM Material		
		18Cr-18Ni	18Cr-9Ni-2Mo	17Cr-9Mo-2Mo
1	Body	A351-CF8	A351-CF8M	A351-CF3M
2	Bonnet	A351-CF8	A351-CF8M	A351-CF3M
3	Wedge	A351-CF8	A351-CF8M	A351-CF3M
4	Stem	A182-F304	A182-F316	A182-F316L
5	Bonnet gasket ¹⁾	Graphite+304	Graphite+316	Graphite+316L
6	Bonnet stud	A193-B8	A193-B8M	A193-B8M
7	Bonnet stud nut	A194-8	A194-8M	A194-8M
8	Packing ²⁾	Graphite		
9	Gland	A276-304	A276-316	A276-316L
10	Gland flange	A351-CF8	A351-CF8M	A351-CF8M
11	Eyebolt pin	A276-304	A276-316	A276-316
12	Eyebolt	A193-B8	A193-B8	A193-B8
13	Eyebolt nut	A194-8	A194-8	A194-8
14	Grease fitting	Carbon steel ni plated		
15	Yokesleeve	Aluminum-bronze ³⁾		
16	Yokesleeve jam nut	A276-304		
17	Handwheel	Malleable iron		
18	Handwheel nut	Carbon steel		

Note:

- 1). Seat wound construction. Teflon optional.
- 2). Teflon optional.
- 3). Ductile Ni-resist optional.
- 4). Wedge and seat(Integral with body) may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



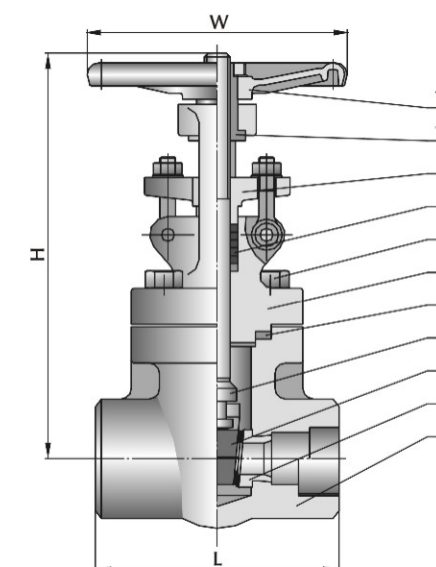
Forged Steel Gate Valve

Technical specification

Structural formation	Bolt (Weld)-jointed bonnet outside stem yoke structure
Driving manner	Hand-operated
Design standard	API602、BS5352
Thread ends	ASME B1.20.1
Socket welded ends	ASME B16.11
Test & inspection	API 598

Major parts material form

No.	Part name	Material
1	Body	ASTM A105 ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
2	Seat	ASTM A105 ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
3	Gate disc	ASTM A105 ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
4	Stem	ASTM A182Gr.F6a、ASTM A182F22 ASTM A182-F304、F316、F321、F304L、F316L
5	Gasket	Graphite & stainless steel
6	Bonnet	ASTM A105 ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
7	Bolt	ASTM A193-B7、A320-B8、F321、F304L、F316L
8	Packing	Graphite
9	Packing gland	ASTM A216-WCB ASTM A351-CF8、CF8M、CF8C、CF3、CF3M
10	Valve stem nut	Copper alloy
11	Handwheel	ASTM A47-32510



Main size of outside & weight

Model: (Hs, Ps)Z11H、(Hs, Ps)Z11Y、(Hs, Ps)Z41H、(Hs, Ps)Z41Y、(Hs, Ps)Z61H、(Hs, Ps)Z61Y

Class				800				1500			
DN				Dimensions (mm)			Weight (kg)	Dimensions (mm)			Weight (kg)
Reduced bore		Full bore		L	H①	W		L	H①	W	
mm	in	mm	in								
15	1/2	10	3/8	80	160	100	1.9	111	203	125	4.2
20	3/4	15	1/2	92	165	100	2.1	111	203	125	4.6
25	1	20	3/4	111	192	125	3.2	115	216	160	6.2
32	1 1/4	25	1	120	220	160	6.9	120	235	160	8.2
40	1 1/2	32	1 1/4	120	245	160	6.9	140	275	180	11.0
50	2	40	1 1/2	140	285	180	10.4	162	320	200	15.8
		50	2	172	392	200	15.8	180	368	250	24.5

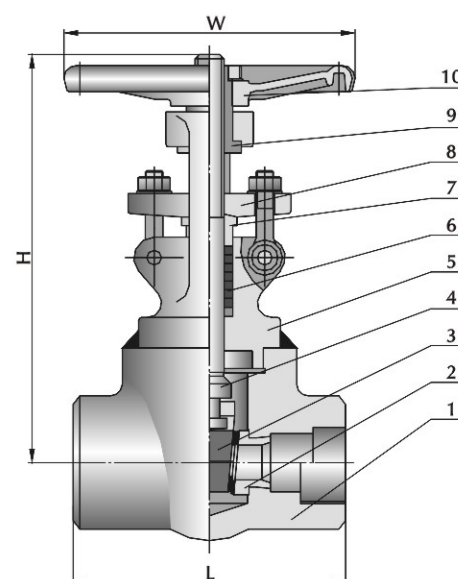
Notes: H represents the height in full opening condition of valve.

**Technical specification**

Structural formation	Weld-jointed bonnet outside stem yoke structure
Driving manner	Hand-operated
Design standard	API602、BS5352
Thread ends	ASME B1.20.1
Socket welded ends	ASME B16.11
Test & inspection	API 598

Major parts material form

No.	Part name	Material
1	Body	ASTM A105 ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
2	Seat	ASTM A105 ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
3	Wedge	ASTM A105 ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
4	Stem	ASTM A182Gr.F6a、ASTM A182F22 ASTM A182-F304、F316、F321、F304L、F316L
5	Bonnet	ASTM A105 ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
6	Packing	Graphite
7	Packing press-sleeve	ASTM A182Gr.F6a、ASTM A182F22 ASTM A182-F304、F316、F321、F304L、F316L
8	Packing gland	ASTM A216-WCB ASTM A351-CF8、CF8M、CF8C、CF3、CF3M
9	Valve stem nut	Copper alloy
10	Hand wheel	ASTM A47-32510

**Main size of outside & weight****Model: (Hs, Ps)Z11H、(Hs, Ps)Z11Y、(Hs, Ps)Z41H、(Hs, Ps)Z41Y、(Hs, Ps)Z61H、(Hs, Ps)Z61Y**

Class				2500			
DN				Dimensions (mm)			
Reduced bore		Full bore		L	H①	W	Weight (kg)
mm	in	mm	in				
15	1/2	10	3/8	111	185	125	5.2
20	3/4	15	1/2	127	215	140	5.5
25	1	20	3/4	127	245	160	7.4
32	1 1/4	25	1	127	276	160	9.5
40	1 1/2	32	1 1/4	140	276	180	9.8
50	2	40	1 1/2	210	340	200	19.5
		50	2	230	405	240	29

Notes: H represents the height in full opening condition of valve.

Design

ZBV Cast steel globe valve are designed and manufactured to provide maximum service life and dependability. All globe valves are full ported and meet the design requirements of American petroleum institute standard BS 1873, 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.

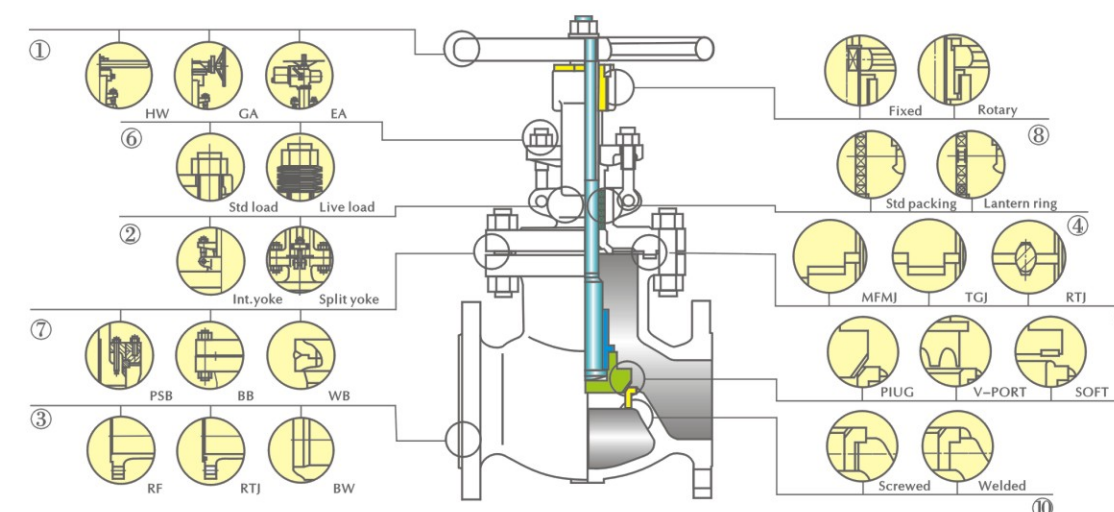
Rang of Materials

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 ZBV Cast Steel Valve

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

**① Operating**

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

② OS & Y

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

③ End connections

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

④ Lantern ring and double packing set

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

⑤ Disc

Plug disc is stem guided on all sizes. 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 TEFL ON ring is excellent for lower temperature service wheel tightshut off is required.

⑥ 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 frequent packing gland adjustments. Belleville springs are employed to provide constant packing gland stress.

⑦ BB

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

⑧ Yokesleeve

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

⑨ 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.

⑩ Seat rings

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



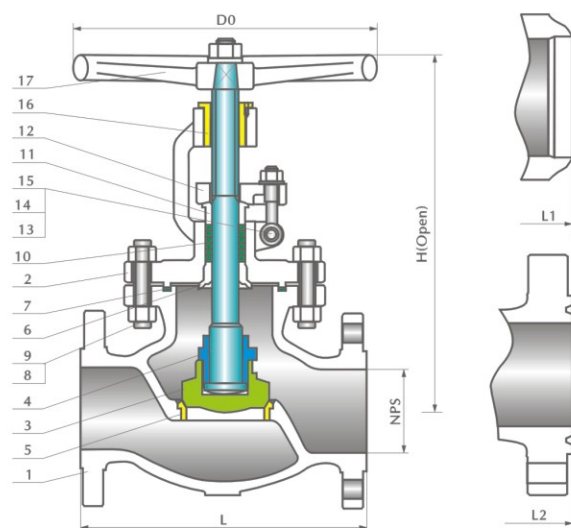
Cast Steel Globe Valve 150Lb

Applicable standards:

Steel globe valves, BS EN 13709/BS 1873
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598

Design description:

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 butt welding ends
Available with BG operator



Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16
	mm	50	65	80	100	150	200	250	300	350	400
L/L1 (RF/BW)	in	8.00	8.50	9.50	11.50	16.00	19.50	24.50	27.50	31.00	36.00
	mm	203	216	241	292	406	495	622	698	787	914
L2 (RTJ)	in	8.50	9.00	10.00	12.00	16.50	20.00	25.00	28.00	31.50	36.50
	mm	216	229	254	305	419	508	635	711	800	927
H (Open)	in	15.00	21.00	17.50	20.25	22.00	24.25	32.00	35.88	48.38	57.00
	mm	380	535	445	515	560	615	815	910	1230	1450
D0	in	7	10	11	11	13	13	16	18	20	24
	mm	180	240	280	280	320	320	400	450	500	600
WT (Kg)	RF/RTJ	18	30	41	64	86	110	280	380	510	740
	BW	14	22	33	43	72	88	245	345	450	665

Fig. No:

GL1F01A GL1F05D GL1F01B
GL1B01A GL1B05D GL1B01B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	1 1/4Cr- 1/2Mo	Carbon steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet	A216-WCB	A217-WC6	A352-LCB
3	Disc	A105+CR13	A182-11+HF	A350-LF2+CR13
4	Stem	A182-F6a	CR-MO-V	A182-F6a
5	Seat ring	A105+CR13	A182-F11+HF	A350-LF2+CR13
6	Stem backseat	A273-420	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	Yokesleeve	Aluminum-bronze ¹⁾		
17	Handwheel	Malleable iron		

Note:

- 1). A 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.



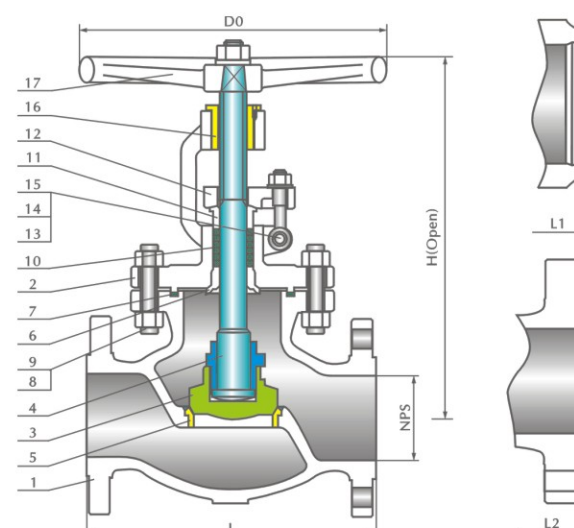
Cast Steel Globe Valve 300Lb

Applicable standards:

Steel globe valves, BS EN 13709/BS 1873
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598

Design description:

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 butt welding ends
Available with BG operator



Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16
	mm	50	65	80	100	150	200	250	300	350	400
L/L1 (RF/BW)	in	10.50	11.50	12.50	14.00	17.50	22.00	24.50	28.00	-	-
	mm	267	292	318	356	444	559	622	711	-	-
L2 (RTJ)	in	11.12	12.12	13.12	14.62	18.12	22.62	25.12	28.62	-	-
	mm	282	308	333	371	460	575	638	727	-	-
H (Open)	in	16.75	19.00	19.88	22.50	25.25	33.25	35.50	38.62	-	-
	mm	425	485	505	570	640	845	900	980	-	-
D0	in	8	10	11	13	16	18	20	24	-	-
	mm	200	240	280	320	400	450	500	600	-	-
WT (Kg)	RF/RTJ	25	32	38	56	96	150	360	550	-	-
	BW	20	22	27	41	75	117	310	492	-	-

Fig. No:

GL3F01A GL3F05D GL3F01B
GL3B01A GL3B05D GL3B01B
GL3R01A GL3R05D GL3R01B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	1 1/4Cr- 1/2Mo	Carbon steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet	A216-WCB	A217-WC6	A352-LCB
3	Disc	A105+CR13	A182-11+HF	A350-LF2+CR13
4	Stem	A182-F6a	CR-MO-V	A182-F6a
5	Seat ring	A105+CR13	A182-F11+HF	A350-LF2+CR13
6	Stem backseat	A273-420	A276-304	A276-420
7	Bonnet gasket	Spiral wound(Graphite+304)		
8	Bonnet stud	A193-B16	A193-B16	A320-L7
9	Bonnet stud nut	A194-7	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). A 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.



Cast Steel Globe Valve 600/900Lb

Applicable standards:

Steel globe valves, BS EN 13709/BS 1873
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598

Design description:

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 butt welding ends
Available with BG operator

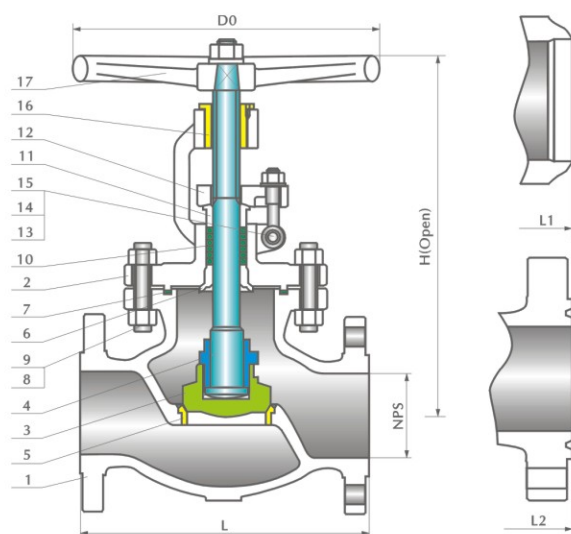


Fig. No:

GL6F01A	GL6F05D	GL6F01B	GL9F05A	GL9F05D	GL9F05B
GL6B01A	GL6B05D	GL6B01B	GL9B05A	GL9B05D	GL9B05B
GL6R01A	GL6R05D	GL6R01B	GL9R05A	GL9R05D	GL9R05B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	1 1/4Cr- 1/2Mo	Carbon steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet	A216-WCB	A217-WC6	A352-LCB
3	Disc	A105+CR13	A182-11+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	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	Yokesleeve	Aluminum-bronze ¹⁾		
17	Handwheel	Malleable iron		

Note:

- 1). A 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.

Dimensions data

ANSI Class 600Lb

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

ANSI Class 900Lb

Size	in	2	2 1/2	3	4	6	8	10	12
		50	65	80	100	150	200	250	300
L/L1 (RF/BW)	in	14.50	16.50	15.00	18.00	24.00	29.00	33.00	-
	mm	368	419	381	457	610	737	838	-
L2 (RTJ)	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	-
	mm	371	422	384	460	613	740	841	-
H (Open)	in	22.00	23.25	25.25	31.88	41.38	53.50	61.88	-
	mm	560	590	640	810	1050	1360	1570	-
D0	in	11	13	16	18	20	24	24	-
	mm	280	320	400	450	500	600	600	-
WT (Kg)	RF/RTJ	57	82	92	168	365	665	1250	-
	BW	41	53	58	117	238	538	1060	-



Cast Steel Globe Valve 1500/2500Lb

Applicable standards:

Steel globe valves, BS EN 13709/BS 1873
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598

Design description:

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 butt welding ends
Available with BG operator

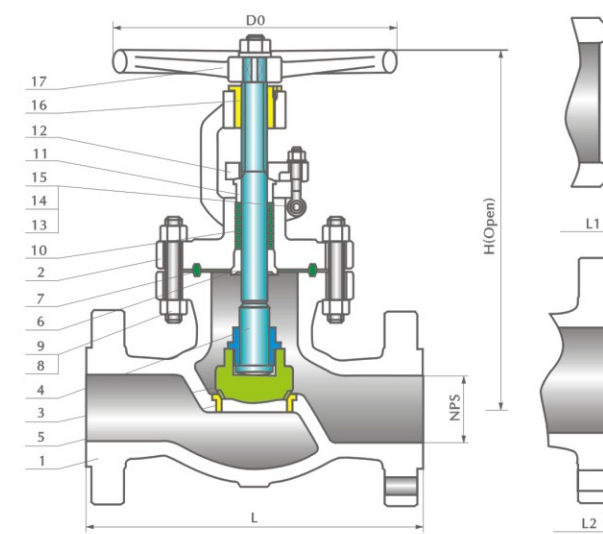


Fig. No:

GL15F05A	GL15F05D	GL15F05B	GL25F05A	GL25F05D	GL25F05B
GL15B05A	GL15B05D	GL15B05B	GL25B05A	GL25B05D	GL25B05B
GL15R05A	GL15R05D	GL15R05B	GL25R05A	GL25R05D	GL25R05B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	1 1/4Cr- 1/2Mo	Carbon steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet	A216-WCB	A217-WC6	A352-LCB
3	Disc	A105+CR13	A182-11+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	304SS 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). A 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.

Dimensions data

ANSI Class 1500Lb

Size	in	2	2 1/2	3	4	6	8
		50	65	80	100	150	200
L/L1 (RF/BW)	in	14.50	16.50	18.50	21.50	27.75	32.75
	mm	368	419	470	546	705	832
L2 (RTJ)	in	14.62	16.62	18.62	21.62	28.00	33.12
	mm	371	422	473	549	711	841
H (Open)	in	22.00	23.25	29.50	36.00	48.62	65.00
	mm	560	590	750	915	1235	1650
D0	in	13	16	18	20	24	28
	mm	320	400	450	500	600	700
WT (Kg)	RF/RTJ	68	97	116	215	445	795
	BW	57	81	95	184	347	635

ANSI Class 2500Lb

Size	in	2	2 1/2	3	4	6	8
		50	65	80	100	150	200
L/L1 (RF/BW)	in	17.75	20.00	22.75	26.50	36.00	-
	mm	451	508	578	673	914	-
L2 (RTJ)	in	17.88	20.50	23.00	26.88	36.50	-
	mm	454	514	584	683	927	-
H (Open)	in	25.50	28.12	32.50	47.00	70.50	-
	mm	650	715	825	1195	1790	-
D0	in	16	18	20	24	28	-
	mm	400	450	500	600	700	-
WT (Kg)	RF/RTJ	97	138	167	305	633	-
	BW	72	95	108	196	351	-



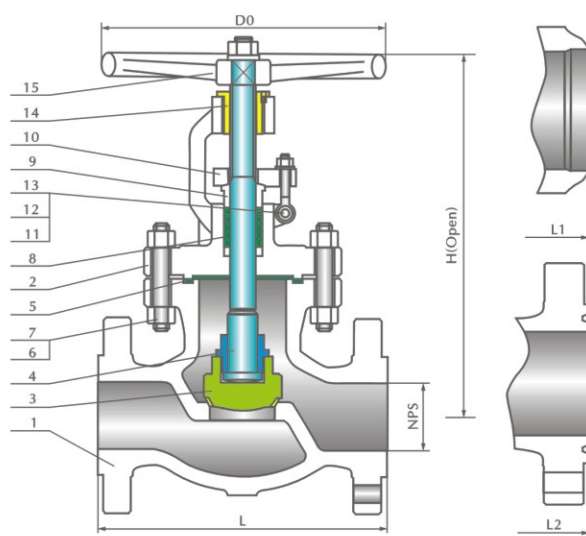
Cast Stainless Steel Globe Valve 150Lb

Applicable standards:

Steel globe valves BS EN 13709/BS 1873
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 description:

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
Seat rings integral with body
Impact handwheel for 10" & above
Horizontal service
Flanged or butt welding ends
Available with bg operator



Dimensions data

Size	in	11/2	2	21/2	3	4	6	8	10	12	14	16
	mm	40	50	65	80	100	150	200	250	300	350	400
L/L1 (RF/BW)	in	6.50	8.00	8.50	9.50	11.50	16.00	19.50	24.50	27.50	31.00	36.00
	mm	165	203	216	241	292	406	495	622	698	787	914
L2 (RTJ)	in	—	8.50	9.00	10.00	12.00	16.50	20.00	25.00	28.00	31.50	36.50
	mm	—	216	229	254	305	419	508	635	711	800	927
H (Open)	in	9.25	15.00	21.00	17.50	20.25	22.00	24.25	32.00	35.88	48.38	57.00
	mm	235	380	535	445	515	560	615	815	910	1230	1450
D0	in	6	7	10	11	11	13	13	16	18	20	24
	mm	140	180	240	280	280	320	320	400	450	500	600
WT (Kg)	BW	11	18	30	41	64	86	110	280	380	510	740
	RF/RTJ	8	14	22	33	43	72	88	245	345	450	665

Fig. No:

GL1F02K GL1F10L GL1F10N
GL1B02K GL1B10L GL1B10N

Materials of parts

NO	Part name	ASTM Material		
		18Cr-18Ni	18Cr-9Ni-2Mo	17Cr-9Mo-2Mo
1	Body	A351-CF8	A351-CF8M	A351-CF3M
2	Bonnet	A351-CF8	A351-CF8M	A351-CF3M
3	Disc	A351-CF8	A351-CF8M	A351-CF3M
4	Stem	A182-F304	A182-F316	A182-F316L
5	Bonnet gasket ¹⁾	Graphite+304	Graphite+316	Graphite+316L
6	Bonnet stud	A193-B8	A193-B8M	A193-B8M
7	Bonnet stud nut	A194-8	A194-8M	A194-8M
8	Packing ²⁾		Graphite	
9	Gland	A276-304	A276-316	A276-316L
10	Gland flange	A351-CF8	A351-CF8M	A351-CF8M
11	Eyebolt pin	A276-304	A276-316	A276-316
12	Eyebolt	A193-B8	A193-B8	A193-B8
13	Eyebolt nut	A194-8	A194-8	A194-8
14	Yokesleeve	Aluminum-bronze ³⁾		
15	Handwheel	Malleable iron		

Note:

- 1). Seat wound construction. Teflon optional.
- 2). Teflon optional.
- 3). Ductile Ni-resist optional.
- 4). Disc and seat(Integral with body)may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



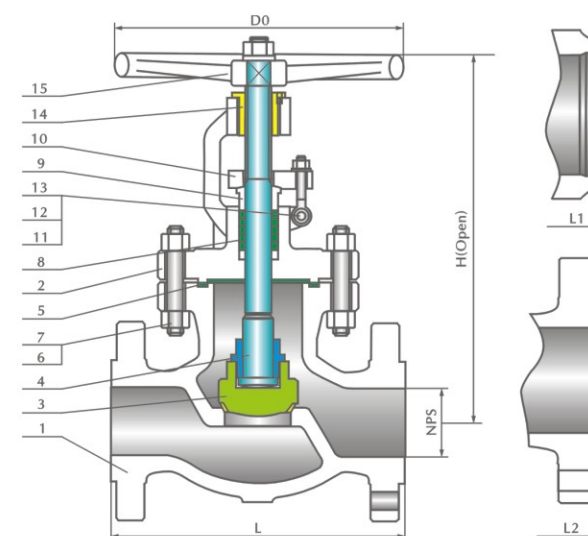
Cast Stainless Steel Globe Valve 300Lb

Applicable standards:

Steel globe valves, BS 1873
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 description:

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
Seat rings integral with body
Impact handwheel for 10" & above
Horizontal service
Flanged or butt welding ends
Available with bg operator



Dimensions data

Size	in	11/2	2	21/2	3	4	6	8	10	12	14	16
	mm	40	50	65	80	100	150	200	250	300	350	400
L/L1 (RF/BW)	in	9.00	10.50	11.50	12.50	14.00	17.50	22.00	24.50	28.00	—	—
	mm	229	267	292	318	356	444	559	622	711	—	—
L2 (RTJ)	in	—	11.12	12.12	13.12	14.62	18.12	22.62	25.12	28.62	—	—
	mm	—	282	308	333	371	460	575	638	727	—	—
H (Open)	in	9.25	16.75	19.00	19.88	22.50	25.25	33.25	35.50	38.62	—	—
	mm	235	425	485	505	570	640	845	900	980	—	—
D0	in	6	8	10	11	13	16	18	20	24	—	—
	mm	140	200	240	280	320	400	450	500	600	—	—
WT (Kg)	BW	15	25	32	38	56	96	150	360	550	—	—
	RF/RTJ	12	20	22	27	41	75	117	310	492	—	—

Fig. No:

GL3F02K GL3F10L GL3F10N
GL3B02K GL3B10L GL3B10N
GL3R02K GL3R10L GL3R10N

Materials of parts

NO	Part name	ASTM Material		
		18Cr-18Ni	18Cr-9Ni-2Mo	17Cr-9Mo-2Mo
1	Body	A351-CF8	A351-CF8M	A351-CF3M
2	Bonnet	A351-CF8	A351-CF8M	A351-CF3M
3	Disc	A351-CF8	A351-CF8M	A351-CF3M
4	Stem	A182-F304	A182-F316	A182-F316L
5	Bonnet gasket ¹⁾	Graphite+304	Graphite+316	Graphite+316L
6	Bonnet stud	A193-B8	A193-B8M	A193-B8M
7	Bonnet stud nut	A194-8	A194-8M	A194-8M
8	Packing ²⁾		Graphite	
9	Gland	A276-304	A276-316	A276-316L
10	Gland flange	A351-CF8	A351-CF8M	A351-CF8M
11	Eyebolt pin	A276-304	A276-316	A276-316
12	Eyebolt	A193-B8	A193-B8	A193-B8
13	Eyebolt nut	A194-8	A194-8	A194-8
14	Yokesleeve	Aluminum-bronze ³⁾		
15	Handwheel	Malleable iron		

Note:

- 1). Seat wound construction. Teflon optional.
- 2). Teflon optional.
- 3). Ductile Ni-resist optional.
- 4). Disc and seat(Integral with body)may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



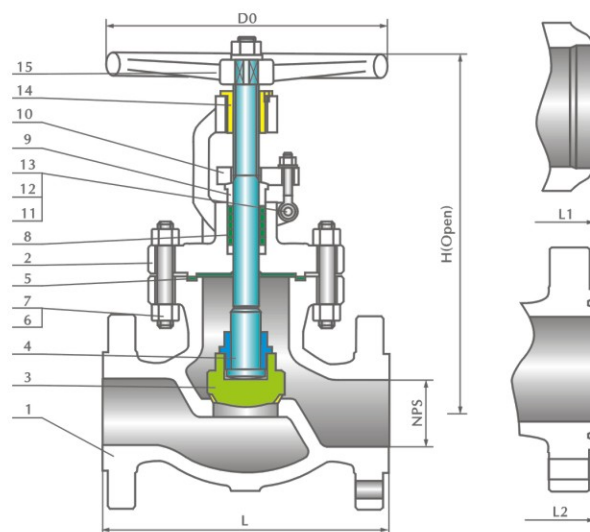
Cast Stainless Steel Globe Valve 600Lb

Applicable standards:

Steel globe valves, BS 1873
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 description:

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
Seat rings integral with body
Impact handwheel for 10" & above
Horizontal service
Flanged or butt welding ends
Available with bg operator



Dimensions data

Size	in	11/2	2	2 1/2	3	4	6	8	10	12	14	16
	mm	40	50	65	80	100	150	200	250	300	350	400
L/L1 (RF/BW)	in	9.50	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	-	-
	mm	241	292	330	356	432	559	660	787	838	-	-
L2 (RTJ)	in	-	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.13	-	-
	mm	-	295	333	359	435	562	663	790	841	-	-
H (Open)	in	11.00	17.50	19.75	21.00	24.50	29.50	36.50	44.88	53.12	-	-
	mm	280	445	502	533	622	750	927	1140	1350	-	-
D0	in	8	10	11	13	16	18	20	24	24	-	-
	mm	200	240	280	320	400	450	500	600	600	-	-
WT (Kg)	BW	23	35	50	60	110	230	410	770	1140	-	-
	RF/RTJ	16.5	27	34	42	84	192	350	680	1030	-	-

Fig. No:

GL6F05K GL6F12L GL6F12N
GL6B05K GL6B12L GL6B12N
GL6R05K GL6R12L GL6R12N

Materials of parts

NO	Part name	ASTM Material		
		18Cr-18Ni	18Cr-9Ni-2Mo	17Cr-9Mo-2Mo
1	Body	A351-CF8	A351-CF8M	A351-CF3M
2	Bonnet	A351-CF8	A351-CF8M	A351-CF3M
3	Disc	A351-CF8	A351-CF8M	A351-CF3M
4	Stem	A182-F304	A182-F316	A182-F316L
5	Bonnet gasket ¹⁾	Graphite+304	Graphite+316	Graphite+316L
6	Bonnet stud	A193-B8	A193-B8M	A193-B8M
7	Bonnet stud nut	A194-8	A194-8M	A194-8M
8	Packing ²⁾	Graphite		
9	Gland	A276-304	A276-316	A276-316L
10	Gland flange	A351-CF8	A351-CF8M	A351-CF3M
11	Eyebolt pin	A276-304	A276-316	A276-316
12	Eyebolt	A193-B8	A193-B8	A193-B8
13	Eyebolt nut	A194-8	A194-8	A194-8
14	Yokesleeve	Aluminum-bronze ³⁾		
15	Handwheel	Malleable iron		

Note:

- 1). Seat wound construction. Teflon optional.
- 2). Teflon optional.
- 3). Ductile Ni-resist optional.
- 4). Disc and seat(Integral with body)may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



Forged Steel Globe Valve

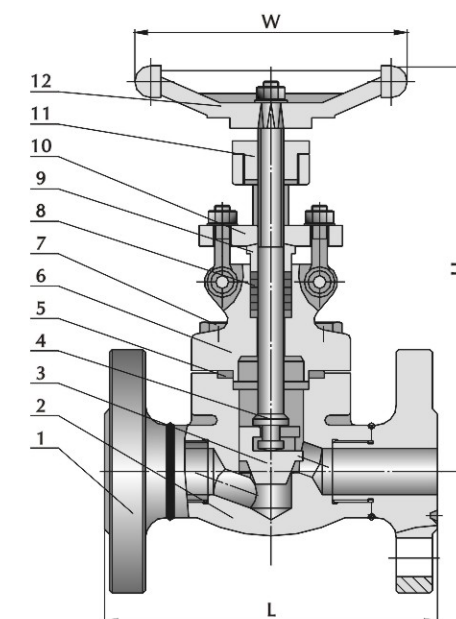
Technical specification

Structural formation	Bolt-jointed bonnet outside stem yoke structure(Pressure sealed)
Driving manner	Hand-operated
Design standard	ASME B16.34、BS 5352
Face to face	ASME B16.10
Flanged ends	ASME B16.5
Test & inspection	API 598

Notes: The sizes of valve connecting flange and butt-welding terminas can be designed according to customer's requirement.

Major parts material form

No.	Part name	Material
1	Flange	ASTM A105, ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
2	Body	ASTM A105, ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
3	Disc	ASTM A105, ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
4	Stem	ASTM A182 Gr.F6a、ASTM A182 F22 ASTM A182-F304、F316、F321、F304L、F316L
5	Gasket	Graphite & stainless steel
6	Bonnet	ASTM A105, ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
7	Bolt	ASTM A193-B7、A320-B8、A193-B8M
8	Packing	Graphite
9	Stuffing cover	ASTM A105, ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
10	Gland	ASTM A216-WCB ASTM A351-CF8、CF8M、CF8C、CF3、CF3M
11	Valve stem nut	Copper alloy
12	Handwheel	ASTM A47-32510



Main size of outside & weight

Model: (Hs、Ps)J11H、(Hs、Ps)J11Y、(Hs、Ps)J41H、(Hs、Ps)J41Y、(Hs、Ps)J61H、(Hs、Ps)J61Y

Class		150					300					600				
DN (mm)	NPS (in)	Dimensions(mm)				Weight (kg)	Dimensions(mm)				Weight (kg)	Dimensions(mm)				Weight (kg)
		L(RF)	L(RTJ)	H ^①	W		L(RF)	L(RTJ)	H ^①	W		L(RF)	L(RTJ)	H ^①	W	
15	1/2	108	119	170	100	3.5	152	163	170	100	4.2	165	163.5	170	100	5.5
20	3/4	117	130	170	100	4.8	178	191	170	100	5.3	190	190	170	100	7.0
25	1	127	140	205	125	6.5	203	216	205	125	7.5	216	216	205	125	9.7
32	1 1/4	140	153	225	160	9.8	216	229	225	160	11.3	229	229	225	160	12.5
40	1 1/2	165	178	254	160	12	229	241	254	160	16.5	241	241	254	160	18.4
50	2	203	216	292	180	15	267	282	292	180	18.2	292	295	292	180	20

Notes: H represents the height in full opening condition of valve.



Forged Steel Globe Valve

Technical specification

Structural formation	Bolt-jointed bonnet outside stem yoke structure(Pressure sealed)
Driving manner	Hand-operated
Design standard	ASME B16.34、BS 5352
Thread ends	ASME B1.20.1
Socket welded ends	ASME B16.11
Test & inspection	API 598

Notes: The sizes of valve connecting flange and butt-welding terminas can be designed according to customer's requirement.

Major parts material form

No.	Part name	Material
1	Body	ASTM A105, ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
2	Disc	ASTM A105, ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
3	Stem	ASTM A182 Gr.F6a、ASTM A182 F22 ASTM A182-F304、F316、F321、F304L、F316L
4	Gasket	Graphite & stainless steel
5	Bonnet	ASTM A105, ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
6	Bolt	ASTM A193-B7、A320-B8、A193-B8M
7	Packing	Graphite
8	Stuffing cover	ASTM A105, ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
9	Gland	ASTM A216-WCB ASTM A351-CF8、CF8M、CF8C、CF3、CF3M
10	Valve stem nut	Copper alloy
11	Handwheel	ASTM A47-32510

Main size of outside & weight

Model: (Hs, Ps)J11H、(Hs, Ps)J11Y、(Hs, Ps)J41H、(Hs, Ps)J41Y、(Hs, Ps)J61H、(Hs, Ps)J61Y

Class				900				1500			
DN				Dimensions (mm)			Weight (kg)	Dimensions (mm)			Weight (kg)
Reduced bore		Full bore		L	H ^①	W		L	H ^①	W	
mm	in	mm	in								
15	1/2	10	3/8	80	170	100	1.9	111	205	125	4.5
20	3/4	15	1/2	92	170	100	2.1	111	205	125	4.3
25	1	20	3/4	111	205	125	3.2	130	240	160	6.8
32	1 1/4	25	1	120	225	160	6.9	150	258	160	8.5
40	1 1/2	32	1 1/4	120	254	160	6.9	172	290	160	12.6
50	2	40	1 1/2	140	292	180	10.4	220	336	180	19.2
		50	2	178	330	240	15.8	230	428	234	30

Notes: H represents the height in full opening condition of valve.



Forged Steel Globe Valve

Technical specification

Structural formation	Bolt-jointed bonnet outside stem yoke structure(Pressure sealed)
Driving manner	Hand-operated
Design standard	ASME B16.34、BS 5352
Thread ends	ASME B1.20.1
Socket welded ends	ASME B16.11
Test & inspection	API 598

Notes: The sizes of valve connecting flange and butt-welding terminals can be designed according to customer's requirement.

Major parts material form

No.	Part name	Material
1	Body	ASTM A105, ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
2	Disc	ASTM A105, ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
3	Stem	ASTM A182 Gr.F6a、ASTM A182 F22 ASTM A182-F304、F316、F321、F304L、F316L
4	Bonnet	ASTM A105, ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
5	Packing	Graphite
6	Packing press-sleeve	ASTM A105, ASTM A182-F11、F22、F5、F9 ASTM A182-F304、F316、F321、F304L、F316L
7	Packing gland	ASTM A216-WCB ASTM A351-CF8M、CF8C、CF3、CF3M
8	Valve stem nut	Copper alloy
9	Handwheel	ASTM A47-32510

Main size of outside & weight

Model: (Hs, Ps)J11H、(Hs, Ps)J11Y、(Hs, Ps)J41H、(Hs, Ps)J41Y、(Hs, Ps)J61H、(Hs, Ps)J61Y

Class	DN(mm)		NPS(in)		Dimensions(mm)			Weight (kg)
	Reduced bore	Full bore	Reduced bore	Full bore	L	H ^①	W	
2500	15	10	1/2	3/8	111	190	125	4.5
	20	15	3/4	1/2	127	225	140	5.5
	25	20	1	3/4	127	246	160	8.0
	32	25	1 1/4	1	180	287	160	13.2
	40	32	1 1/2	1 1/4	180	290	180	12.8
	50	40	2	1 1/2	210	362	200	19.8
		50		2	230	420	240	30

Notes: H represents the height in full opening condition of valve.



Swing Check Valve, BB, CS



Cast Steel Swing Check Valve 150Lb

Design

ZBV Cast Steel check valve are designed and manufactured to provide maximum service life and dependability. All check valves meet the design requirements of American petroleum institute standard API 600 & API 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.

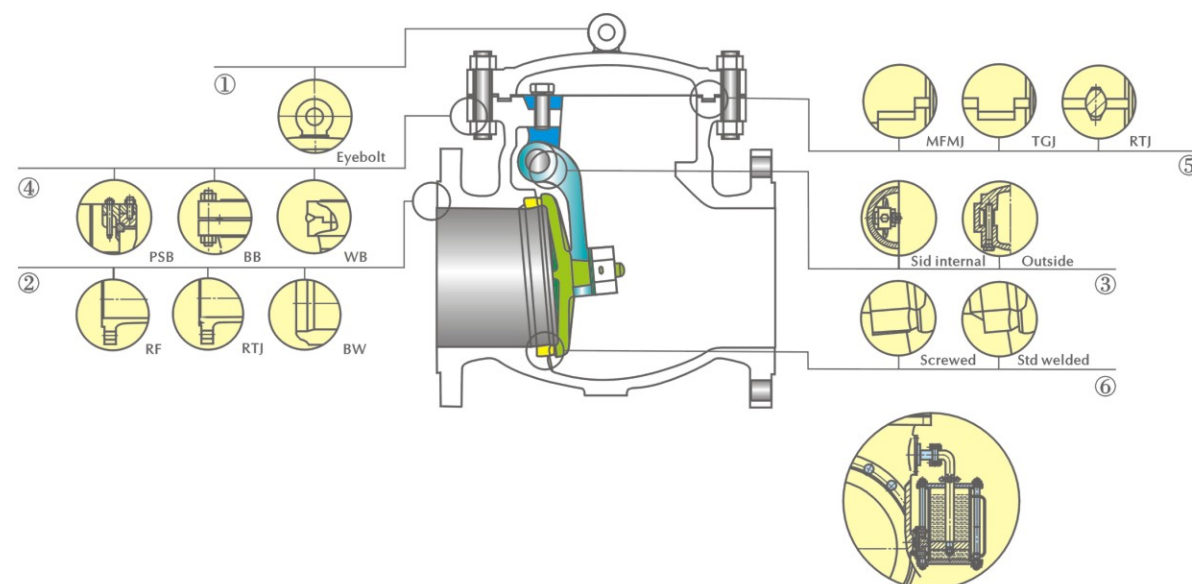
Rang of Materials

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 ZBV Cast Steel Valve

Trim changes
End connection modifications
Gasket changes
Outside lever and weight
Slam retarders

Pressure equalizing
Outside lever and weight
Customer specified coatings
Weld end bore changes
Oxygen & chlorine cleaning & packaging



① Eyebolt

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

② End connections

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

③ 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

④ BB

Bolted bonnet. Welding bonnet and pressure seal bonnet in services requiring frequent cycling or with high pressure / tempe-rature variations.

⑤ 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.

⑥ Seat rings

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

⑦ HCU Weighted mechanical accumulator

This design can be used to either dampen or assist closing of the check valve 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 B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

BB, Bolted bonnet, cap
Swing type, Anti-rotation disc
Renewable seat rings
Non-penetrating disc shaft
Horizontal or vertical service
Flanged or butt welding ends

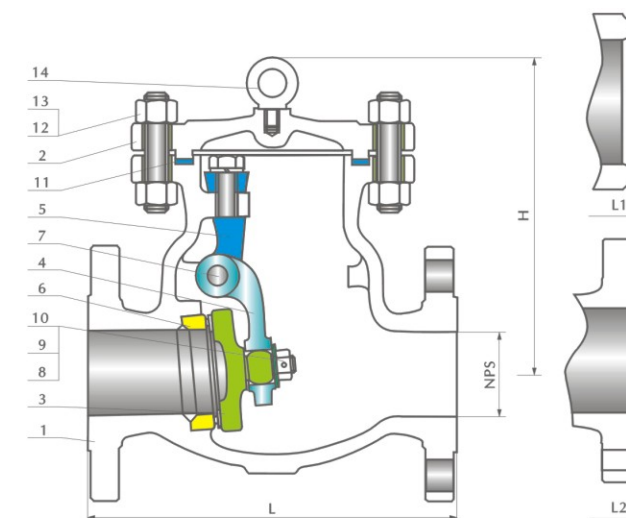


Fig. No:

C1F01A C1F05D C1F01B
C1B01A C1B05D C1B01B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	1 1/4Cr- 1/2Mo	Carbon steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet cap	A216-WCB	A217-WC6	A352-LCB
3	Disc ¹⁾	A105+CR13	A182-F11+HF	A350-LF+CR13
4	Hinge	A216-WCB	A217-WC6	A352-LCB
5	Support	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	Bonnet gasket	Spiral wound (Graphite+304)		
12	Bonnet stud	A193-B7	A193-B16	A320-L7
13	Bonnet 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" & Large;
- 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.

Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	36
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	900
L/L1 (RF/BW)	in	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
	mm	203	216	241	292	356	495	622	699	787	864	978	978	1295	1295	1448	1524	1956
L2 (RTJ)	in	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	-	-	-	-
	mm	216	229	254	305	368	508	635	711	800	876	991	991	1308	-	-	-	-
H	in	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
	mm	152	165	175	204	293	353	390	432	475	525	582	627	883	910	940	980	1220
WT (Kg)	RF/RTJ	14	20	25	40	71	118	177	263	353	542	632	855	970	1275	1600	1990	2760
	BW	10	12	17	29	57	96	143	227	295	468	552	755	831	1120	1420	1760	2230



Cast Steel Swing Check Valve 300Lb

Applicable standards:

Steel check valves, API 6D
Steel check valves, ISO 14313
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

BB, Bolted bonnet, cap
Swing type, Anti-rotation disc
Renewable seat rings
Non-penetrate disc shaft
Horizontal or vertical service
Flanged or butt welding ends

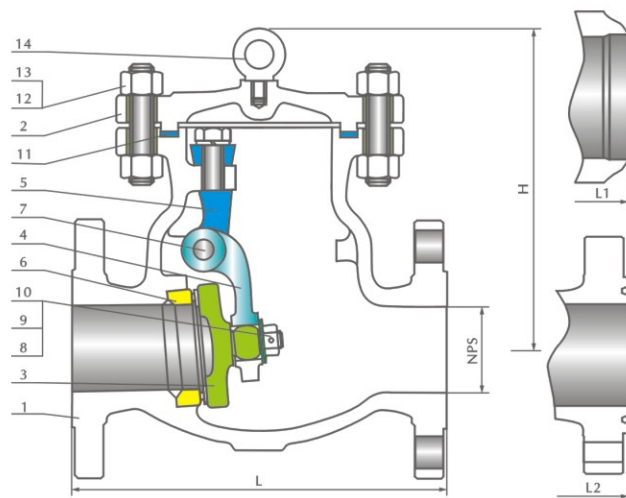


Fig. No:

C3F01A C3F05D C3F01B
C3B01A C3B05D C3B01B
C3R01A C3R05D C3R01B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	1 1/4Cr- 1/2Mo	Carbon steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet cap	A216-WCB	A217-WC6	A352-LCB
3	Disc ¹⁾	A105+CR13	A182-F11+HF	A350-LF+CR13
4	Hinge	A216-WCB	A217-WC6	A352-LCB
5	Support	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	Bonnet gasket	Spiral wound (Graphite+304)		
12	Bonnet stud	A193-B7	A193-B16	A320-L7
13	Bonnet 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" & Large;
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.

Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	36
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	900
L/L1 (RF/BW)	in	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
	mm	267	292	318	356	445	533	622	711	838	864	978	1016	1346	1346	1490	1594	2083
L2 (RTJ)	in	11.12	12.12	13.12	14.62	18.12	21.62	25.12	28.62	33.62	34.62	39.12	10.75	53.88	54.00	60.00	63.75	-
	mm	283	308	333	371	460	549	638	727	854	879	994	1035	1368	1372	1524	1619	-
H	in	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
	mm	152	165	175	204	292	353	390	432	475	525	582	627	883	910	940	980	1220
WT (Kg)	RF/RTJ	16	23	29	46	82	136	204	302	405	625	730	985	1115	1465	1840	2290	3180
	BW	11	12	18	31	61	103	155	245	315	503	593	512	895	1205	1525	1895	2395



Cast Steel Swing Check Valve 600Lb

Applicable standards:

Steel check valves, API 6D
Steel check valves, ISO 14313
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

BB, Bolted bonnet, cap
Swing type, Anti-rotation disc
Renewable seat rings
Non-penetrate disc shaft
Horizontal or vertical service
Flanged or butt welding ends

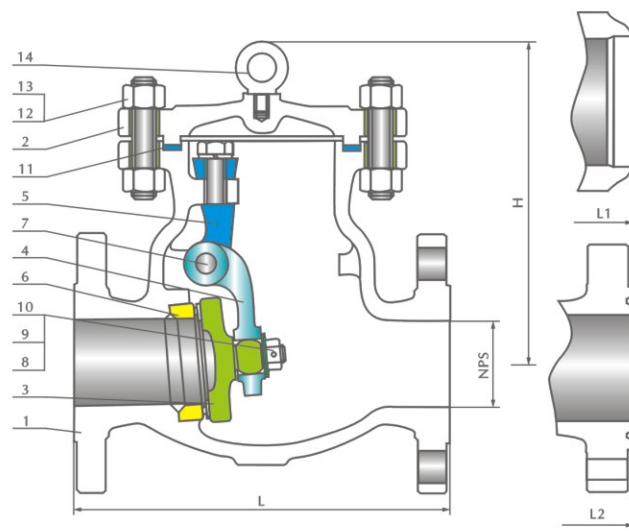


Fig. No:

C6F01A C6F05D C6F01B
C6B01A C6B05D C6B01B
C6R01A C6R05D C6R01B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	1 1/4Cr- 1/2Mo	Carbon steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet cap	A216-WCB	A217-WC6	A352-LCB
3	Disc ¹⁾	A216-WCB+CR13	A217-WC6+HF	A352-LCB+CR13
4	Hinge	A216-WCB	A217-WC6	A352-LCB
5	Support	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	Bonnet gasket	Spiral wound (Graphite+304)		
12	Bonnet stud	A193-B7	A193-B16	A320-L7
13	Bonnet stud nut	A194-2H	A194-7	A194-4
14	Eyebolt ¹⁾	Carbon steel		

Note:

- 1). NPS 6" & Large;
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.

Dimensions data

Size	in	11/2	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26
	mm	40	50	65	80	100	150	200	250	300	350	40	450	500	600	650
L/L1 (RF/BW)	in	9.50	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	-
	mm	241	292	330	356	432	559	660	787	838	889	991	1092	1194	1397	-
L2 (RTJ)	in	-	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38	-
	mm	-	295	333	359	435	562	664	791	841	892	994	1095	1200	1407	-
H (Open)	in	5.50	7.50	8.00	8.75	10.00	14.50	17.50	19.25	21.38	23.38	25.75	28.75	31.00	43.50	-
	mm	140	190	205	222	255	368	445	490	540	595	655	730	785	1105	-
WT (Kg)	BW	18	24	35	44	70	125	207	310	460	615	945	1105	1495	1695	-
	RF/RTJ	12.5	16	19	26	44	87	147	220	350	452	720	845	1160	1280	-



Cast Steel Swing Check Valve 900Lb

Applicable standards:

Steel check valves, API 6D
Steel check valves, ISO 14313
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

BB, Bolted bonnet, cap
Swing type, Anti-rotation disc
Renewable seat rings
Non-penetrate disc shaft
Horizontal or vertical service
Flanged or butt welding ends

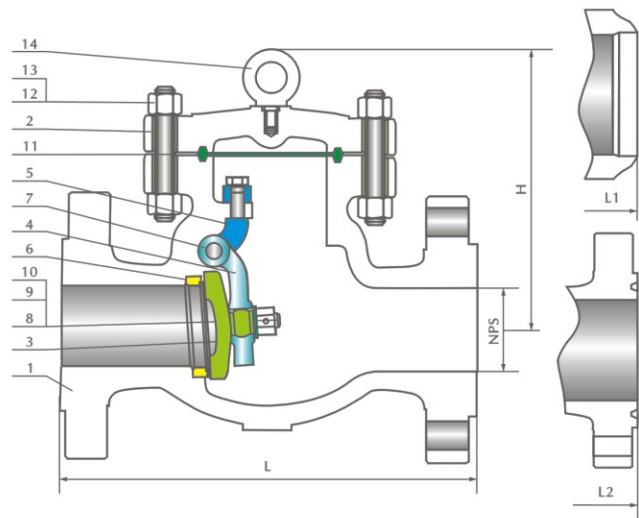


Fig. No:

C9F01A C9F05D C9F01B
C9B01A C9B05D C9B01B
C9R01A C9R05D C9R01B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	1 1/4Cr- 1/2Mo	Carbon steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet cap	A216-WCB	A217-WC6	A352-LCB
3	Disc ¹⁾	A216-WCB+Cr13	A217-WC6+HF	A352-LCB+CR13
4	Hinge	A216-WCB	A217-WC6	A352-LCB
5	Support	A216-WCB	A217-WC6	A352-LCB
6	Seat ring	A105+HF	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	Bonnet gasket	Steel ring	304SS Ring	Steel ring
12	Bonnet stud	A193-B7	A193-B16	A320-L7
13	Bonnet stud nut	A194-2H	A194-7	A194-4
14	Eyebolt ¹⁾	Carbon steel		

Note:

- 1). NPS 6" & Large;
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.

Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L/L1 (RF/BW)	in	14.5	16.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	-
	mm	368	419	381	457	610	737	838	965	1029	1130	1219	1321	-
L2 (RTJ)	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	40.88	44.88	48.50	52.50	-
	mm	371	422	384	460	613	740	841	968	1038	1140	1232	1334	-
H	in	9.50	10.00	11.00	12.50	18.12	22.00	24.00	26.50	29.38	32.00	33.50	38.75	-
	mm	240	256	278	320	460	560	610	675	745	815	850	985	-
WT (Kg)	RF/RTJ	37	54	68	109	195	321	481	711	956	1468	1870	2316	-
	BW	21	25	34	58	115	194	290	461	597	950	1210	1533	-



Cast Steel Swing Check Valve 1500Lb

Applicable standards:

Steel check valves, API 6D
Steel check valves, ISO 14313
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

BB, Bolted bonnet, cap
Swing type, Anti-rotation disc
Renewable seat rings
Non-penetrate disc shaft
Horizontal or vertical service
Flanged or butt welding ends

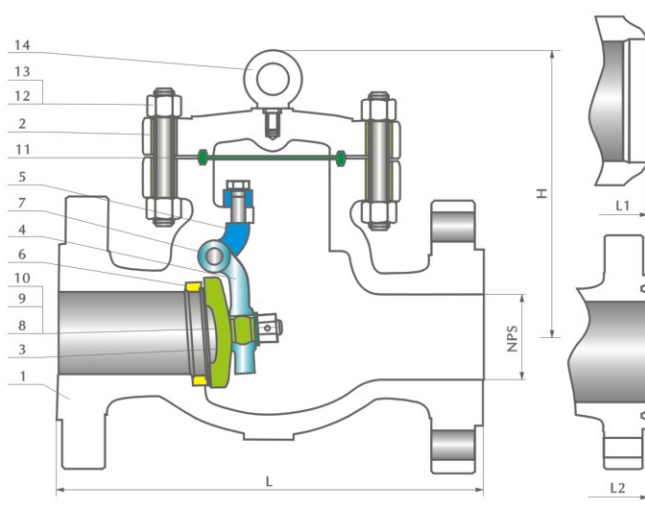


Fig. No:

C15F01A C15F05D C15F01B
C15B01A C15B05D C15B01B
C15R01A C15R05D C15R01B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	1 1/4Cr- 1/2Mo	Carbon steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet cap	A216-WCB	A217-WC6	A352-LCB
3	Disc ¹⁾	A216-WCB+CR13	A217-WC6+HF	A352-LCB+CR13
4	Hinge	A216-WCB	A217-WC6	A352-LCB
5	Support	A216-WCB	A217-WC6	A352-LCB
6	Seat ring	A105+HF	A182-F11+HF	A350-LF2+HF
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	Bonnet gasket	Steel ring	304SS Ring	Steel ring
12	Bonnet stud	A193-B7	A193-B16	A320-L7
13	Bonnet stud nut	A194-2H	A194-7	A194-4
14	Eyebolt ¹⁾	Carbon steel		

Note:

- 1). NPS 6" & Large;
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.

Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16
	mm	50	65	80	100	150	200	250	300	350	400
L/L1 (RF/BW)	in	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50
	mm	368	419	470	546	705	832	991	1130	1257	1384
L2 (RTJ)	in	14.62	16.62	18.62	21.62	28.00	33.12	39.38	45.12	50.25	55.38
	mm	371	422	473	549	711	841	1000	1146	1276	1407
H	in	9.50	10.00	13.00	14.75	18.88	23.50	26.00	29.12	30.88	32.88
	mm	240	256	330	375	480	595	660	740	785	835
WT (Kg)	RF/RTJ	40	63	70	115	250	470	740	1100	1410	1600
	BW	29	47	49	84	152	310	470	710	910	1100



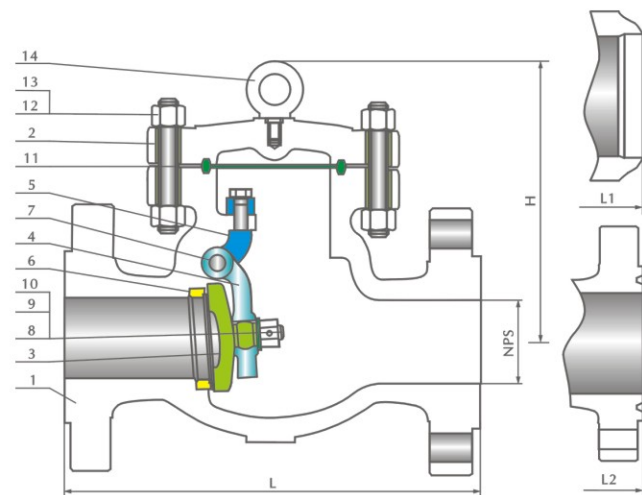
Cast Steel Swing Check Valve 2500Lb

Applicable standards:

Steel check valves, API 6D
Steel check valves, ISO 14313
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

BB, Bolted bonnet, cap
Swing type, Anti-rotation disc
Renewable seat rings
Non-penetrate disc shaft
Horizontal or vertical service
Flanged or butt welding ends



Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16
	mm	50	65	80	100	150	200	250	300	350	400
L/L1 (RF/BW)	in	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00	—	—
	mm	451	508	578	673	914	1022	1270	1422	—	—
L2 (RTJ)	in	17.88	20.25	23.00	26.88	36.50	40.88	50.88	56.88	—	—
	mm	454	514	584	683	927	1038	1292	1445	—	—
H	in	10.75	13.25	13.75	15.12	19.50	24.62	28.00	35.62	—	—
	mm	275	335	350	385	495	625	712	905	—	—
WT (Kg)	RF/RTJ	50	76	85	165	460	900	1300	1800	—	—
	BW	35	55	68	115	225	580	860	1150	—	—

Fig. No:

C25F01A C25F05D C25F01B
C25B01A C25B05D C25B01B
C25R01A C25R05D C25R01B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	1 1/4Cr- 1/2Mo	Carbon steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet cap	A216-WCB	A217-WC6	A352-LCB
3	Disc ¹⁾	A216-WCB+CR13	A217-WC6+HF	A352-LCB+CR13
4	Hinge	A216-WCB	A217-WC6	A352-LCB
5	Support	A216-WCB	A217-WC6	A352-LCB
6	Seat ring	A105+HF	A182-F11+HF	A350-LF2+HF
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	Bonnet gasket	Steel ring	304SS Ring	Steel ring
12	Bonnet stud	A193-B7	A193-B16	A320-L7
13	Bonnet stud nut	A194-2H	A194-7	A194-4
14	Eyebolt ¹⁾		Carbon steel	

Note:

- 1). NPS 6" & Large;
- 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.



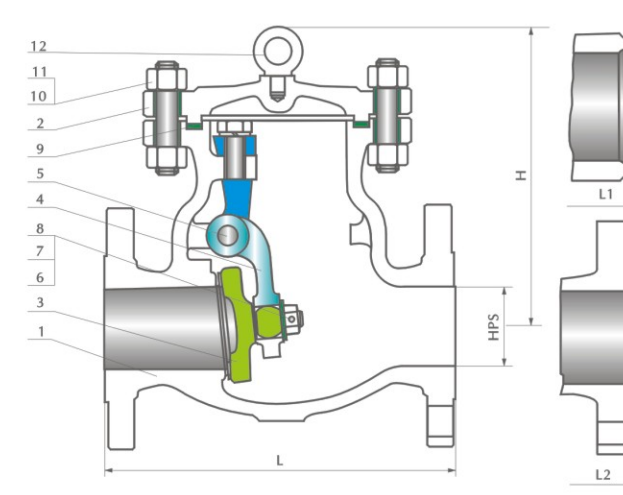
Cast Stainless Steel Swing Check Valve 150Lb

Applicable standards:

Steel check valves, API 6D
Steel check valves, ISO 14313
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

BB, Bolted bonnet cap
Swing type, anti-rotation disc
Seat rings integral with body
Non-penetrate disc shaft
Horizontal or vertical service
Flanged or butt welding ends



Dimensions data

Size	in	11/2	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26
	mm	40	50	65	80	100	150	200	250	300	350	40	450	500	600	650
L/L1 (RF/BW)	in	6.50	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	—
	mm	165	203	216	241	292	356	495	622	699	787	864	978	978	1295	—
L2 (RTJ)	in	—	8.50	9.00	10.00	12.00	14.50	20.00	25.00	28.00	31.50	34.50	39.00	39.00	21.50	—
	mm	—	216	229	254	305	368	508	635	711	800	876	991	991	1308	—
H (Open)	in	4.38	6.00	6.50	6.88	8.00	11.50	13.88	15.38	17.00	18.75	20.62	22.88	24.62	24.75	—
	mm	110	152	165	175	204	293	353	390	432	475	525	582	627	883	—
WT (Kg)	BW	7.5	14	20	25	40	71	118	177	263	353	542	632	855	970	—
	RF/RTJ	5.5	10	12	17	29	57	96	143	227	295	468	552	755	831	—

Fig. No:

C1F02K C1F010L C1F10N
C1B02K C1B010L C1B10N

Materials of parts

NO	Part name	ASTM Material		
		18Cr-18Ni	18Cr-9Ni-2Mo	17Cr-9Ni-2Mo
1	Body	A351-CF8	A351-CF8M	A351-CF3M
2	Bonnet cap	A351-CF8	A351-CF8M	A351-CF3M
3	Disc	A351-CF8	A351-CF8M	A351-CF3M
4	Hinge	A351-CF8	A351-CF8M	A351-CF3M
5	Hinge pin	A276-304	A276-316	A276-316L
6	Disc washer	A276-304	A276-316	A276-316L
7	Disc nut	A193-B8	A193-B8M	A193-B8M
8	Disc nut pin	A276-304	A276-316	A276-316L
9	Bonnet gasket ¹⁾	Graphite+304	Graphite+316	Graphite+316L
10	Bonnet stud	A193-B8	A193-B8M	A193-B8M
11	Bonnet stud nut	A194-8	A194-8M	A194-8M
12	Eyebolt ²⁾	A194-8	A194-8	A194-8

Note:

- 1). Spiral wound construction, teflon optional.
- 2). NPS 6" & Larger.
- 3). Disc and seat (Integral with body) may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.



Cast Stainless Steel Swing Check Valve 300Lb

Applicable standards:

Steel check valves, API 6D
Steel check valves, ISO 14313
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

BB, Bolted bonnet cap
Swing type, anti-rotation disc
Seat rings integral with body
Non-penetrates disc shaft
Horizontal or vertical service
Flanged or butt welding ends

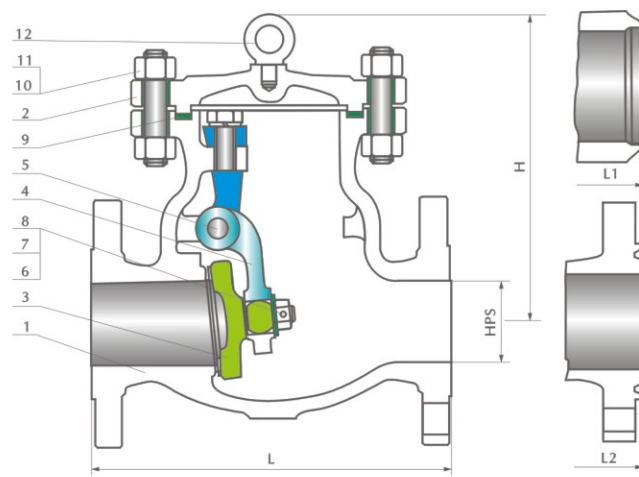


Fig. No:

C3F02K C3F010L C3F10N
C3B02K C3B010L C3B10N
C3R02K C3R010L C3R10N

Materials of parts

NO	Part name	ASTM Material		
		18Cr-18Ni	18Cr-9Ni-2Mo	17Cr-9Ni-2Mo
1	Body	A351-CF8	A351-CF8M	A351-CF3M
2	Bonnet cap	A351-CF8	A351-CF8M	A351-CF3M
3	Disc	A351-CF8	A351-CF8M	A351-CF3M
4	Hinge	A351-CF8	A351-CF8M	A351-CF3M
5	Hinge pin	A276-304	A276-316	A276-316L
6	Disc washer	A276-304	A276-316	A276-316L
7	Disc nut	A193-B8	A193-B8M	A193-B8M
8	Disc nut pin	A276-304	A276-316	A276-316L
9	Bonnet gasket ¹⁾	Graphite+304	Graphite+316	Graphite+316L
10	Bonnet stud	A193-B8	A193-B8M	A193-B8M
11	Bonnet stud nut	A194-8	A194-8M	A194-8M
12	Eyebolt ²⁾	A194-8	A194-8	A194-8

Note:

- 1). Spiral wound construction, teflon optional.
- 2). NPS 6" & Larger.
- 3). Disc and seat (Integral with body) may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Dimensions data

Size	in	11/2	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26
	mm	40	50	65	80	100	150	200	250	300	350	40	450	500	600	650
L/L1 (RF/BW)	in	9.00	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	-
	mm	229	267	292	318	356	445	533	622	711	838	864	978	1016	1346	-
L2 (RTJ)	in	-	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	-
	mm	-	283	308	333	371	460	549	638	727	854	879	994	1035	1368	-
H (Open)	in	4.38	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	-
	mm	110	152	165	175	204	293	353	390	432	475	525	582	627	883	-
WT (Kg)	BW	10	16	23	29	46	82	136	204	302	405	625	730	985	1115	-
	RF/RTJ	7	11	13	18	31	61	103	155	245	315	503	593	812	895	-



Cast Stainless Steel Swing Check Valve 600Lb

Applicable standards:

Steel check valves, API 6D
Steel check valves, ISO 14313
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598/API 6D

Design description:

BB, Bolted bonnet cap
Swing type, anti-rotation disc
Seat rings integral with body
Non-penetrates disc shaft
Horizontal or vertical service
Flanged or butt welding ends

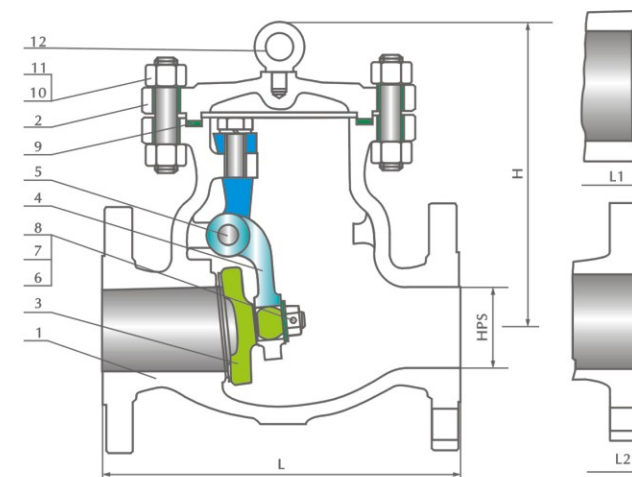


Fig. No:

C3F02K C3F010L C3F10N
C3B02K C3B010L C3B10N
C3R02K C3R010L C3R10N

Materials of parts

NO	Part name	ASTM Material		
		18Cr-18Ni	18Cr-9Ni-2Mo	17Cr-9Ni-2Mo
1	Body	A351-CF8	A351-CF8M	A351-CF3M
2	Bonnet cap	A351-CF8	A351-CF8M	A351-CF3M
3	Disc	A351-CF8	A351-CF8M	A351-CF3M
4	Hinge	A351-CF8	A351-CF8M	A351-CF3M
5	Hinge pin	A276-304	A276-316	A276-316L
6	Disc washer	A276-304	A276-316	A276-316L
7	Disc nut	A193-B8	A193-B8M	A193-B8M
8	Disc nut pin	A276-304	A276-316	A276-316L
9	Bonnet gasket ¹⁾	Graphite+304	Graphite+316	Graphite+316L
10	Bonnet stud	A193-B8	A193-B8M	A193-B8M
11	Bonnet stud nut	A194-8	A194-8M	A194-8M
12	Eyebolt ²⁾	A194-8	A194-8	A194-8

Note:

- 1). Spiral wound construction, teflon optional.
- 2). NPS 6" & Larger.
- 3). Disc and seat (Integral with body) may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Dimensions data

Size	in	11/2	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26
	mm	40	50	65	80	100	150	200	250	300	350	40	450	500	600	650
L/L1 (RF/BW)	in	9.50	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	-
	mm	241	292	330	356	432	559	660	787	838	889	991	1092	1194	1397	-
L2 (RTJ)	in	-	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38	-
	mm	-	295	333	359	435	562	664	791	841	892	994	1095	1200	1407	-
H (Open)	in	5.50	7.50	8.00	8.75	10.00	14.50	17.50	19.25	21.38	23.38	25.75	28.75	31.00	43.50	-
	mm	140	190	205	222	255	368	445	490	540	595	655	730	785	1105	-
WT (Kg)	BW	18	24	35	44	70	125	207	310	460	615	945	1105	1495	1695	-
	RF/RTJ	12.5	16	19	26	44	87	147	220	350	452	720	845	1160	1280	-



Cast Steel Wafer Check Valve 150/300Lb

Applicable standards:

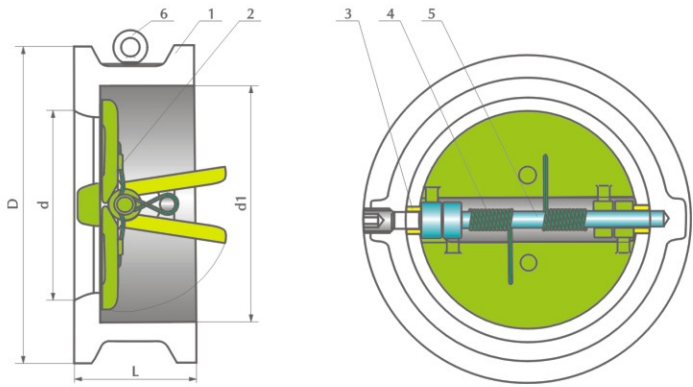
Steel check valves, API 594/API 6D
Steel check valves, ISO 14313
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Inspection and test, API 598/API 6D

Design description:

One piece body
Butterfly swing type
Dual-plate disc, long-pattern
Renewable split disc
Horizontal or vertical service
Wafer ends
Available with flanged ends

Fig. No:

CD1W01A CD1W05D CD1W01B
CD1F01A CD1F05D CD1F01B
CD3W01A CD3W05D CD3W01B
CD3F01A CD3F05D CD3F01B



Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Plate	A216-WCB+CR13	A351-CF8M+HF	A352-LCB+CR13
3	Stop pin	A276-420	A276-304	A276-420

Note: 1). NPS 8" & Large;

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
4	Back spring	304	316	304
5	Hinge pin	A276-420	A276-304	A276-420
6	Eyebolt ¹⁾	Carbon steel		

Dimensions data

Size	in	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L	in	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
	mm	60	67	73	73	98	127	146	181	184	191	203	219	222
D	in	4.00	4.88	5.38	6.75	8.62	10.88	13.25	16.00	19.62	20.12	21.50	23.75	28.12
	mm	103	122	135	173	220	277	337	407	448	512	547	604	715
d	in	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
	mm	51	65	80	102	152	203	254	305	350	400	450	500	600
d1	in	2.25	2.88	3.50	4.25	6.25	8.26	10.50	12.12	14.00	16.00	18.00	19.88	23.75
	mm	56	73	88	108	160	210	266	310	356	405	455	505	605
WT	Kg	2	3	4	6	13	25	39	54	80	117	138	163	331

Dimensions data

L	in	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
	mm	60	67	73	73	98	127	146	181	222	232	264	292	318
D	in	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
	mm	110	128	147	179	249	305	359	420	483	537	594	652	772
d	in	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
	mm	51	65	80	102	152	203	254	305	350	400	450	500	600
d1	in	2.25	288	3.50	4.25	6.38	8.25	10.50	12.25	14.00	16.00	18.00	20.00	24.00
	mm	58	73	88	108	160	210	266	310	355	405	455	505	608
WT	Kg	3	4	6	8	18	31	51	77	117	190	200	265	410



Cast Steel Wafer Check Valve 600/900Lb

Applicable standards:

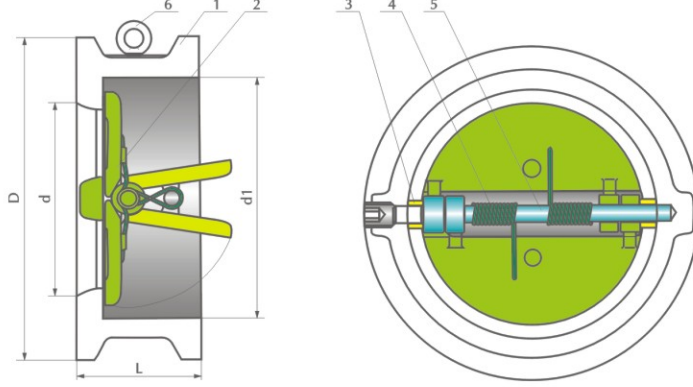
Steel check valves, API 594/API 6D
Steel check valves, ISO 14313
Steel valves, ASME B 16.34
Face to face, ASME B 16.10
End flanges, ASME B16.5
Inspection and test, API 598/API 6D

Design description:

One piece body
Butterfly swing type
Dual-plate disc, long-pattern
Renewable split disc
Horizontal or vertical service
Wafer ends
Available with flanged ends

Fig. No:

CD6W01A CD6W05D CD6W01B
CD6F01A CD6F05D CD6F01B
CD9W05A CD9W05D CD9W05B
CD9F05A CD9F05D CD9F05B



Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Plate	A216-WCB+CR13	A351-CF8M+HF	A352-LCB+CR13
3	Stop pin	A276-420	A276-304	A276-420

Note: 1). NPS 8" & Large;

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
4	Back spring	304	316	304
5	Hinge pin	A276-420	A276-304	A276-420
6	Eyebolt ¹⁾	Carbon steel		

Dimensions data

		ANSI Class 600Lb											
Size	in	2	2 1/2	3	4	6	8	10	12	14	16		
	mm	50	65	80	100	150	200	250	300	350	400		
L	in	2.38	2.62	2.88	3.12	5.38	6.50	8.38	9.00	10.75	12.00		
	mm	60	67	73	79	137	165	213	229	273	305		
D	in	4.38	5.00	5.75	7.50	10.38	12.50	15.62	17.88	19.25	22.12		
	mm	11	128	147	191	264	318	398	455	490	562		
d	in	2.00	2.50	3.00	4.00	6.00	7.88	9.88	12.00	13.25	15.25		
	mm	51	65	80	102	152	200	250	305	337	387		
d1	in	2.25	2.88	3.50	4.25	6.38	8.38	10.50	12.25	14.00	15.75		
	mm	58	73	88	108	162	212	266	312	355	400		
WT	Kg	4	5	8	11	26	55	95	140	223	360		

Dimensions data

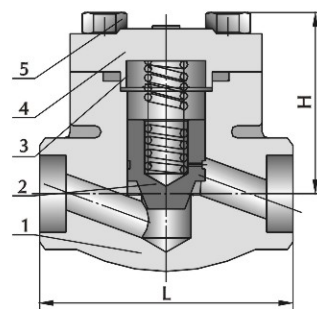
		ANSI Class 900Lb											
L	in	2.75	3.25	3.25	4.00	6.25	8.12	9.50	11.50	-	-		
	mm	70	83	83	102	159	206	241	292	-	-		
D	in	5.50	6.38	6.50	8.00	11.25	14.00	17.00	19.50	-	-		
	mm	140	162	165	204	286	356	432	495	-	-		
d	in	2.00	2.50	3.00	4.00	6.00	7.88	9.88	12.00	-	-		
	mm	51	65	80	102	152	200	250	305	-	-		
d1	in	2.25	2.88	3.50	4.25	6.38	8.38	10.50	12.25	-	-		
	mm	58	73	88	108	162	212	266	312	-	-		
WT	Kg	8	11	14	20	42	84	145	220	-	-		



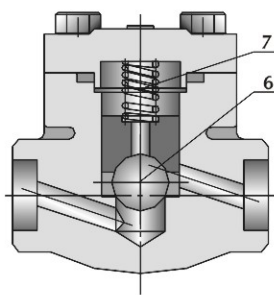
Forged Steel Check Valve



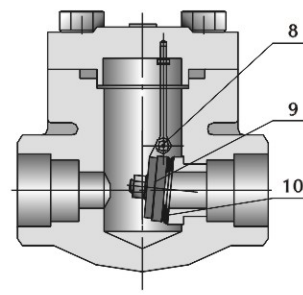
Cast Steel Plug Valve 150/300Lb



Piston type



Spherical



Fasten the opening type

Main size of outside & weight

Model: H41H、H41Y、H44H、H44Y

Class	DN(mm)		NPS(in)		Dimensions(mm)		Weight (kg)
	Reduced bore	Full bore	Reduced bore	Full bore	L	H	
800 Piston type	15	10	1/2	3/8	80	61	1.0
	20	15	3/4	1/2	92	61	1.1
	25	20	1	3/4	111	78	1.8
	32	25	1 1/4	1	120	85	3.2
	40	32	1 1/2	1 1/4	120	103	4.5
	50	40	2	1 1/2	140	119	7.3
800 Piston type & spherical		50		2	170	132	9.8
	15	10	1/2	3/8	80	61	1.2
	20	15	3/4	1/2	92	61	1.4
	25	20	1	3/4	111	78	2.5
	32	25	1 1/4	1	120	85	3.9
	40	32	1 1/2	1 1/4	152	103	5.5
1500 Fasten the opening type	50	40	2	1 1/2	172	119	8.9
		50		2	200	132	12.5
	15	10	1/2	3/8	111	79	3.3
	20	15	3/4	1/2	111	79	3.6
	25	20	1	3/4	120	96	4.3
	32	25	1 1/4	1	140	105	6.0
1500	40	32	1 1/2	1 1/4	140	120	8.7
	50	40	2	1 1/2	160	140	12.5
		50	3/8	2	220	160	16.0
	15	10	1/2	3/8	111	79	3.0
	20	15	3/4	1/2	111	79	3.5
	25	20	1	3/4	130	96	4.7
1500	32	25	1 1/4	1	150	105	7.0
	40	32	1 1/2	1 1/4	172	120	10.5
	50	40	2	1 1/2	220	140	14.5
		50		2	230	160	16.5

Applicable standards:

Steel plug valves, API 599/API 6D
Steel plug valves, ISO 14313
Fire durable, API 607
Anti static, API 599
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/API 6D

Design description:

Rugged, heavy-duty body
Bolted bonnet cap
PTFE Sleeved, tapered plug
Large port openings
Non-lubricated
Stem integral with-plug
In-line adjustment
Fire durable construction
Anti static device
Stopper device
Renewable seat ring
Flanged or butt welding ends
Available with wg operator

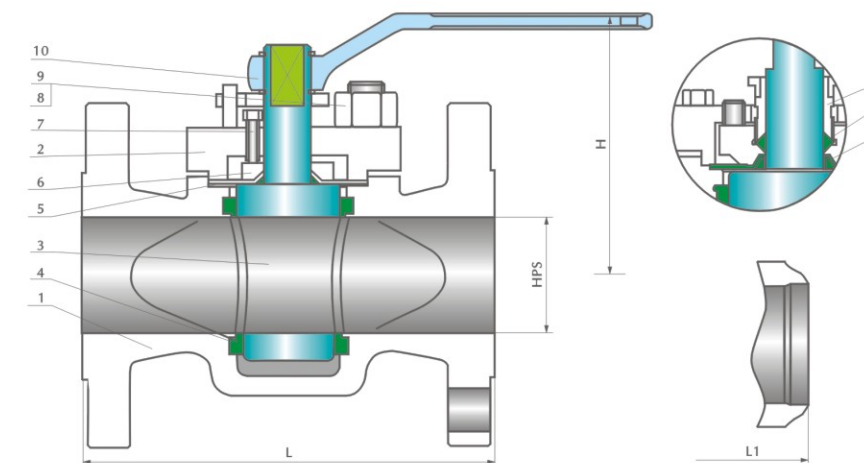
Fig. No:

P1F57A P1F59L P1F57B
P1B57A P1B59L P1B57B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	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	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.



Dimensions data

ANSI Class 150Lb

Size	in	2	2 1/2	3	4	6	8	10	12
		50	65	80	100	150	200	250	300
L	in	7.00	7.50	8.00	9.00	10.50	11.50	13.00	14.00
	mm	178	191	203	229	267	292	330	356
L1	in	10.50	12.00	13.00	14.00	18.00	20.50	22.00	25.00
	mm	267	305	330	356	457	521	559	635
H	in	6.00	6.50	7.12	15.00	20.50	22.88	24.50	26.75
	mm	150	165	180	380	520	580	620	680
W	in	13	14	16	13	13	13	14	15
	mm	320	350	410	320	320	320	350	380
WT (Kg)	RF	17	20	25	40	70	135	220	300
	BW	13	14	17.5	29	55	110	185	247

ANSI Class 300Lb

Size	in	2	2 1/2	3	4	6	8	10	12
		50	65	80	100	150	200	250	300
L	in	8.5	9.5	11.0	12.0	16.0	16.5	18.0	20.0
	mm	216	241	283	305	403	419	457	502
L1	in	10.50	12.00	13.00	14.00	18.00	20.50	22.00	25.00
	mm	267	305	330	356	457	521	559	635
H	in	6.00	6.50	7.12	15.00	20.50	22.88	24.50	26.75
	mm	150	165	180	380	520	580	620	680
W	in	13	14	16	13	13	13	14	15
	mm	320	350	410	320	320	320	350	380
WT (Kg)	RF	17	20	25	40	70	135	220	300
	BW	13	14	17.5	29	55	110	185	247



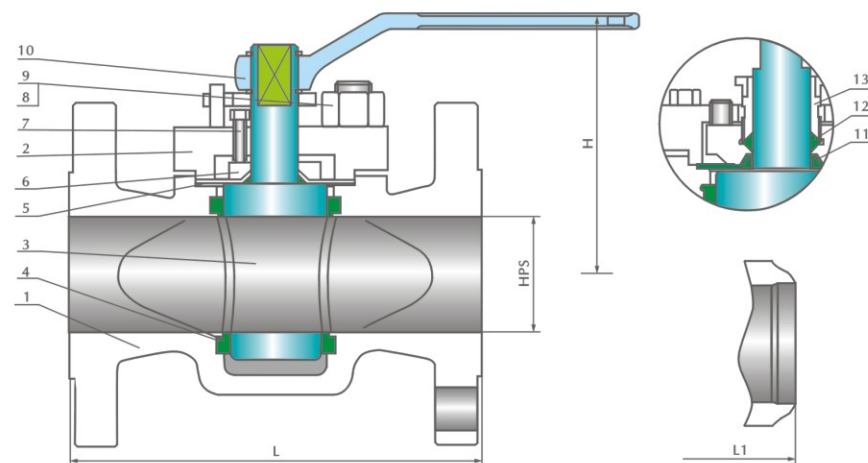
Cast Steel Plug Valve 600/900Lb

Applicable standards:

Steel plug valves, API 599/API 6D
Steel plug valves, ISO 14313
Fire durable, API 607
Anti static, API 599
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/API 6D

Design description:

Rugged, heavy-duty body
Bolted bonnet cap
PTFE Sleeved, tapered plug
Large port openings
Non-lubricated
Stem integral with-plug
In-line adjustment
Fire durable construction
Anti static device
Stopper device
Renewable seat ring
Flanged or butt welding ends
Available with wg operator



Dimensions data ANSI Class 600Lb

Size	in	2	2 1/2	3	4	6	8	10	12
		50	65	80	100	150	200	250	300
L/L1 (RF/BW)	in	11.50	13.00	14.00	16.00	19.50	23.50	26.50	30.00
	mm	292	330	356	432	559	660	787	838
L2 (RTJ)	in	11.62	13.12	14.12	16.12	19.62	23.62	26.62	30.12
	mm	295	333	359	435	562	664	791	841
H	in	6.12	6.75	7.25	15.38	20.88	23.25	24.88	27.12
	mm	155	170	185	390	530	590	630	690
W	in	14	16	13	13	13	14	15	15
	mm	350	410	320	320	320	350	380	380
WT (Kg)	RF/RFJ	28	33	37	75	142	250	365	515
	BW	21	23.5	23	46	97	167	227	354

Fig. No:

P6F57A P6F59L P6F57B P9F57A P9F59L P9F57B
P6B57A P6B59L P6B57B P9B57A P9B59L P9B57B
P6R57A P6R59L P6R57B P9R57A P9R59L P9R57B

Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	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.



Cast Steel Y-Strainer 150/300Lb

Applicable standards:

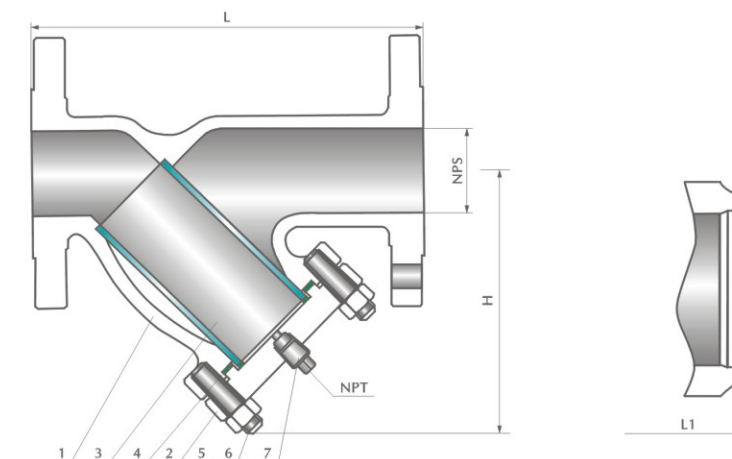
Steel valves, ASME B16.34
Face to face, ASME B16.10
End flanges, ASME B16.5
Butt welding ends, ASME B16.25
Inspection and test, API 598

Fig. No:

SY1F57A SY1F59L SY1F57B
SY1B57A SY1B59L SY1B57B
SY3F57A SY3F59L SY3F57B
SY3B57A SY3B59L SY3B57B

Design description:

Y-Pattern type
Bolted bonnet cap with drain plug
Perforated stainless steel screen
Strainer density 100 mesh design
Full range of strainer density
Renewable strainer density
Flanged or butt welding ends



Materials of parts

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Bonnet cap	A216-WCB	A351-CF8M	A352-LCB
3	Screen	A240-304	A420-316	A240-304
4	Bonnet gasket	Graphite+304 ¹⁾	PTFE	Graphite+304 ¹⁾

NO	Part name	ASTM Material		
		Carbon steel	18Cr-9Ni-2Mo	Carbon steel
5	Bonnet stud	A193-B7	A193-B8	A320-L7
6	Bonnet stud nut	A194-2H	A194-8	A194-7
7	Plug	A276-410	A276-316	A276-410

Note: 1). Spiral wound construction.

Percentage open area

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

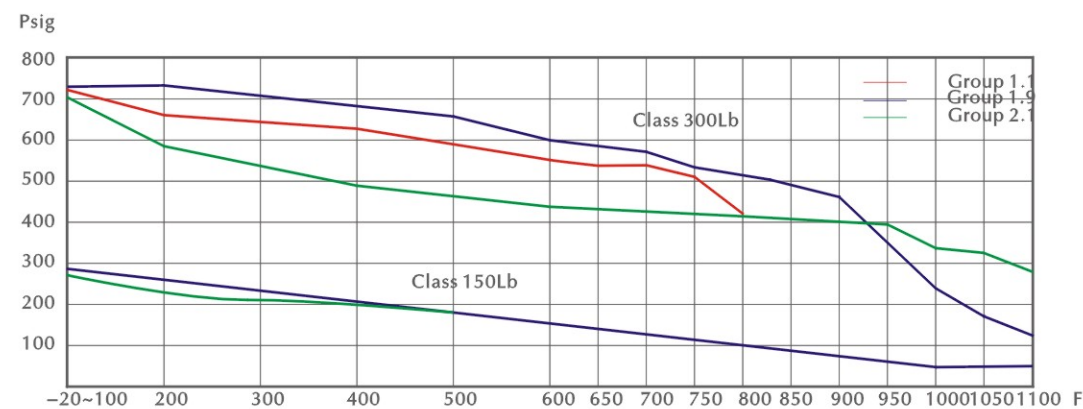
Even the "MESH" is same; OPEN AREA is not always same due to the diameter of wire. The details of wire as follows;
A: Number of wire; B: Diameter of wire; C: Width of opening; D: Percentage of OPEN AREA

Dimensions data

	Size	in	1/2	3/4	1	1 1/2	2	2 1/2	3	4	6	8	10	12
			15	20	25	40	50	65	80	100	150	200	250	300
150Lb	L/L1 (RF/BW)	in	5.50	6.00	6.50	8.00	9.00	11.00	12.50	14.50	18.50	23.50	26.50	30.50
		mm	140	152	165	203	229	279	318	368	470	597	673	775
	H	in	3.38	4.12	4.50	6.12	7.12	10.25	11.50	12.75	17.62	21.00	27.12	30.75
		mm	87	105	114	156	181	259	293	324	448	535	690	780
	Plug(NPT)	in	1/8	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4	1	1
300Lb	WT (Kg)	RF/RFJ	2.1	2.3	3.1	6.2	9.7	23.5	28	37	67	91	135	168
		BW	0.8	1.2	1.4	3.7	6.7	16.5	22	28	59	78	113	151
	L/L1 (RF/BW)	in	5.50	6.00	6.50	8.00	9.00	11.00	12.50	14.50	18.50	23.50	26.50	30.50
		mm	140	152	165	203	229	279	318	368	470	597	673	775
	H	in	3.38	4.12	4.50	6.12	7.12	10.25	11.50	12.75	17.62	21.00	27.12	30.75
		mm	87	105	114	156	181	259	293	324	448	535	690	780
	Plug(NPT)	in	1/8	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4	1	1
	WT (Kg)	RF/RFJ	2.5	3.4	4.2	8.6	11.2	29	38	57	105	176	230	360
		BW	1.2	1.7	2.3	4.8	8.2	20	27	39	74	131	164	268



Pressure-temperature Ratings 150/300Lb



ASME B16.34 Maximum allowable non-shock pressure

Temperature		ASTM Material															
		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	260	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	730	715	540	560
400	204	200	200	200	200	200	200	190	195	635	705	620	695	705	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 ^a	20 ^a	20 ^a	20 ^a	20 ^a				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	320	815	825	765	825	825	825	795	795
Air seal test	80 ± 20								80 ± 20							

Metric conversions by API STD 2564 ♦ Pressure: 1Pound per square inch (Psig)=0.06894757 bar=0.006894757 MPa ♦ Temperature: °C=(5/9)(°F-32)

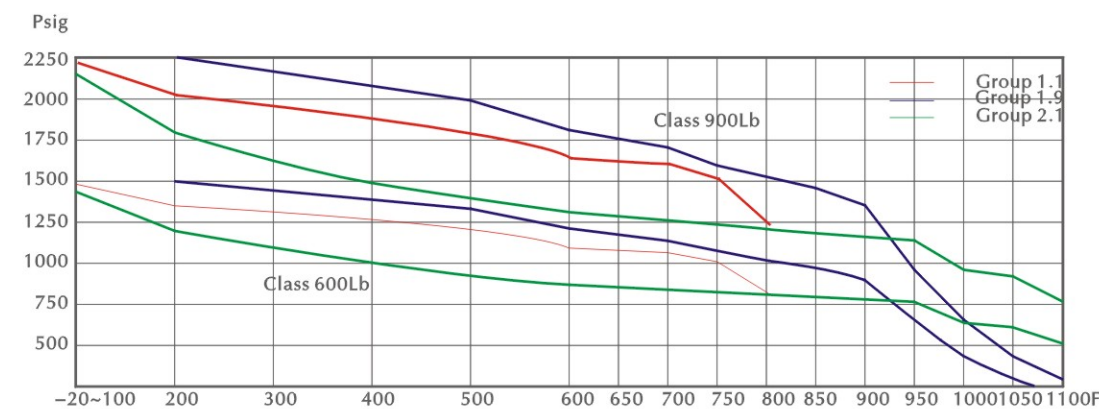
ASME B16.34Material group

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

- a). Not to be used over 650°F (343°C)
b). Not to be used over 800°F (427°C)
c). Not to be used over 1000°F (538°C)
d). Not to be used over 1100°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)



Pressure-temperature Ratings 600/900Lb



ASME B16.34 Maximum allowable non-shock pressure

Temperature		ASTM Material															
		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	500	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	965	1795	1995	1745	1995	1995	1995	1395	1435
600	316	1095	1210	1065	1210	1210	1210	875	900	1640	1815	160	1815	1815	1815	1310	1355
650	343	1075	1175	1045	1175	1175	1175	860	890	1610	1765	1570	1765	1765	1765	1290	1330
700	371	1065	1135		1135	1135	1135	850	870	1600	1705		1705	1705	1705	1275	1305
750	399	1010	1010		1065	1065	1055	830	855	1510	1510		1595	1595	1585	1245	1280
800	427	825	825		1015	1015	1015	805	845	1235	1235		1525	1525	1525	1210	1265
850	454				975	975	965	790	835				1460	1460	1450	1190	1255
900	482				900	900	740	780	830				1350	1350	1110	1165	1245
950	510				640	755	550	765	775				955	1130	825	1145	1160
1000	538				430	520	400	640	700				650	790	595	965	1050
1050	566				290	350	290	615	685				430	525	430	925	1030
1100	593				190	220	200	515	610				290	330	300	770	915

Test pressure by API 598

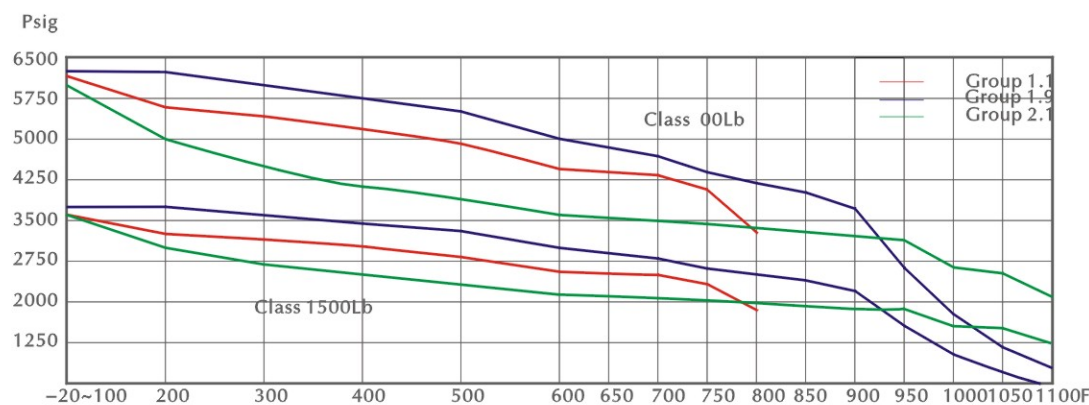
Hydrostatic shell test	2225	2250	2100	2250	2250	2250	2175	2175	3350	3375	3150	3375	3375	3375	3250	3250
Hydrostatic seal test	1630	1650	1530	1650	1650	1650	1585	1585	2445	2475	2295	2475	2475	2475	2380	2380
Air seal test	80 ± 20								80 ± 20							

Metric conversions by API STD 2564 ♦ Pressure: 1Pound per square inch (Psig)=0.06894757 bar=0.006894757 MPa ♦ Temperature: °C=(5/9)(°F-32)

ASME B16.34Material group

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

- a). Not to be used over 650°F (343°C)
b). Not to be used over 800°F (427°C)
c). Not to be used over 1000°F (538°C)
d). Not to be used over 1100°F (593°C)
e). Permissible, but not recommended for prolonged use above 800°F (427 °C)



ASME B16.34 Maximum allowable non-shock pressure

Temperature		ASTM Material															
		ANSI Class 1500Lb								ANSI Class 2500Lb							
		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	600
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	3960	3960	6790	6875	6365	6875	6875	6875	6600	6600
Air seal 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 B16.34Material group

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

- a). Not to be used over 650°F (343°C)
b). Not to be used over 800°F (427°C)
c). Not to be used over 1000°F (538°C)
d). Not to be used over 1100°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 requirements										Tensile requirements				
		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	0.045-0.65	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	295	20	35	
	A217-WC9	0.05-0.18	0.40-0.70	0.60	0.040	0.045	2.00-2.75	0.50	0.90-1.20	0.50	-	485-655	295	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	351-CF8	0.08	1.50	2.00	0.040	0.040	18.0-21.0	8.0-11.0	0.05	-	-	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	0.15-0.30	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	250	22	3	
	A350-LF3	0.20	0.90	0.20-0.356	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	0.08	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	12.5-13.5	-	-	-	-	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
	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	
Nut	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	0.65-1.10	0.15-0.35	0.040	0.040	0.75-1.20	-	0.15-0.25	-	-	-	-	-	-	248-352
	A194-8	0.08	2.00	1.00	0.045	0.030	18.0-20.0	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 servicing four gases or other hydrogen sulfide bearing hydrocarbon fluids, ZBV 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 ZBV cast steel valve. A note should be taken on the face that NACE hardness requirement conflicts with the one of valve seating surface specified by API 600, Table 13. ZBV steel valves are available only at user opetion.

The demands about resist SSC (Sulfur stress crack) material that be used for the equipment that the working medium include H2S Carbon-hydride compound

NO.	Part name	ASTM Material	NACE Hardness	API 600 Hardness
1	Body	A216-WCB	≤HRC 22 (273 HB)	—
2	Bonnet/Yoke	A216-WCB		—
3	Seat ring	A105 With 13CR overlay		≥250 HB*
4	Wedge/Disc	A216-WCB/A105 With 13CR overlay		≥250 HB*
5	Stem	ANSI TYPE410A182-F6a	≤HRC 22 (273 HB)	≥250 HB
6	Backseat bushing			≥250 HB
7	Lantern ring			—
8	Gland			—
9	Bonnet gasket	316SS+Graphite	—	—
		316SS(RTJ)	≤HRC 22	—
10	Bonnet bolt	193-B7	—	—
		A193-B7M	≤HRC 22	—
11	Bonnet nut	A194-2H	—	—
		A194-2HM	≤HRC 22	—

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

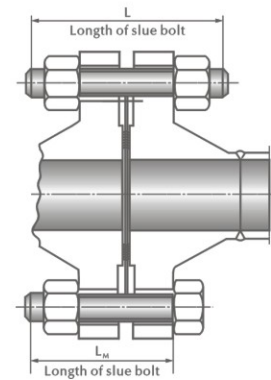
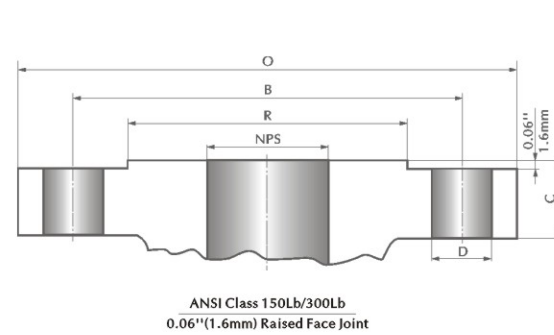
- All NACE valves meet API standard, except as modified to meet a HRC 22 maximum hardness requirements of NACE specification.
- Standard body and bonnet ASTM A216-WCB have the maximum carbon equivalent 0.43%.
- Seat rings are screwed in to eliminate potential hardness problem with welds and HAZ(Heat 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 Class150Lb 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 words "NACE MR 0175" shown on the nameplate for traceability and certification of conformance.

Typical NACE material specifications shown in above table and other material application are available at customer's option.**International materials standards**

Materials		America	Germany			United kingdom		China
		ASTM/ANSI/ASME	DIN No.	DIN Type	Material number	BS Number	BS Grade	GB
Cast steel								
Carbon steel	A216-WCA	ASTM A316-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-X12CrMo101	17389	1504	629E	9Cr1Mo
Cast steel								
Ni alloy steel	A494M-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	1Cr18Ni12Mo2
	A351-CF3	ASTM A351-CF3	17440	G-X2CrNiN189	1.4306	970/1	304S11	00Cr18Ni10
	A351-CF3M	ASTM A351-CF3M	17440	G-X2CrNiMoN1810	1.4404	2056	316S12	00Cr17Ni14Mo
	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						ZG0CrMnVA1
	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	1.5637	1503	503Gr.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	00Cr17Ni14Mo
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 A276-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	17240	X5CrNi189	1.4301			0Cr18Ni9
	A193-B8A							
	A193-B8M	ASTM A193 GRAD B8M	17245	X6CrNiMoTi17 12 2	1.4571	1506-316	S31	0Cr17Ni12Mo2
Nut	A320-L7	ASTM A320 GRL7	17200	42CrMo4	1.7225	4882		42CrMo
	A194-2H	ASTM A194 GRAD 2H	17440	CK 35	1.1181	1506-162		45
	A194-2HM	ASTM A194 GRAD 2HM						
	A194-7	ASTM A194 GRAD 7	17200	24CrMo5	1.7258	1506-162		20CrMo
	A194-8	ASTM A194 GRAD 8	17245	X6CrNiMo 17 12 2	1.4571	1506-316	S31	0Cr18Ni9
	A194-8M	ASTM A194 GR8M	17440	X5CrNiMo 1810	1.4401			0Cr17Ni12Mo



Flanged Ends 150/300Lb



Class 150Lb

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	812.8	1.88	47.8	27.25	692.2	29.50	749.3	1.38	35.1	20	1 1/4	6.75	171.5	6.00	152.4
26	650	34.25	870.0	2.69	68.3	29.50	749.3	31.75	806.5	1.38	35.1	24	1 1/4	8.25	209.6	7.50	190.5
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	111.3	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

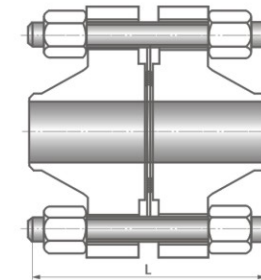
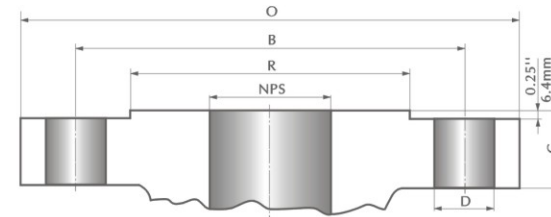
Class 300Lb

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	0.88	22.4	3.62	91.9	5.00	127.0	0.75	19.1	8	5/8	3.50	88.9	4.00	101.6	3.00	76.2
2 1/2	65	7.50	190.5	1.00	25.4	4.13	104.6	5.88	149.4	0.88	22.4	8	3/4	4.00	101.6	4.50	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	3/4	4.25	108.0	4.75	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	3/4	4.50	114.3	5.00	127.0	3.75	95.3
5	125	11.00	279.4	1.38	35.1	9.31	185.7	9.25	235.0	0.88	22.4	8	3/4	4.75	120.7	5.25	133.4	4.25	108.0
6	150	12.50	317.5	1.44	36.6	8.50	215.9	10.62	269.7	0.88	22.4	12	3/4	4.75	120.7	5.50	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	139.7	6.00	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	158.8	6.75	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	1 1/8	6.75	171.5	7.25	184.2	5.75	146.1
14	350	23.00	584.2	2.12	53.8	16.25	412.8	20.25	514.4	1.25	31.8	20	1 1/8	7.00	177.8	7.50	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	1 1/4	7.50	190.5	8.00	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	1 1/4	7.75	196.9	8.25	209.6	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	1 1/4	8.00	203.2	8.75	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	1 1/2	9.00	228.6	10.00	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	1 5/8	10.25	260.4	11.25	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	1 5/8	10.75	273.1	11.75	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	1 3/4	11.50	292.1	12.50	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	1 7/8	12.25	311.2	13.50	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	1 7/8	12.75	323.9	13.75	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	336.6	14.25	362.0	12.25	311.2

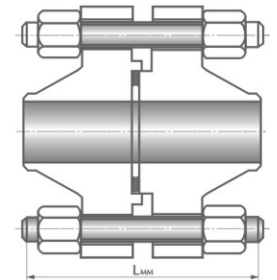
- a). NPS 24" and smaller flanged ends by ANSI B16.5, NPS 26" and larger by MSS SP-44.
b). Flanged of 150Lb and 300Lb with the raised face of 0.06(1.6mm)is included in the smallest flange of thickness C.
c). The length L of the double-end bolt don't include the terminal length.
d). Flange gasket of the matching flange ASME B16.20.



Flanged Ends 600/900Lb



ANSI Class 600Lb/900Lb
0.25"(6.4mm) Raised Face Joint



ANSI Class 600Lb/900Lb
Male & Female

Class 600Lb

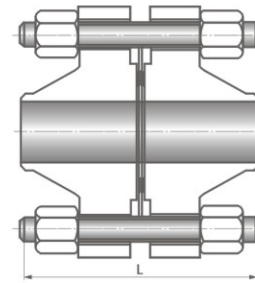
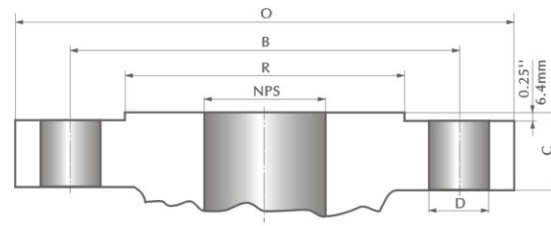
NPS		O		C		R		B		D		Bolt		L		LRTJ		LM	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	QTY	Diam	in	mm	in	mm	in	mm
2	50	6.50	165.1	1.00	25.4	3.62	91.9	5.00	127.0	0.75	19.1	8	5/8	4.25	108.0	4.25	108.0	4.00	101.6
2 1/2	65	7.50	190.5	1.12	28.4	4.12	104.6	5.88	149.4	0.88	22.4	8	3/4	4.75	120.7	4.75	120.7	4.50	114.3
3	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	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	5.75	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	6.50	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	6.75	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	7.50	190.5	7.25	184.2
10	250	20.00	508.0	2.50	63.5	12.75	323.9	17.00	431.8	1.38	35.1	16	1 1/4	8.50	215.9	8.50	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	8.75	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	20	1 3/8	9.25	235.0	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	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	10.75	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	11.50	292.1	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	12.75	323.9
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	13.75	349.3
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	14.25	362.0
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	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	15.25	387.4
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	16.00	406.4
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	15.50	393.7



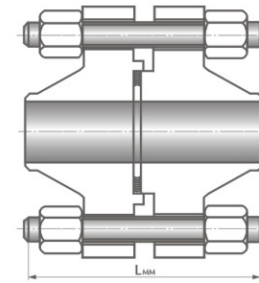
Flanged Ends 1500/2500Lb



Ring-joint Flanged Ends



ANSI Class 600Lb/900Lb
0.25"(6.4mm) Raised Face Joint



ANSI Class 1500Lb/2500Lb
Male & Female

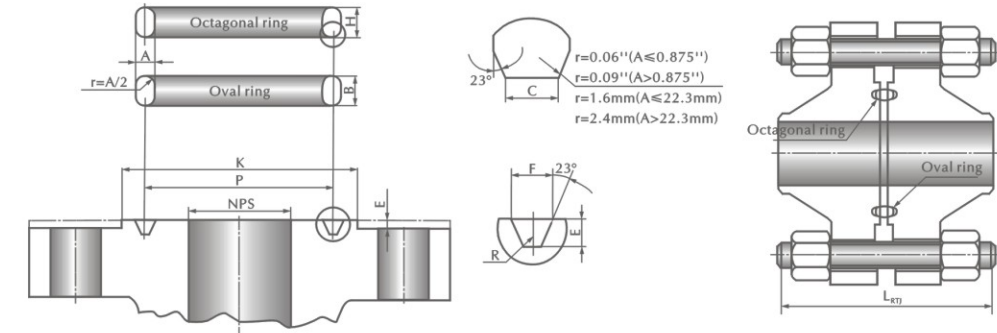
Class 1500Lb

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	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	27.75	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	3	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

Class 2500Lb

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	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 1/2	65	10.50	266.7	2.25	57.2	4.12	104.6	7.75	196.9	1.25	31.8	8	1 1/8	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 1/4	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 1/2	10.00	254.0	10.25	260.4	9.75	247.7
5	125	16.50	419.1	3.62	91.9	7.31	185.7	12.75	323.9	1.88	47.8	8	1 3/4	11.75	298.5	12.25	311.2	11.50	292.1
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	336.6
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	374.7
10	250	26.50	673.1	6.50	165.1	12.75	323.9	21.25	539.8	2.62	66.8	12	2 1/2	19.25	489.0	20.00	508.0	19.00	482.6
12	300	30.00	762.0	7.25	184.2	15.00	381.0	24.38	619.3	2.88	73.2	12	2 3/4	21.25	539.8	22.00	558.8	21.00	533.4

- a). NPS 24" and smaller flanged ends by ANSI B16.5.
b). Flanged of 1500Lb and 2500Lb with the raised face of 0.25(6.4mm) is added while excluded by the smallest flange of thickness C.
c). The length L/LMFM of the double-end bolt don't include the terminal length.
d). Flange gasket of the matching flange ASME B16.20.



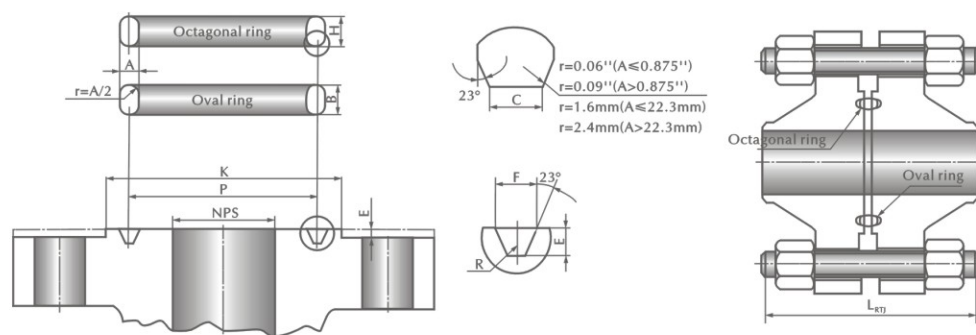
Ring-Joint flange ends

1	2	4	5	6	7	8	9		10		11		12		13		14		15		16		17		
ANSI Class-Lb						Annular groove										150Lb		300/600Lb		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	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	85.55	0.312	7.92	0.469	11.91	0.03	0.76			4.25	107.95					4.50	114.30	
				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 1/2						R25	4.000	101.60	0.250	6.35	0.344	8.74	0.03	0.76	4.75	120.65									
	2 1/2	2 1/2				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 1/2		R27	4.250	107.95	0.312	7.92	0.469	11.91	0.03	0.76							5.38	136.65			
					2 1/2	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	0.50	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	0.060	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 flange 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 dimension of 1500Lb.
d). The length LRTJ of the double-end bolt don't include the terminal length.



Ring-joint Flanged Ends



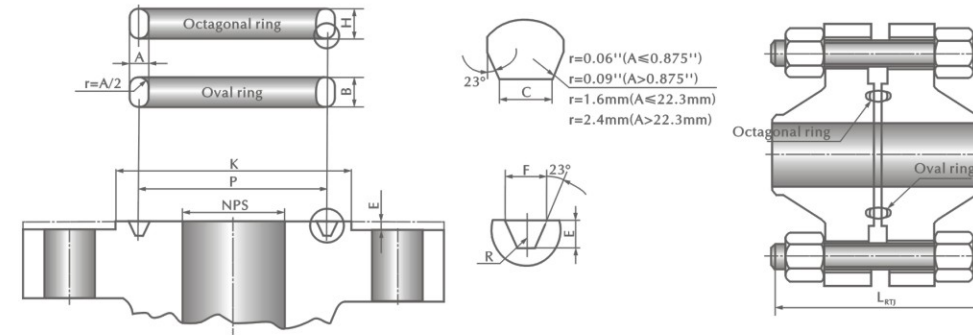
Ring-Joint flange ends

1	2	4	5	6	7	8	9	10	11	12	13	14	15	16	17								
ANSI Class-Lb						Annular groove						150Lb	300/600Lb	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			
10						R52	12.000	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	0.312	7.92	0.469	11.91	0.03	0.76			16.25	412.75	16.50	419.10			
				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	406.40	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	18.38	466.85			
			14	14		R62	16.500	419.10	0.438	11.13	0.656	16.66	0.06	1.52							19.25	488.95	
						R63	16.500	419.10	0.625	15.88	1.062	26.97	0.09	2.29									
16						R64	17.875	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 flange 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 dimension of 1500Lb.
d). The length LRTJ of the double-end bolt don't include the terminal length.



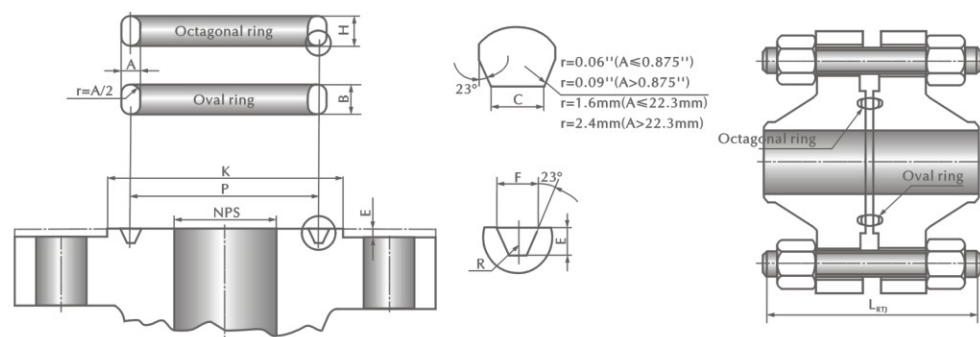
Ring-joint Flanged Ends



Ring-Joint flange 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		K												
NPS							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 1/2						R25	0.313	7.95	0.56	14.22	0.50	12.70	0.206	5.23	4.00	101.60											
	2 1/2	2 1/2				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 1/2		R27	0.438	11.13	0.69	17.53	0.63	16.00	0.305	7.75									6.25	158.75			
					2 1/2	R28	0.500	12.70	0.69	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	16.0	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	127.00	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										10.50	266.70		
					6	R47	0.750	19.05	1.00	25.40	0.94	23.88	0.485	12.32											14.00	355.60	
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	

- a). Please to see flange 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 dimension of 1500Lb.
d). The length LRTJ of the double-end bolt don't include the terminal length.



Ring-Joint flange 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		K												
NPS							in	mm	in	mm	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											20.00	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	10.0	254.00					
				12		R58	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	22.23											22.00	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	1.31	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	0.205	5.21	5.75	146.06											
	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	0.88	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	35.05	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	0.69	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	0.69	17.53	0.341	8.66			8.75	222.25	11.50	192.10							
			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	21.75	1.56	39.62	1.50	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	0.81	20.57	0.413	10.49			10.00	254.00	13.25	336.55							
			24			R78	1.000	24.50	1.31	33.27	1.25	31.75	0.681	17.30							18.00	457.20					
				24		R79	1.375	34.93	1.75	44.45	1.63	41.40	0.977	24.82									25.50	647.70			

- a). Please to see flange 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 dimension 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
≤ 0.888" (22.5mm)		
> 0.888" (22.5mm)		

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	
			Steel valve		Forged ¹⁾							
NPS	DN		A	A1		B		C		t		
in	mm	in	mm	in	mm	in	mm	in	in	mm	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	2.215	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
		XXS	4.62	117	4.50	114.3	3.152	80	3.279	83.30	0.674	17.12
5	125	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	6.78	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	9.834	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

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 have other requirement. Orde 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 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		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			
			Steel valve		Forged ^u							
NPS	DN		A		A1		B		C		t	
in	mm		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	21.44
		120	12.97	329	12.75	323.8	10.750	273	10.959	278.31	1.000	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	26.19
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	520	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	22.00	558.8	17.750	450.5	18.240	463.30	2.215	53.98

Note: 1). Forged machined component part
b. XS=Intensifying wall thickness

a. STD=Standard wall thickness
c. XXS=Double intensifying wall thickness.

Nominal wall thickness	Use without backing ring	Use with continuous rectangular backing ring
≤ 0.888" (22.5mm)		
> 0.88" (22.5mm)		

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	
			Steel valve		Forged ¹⁾							
NPS	DN		A		A1		B		C		t	
in	mm		in	mm	in	mm	in	mm	in	mm	in	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	23.084	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	30.93
		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
		160	24.38	619	24.00	609.6	19.312	490.5	19.857	504.37	2.344	59.54
26	650	10	26.38	670	26.00	660.4	25.376	645.5	25.413	645.50	0.312	7.92
		20	26.38	670	26.00	660.4	25.000	635	25.084	637.14	0.500	12.70
28	700	10	28.38	721	28.00	711.2	27.376	695.5	27.413	696.30	0.312	7.92
		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
30	750	10	30.38	772	30.0	762.0	29.376	746	29.413	747.10	0.312	7.92
		20	30.38	772	30.0	762.0	29.000	736.5	29.084	738.74	0.500	12.70
		30	30.38	772	30.0	762.0	28.750	730	28.865	733.17	0.625	15.88
32	800	10	32.50	825	32.0	812.8	31.376	797	31.413	797.90	0.312	7.92
		20	32.50	825	32.0	812.8	31.000	787.5	31.084	789.54	0.500	12.70
		30	32.50	825	32.0	812.8	30.750	781	30.865	783.97	0.625	15.88
		40	32.50	825	32.0	812.8	30.624	778	30.755	781.17	0.688	17.48
34	850	10	34.50	876	34.0	863.6	33.376	848	33.413	848.70	0.312	7.92
		20	34.50	876	34.0	863.6	33.000	838	33.084	840.34	0.500	12.70
		30	34.50	876	34.0	863.6	32.750	832	32.865	834.77	0.625	15.88
		40	34.50	876	34.0	863.6	32.624	828.5	32.755	831.97	0.688	17.48
36	900	10	36.50	927	36.0	914.4	35.376	898.5	35.413	899.50	0.312	7.92
		20	36.50	927	36.0	914.4	35.000	889	35.084	891.14	0.500	12.70
		30	36.50	927	36.0	914.4	34.750	882.5	34.865	885.57	0.625	15.88
		40	36.50	927	36.0	914.4	34.500	876.5	34.646	880.02	0.750	19.05