

FORGED
STEEL
VALVES



BONNEY FORGE

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Bonney Forge—The Name You Trust for Forged Steel Valves

Bonney Forge's forged steel valves and piping components have led the way for over eighty years in state-of-the-art design and dependable performance. It is qualities like these, combined with a customer-driven culture, that maintains Bonney Forge's leadership position within the industry for exceeding customer expectations. Our goal is to make Bonney Forge your number one world-wide choice for forged valves.

FORGING AHEAD OF THE REST

The Industry's Widest Range of Forged Steel Valves

Bonney Forge's forged steel valve range includes carbon steel, alloys, stainless steel, and exotic alloys. Valve types include gate, globe and check with ratings of 150 lbs. to 4500 lbs. There are also bellows sealed valves, cryogenic valves for temperatures to -321°F (-196°C) and valves with extended bodies. All available from one source!

Production Capabilities that Meet Your Demands

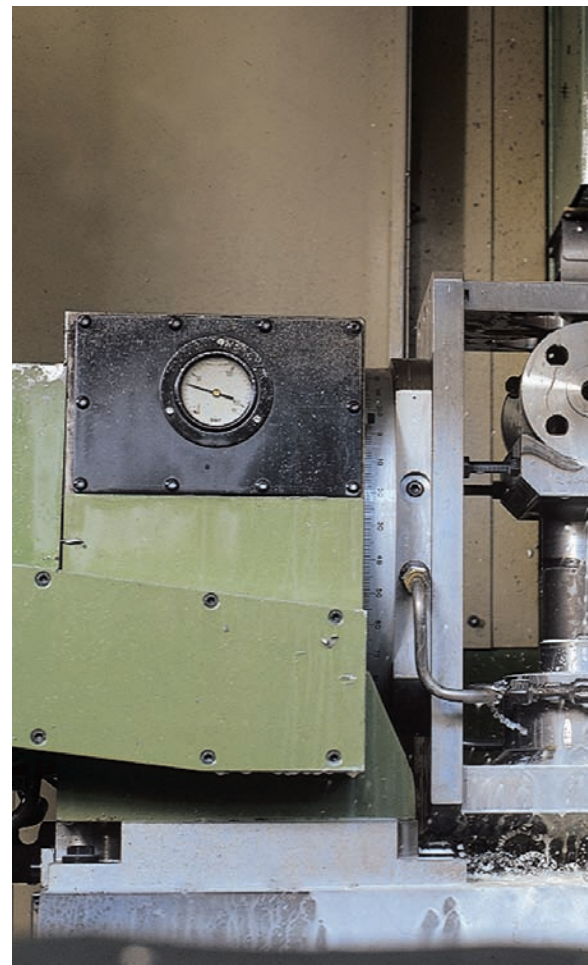
Bonney Forge is an integrated supplier with in-house forging, machining and assembly-test operations. Our forge shop contains a complete line of forging and support equipment, including a forge die shop, all located in one modern facility. Automated



production lines and next generation machining systems offer high volume capabilities with uncompromising quality.

Quality That You Can Count On

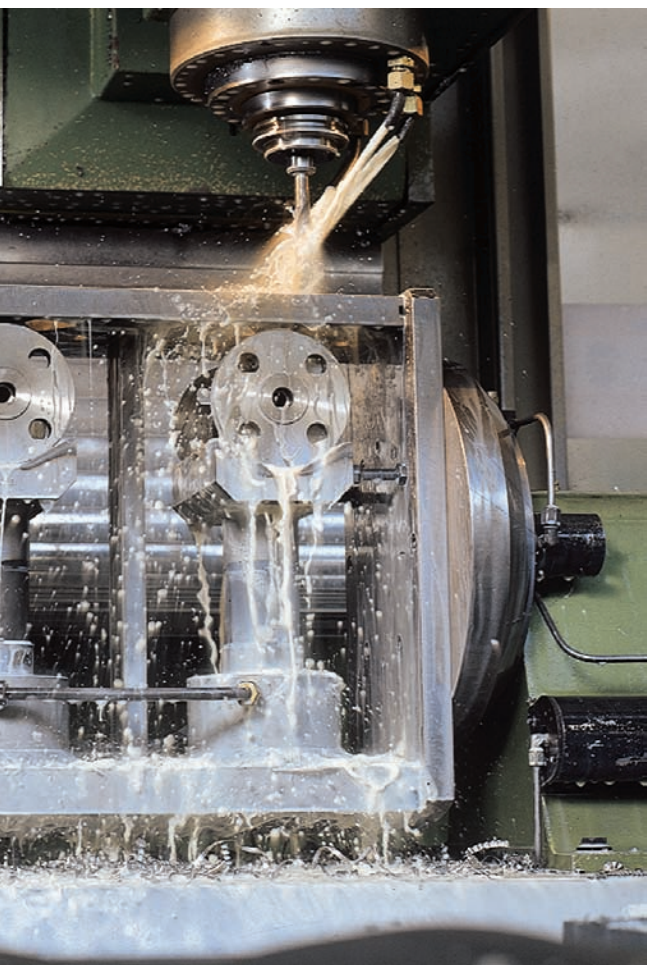
Bonney Forge products are manufactured and tested in strict accordance to ASTM, ASME, ANSI, API and other applicable industry codes and specifications. Chemical and mechanical properties of all Bonney Forge products are fully traceable to the original forging lot and raw material heat. Our extensive quality control system carefully monitors our manufacturing processes



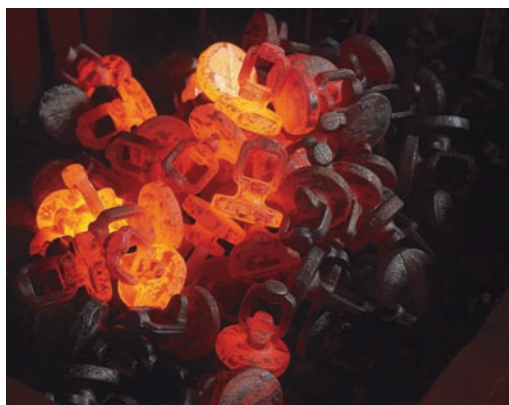
to assure a product that performs to the highest industry standards. Quality assurance procedures include 100% hydrostatic and pneumatic testing of all valves in full conformance to applicable API standards and industry codes. Bonney Forge has earned ISO 9001 designation through uncompromising, company-wide controls.

We're Here for You

This catalog offers a vast amount of product information and specifications. In the event that you need additional information or technical assistance please call our friendly and knowledgeable customer service personnel at 1-800-231-0655 or visit our web site at www.bonneyforge.com.



B® *The Best Value -
Price, Quality, Service
All The Time.*





BONNEY FORGE

How To ORDER/SPECIFY FORGED STEEL VALVES

1. Specify Valve Size
2. Select Valve Description from Section A
3. Select Valve Type desired from Section B
4. Indicate Body/Bonnet and Trim Material from Section C
5. Select End Configuration from Section D
6. Select Special Requirement(s) from Section E
7. Specify as a Suffix String, after Section D or E, any Body/Bonnet Material, Trim Material or Special Requirements not listed below

SECTION A- VALVE DESCRIPTION

H	Full Port, 800#, Bolted Bonnet
HL	Conventional Port, 800#, Bolted Bonnet
W	Full Port, 800#, Welded Bonnet
WL	Conventional Port, 800#, Welded Bonnet
9H	Full Port, 1500#, Bolted Bonnet
9HL	Conventional Port, 1500#, Bolted Bonnet
H9R	Full Port, 1500#, RTJ Bolted Bonnet
25HR	Full Port, 2500#, RTJ Bolted Bonnet
9W	Full Port, 1500#, Welded Bonnet
9WL	Conventional Port, 1500#, Welded Bonnet
25W	Full Port, 2500#, Welded Bonnet
45W	Full Port, 4500#, Welded Bonnet
Y	Full Port, 800#, Y-Pattern Body, Welded Bonnet
9Y	Full Port, 1500#, Y-Pattern Body, Welded Bonnet
1690Y	Full Port, 1690#, Y-Pattern Body, Welded Bonnet
25Y	Full Port, 2500#, Y-Pattern Body, Welded Bonnet
2680Y	Full Port, 2680#, Y-Pattern Body, Welded Bonnet
45Y	Full Port, 4500#, Y-Pattern Body, Welded Bonnet
1	150# Integral Flange, Full Port, Bolted Bonnet
3	300# Integral Flange, Full Port, Bolted Bonnet
6	600# Integral Flange, Full Port, Bolted Bonnet
15F	1500# Integral Flange, Full Port, Bolted Bonnet
25F	2500# Integral Flange, Full Port, Bolted Bonnet
L1	150# Integral Flange, Conventional Port, Bolted Bonnet
L3	300# Integral Flange, Conventional Port, Bolted Bonnet
L6	600# Integral Flange, Conventional Port, Bolted Bonnet
C	Cryogenic, Full Port, 800#, Bolted Bonnet
CL	Cryogenic, Conventional Port, 800#, Bolted Bonnet
CW	Cryogenic, Full Port, 800#, Welded Bonnet
CWL	Cryogenic, Conventional Port, 800#, Welded Bonnet
9C	Cryogenic, Full Port, 1500#, Bolted Bonnet
9CL	Cryogenic, Conventional Port, 1500#, Bolted Bonnet
9CW	Cryogenic, Full Port, 1500#, Welded Bonnet
9CWL	Cryogenic, Conventional Port, 1500#, Welded Bonnet

SECTION A- VALVE DESCRIPTION (CONT.)

1C	Cryogenic, 150# Integral Flange, Full Port, Bolted Bonnet
1CL	Cryogenic, 150# Integral Flange, Conventional Port, Bolted Bonnet
1CW	Cryogenic, 150# Integral Flange, Full Port, Welded Bonnet
1CWL	Cryogenic, 150# Integral Flange, Conventional Port, Welded Bonnet
3C	Cryogenic, 300# Integral Flange, Full Port, Bolted Bonnet
3CL	Cryogenic, 300# Integral Flange, Conventional Port, Bolted Bonnet
3CW	Cryogenic, 300# Integral Flange, Full Port, Welded Bonnet
3CWL	Cryogenic, 300# Integral Flange, Conventional Port, Welded Bonnet
6C	Cryogenic, 600# Integral Flange, Full Port, Bolted Bonnet
6CL	Cryogenic, 600# Integral Flange, Conventional Port, Bolted Bonnet
6CW	Cryogenic, 600# Integral Flange, Full Port, Welded Bonnet
6CWL	Cryogenic, 600# Integral Flange, Conventional Port, Welded Bonnet
15CF	Cryogenic, 1500# Integral Flange, Full Port, Bolted Bonnet
15CWF	Cryogenic, 1500# Integral Flange, Full Port, Welded Bonnet
S	Bellows Sealed, Full Port, 800#, Bolted Bonnet
SL	Bellows Sealed, Conventional Port, 800#, Bolted Bonnet
SHW	Bellows Sealed, Full Port, 800#, Welded Bonnet
SHWL	Bellows Sealed, Conventional Port, 800#, Welded Bonnet
9S	Bellows Sealed, Full Port, 1500#, Bolted Bonnet
9SL	Bellows Sealed, Conventional Port, 1500#, Bolted Bonnet
9SHW	Bellows Sealed, Full Port, 1500#, Welded Bonnet
9SHWL	Bellows Sealed, Conventional Port, 1500#, Welded Bonnet
25SHW	Bellows Sealed, Full Port, 2500#, Welded Bonnet
1S	Bellows Sealed, 150# Integral Flange, Full Port, Bolted Bonnet
1SL	Bellows Sealed, 150# Integral Flange, Conventional Port, Bolted Bonnet
1SHW	Bellows Sealed, 150# Integral Flange, Full Port, Welded Bonnet
1SHWL	Bellows Sealed, 150# Integral Flange, Conventional Port, Welded Bonnet
3S	Bellows Sealed, 300# Integral Flange, Full Port, Bolted Bonnet
3SL	Bellows Sealed, 300# Integral Flange, Conventional Port, Bolted Bonnet
3SHW	Bellows Sealed, 300# Integral Flange, Full Port, Welded Bonnet
3SHWL	Bellows Sealed, 300# Integral Flange, Conventional Port, Welded Bonnet
6S	Bellows Sealed, 600# Integral Flange, Full Port, Bolted Bonnet
6SL	Bellows Sealed, 600# Integral Flange, Conventional Port, Bolted Bonnet
6SHW	Bellows Sealed, 600# Integral Flange, Full Port, Welded Bonnet
6SHWL	Bellows Sealed, 600# Integral Flange, Conventional Port, Welded Bonnet
15SF	Bellows Sealed, 1500# Integral Flange, Full Port, Bolted Bonnet
15SHWF	Bellows Sealed, 1500# Integral Flange, Full Port, Welded Bonnet
VOLL	Valvolet ® Extended Body, Lip End, Conventional Port, 800#, Welded Bonnet
VOL	Valvolet ® Extended Body, O'Let End, Conventional Port, 800#, Welded Bonnet
VLL	Valvolet ® Extended Body, Lip End, Conventional Port, 800#, Bolted Bonnet
VL	Valvolet ® Extended Body, O'Let End, Conventional Port, 800#, Bolted Bonnet



How To ORDER/SPECIFY FORGED STEEL VALVES (CONT.)

BONNEY FORGE

SECTION A- VALVE DESCRIPTION (CONT.)

9VOLL	Valvolet ® Extended Body, Lip End, Conventional Port, 1500#, Welded Bonnet
9VOL	Valvolet ® Extended Body, O'Let End, Conventional Port, 1500#, Welded Bonnet
9VLL	Valvolet ® Extended Body, Lip End, Conventional Port, 1500#, Bolted Bonnet
9VL	Valvolet ® Extended Body, O'Let End, Conventional Port, 1500#, Bolted Bonnet
MFL	Extended Body, Conventional Port, 800#, Welded Bonnet
ML	Extended Body, Conventional Port, 800#, Bolted Bonnet
9MFL	Extended Body, Conventional Port, 1500#, Welded Bonnet
9ML	Extended Body, Conventional Port, 1500#, Bolted Bonnet

SECTION B- VALVE TYPE

1	Gate
3	Globe
3R	Globe with renewable seats
4	Piston Check
4R	Piston Check with renewable seats
5	Ball Check
5R	Ball Check with renewable seats
6	Swing Check

SECTION C- BODY/BONNET, TRIM MATERIAL

1	A 105, Trim F6/HF, (API Trim #8)
2	A 105, Trim F6/FHF, (API Trim #5)
3	A 105, Trim F316/HF, (API Trim #12)
3F	A 105, Trim F316/FHF
4	A 105, Trim Monel 500, (API Trim #9)
4S	A 105, Trim Monel 500/HF (API Trim #11)
4F	A 105, Trim Monel 500/FHF
5	F22, Trim F6/HF, (API Trim #8)
5F	F22, Trim F6/FHF, (API Trim #5)
6	F5, Trim F6/HF, (API Trim #8)
6F	F5, Trim F6/FHF, (API Trim #5)
7	F304, Trim F304/HF
7F	F304, Trim F304/FHF
7L	F304L, Trim F304/HF
7LF	F304L, Trim F304/FHF
7H	F304H, Trim F304/HF
7HF	F304H, Trim F304/FHF
8	F316, Trim F316/HF, (API Trim #12)
8F	F316, Trim F316/FHF
8L	F316L, Trim F316/HF, (API Trim #12)
8LF	F316L, Trim F316/FHF
8H	F316H, Trim F316/HF, (API Trim #12)
8HF	F316H, Trim F316/FHF

SECTION C- BODY/BONNET, TRIM MATERIAL (CONT.)

9	F11, Trim F6/HF, (API Trim #8)
9F	F11, Trim F6/FHF, (API Trim #5)
A	F9, Trim F6/HF, (API Trim #8)
AF	F9, Trim F6/FHF, (API Trim #5)
LS	LF2, Trim F6/HF, (API Trim #8)
LF	LF2, Trim F6/FHF, (API Trim #5)
L3S	LF2, Trim F316/HF, (API Trim #12)
L3F	LF2, Trim F316/FHF
0	Other, to be specified

For an item not listed above, a figure number can be determined from the following.

Body/Bonnet Material	First Code Number/Letter	Trim Material	Second Code Letter
A105	1	F6/HF	S
LF2	L	F6/FHF	F
		F304/HF	7
F5	6	F304/FHF	7F
F9	A	F316/HF	3
F91	K	F316/FHF	3F
F11	9	F317/HF	B
F22	5	F317/FHF	BF
		F321/HF	E
F304, 304L, 304H	7, 7L, 7H	F321/FHF	EF
F316, 316L, 316H	8, 8L, 8H	F347/HF	G
317, 317L	B, BL	F347/FHF	GF
F321, 321H	E, EH	F44	J
F347, 347H	G, GH	F44/HF	JS
F44	J	F44/FHF	JF
		F51	D
Alloy 20	A2	F51/HF	DS
Monel 400	M4	F51/FHF	DF
Monel 500	M5	Alloy 20	A2
Hastelloy B	HB	Alloy 20/HF	A2S
Hastelloy C	HC	Alloy 20/FHF	A2F
Inconel 800	I800	Monel 400	M4
Inconel 825	I825	Monel 400/HF	M4S
		Monel 400/FHF	M4F
		Monel 500	M5
		Monel 500/HF	M5S
		Monel 500/FHF	M5F
F51	D		



HOW TO ORDER/SPECIFY FORGED STEEL VALVES (CONT.)

BONNEY FORGE

SECTION C- BODY/BONNET, TRIM MATERIAL (CONT.)

Body/Bonnet Material	First Code Number/Letter	Trim Material	Second Code Letter
Titanium	T	Hastelloy B	HB
		Hastelloy B/HF	HBS
		Hastelloy B/FHF	HBF
		Hastelloy C	HC
		Hastelloy C/HF	HCS
		Hastelloy C/FHF	HCF
		Inconel 800/HF	I
		Inconel 800/FHF	IF
		Inconel 825/HF	N
		Inconel 825/FHF	NF
		Titanium/HF	T
		Titanium/FHF	TF

Examples: 1" Conventional Port, 800#, Bolted Bonnet, Gate, A 105, Alloy 20/FHF Trim,
Threaded Ends **Fig. No. 1" HL-11A2F-T**

3/4" Conventional Port, 1500#, Welded Bonnet, Globe, F5, F316/HF Trim,
Socket Weld Ends **Fig. No. 3/4" 9WL-363-SW**

SECTION D- END CONFIGURATION

T = Threaded
 SW = Socket Weld
 SW/T = Socket Weld Inlet x Threaded Outlet
 T/SW = Thread Inlet x Socket Weld Outlet
 BW = Butt Weld
 P = Plain End
 RF = Flanged, Raised Face
 RTJ = Flanged, Ring Type Joint
 FF = Flat Face Finish
 SF = Smooth Face Finish
 N = Nipples, Customer Specify

SECTION E- SPECIAL REQUIREMENTS

ASME Section I
 NACE
 Oxygen Service
 Hydrogen Service
 PMI
 Special Packing/Gaskets
 Other – Customer Specify

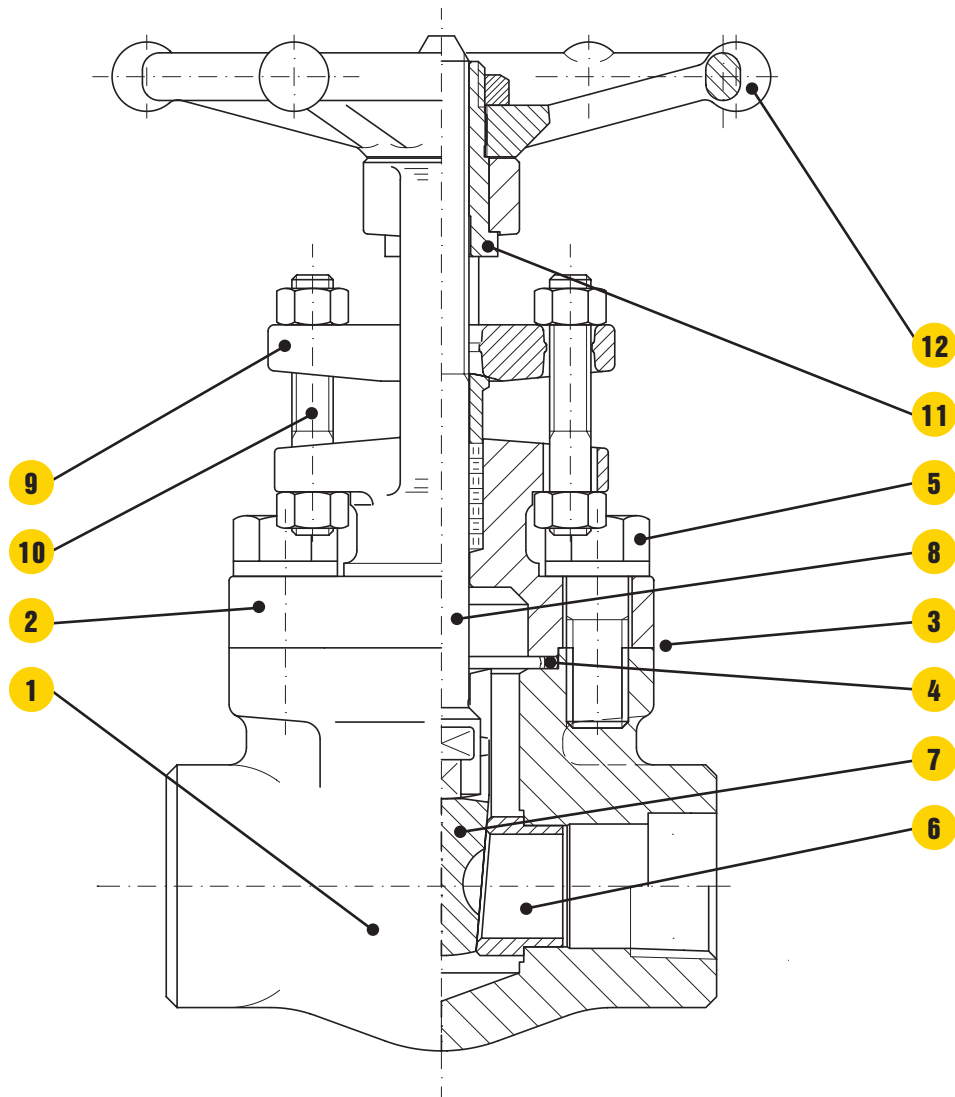
Overview	10
Bolted Bonnet Gate- 800 lb. & 1500 lb. valves	11
Bolted Bonnet Gate- 1500 lb. & 2500 lb. valves	12
Welded Bonnet Gate- 800 lb. & 1500 lb. valves	13
Welded Bonnet Gate- 2500 lb. & 4500 lb. valves	14

GATE VALVES



GATE VALVES

Forged steel, outside screw and yoke (OS&Y), rising stem, non-rising handwheel.
Full or conventional port.
Bolted or welded bonnet joint.
Integral backseat.



- 1. BODY.** The body is forged steel and designed to the basic dimensional requirements of the applicable specifications such as API 602 and ASME B16.34. The body is available in both the full or conventional port design.
- 2. BONNET.** The bonnet is forged steel, has an integral backseat and incorporates the stuffing box, which has dimensions per the applicable specifications such as API 602.
- 3. BODY-BONNET JOINT.** Two different bonnet joint designs are available. These are either the bolted bonnet or the threaded and seal welded type.
- 4. GASKET.** The bolted bonnet joint design valve uses a contained, controlled compression, spiral wound type gasket.
- 5. BONNET BOLTING.** The bonnet bolting is manufactured of alloy steel in accordance with the requirements of the applicable specifications such as API 602 and ASME B16.34.
- 6. SEAT RINGS.** The seat rings are steel and makeup part of the valve trim. They are pressed into the valve body and wedged into place, forming a seal with the body. The seating surfaces are ground and lapped.
- 7. WEDGE.** The wedge, which is solid design, is forged or investment cast steel and is part of the valve trim. The seating surfaces are ground and lapped.
- 8. STEM.** The stem is forged steel and part of the valve trim. It contains an integral back seat shoulder, which mates with the integral backseat of the bonnet. The stem is designed to the basic dimensional requirements of the applicable specifications such as API 602.
- 9. GLAND AND FLANGE.** The gland, gland flange assembly utilizes a separate, two piece design. This self aligning design allows the flange to be unevenly tightened while the gland maintains it's parallel alignment with the stem and stuffing box.
- 10. GLAND BOLTS AND NUTS.** The steel/stainless steel gland bolt and nut assembly is a stud, double nut arrangement. This design allows complete removal from the valve when service is required. The use of industry standard thread full length studs and nuts also allows easy replacement should these items be lost or in need of replacement.
- 11. YOKE SLEEVE.** The yoke sleeve is of forged stainless steel material having a high melting point and is resistant to wear and corrosion.
- 12. HANDWHEEL.** The handwheel is forged carbon steel of an open spoke design. This robust construction along with appropriate sizing allows for ease of operation.

B[®] GATE VALVES- BOLTED BONNET- FULL & REDUCED PORT

BONNEY FORGE

800 LB.

1500 LB.

Design construction:

API 602 - ASME B16.34 - BS 5352

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Spiral-wound gasket

Integral backseat

Socket Weld Ends to ASME B16.11

Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

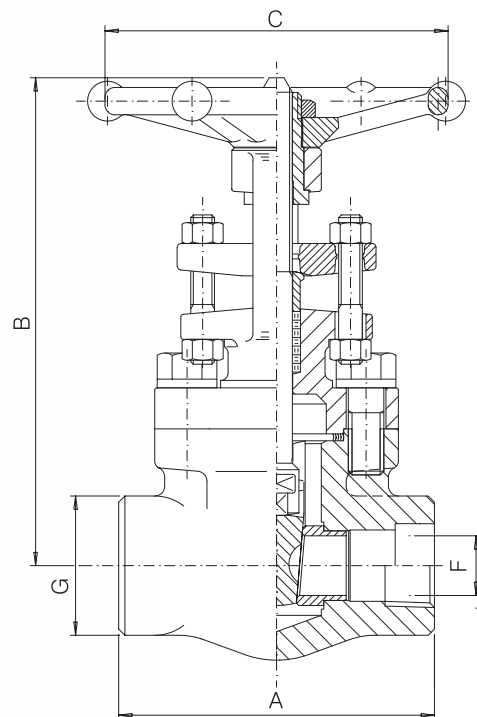
Ratings:

- carbon steel class 800 1975 psig @ 100°F

138 bar + 38°C

- carbon steel class 1500 3705 psig @ 100°F

255 bar + 38°C



800 LB.									
FULL PORT – FIG. H 10									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch mm	3.15 80	3.15 80	3.54 90	4.33 110	5 127	5 127	5.28 134	6 152
B open	inch mm	5.98 152	5.98 152	6.22 158	7.72 196	8.86 225	10.04 255	11.42 290	14.09 358
C	inch mm	3.46 88	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	5.43 138	6.77 172
F	inch mm	.31 8	.38 9.6	.55 14	.71 18	.94 24	1.18 30	1.48 36.5	1.83 46.5
G	inch mm	1.26 32	1.26 32	1.50 38	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85
Weight	lb. kg	4.5 2.1	4.5 2.1	5 2.3	8.25 3.7	13 5.9	16.25 7.4	18.3 8.3	27.5 12.5
PACKING		BH2	BH2	BH2	BH4	BH5	BH6	BY5	BH8
GASKET		G2	G2	G2	G3	G4	G6	G11	G10

800 LB.

REDUCED PORT – FIG. HL 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	3.15 80	3.54 90	4.33 110	5 127	5.28 134
B open	inch mm	5.98 152	6.22 158	7.72 196	10.04 255	11.42 290
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138
F	inch mm	.38 9.6	.55 14	.71 18	1.18 30	1.48 36.5
G	inch mm	1.26 32	1.5 38	1.89 48	2.52 64	3.07 78
Weight	lb. kg	4.25 1.9	5 2.3	7.75 3.6	16 7.3	16.75 7.6
PACKING		BH2	BH2	BH4	BH6	BY5
GASKET		G2	G2	G3	G6	G11

1500 LB.									
FULL PORT – FIG. 9H 10									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch mm	3.54 90	3.54 90	4.33 110	5 127	5 127	5 127	5 127	8.27 210
B open	inch mm	6.02 153	6.02 153	7.48 190	8.66 220	9.84 250	11.10 282	11.42 290	13.58 345
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	5.43 138	5.43 138	6.77 172
F	inch mm	.31 8	.38 9.6	.55 14	.71 18	.94 24	1.18 30	1.48 36.5	1.89 48
G	inch mm	1.50 38	1.50 38	1.89 48	2.20 56	2.52 64	3.07 78	3.07 78	3.35 85
Weight	lb. kg	5.25 2.4	5.25 2.4	9 4.1	13.75 6.2	17.5 8	23 10.5	24.25 11	44 20
PACKING		BH3	BH3	BH5	BH6	2B4	BY7	2B5	9B8
GASKET		G1	G1	G2	G3	G4	G5	G7	G8

1500 LB.

REDUCED PORT – FIG. 9HL 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	3.54 90	4.33 110	5 127	5 127	8.27 210
B open	inch mm	5.98 152	7.48 190	8.66 220	11.10 282	13.58 345
C	inch mm	3.46 88	3.82 97	5.43 138	5.43 138	5.43 138
F	inch mm	.38 9.6	.55 14	.71 18	1.18 30	1.48 36.5
G	inch mm	1.5 38	1.89 48	2.20 56	3.07 78	3.35 85
Weight	lb. kg	5.25 2.4	8.5 3.9	13.25 6.1	23.75 10.8	45.25 20.5
PACKING		BH3	BH5	BH6	2B5	BH8
GASKET		G1	G2	G3	G5	G7

B[®] GATE VALVES- BOLTED BONNET- FULL PORT

BONNEY FORGE

1500 LB.

2500 LB.

Design construction:

ASME B16.34 - BS 5352

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Integral backseat

Oval ring joint gasket

Socket Weld Ends to ASME B16.11

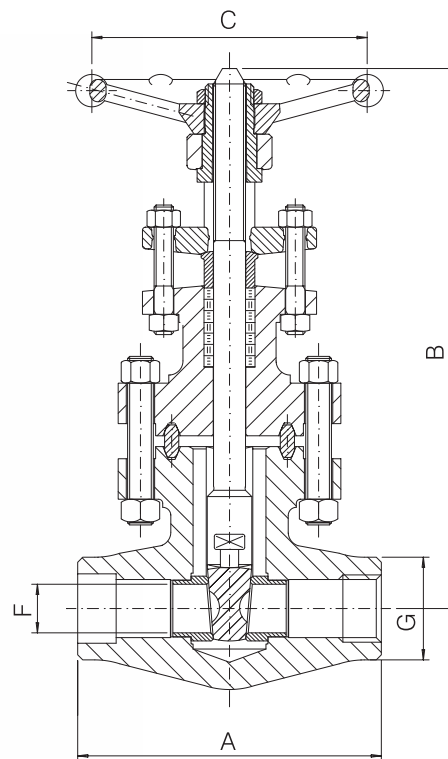
Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

Ratings standard class:

- carbon steel class 1500 3705 psig @ 100°F
255 bar + 38°C

- carbon steel class 2500 6170 psig @ 100°F
425 bar + 38°C



1500 LB.	FULL PORT – FIG. H9R 10							
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
	A	inch mm	4.33 110	5.91 150	5.91 150	8.27 210	8.27 210	9.06 230
	B open	inch mm	9.17 233	11.38 289	11.54 293	14.06 357	14.41 366	17.76 451
	C	inch mm	5.43 138	5.43 138	5.43 138	6.77 172	6.77 172	9.21 234
	F	inch mm	.55 14	.71 18	.94 24	1.16 29.5	1.44 36.6	1.89 48
	G	inch mm	1.5 38	2.17 55	2.17 55	2.95 75	2.95 75	3.62 92
	Weight	lb. kg	11 5	20.25 9.2	20.25 9.2	44 20	44 20	79.25 36
	PACKING		2B3	2B4	2B4	2B5	2B5	9B8
	GASKET		R12	R17	R17	R20	R20	R24

FULL PORT – FIG. 25HR 10							
2500 LB.	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	5.91 150	5.91 150	8.27 210	9.06 230	9.06 230
	B open	inch mm	11.10 282	11.3 287	13.70 348	15.98 406	17.20 437
	C	inch mm	5.43 138	5.43 138	6.77 172	9.21 234	9.21 234
	F	inch mm	.45 11.5	.59 15	.77 19.5	1.10 28	1.38 35
	G	inch mm	2.17 55	2.17 55	2.95 75	3.62 92	3.62 92
	Weight	lb. kg	22 10	22 10	48.5 22	81.5 37	79.25 36
	PACKING		2B4	BH8	BH8	9B8	25B8
	GASKET		R16	R16	R17	R20	R22

B[®] GATE VALVES- WELDED BONNET- FULL & REDUCED PORT

BONNEY FORGE

800 LB.

1500 LB.

Design construction:

API 602 - ASME B16.34 - BS 5352

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Integral backseat

Body Bonnet Weld to ASME IX

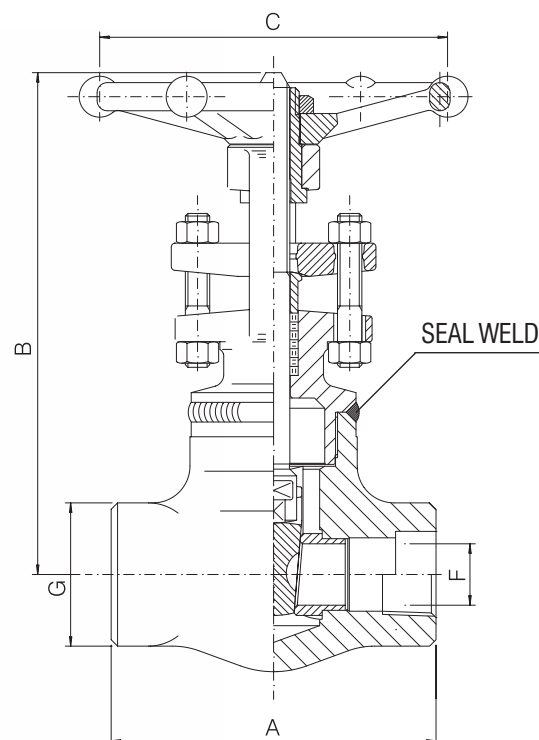
Socket Weld Ends to ASME B16.11

Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

Ratings:

- carbon steel class 800 1975 psig @ 100°F
138 bar + 38°C
- carbon steel class 1500 3705 psig @ 100°F
255 bar + 38°C



FULL PORT – FIG. W 10									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch mm	3.15 80	3.15 80	3.54 90	4.33 110	5 127	5 127	5 127	8.27 210
B open	inch mm	5.98 152	5.98 152	6.22 158	7.72 196	8.86 225	10.04 255	11.42 290	14.09 358
C	inch mm	3.46 88	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	5.43 138	6.77 172
F	inch mm	.31 8	.38 9.6	.55 14	.71 18	.94 24	1.18 30	1.44 36.6	1.89 48
G	inch mm	1.26 32	1.26 32	1.5 38	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85
Weight	lb. kg	3.25 1.5	3.25 1.5	4.25 2	7.75 3.5	11 5	14.25 6.5	20.75 9.5	35.25 16
PACKING		BH2	BH2	BH2	BH4	BH5	BH6	BY5	BH8

REDUCED PORT – FIG. WL 10							
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50	
A	inch mm	3.15 80	3.54 90	4.33 110	5 127	5 127	
B open	inch mm	5.98 152	6.22 158	7.72 196	10.04 255	11.42 290	
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	
F	inch mm	.38 9.6	.55 14	.71 18	1.18 30	1.44 36.6	
G	inch mm	1.26 32	1.5 38	1.89 48	2.52 64	3.07 78	
Weight	lb. kg	3.5 1.6	3.75 1.8	6.25 2.9	13.25 6.1	18 8.2	
PACKING		BH2	BH2	BH4	BH6	BY5	

FULL PORT – FIG. 9W 10									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch mm	3.54 90	3.54 90	4.33 110	5 127	5 127	5 127	5 127	8.27 210
B open	inch mm	6.02 153	6.02 153	7.48 190	8.66 220	9.84 250	11.10 282	11.42 290	13.58 345
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	5.43 138	5.43 138	6.77 172
F	inch mm	.31 8	.38 9.6	.55 14	.71 18	.94 24	1.18 30	1.44 36.6	1.89 48
G	inch mm	1.5 38	1.5 38	1.89 48	2.20 56	2.52 64	3.07 78	3.07 78	3.35 85
Weight	lb. kg	4.25 2.0	4.25 2.0	7.5 3.4	11.25 5.1	15.25 7	22 10	23 10.5	41.75 19
PACKING		BH3	BH3	BH5	BH6	2B4	BY7	2B5	2B8

REDUCED PORT – FIG. 9WL 10							
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50	
A	inch mm	3.54 90	4.33 110	5 127	5 127	8.27 210	
B open	inch mm	6.02 153	7.48 190	8.66 220	11.10 282	13.58 345	
C	inch mm	3.46 88	3.82 97	5.43 138	5.43 138	5.43 138	
F	inch mm	.38 9.6	.55 14	.71 18	1.18 30	1.44 36.6	
G	inch mm	1.5 38	1.89 48	2.20 56	3.07 78	3.35 85	
Weight	lb. kg	4.25 2	7.25 3.3	11.5 5.3	21.5 9.8	40.25 18.3	
PACKING		BH3	BH5	BH6	2B5	BH8	

B[®] GATE VALVES- WELDED BONNET- FULL PORT

BONNEY FORGE

2500 LB.

4500 LB.

Design construction:

ASME B16.34

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Integral backseat

Body Bonnet Weld to ASME IX

Socket Weld Ends to ASME B16.11

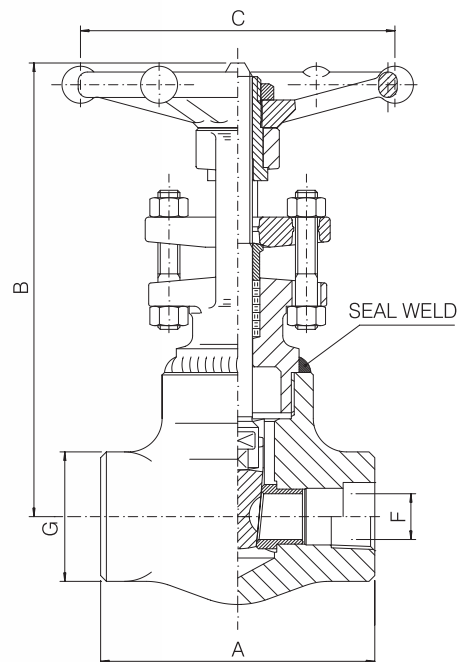
Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

Ratings standard class:

- carbon steel class 2500 6170 psig @ 100°F
425 bar + 38°C

- carbon steel class 4500 11100 psig @ 100°F
765 bar + 38°C



2500 LB.	FULL PORT — FIG. 25W 10									
	SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
	A	inch mm	4.33 110	4.33 110	5 127	5 127	5 127	5 127	8.27 210	9.06 230
	B open	inch mm	7.20 183	7.20 183	8.43 214	9.61 244	10.87 276	10.87 276	13.27 337	15.91 404
	C	inch mm	3.82 97	3.82 97	5.43 138	5.43 138	5.43 138	5.43 138	6.77 172	9.21 234
	F	inch mm	.31 8	.31 8	.45 11.5	.59 15	.77 19.5	.98 25	1.10 28	1.38 35
	G	inch mm	1.89 48	1.89 48	2.20 56	2.52 64	3.07 78	3.07 78	3.35 85	3.74 95
	Weight	lb. kg	11.25 5.2	11.5 5.3	11.75 5.4	15.75 7.2	21.5 9.8	21.5 9.8	43 19.5	63.75 29
	PACKING		2B4	2B4	2B4	BH8	BH8	2B5	2B5	2B8

4500 LB.	FULL PORT — FIG. 45W 10					
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40
	A	inch mm	5 127	5 127	9.06 230	9.06 230
	B open	inch mm	10.39 264	10.83 275	14.37 365	15.75 400
	C	inch mm	5.43 138	6.61 168	9.21 234	12.60 320
	F	inch mm	.30 7.5	.45 11.5	.59 15	1.02 26
	G	inch mm	3.07 78	3.07 78	3.74 95	3.74 95
	Weight	lb. kg	22 10	26.5 12	40.8 18.5	59.5 27
	PACKING		2B3	BH6	BY7	2B8

Available with Socket Weld or Butt-Weld Ends Only.

Materials and trim specifications Page 91

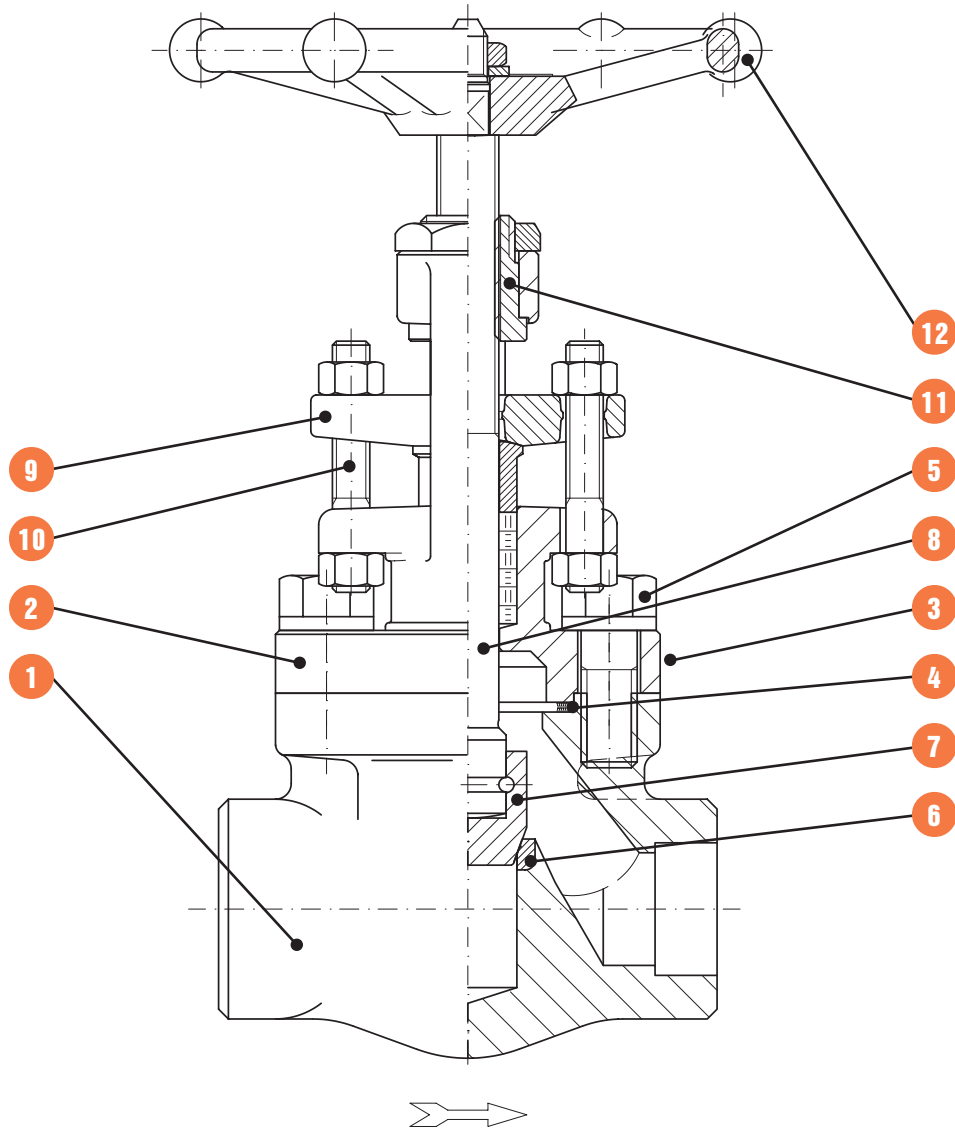
Overview	16
Bolted Bonnet- 800 lb. & 1500 lb. valves	17
Bolted Bonnet- 1500 lb. & 2500 lb. valves	18
Welded Bonnet- 800 lb. & 1500 lb. valves	19
Welded Bonnet- 2500 lb. & 4500 lb. valves	20
Welded Bonnet (Y type)- 800 lb. & 1690 lb. valves	21
Welded Bonnet (Y type)- 2680 lb. & 4500 lb. valves	22

GLOBE VALVES



GLOBE VALVES

Forged steel, outside screw and yoke (OS&Y), rotating rising stem, rising handwheel.
 Full or conventional port.
 Bolted or welded bonnet joint.
 T-Pattern or Y-Pattern. Integral backseat. Integral body seat.



- 1. BODY.** The body is forged steel and designed to the basic dimensional requirements of the applicable specifications such as API 602 and ASME B16.34. The body is available in both the full or conventional port design. It is also available in either T-pattern or Y-pattern configuration.
- 2. BONNET.** The bonnet is forged steel, has an integral backseat and incorporates the stuffing box, which has dimensions per the applicable specifications such as API 602.
- 3. BODY-BONNET JOINT.** Two different bonnet joint designs are available. These are either the bolted bonnet or the threaded and seal welded type.
- 4. GASKET.** The bolted bonnet joint design valve uses a contained, controlled compression, spiral wound type gasket.
- 5. BONNET BOLTING.** The bonnet bolting is manufactured of alloy steel in accordance with the requirements of the applicable specifications such as API 602 and ASME B16.34.
- 6. SEAT.** The body seat is an integral weld overlay and is part of the valve trim.
- 7. DISC.** The disc is forged steel and is part of the valve trim. The disc seating surface is of the tapered or plug type design. The disc is attached to the stem using a loose or swivel disc arrangement.
- 8. STEM.** The stem is forged steel and part of the valve trim. It contains an integral back seat shoulder, which mates with the integral backseat of the bonnet. The stem is designed to the basic dimensional requirements of the applicable specifications such as API 602.
- 9. GLAND AND FLANGE.** The gland, gland flange assembly utilizes a separate, two piece design. This self aligning design allows the flange to be unevenly tightened while the gland maintains its parallel alignment with the stem and stuffing box.
- 10. GLAND BOLTS AND NUTS.** The steel/stainless steel gland bolt and nut assembly is a stud, double nut arrangement. This design allows complete removal from the valve when service is required. The use of industry standard thread full length studs and nuts also allows easy replacement should these items be lost or in need of replacement.
- 11. YOKE SLEEVE.** The yoke sleeve is of forged stainless steel material having a high melting point and is resistant to wear and corrosion.
- 12. HANDWHEEL.** The handwheel is forged carbon steel of an open spoke design. This robust construction along with appropriate sizing allows for ease of operation.

B[®] GLOBE VALVES- BOLTED BONNET- FULL & REDUCED PORT

BONNEY FORGE

800 LB.

1500 LB.

Design construction:

ASME B16.34 - BS 5352

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Spiral-wound gasket

Integral backseat

Loose solid disc

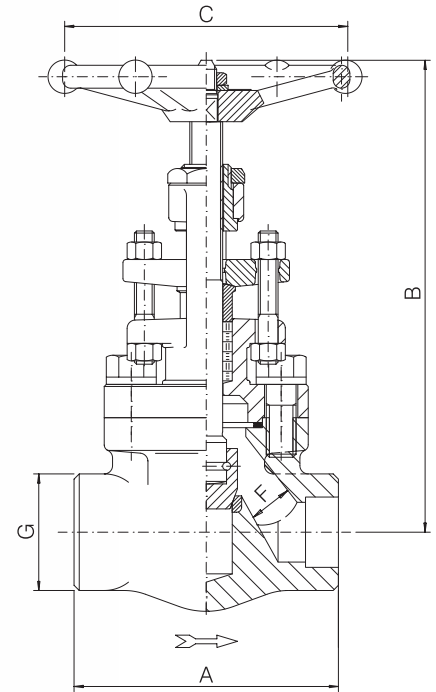
Socket Weld Ends to ASME B16.11

Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

Ratings:

- carbon steel class 800 1975 psig @ 100°F
138 bar + 38°C
- carbon steel class 1500 3705 psig @ 100°F
255 bar + 38°C



FULL PORT – FIG. H 30									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch mm	3.15 80	3.15 80	3.54 90	4.33 110	5 127	6 150	7.09 180	8.27 210
B open	inch mm	6.54 166	6.54 166	6.73 171	8.39 213	9.72 247	10.16 258	11.81 300	14.76 375
C	inch mm	3.46 88	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	6.77 172	6.77 172
F	inch mm	.28 7	.35 9	.51 13	.69 17.5	.89 22.5	1.16 29.5	1.38 35	1.79 45.5
G	inch mm	1.26 32	1.26 32	1.5 38	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85
Weight	lb. kg	4.75 2.2	4.75 2.2	5.25 2.4	8.25 3.8	13.25 6.1	16.75 7.6	27.5 12.5	43.25 19.6
PACKING		BH3	BH3	BH3	BH5	BY5	BY5	BY7	BH8
GASKET		G2	G2	G2	G3	G4	G6	G7	G9

REDUCED PORT – FIG. HL 30							
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50	
A	inch mm	3.15 80	3.54 90	4.33 110	6 150	7.09 180	
B open	inch mm	6.54 166	6.73 171	8.39 213	10.16 258	11.81 300	
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	6.77 172	
F	inch mm	.35 9	.51 13	.69 17.5	1.16 29.5	1.38 35	
G	inch mm	1.26 32	1.5 38	1.89 48	2.52 64	3.07 78	
Weight	lb. kg	4.5 2.1	5 2.3	8 3.7	16.25 7.4	26.25 11.9	
PACKING		BH3	BH3	BH5	BY5	BY7	
GASKET		G2	G2	G3	G6	G7	

FULL PORT – FIG. 9H 30									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch mm	3.54 90	3.54 90	4.33 110	5 127	6 150	7.09 180	8.27 210	9.06 230
B open	inch mm	6.54 166	6.54 166	8.27 210	9.72 247	10.08 256	11.81 300	14.76 375	16.85 428
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	6.77 172	6.77 172	9.21 234
F	inch mm	.28 7	.35 9	.47 12	.59 15	.79 20	1.06 27	1.26 32	1.57 40
G	inch mm	1.5 38	1.5 38	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85	3.74 95
Weight	lb. kg	5.75 2.6	5.75 2.6	9.25 4.2	14.25 6.5	18.75 8.5	27.5 12.5	49 22.3	79.25 36
PACKING		BH3	BH3	BH5	2B4	2B4	2B5	BH8	9B8
GASKET		G1	G1	G2	G3	G4	G5	G7	G8

REDUCED PORT – FIG. 9HL 30							
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50	
A	inch mm	3.54 90	4.33 110	5 127	7.09 180	8.27 210	
B open	inch mm	6.54 166	8.27 210	9.84 250	11.81 300	14.76 375	
C	inch mm	3.46 88	3.82 97	5.43 138	6.77 172	6.77 172	
F	inch mm	.35 9	.47 12	.59 15	1.06 27	1.26 32	
G	inch mm	1.5 38	1.89 48	2.20 56	3.07 78	3.35 85	
Weight	lb. kg	5.25 2.4	8.75 4	14.25 6.5	28.5 13	48.5 22	
PACKING		BH3	BH5	2B4	2B5	BH8	
GASKET		G1	G2	G3	G5	G7	

B[®] GLOBE VALVES- BOLTED BONNET- FULL PORT

BONNEY FORGE

1500 LB.

2500 LB.

Design construction:

ASME B16.34 - BS 5352

Testing according to API 598

Marking MSS SP55

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Integral backseat

Oval ring joint gasket

Loose solid disc

Socket Weld Ends to ASME B16.11

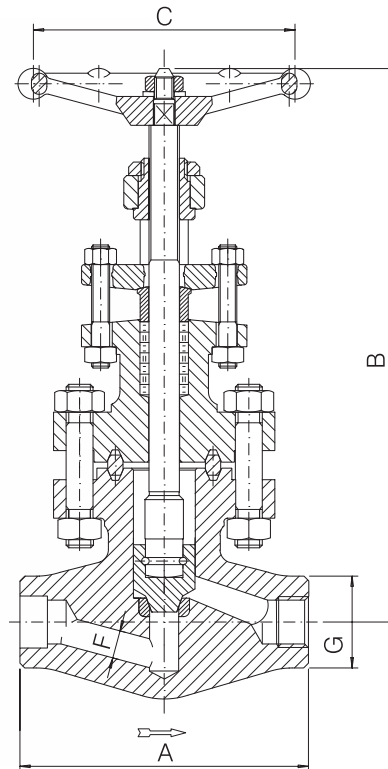
Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

Ratings standard class:

- carbon steel class 1500 3705 psig @ 100°F
255 bar + 38°C

- carbon steel class 2500 6170 psig @ 100°F
425 bar + 38°C



FULL PORT – FIG. H9R 30						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	4.33 110	5.91 150	5.91 150	8.27 210	9.06 230
B open	inch mm	9.53 242	12.20 310	12.20 310	14.57 370	18.31 465
C	inch mm	5.43 138	5.43 138	5.43 138	6.77 172	9.21 234
F	inch mm	.47 12	.59 15	.75 19	1.26 32	1.57 40
G	inch mm	1.5 38	2.17 55	2.17 55	2.95 75	3.74 95
Weight	lb. kg	11 5	22 10	22 10	46.25 21	79.25 36
PACKING		2B3	2B4	2B4	2B5	2B8
GASKET		R12	R17	R17	R20	R24

FULL PORT – FIG. 25HR 30						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	5.91 150	5.91 150	8.27 210	9.06 230	9.06 230
B open	inch mm	11.97 304	11.97 304	14.25 362	17.17 436	17.17 436
C	inch mm	5.43 138	5.43 138	5.43 138	9.21 234	9.21 234
F	inch mm	.43 11	.57 14.5	.75 19	1.10 28	1.5 38
G	inch mm	2.17 55	2.17 55	2.95 75	3.74 95	3.74 95
Weight	lb. kg	22 10	22 10	48.5 22	83.75 38	83.75 38
PACKING		2B4	2B4	BH8	2B8	4B8
GASKET		R16	R16	R17	R20	R20

B[®] GLOBE VALVES- WELDED BONNET- FULL & REDUCED PORT

BONNEY FORGE

800 LB.

1500 LB.

Design construction:

ASME B16.34 - BS 5352

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Integral backseat

Body bonnet weld to ASME IX

Loose solid disc

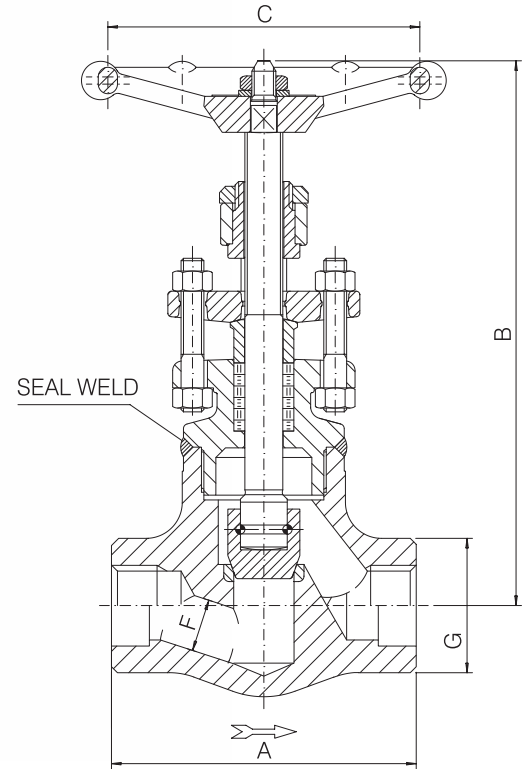
Socket Weld Ends to ASME B16.11

Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

Ratings:

- carbon steel class 800 1975 psig @ 100°F
138 bar + 38°C
- carbon steel class 1500 3705 psig @ 100°F
255 bar + 38°C



800 LB.									
FULL PORT – FIG. W 30									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch mm	3.15 80	3.15 80	3.54 90	4.33 110	5 127	5.91 150	7.09 180	8.27 210
B open	inch mm	6.54 166	6.54 166	6.73 171	8.39 213	9.72 247	10.12 258	11.81 300	14.76 375
C	inch mm	3.46 88	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	6.77 172	6.77 172
F	inch mm	.28 7	.35 9	.51 13	.69 17.5	.89 22.5	1.16 29.5	1.38 35	1.77 45
G	inch mm	1.26 32	1.26 32	1.5 38	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85
Weight	lb. kg	3.75 1.7	3.75 1.8	4.25 2	6.5 3	11 5	14.75 6.8	24.25 11	36.25 16.5
PACKING		BH3	BH3	BH3	BH5	BY5	BY5	BY7	BH8

800 LB.

REDUCED PORT — FIG. WL 30						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	3.15 80	3.54 90	4.33 110	5.91 150	7.09 180
B open	inch mm	6.54 166	6.73 171	8.39 213	10.12 258	11.81 300
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	6.77 172
F	inch mm	.35 9	.51 13	.69 17.5	1.16 29.5	1.38 35
G	inch mm	1.26 32	1.5 38	1.89 48	2.52 64	3.07 78
Weight	lb. kg	3.75 1.7	4.25 2	6.5 3	14.5 6.6	22.75 10.4
PACKING		BH3	BH3	BH5	BY5	BY7

1500 LB.									
FULL PORT – FIG. 9W 30									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch mm	3.54 90	3.54 90	4.33 110	5 127	5.91 150	7.09 180	8.27 210	9.06 230
B open	inch mm	6.54 166	6.54 166	8.27 210	9.72 247	10.08 256	11.81 300	14.76 375	16.85 428
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	6.77 172	6.77 172	9.21 234
F	inch mm	.28 7	.35 9	.47 12	.59 15	.79 20	1.06 27	1.26 32	1.57 40
G	inch mm	1.5 38	1.5 38	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85	3.74 95
Weight	lb. kg	4.75 2.2	4.75 2.2	7.75 3.5	12 5.5	16.75 7.6	22 10	44 20	66 30
PACKING		BH3	BH3	BH5	2B4	2B4	2B5	BH8	2B8

1500 LB.

REDUCED PORT — FIG. 9WL 30						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	3.54 90	4.33 110	5 127	7.09 180	8.27 210
B open	inch mm	6.54 166	8.27 210	9.72 247	11.81 300	14.76 375
C	inch mm	3.46 88	3.82 97	5.43 138	6.77 172	6.77 172
F	inch mm	.35 9	.47 12	.59 15	1.06 27	1.26 32
G	inch mm	1.5 38	1.89 48	2.20 56	3.07 78	3.35 85
Weight	lb. kg	4.25 2	7.75 3.5	12 5.5	26.25 12	41.75 19
PACKING		BH3	BH5	2B4	2B5	BH8

B[®] GLOBE VALVES- WELDED BONNET- FULL PORT

BONNEY FORGE

2500 LTD.

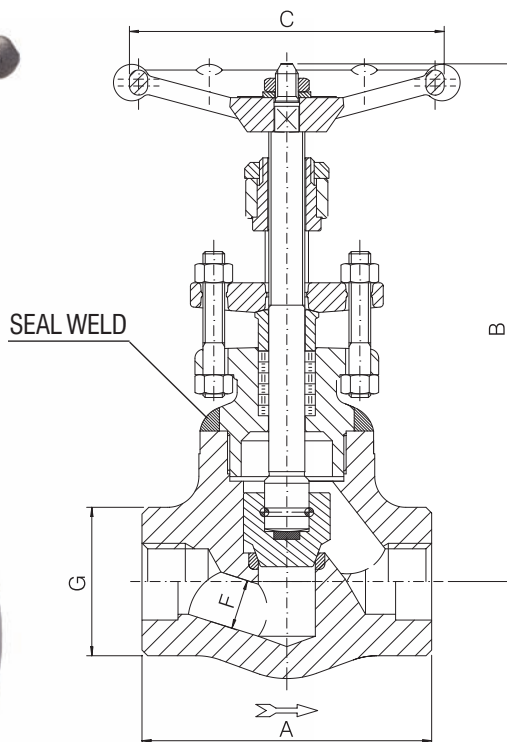
4500 LTD.

Design construction:

ASME B16.34 Limited Class
Testing according to API 598
Marking MSS SP25
Outside Screw and Yoke (OS&Y)
Self aligning two piece packing gland
Integral backseat
Body bonnet weld to ASME IX
Loose solid disc
Socket Weld Ends to ASME B16.11
Screwed Ends (NPT) to ASME B1.20.1
Butt Welding Ends to ASME B16.25

Ratings standard class:

- carbon steel class 2500 6250 psig @ 100°F
431 bar + 38°C
- carbon steel class 4500 11250 psig @ 100°F
776 bar + 38°C



FULL PORT – FIG. 25W 30									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch mm	4.33 110	4.33 110	5 127	5.91 150	7.09 180	7.09 180	8.27 210	9.06 230
B open	inch mm	7.48 190	7.48 190	8.9 226	9.72 247	11.34 288	11.34 288	14.17 360	16.54 420
C	inch mm	3.46 88	3.46 88	5.43 138	5.43 138	5.43 138	5.43 138	6.77 172	9.21 234
F	inch mm	.28 7	.35 9	.43 11	.57 14.5	.75 19	.87 22	1.10 28	1.38 35
G	inch mm	1.89 48	1.89 48	2.20 56	2.52 64	3.07 78	3.07 78	3.35 85	3.74 95
Weight	lb. kg	9.75 4.5	10.25 4.7	12 5.5	17.5 8	28.5 13	28.5 13	43.5 19.8	66 30
PACKING		BH4	BH4	2B3	2B4	2B5	2B5	2B5	2B8

FULL PORT – FIG. 45W 30									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/2 40	2 50	
A	inch mm	5 127	5 127	5 127	7.09 180	7.09 180	9.06 230	9.06 230	
B open	inch mm	9.06 230	9.06 230	9.25 235	11.81 300	11.81 300	14.57 370	15.75 400	
C	inch mm	5.43 138	5.43 138	5.43 138	6.77 172	6.77 172	9.21 234	15.75 400	
F	inch mm	.28 7	.28 7	.31 8	.43 11	.55 14	.98 25	1.26 32	
G	inch mm	2.20 56	2.20 56	2.20 56	3.07 78	3.07 78	3.74 95	4.72 120	
Weight	lb. kg	14.25 6.5	14.25 6.5	14.25 6.5	33 15	33 15	55 25	66 30	
PACKING		2B3	2B3	2B3	4B5	4B5	2B8	4B8	

Available with Socket Weld or Butt-Weld Ends only.

Materials and trim specifications Page 91

800 LTD.

1690 LTD.

Design construction:

ASME B16.34 Limited Class

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Integral backseat

Body bonnet weld to ASME IX

Loose solid disc

Socket Weld Ends to ASME B16.11

Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

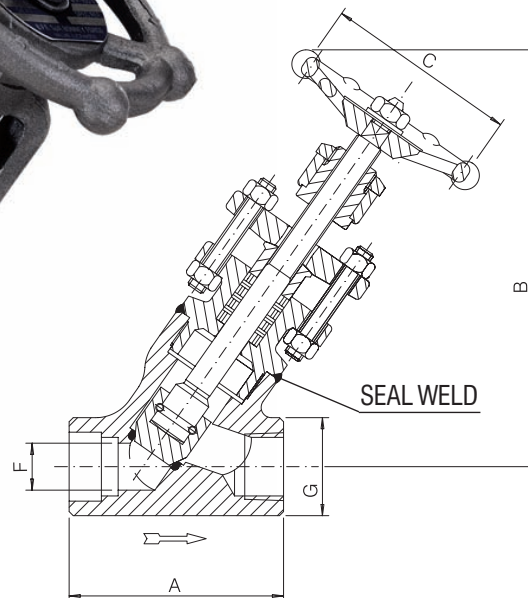
Ratings:

- carbon steel class 800 2000 psig @ 100°F

138 bar + 38°C

- carbon steel class 1690 4225 psig @ 100°F

291 bar + 38°C



FULL PORT — FIG. Y 30									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch mm	3.35 85	3.35 85	3.35 85	4.13 105	4.72 120	6.5 165	6.5 165	7.48 190
B open	inch mm	6.85 174	6.85 174	6.85 174	8.46 215	10.04 255	10.04 255	12.52 318	14.76 375
C	inch mm	3.46 88	3.46 88	3.46 88	3.82 97	5.43 138	6.77 172	6.77 172	6.77 172
F	inch mm	.28 7	.35 9	.51 13	.69 17.5	.89 22.5	1.38 35	1.38 35	1.77 45
G	inch mm	1.5 38	1.5 38	1.5 38	1.89 48	2.20 56	3.07 78	3.07 78	3.35 85
Weight	lb. kg	4.25 2	4.25 2	4.25 2	7.25 3.3	11 5	24.25 11	24.25 11	33 15
PACKING		BH3	BH3	BH3	BH5	BY5	BY7	BY7	BH8

1690 LTD.

FULL PORT – FIG. 1690Y 30										
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50	
A	inch mm	3.35 85	3.35 85	4.13 105	4.72 120	6.5 165	6.5 165	7.48 190	8.66 220	
B open	inch mm	6.89 175	6.89 175	8.46 215	10.04 255	11.02 280	12.40 315	14.96 380	17.72 450	
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	6.77 172	6.77 172	9.21 234	
F	inch mm	.28 7	.35 9	.47 12	.59 15	.79 20	1.06 27	1.26 32	1.57 40	
G	inch mm	1.5 38	1.5 38	1.89 48	2.20 56	3.07 78	3.07 78	3.35 85	3.74 95	
Weight	lb. kg	4.25 2	4.25 2	7.75 3.5	11.5 5.3	24.25 11	24.25 11	36.25 16.5	57.25 26	
PACKING		BH3	BH3	BH5	2B4	2B4	BY7	BH8	2B8	

B[®] GLOBE VALVES- WELDED BONNET- FULL PORT (Y TYPE)

BONNEY FORGE

2680 LTD.

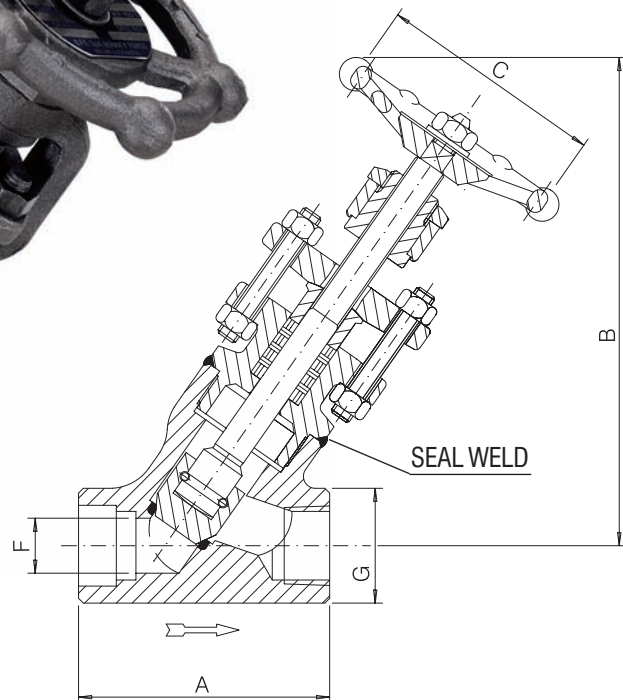
4500 LTD.

Design construction:

ASME B16.34 Limited Class
Testing according to API 598
Marking MSS SP25
Outside Screw and Yoke (OS&Y)
Self aligning two piece packing gland
Integral backseat
Body bonnet weld to ASME IX
Loose solid disc
Socket Weld Ends to ASME B16.11
Screwed Ends (NPT) to ASME B1.20.1
Butt Welding Ends to ASME B16.25

Ratings:

- carbon steel class 2680 6700 psig @ 100°F
462 bar + 38°C
- carbon steel class 4500 11250 psig @ 100°F
776 bar + 38°C



FULL PORT — FIG. 2680Y 30								
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	4.13 105	4.13 105	4.72 120	6.5 165	6.5 165	7.48 190	8.66 220
B open	inch mm	8.66 220	8.66 220	9.45 240	10.83 275	12.20 310	14.17 360	17.32 440
C	inch mm	3.46 88	3.46 88	5.43 138	5.43 138	5.43 138	6.77 172	9.21 234
F	inch mm	.28 7	.35 9	.43 11	.57 14.5	.75 19	1.10 28	1.38 35
G	inch mm	1.89 48	1.89 48	2.20 56	3.07 78	3.07 78	3.35 85	3.74 95
Weight	lb. kg	7.75 3.5	7.75 3.5	11 5	25.25 11.5	27.5 12.5	37.25 17	57.25 26
PACKING		BH4	BH4	2B3	2B4	2B5	2B5	2B8

Note: Thread End Valves are limited to ASME B16.34, 2500 Pressure Class.

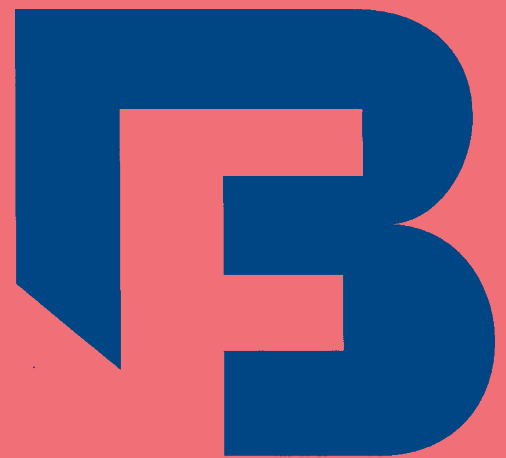
FULL PORT — FIG. 45Y 30								
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	4.72 120	4.72 120	4.72 120	6.5 165	6.5 165	8.66 220	9.06 230
B open	inch mm	9.45 240	9.45 240	9.65 245	12.01 305	12.20 310	16.54 420	17.72 450
C	inch mm	5.43 138	5.43 138	5.43 138	6.77 172	6.77 172	9.21 234	15.75 400
F	inch mm	.28 7	.28 7	.31 8	.43 11	.55 14	.98 25	1.26 32
G	inch mm	2.20 56	2.20 56	2.20 56	3.07 78	3.07 78	3.74 95	4.72 120
Weight	lb. kg	12 5.5	12 5.5	12.25 5.6	30.75 14	30.75 14	61.75 28	70.5 32
PACKING		2B3	2B3	2B3	2B4A	4B5	2B8	4B8

Available with Socket Weld or Butt-Weld Ends only.

Materials and trim specifications Page 91

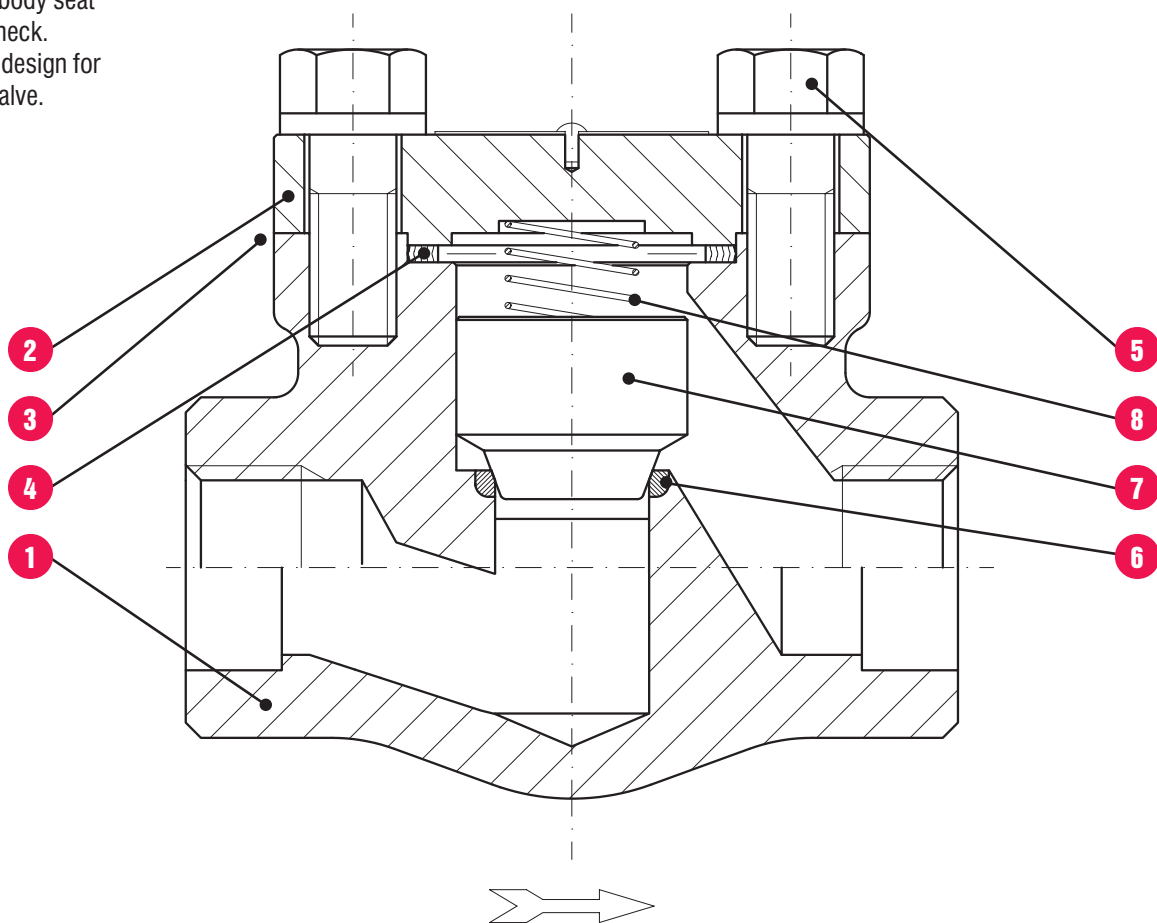
Overview	24
Bolted Bonnet- 800 lb. & 1500 lb. valves	25
Bolted Bonnet- 1500 lb. & 2500 lb. valves	26
Welded Bonnet- 800 lb. & 1500 lb. valves	27
Welded Bonnet- 2500 lb. & 4500 lb. valves	28
Welded Bonnet (Y type)- 800 lb. & 1690 lb. valves	29
Welded Bonnet (Y type)- 2680 lb. & 4500 lb. valves	30

CHECK VALVES



CHECK VALVES

Forged steel, piston, ball or swing check. Full or conventional port. Bolted or welded cover joint. T-Pattern or Y-Pattern. Integral body seat for piston or ball check. Separate seat ring design for the swing check valve.



- 1. BODY.** The body is forged steel and designed to the basic dimensional requirements of the applicable specifications such as API 602 and ASME B16.34. The body is available in both the full or conventional port design. It is also available in either T-Pattern or Y-Pattern configurations.
- 2. COVER.** The cover is forged steel and designed to the basic dimensional requirements of the applicable specifications such as API 602 and ASME B16.34.
- 3. BODY-COVER JOINT.** Two different cover joint designs are available. These are either the bolted cover or the threaded and seal welded type.
- 4. GASKET.** The bolted cover joint design valve uses a contained, controlled compression, spiral wound type gasket.

- 5. COVER BOLTING.** The cover bolting is manufactured of alloy steel in accordance with the requirements of the applicable specifications such as API 602 and ASME B16.34.
- 6. SEAT.** The body seat for the piston and ball check valves is an integral weld overlay and is part of the valve trim. The swing check valve is supplied with a separate seat ring which is pressed into the valve body and wedged into place, forming a seal with the body.
- 7. PISTON, BALL OR DISC.** The piston, ball or disc is forged steel and is part of the valve trim. The seating surface of the piston and ball check is of the tapered or plug type design. The seating surface of the swing check is of the flat seat design.
- 8. SPRING.** The spring is optional and supplied only upon request.

B[®] CHECK VALVES- BOLTED BONNET- FULL & REDUCED PORT

BONNEY FORGE

800 LB.

1500 LB.

Design construction:

ASME B16.34 - BS 5352

Testing according to API 598

Marking MSS SP25

Spring on request only

Spiral-wound gasket

Socket Weld Ends to ASME B16.11

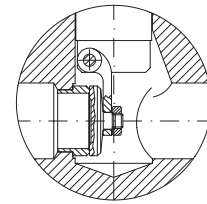
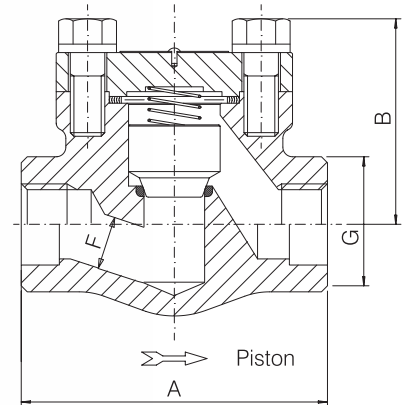
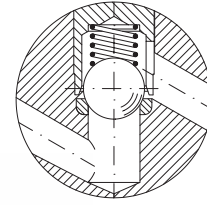
Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

Ratings:

- carbon steel class 800 1975 psig @ 100°F
138 bar + 38°C

- carbon steel class 1500 3705 psig @ 100°F
255 bar + 38°C



800 LB.	FULL PORT — FIG. H 40 - H 50 - H 60									
	SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
	A	inch mm	3.15 80*	3.15 80	3.54 90	4.33 110	5 127	5.91 150	7.09 180	8.27 210
	B	inch mm	2.17 55	2.17 55	2.36 60	3.07 78	3.46 88	3.62 92	4.25 108	5.71 145
	F Piston/ F Ball	inch mm	.28 7	.35 9	.51 13	.69 17.5	.89 22.5	1.16 29.5	1.38 35	1.77 45
	F Swing	inch mm	.31 8	.38 9.6	.55 14	.71 18	.94 24	1.18 30	1.44 36.6	1.89 48
	G	inch mm	1.26 32	1.26 32	1.50 38	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85
	Weight	lb. kg	3 1.4	3 1.4	3.5 1.6	6.5 3	9.5 4.3	12.25 5.6	22 10	35.25 16
	GASKET		G2	G2	G2	G3	G4	G6	G7	G9

800 LB.	REDUCED PORT — FIG. HL 40 - HL 50 - HL 60						
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	3.15 80	3.54 90	4.33 110	5.91 150	7.09 180
	B	inch mm	2.17 55	2.36 60	3.07 78	3.62 92	4.25 108
	F Piston/ F Ball	inch mm	.35 9	.51 13	.69 17.5	1.16 29.5	1.38 35
	F Swing	inch mm	.38 9.6	.55 14	.71 18	1.18 30	1.44 36.6
	G	inch mm	1.26 32	1.5 38	1.89 48	2.52 64	3.07 78
	Weight	lb. kg	2.75 1.3	3.5 1.6	6.25 2.8	12.25 5.6	19.75 9.0
	GASKET		G2	G2	G3	G6	G7

*For swing type only A=90mm 3.54inch

1500 LB.	FULL PORT — FIG. 9H 40 - 9H 50 - 9H 60									
	SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
	A	inch mm	3.54 90	3.54 90	4.33 110	5 127	5.91 150	7.09 180	8.27 210	8.27 210
	B	inch mm	2.36 60	2.36 60	3.07 78	3.46 88	3.62 92	4.25 108	5.71 145	5.91 150
	F Piston/ F Ball	inch mm	.28 7	.35 9	.47 12	.59 15	.79 20	1.06 27	1.26 32	1.57 40
	F Swing	inch mm	- -	- -	.55 14	.71 18	.94 24	1.18 30	1.44 36.6	1.89 48
	G	inch mm	1.5 38	1.5 38	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85	3.74 95
	Weight	lb. kg	3.75 1.7	3.75 1.7	6.75 3.1	10 4.6	14.25 6.5	23.25 10.6	41.75 19	41.75 19
	GASKET		G1	G1	G2	G3	G4	G5	G7	G8

1500 LB.	REDUCED PORT — FIG. 9HL 40 - 9HL 50 - 9HL 60						
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	3.54 90	4.33 110	5 127	7.09 180	8.27 210
	B	inch mm	2.36 60	3.07 78	3.46 88	4.25 108	5.71 145
	F Piston/ F Ball	inch mm	.35 9	.47 12	.59 15	1.06 27	1.26 32
	F Swing	inch mm	.38 9.6	.55 14	.71 18	1.18 30	1.44 36.6
	G	inch mm	1.5 38	1.89 48	2.20 56	3.07 78	3.35 85
	Weight	lb. kg	3.75 1.7	6.5 3	9.75 4.4	22 10	39.5 18
	GASKET		G1	G2	G3	G5	G7



CHECK VALVES- BOLTED BONNET- FULL PORT

BONNEY FORGE

1500 LB.

2500 LB.

Design construction:

ASME B16.34 - BS 5352

Testing according to API 598

Marking MSS SP25

Spring on request only

Oval ring joint gasket

Socket Weld Ends to ASME B16.11

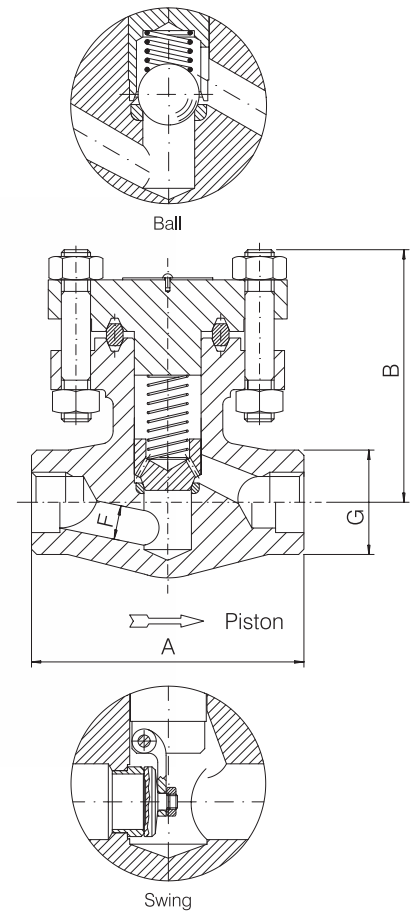
Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

Ratings standard class:

- carbon steel class 1500 3705 psig @ 100°F
255 bar + 38°C

- carbon steel class 2500 6170 psig @ 100°F
425 bar + 38°C



1500 LB.	FULL PORT — FIG. H9R 40 - H9R 50 - H9R 60						
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	4.33 110	5.91 150	5.91 150	8.27 210	9.06 230
	B	inch mm	3.78 96	5.04 128	5.04 128	6.10 155	7.68 195
	F Piston/ F Ball	inch mm	.47 12	.59 15	.75 19	1.26 32	1.5 38
	F Swing	inch mm	.55 14	.71 18	.94 24	1.44 36,6	1.89 48
	G	inch mm	1.5 38	2.17 55	2.17 55	2.95 75	3.62 92
	Weight	lb. kg	7 3,2	16 7,3	16 7,3	37.5 17	63.75 29
	GASKET		R12	R17	R17	R20	R24

2500 LB.	FULL PORT — FIG. 25HR 40 - 25HR 50 - 25HR 60						
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	5.91 150	5.91 150	8.27 210	9.06 230	9.06 230
	B	inch mm	5.04 128	5.04 128	5.98 152	7.48 190	7.48 190
	F Piston/ F Ball	inch mm	.43 11	.57 14,5	.75 19	1.10 28	1.38 35
	F Swing	inch mm	.45 11,5	.59 15	.77 19,5	1.10 28	1.38 35
	G	inch mm	2.17 55	2.17 55	2.95 75	3.74 95	3.74 95
	Weight	lb. kg	16.5 7,5	16.5 7,5	40.75 18,5	66 30	66 30
	GASKET		R16	R16	R17	R20	R20

B[®] CHECK VALVES- WELDED BONNET- FULL & REDUCED PORT

BONNEY FORGE

800 LB.

1500 LB.

Design construction:

ASME B16.34 - BS 5352

Testing according to API 598

Marking MSS SP25

Spring on request only

Body bonnet weld to ASME IX

Socket Weld Ends to ASME B16.11

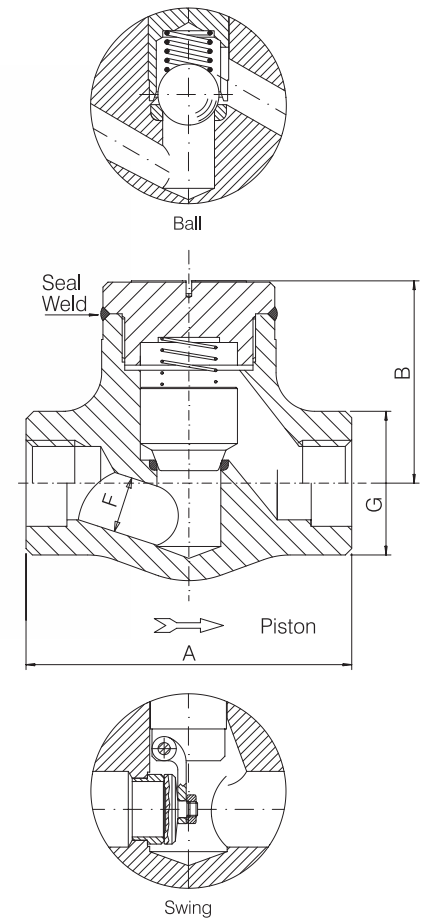
Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

Ratings:

- carbon steel class 800 1975 psig @ 100°F
138 bar + 38°C

- carbon steel class 1500 3705 psig @ 100°F
255 bar + 38°C



FULL PORT – FIG. W 40 - W 50 - W 60									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch	3.15	3.15	3.54	4.33	5	5.91	7.09	8.27
	mm	80	80	90	110	127	150	180	210
B	inch	2.17	2.17	2.36	3.07	3.46	3.62	4.33	5.91
	mm	55	55	60	78	88	92	110	150
F Piston/ F Ball	inch	.28	.35	.51	.69	.89	1.16	1.38	1.77
	mm	7	9	13	17.5	22.5	29.5	35	45
F Swing	inch	.31	.38	.55	.71	.94	1.18	1.44	1.89
	mm	8	9.6	14	18	24	30	36.6	48
G	inch	1.26	1.26	1.50	1.89	2.20	2.52	3.07	3.35
	mm	32	32	38	48	56	64	78	85
Weight	lb.	2	2	2.5	5	7.25	11.5	19	30.75
	kg	1	1	1.2	2.3	3.3	5.2	8.7	14

REDUCED PORT – FIG. WL 40 - WL 50 - WL 60						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch	3.15	3.54	4.33	5.91	7.09
	mm	80	90	110	150	180
B	inch	2.13	2.36	3	3.62	4.33
	mm	54	60	76	92	110
F Piston/ F Ball	inch	.35	.51	.69	1.16	1.38
	mm	9	13	17.5	29.5	35
F Swing	inch	.38	.55	.71	1.18	1.44
	mm	9.6	14	18	30	36.6
G	inch	1.26	1.50	1.89	2.52	3.07
	mm	32	38	48	64	78
Weight	lb.	1.75	2.25	5	11	18.25
	kg	0.9	1.1	2.3	5	8.3

FULL PORT – FIG. 9W 40 - 9W 50 - 9W 60									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch	3.54	3.54	4.33	5	5.91	7.09	8.27	9.06
	mm	90	90	110	127	150	180	210	230
B	inch	2.17	2.17	3	3.31	3.54	4.33	5.91	9.06
	mm	55	55	76	84	90	110	150	230
F Piston/ F Ball	inch	.28	.35	.47	.59	.79	1.06	1.26	1.57
	mm	7	9	12	15	20	27	32	40
F Swing	inch	.31	.38	.55	.71	.94	1.18	1.44	1.89
	mm	8	9.6	14	18	24	30	36.6	48
G	inch	1.50	1.50	1.89	2.20	2.52	3.07	3.35	3.74
	mm	38	38	48	56	64	78	85	95
Weight	lb.	3	3	5.5	8	13.25	22	34.25	48.5
	kg	1.4	1.4	2.5	3.7	6	10	15.5	22

REDUCED PORT – FIG. 9WL 40 - 9WL 50 - 9WL 60						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch	3.54	4.33	5	7.09	8.27
	mm	90	110	127	180	210
B	inch	2.13	3	3.39	4.33	5.91
	mm	54	76	86	110	150
F Piston/ F Ball	inch	.35	.47	.59	1.06	1.26
	mm	9	12	15	27	32
F Swing	inch	.38	.55	.71	1.18	1.44
	mm	9.6	14	18	30	36.6
G	inch	1.5	1.89	2.20	3.07	3.35
	mm	38	48	56	78	85
Weight	lb.	3	4.75	6.5	21	35.25
	kg	1.4	2.2	3	9.6	16



CHECK VALVES- WELDED BONNET- FULL PORT

BONNEY FORGE

2500 LTD.

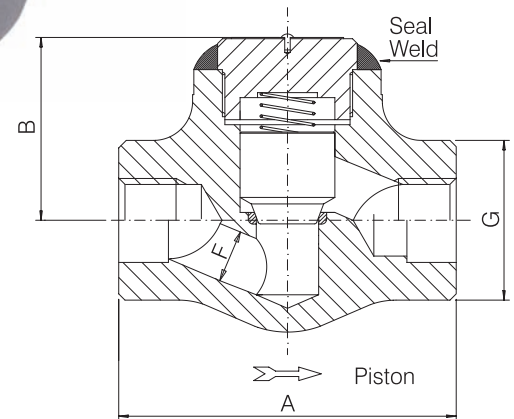
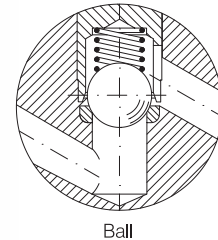
4500 LTD.

Design construction:

ASME B16.34 Limited Class
Testing according to API 598
Marking MSS SP25
Spring on request only
Body bonnet weld to ASME IX
Socket Weld Ends to ASME B16.11
Screwed Ends (NPT) to ASME B1.20.1
Butt Welding Ends to ASME B16.25

Ratings:

- carbon steel class 2500 6250 psig @ 100°F
431 bar + 38°C
- carbon steel class 4500 11250 psig @ 100°F
776 bar + 38°C



2500 LTD.	FULL PORT – FIG. 25W 40 - 25W 50								
	SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	4.33 110	4.33 110	5 127	5.91 150	7.09 180	8.27 210	9.06 230
	B	inch mm	2.76 70	2.76 70	3.39 86	3.62 92	4.33 110	5.91 150	7.09 180
	F	inch mm	.28 7	.35 9	.43 11	.57 14.5	.75 19	1.10 28	1.38 35
	G	inch mm	1.89 48	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85	3.74 95
	Weight	lb. kg	7 3.2	7 3.2	8.25 3.8	12.25 5.6	22 10	35.25 16	46.25 21

4500 LTD.	FULL PORT – FIG. 45W 40 - 45W 50								
	SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	5 127	5 127	5 127	7.09 180	7.09 180	9.06 230	9.06 230
	B	inch mm	3.54 90	3.54 90	3.54 90	4.33 110	4.33 110	7.09 180	7.68 195
	F	inch mm	.28 7	.28 7	.31 8	.43 11	.55 14	.98 25	1.26 32
	G	inch mm	2.20 56	2.20 56	2.20 56	3.07 78	3.07 78	3.74 95	4.72 120
	Weight	lb. kg	8.5 3.9	8.5 3.9	8.5 3.9	23 10.5	23 10.5	55.5 25.2	59.5 27

Available with Socket Weld or Butt-Weld Ends only.

Materials and trim specifications Page 91

B[®] CHECK VALVES- WELDED BONNET- FULL PORT (Y TYPE)

BONNEY FORGE

800 LTD.

1690 LTD.

Design construction:

ASME B16.34 Limited Class - BS 5352

Testing according to API 598

Marking MSS SP25

Body bonnet weld to ASME IX

Spring on request only

Socket Weld Ends to ASME B16.11

Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

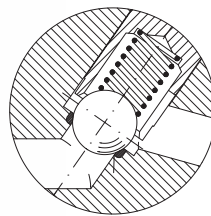
Ratings:

- carbon steel class 800 2000 psig @ 100°F

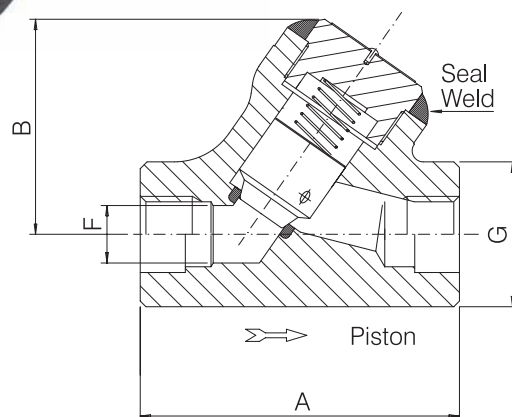
138 bar + 38°C

- carbon steel class 1690 4225 psig @ 100°F

291 bar + 38°C



Ball



800 LTD.	FULL PORT — FIG. Y 40 - Y 50									
	SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
	A	inch mm	3.35 85	3.35 85	3.35 85	4.13 105	4.72 120	6.5 165	6.5 165	7.48 190
	B	inch mm	2.76 70	2.76 70	2.76 70	3.54 90	3.93 100	5.12 130	5.12 130	6.3 160
	F	inch mm	.28 7	.35 9	.51 13	.69 17,5	.89 22,5	1.16 29,5	1.38 35	1.77 45
	G	inch mm	1.50 38	1.50 38	1.50 38	1.89 48	2.20 56	3.07 78	3.07 78	3.35 85
	Weight	lb. kg	2.5 1.2	2.5 1.2	2.5 1.2	5 2.3	6.5 3	17.5 8	17.5 8	26.25 12

1690 LTD.	FULL PORT — FIG. 1690Y 40 - 1690Y 50									
	SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
	A	inch mm	3.35 85	3.35 85	4.13 105	4.72 120	6.5 165	6.5 165	7.48 190	8.66 220
	B	inch mm	2.76 70	2.76 70	3.54 90	3.93 100	5.12 130	5.12 130	6.3 160	7.68 195
	F	inch mm	.28 7	.35 9	.47 12	.59 15	.79 20	1.06 27	1.26 32	1.57 40
	G	inch mm	1.50 38	1.50 38	1.89 48	2.20 56	3.07 78	3.07 78	3.35 85	3.74 95
	Weight	lb. kg	2.5 1.2	2.5 1.2	5.25 2.4	7.75 3.6	20.5 9.3	28.5 13	29.75 13.5	39.5 18

B[®] CHECK VALVES- WELDED BONNET- FULL PORT (Y TYPE)

BONNEY FORGE

2680 LTD.

4500 LTD.

Design construction:

ASME B16.34 Limited Class - BS 5352

Testing according to API 598

Marking MSS SP25

Body bonnet weld to ASME IX

Spring on request only

Socket Weld Ends to ASME B16.11

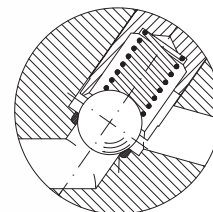
Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

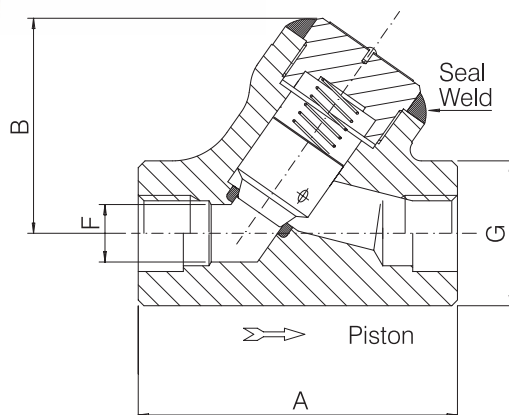
Ratings:

- carbon steel class 2680 6700 psig @ 100°F
462 bar + 38°C

- carbon steel class 4500 11250 psig @ 100°F
776 bar + 38°C



Ball



2680 LTD.	FULL PORT — FIG. 2680Y 40 - 2680Y 50								
	SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	4.13 105	4.13 105	4.72 120	6.5 165	6.5 165	7.48 190	8.66 220
	B	inch mm	3.35 85	3.35 85	3.74 95	4.53 115	4.72 120	5.71 145	7.28 185
	F	inch mm	.28 7	.35 9	.43 11	.57 14.5	.75 19	1.10 28	1.38 35
	G	inch mm	1.89 48	1.89 48	2.20 56	3.07 78	3.07 78	3.35 85	3.74 95
	Weight	lb. kg	7 3,2	7 3,2	8 3,7	19.75 9	19.75 9	29.75 13,5	44 20

Note: Thread End Valves are limited to ASME B16.34 2500 Pressure Class.

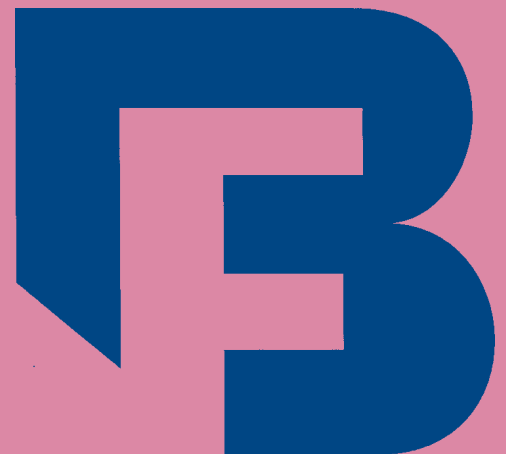
4500 LTD.	REDUCED PORT — FIG. 45Y 40 - 45Y 50								
	SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	4.72 120	4.72 120	4.72 120	6.5 165	6.5 165	8.66 220	9.06 230
	B	inch mm	3.74 95	3.74 95	3.74 95	4.53 115	4.72 120	7.28 185	7.68 195
	F	inch mm	.28 7	.28 7	.31 8	.43 11	.55 14	.98 25	1.26 32
	G	inch mm	2.20 56	2.20 56	2.20 56	3.07 78	3.07 78	3.74 95	4.72 120
	Weight	lb. kg	8 3.7	8 3.7	8 3.7	19.75 9	19.75 9	44 20	50.5 23

Available with Socket Weld or Butt-Weld Ends only.

Materials and trim specifications Page 91

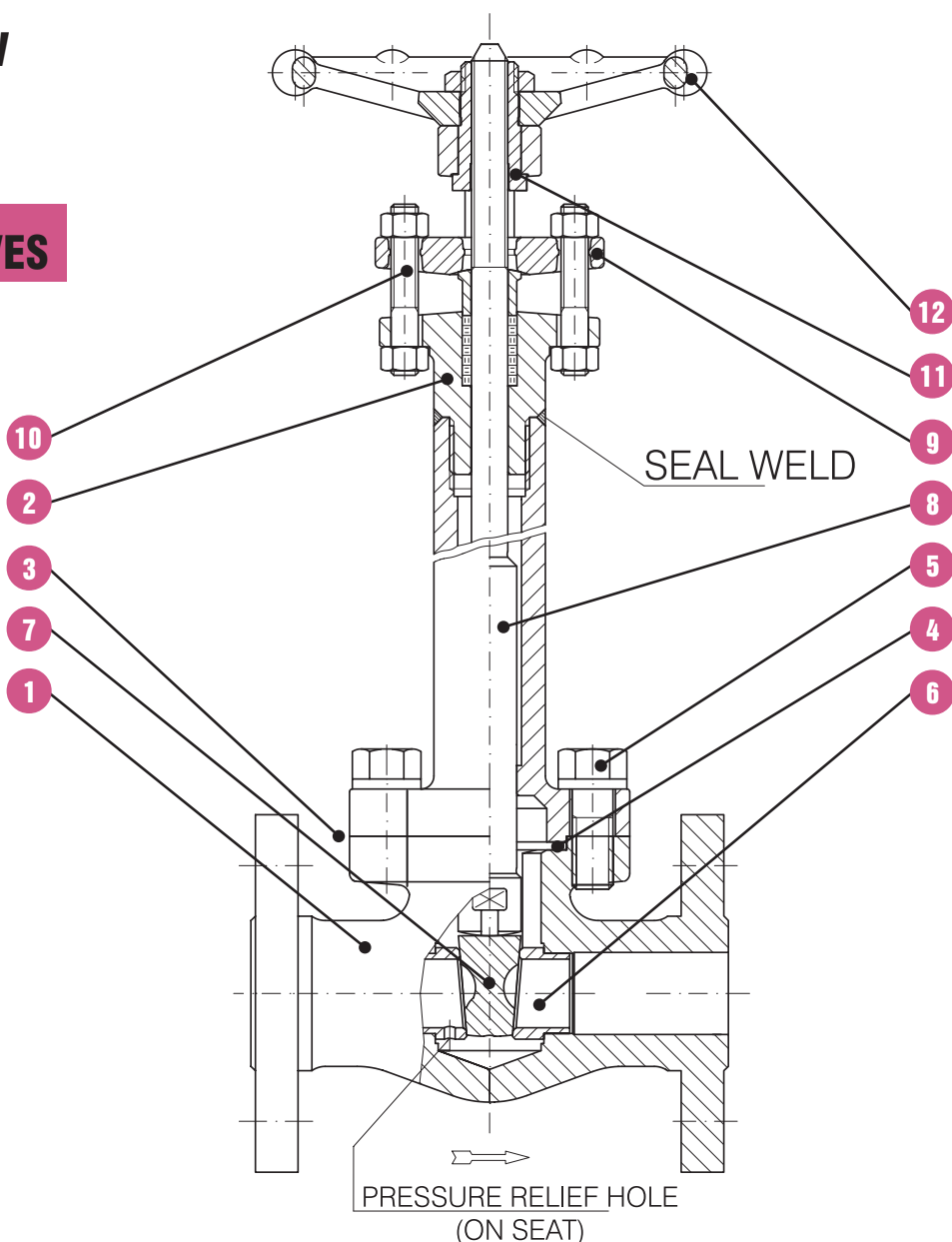
Overview	32
Gate Type- Bolted Bonnet- 150 lb., & 300 lb. valves	33
Gate Type- Bolted Bonnet- 600 lb. valves	34
Gate Type- Bolted Bonnet- 800 lb. & 1500 lb. valves	35
Gate Type- Bolted Bonnet- 1500 lb. valves Welded Bonnet- 150 lb.-1500 lb valves	36
Globe Type- Bolted Bonnet- 150 lb., & 300 lb. valves	37
Globe Type- Bolted Bonnet- 600 lb. valves	38
Globe Type- Bolted Bonnet- 800 lb. & 1500 lb. valves	39
Globe Type- Bolted Bonnet- 1500 lb. valves Welded Bonnet- 150 lb. & 1500 lb. valves ..	40

CRYOGENIC VALVES



CRYOGENIC VALVES

Typical cryogenic gate valve shown. Forged steel, outside screw and yoke (OS&Y), rising stem, non-rising handwheel. Full or conventional port. Bolted or welded bonnet joint. Integral backseat.



- 1. BODY.** The body is forged steel and designed to the basic dimensional requirements of the applicable specifications such as API 602 and ASME B16.34. The body is available in both the full or conventional port design.
- 2. BONNET.** The bonnet is forged steel and extended to act as a gas column to keep stem packing at a sufficient distance away from the frost line. The bonnet also has an integral backseat and incorporates the stuffing box, which has dimensions per the applicable specifications such as API 602.
- 3. BODY-BONNET JOINT.** Two different bonnet joint designs are available. These are either the bolted bonnet or the threaded and seal welded type.
- 4. GASKET.** The bolted bonnet joint design valve uses a contained, controlled compression, spiral wound type gasket.
- 5. BONNET BOLTING.** The bonnet bolting is manufactured of alloy steel in accordance with the requirements of the applicable specifications such as API 602 and ASME B16.34.
- 6. SEAT RINGS.** The seat rings are steel and make up part of the valve trim. They are pressed into the valve body and wedged into place, forming a seal with the body. The seat ring is vented on the up-stream side to prevent high pressure build up if the temperature rises in the column. The seating surfaces are ground and lapped.
- 7. WEDGE.** The wedge, which is a solid design, is forged or investment cast steel and is part of the valve trim. The seating surfaces are ground and lapped.
- 8. STEM.** The stem is forged steel and part of the valve trim. It contains an integral back seat shoulder, which mates with the integral backseat of the bonnet. The stem is designed to the basic dimensional requirements of the applicable specifications such as API 602.
- 9. GLAND AND FLANGE.** The gland, gland flange assembly utilizes a separate, two piece design. This self aligning design allows the flange to be unevenly tightened while the gland maintains its parallel alignment with the stem and stuffing box.
- 10. GLAND BOLTS AND NUTS.** The steel/stainless steel gland bolt and nut assembly is a stud, double nut arrangement. This design allows complete removal from the valve when service is required. The use of industry standard thread full length studs and nuts also allows easy replacement should these items be lost or in need of replacement.
- 11. YOKE SLEEVE.** The yoke sleeve is of forged stainless steel material having a high melting point and is resistant to wear and corrosion.
- 12. HANDWHEEL.** The handwheel is forged carbon steel of an open spoke design. This robust construction along with appropriate sizing allows for ease of operation.

CRYOGENIC VALVES- GATE TYPE- BOLTED BONNET- FULL & REDUCED PORT

150 LB.

300 LB.

Design construction:

API 602- ASME B16.34- BS 5352- BS 6364

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Spiral wound gasket

Integral backseat

Face to face according to ASME B16.10

Flanges according to ASME B16.5

Welded body- bonnet joint also available

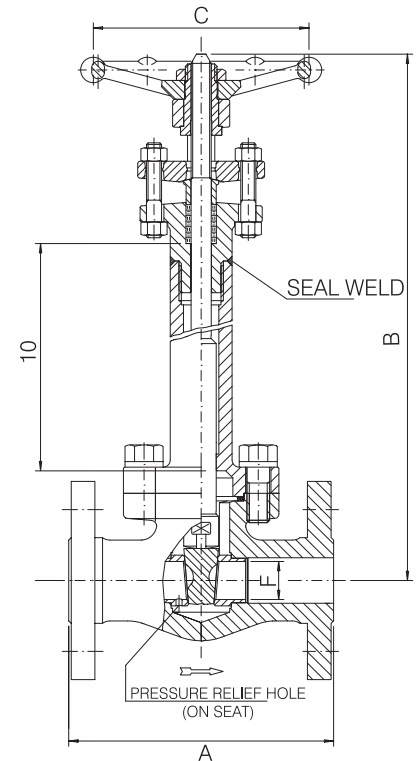
Ratings: stainless steel A182- F316

- class 150 = 275 psig @ 100°F

19 bar + 38°C

- class 300 = 720 psig @ 100°F

49 bar + 38°C



FULL PORT — FIG. 1C 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	4.25 108	4.62 117.5	5 127	6.5 165	7.01 178
B open	inch mm	16.93 430	17.52 445	18.50 470	21.06 535	23.42 595
C	inch mm	3.46 88	3.82 97	5.43 138	5.43 138	6.77 172
F	inch mm	.55 14	.71 18	.94 24	1.44 36.6	1.89 48
Weight	lb. kg	10.5 4.8	13 5.9	19.25 8.7	32.5 14.7	42 19
PACKING		BH2	BH4	BH5	BY5	BY7
GASKET		G2	G3	G4	G7	G8

REDUCED PORT — FIG. 1CL 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	4.25 108	4.62 117.5	5 127	6.5 165	7.01 178
B open	inch mm	16.54 420	17.13 435	17.72 450	20.08 510	21.06 535
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138
F	inch mm	.38 9.6	.55 14	.71 18	1.18 30	1.44 36.6
Weight	lb. kg	9.5 4.3	11.25 5.1	14 6.4	27.25 12.4	35.25 16
PACKING		BH2	BH2	BH4	BH6	BY5
GASKET		G2	G2	G3	G5	G7

FULL PORT — FIG. 3C 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	5.51 140	6.00 152.5	6.5 165	7.52 191	8.50 216
B open	inch mm	16.93 430	17.52 445	18.50 470	21.06 535	23.42 595
C	inch mm	3.46 88	3.82 97	5.43 138	5.43 138	6.77 172
F	inch mm	.55 14	.71 18	.94 24	1.44 36.6	1.89 48
Weight	lb. kg	11.25 5.1	15.75 7.2	21.75 9.9	35.25 16	48.5 22
PACKING		BH2	BH4	BH5	BY5	BY7
GASKET		G2	G3	G4	G7	G8

REDUCED PORT — FIG. 3CL 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	5.51 140	6.00 152.5	6.5 165	7.52 191	8.50 216
B open	inch mm	16.53 420	17.12 435	17.72 450	20.08 510	21.06 535
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138
F	inch mm	.38 9.6	.55 14	.71 18	1.18 30	1.44 36.6
Weight	lb. kg	11.25 5.1	14.25 6.5	17.25 7.8	33 15	42 19
PACKING		BH2	BH2	BH4	BH6	BY5
GASKET		G2	G2	G3	G5	G7



BONNEY FORGE

CRYOGENIC VALVES- GATE TYPE- BOLTED BONNET- FULL & REDUCED PORT

600 LB.

Design construction:

API 602- ASME B16.34- BS 5352- BS 6364

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Spiral wound gasket

Integral backseat

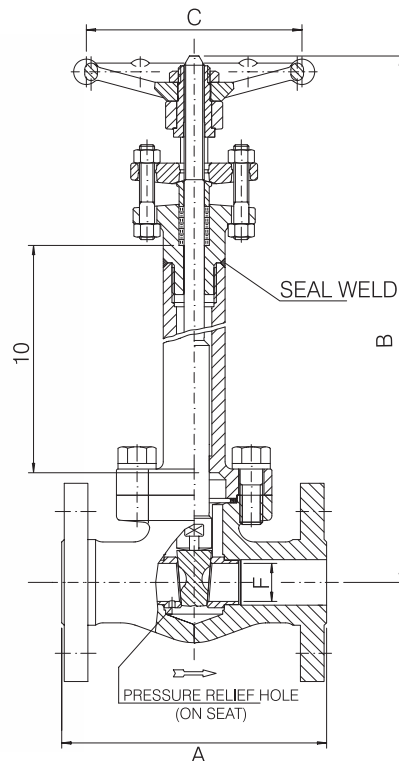
Face to face according to ASME B16.10

Flanges according to ASME B16.5

Welded body- bonnet Joint also available

Ratings: stainless steel A182- F316

-class 600 = 1440 psig @ 100°F
99 bar + 38°C



FULL PORT — FIG. 6C 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	6.5 165	7.52 191	8.50 216	9.49 241	11.5 292
B open	inch mm	16.93 430	17.52 445	18.50 470	21.06 535	23.42 595
C	inch mm	3.46 88	3.82 97	5.43 138	5.43 138	6.77 172
F	inch mm	.55 14	.71 18	.94 24	1.44 36.6	1.89 48
Weight	lb. kg	13.75 6.2	18.5 8.4	23 10.5	44 20	70.5 32
PACKING		BH2	BH4	BH5	BY5	BH8
GASKET		G2	G3	G4	G7	G9

REDUCED PORT — FIG. 6CL 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	6.5 165	7.52 191	8.50 216	9.49 241	11.5 292
B open	inch mm	16.53 420	17.12 435	17.72 450	20.08 510	21.06 535
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138
F	inch mm	.38 9.6	.55 14	.71 18	1.18 30	1.44 36.6
Weight	lb. kg	11.75 5.3	16.25 7.4	21.5 9.8	39.75 18	53 24
PACKING		BH2	BH2	BH4	BH6	BY5
GASKET		G2	G2	G3	G6	G7

CRYOGENIC VALVES- GATE TYPE- BOLTED BONNET- FULL & REDUCED PORT

BONNEY FORGE

800 LB.

1500 LB.

Design construction:

API 602- ASME B16.34- BS 5352- BS 6364

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Spiral wound gasket

Integral backseat

Welded body- bonnet joint also available

Socket Weld Ends to ASME B16.11

Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

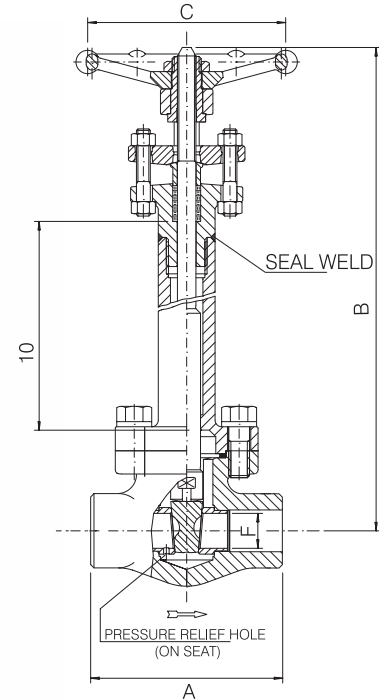
Ratings: Stainless steel A182- F316

-class 800 1920 psig @ 100°F

132 bar + 38°C

-class 1500 3600 psig @ 100°F

248 bar + 38°C



800 LB.

FULL PORT – FIG. C 10									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch mm	3.15 80	3.15 80	3.54 90	4.33 110	5 127	5 127	5 127	8.27 210
B open	inch mm	15.75 400	15.75 400	15.75 400	17.52 445	18.70 475	19.88 505	20.87 530	23.54 598
C	inch mm	3.46 88	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	5.43 138	6.77 172
F	inch mm	.31 8	.38 9.6	.55 14	.71 18	.94 24	1.18 30	1.44 36.6	1.89 48
G	inch mm	1.26 32	1.26 32	1.5 38	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85
Weight	lb. kg	7.5 3.4	7.5 3.4	7.75 3.5	11.25 5.1	18 8.2	26.5 12	35.25 16	50.75 23
PACKING		BH2	BH2	BH2	BH4	BH5	BH6	BY5	BH8
GASKET		G2	G2	G2	G3	G4	G6	G7	G9

800 LB.

REDUCED PORT – FIG. CL 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	3.15 80	3.54 90	4.33 110	5 127	5 127
B open	inch mm	15.75 400	15.75 400	17.52 445	19.88 505	20.87 530
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138
F	inch mm	.38 9.6	.55 14	.71 18	1.18 30	1.44 36.6
G	inch mm	1.26 32	1.5 38	1.89 48	2.52 64	3.07 78
Weight	lb. kg	7.5 3.4	7.75 3.5	11 5	21 9.6	27.5 12.5
PACKING		BH2	BH2	BH4	BH6	BY5
GASKET		G2	G2	G3	G6	G7

FULL PORT – FIG. 9C 10										
1500 LB.	SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
	A	inch mm	3.54 90	3.54 90	4.33 110	5 127	5 127	5 127	8.27 210	9.05 230
	B open	inch mm	15.55 395	15.55 395	17.12 435	18.50 470	19.49 495	20.47 520	23.03 585	24.41 620
	C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	5.43 138	6.77 172	9.21 234
	F	inch mm	.31 8	.38 9.6	.55 14	.71 18	.94 24	1.18 30	1.44 36.6	1.89 48
	G	inch mm	1.5 38	1.5 38	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85	3.74 95
	Weight	lb. kg	7.75 3.5	7.75 3.5	12 5.5	17 7.8	24.25 11	40 14.5	56.5 25.6	94.75 43
	PACKING		BH3	BH3	BH5	BH6	2B4	BY7	2B5	9B8
	GASKET		G1	G1	G2	G3	G4	G5	G7	G8

1500 LB.

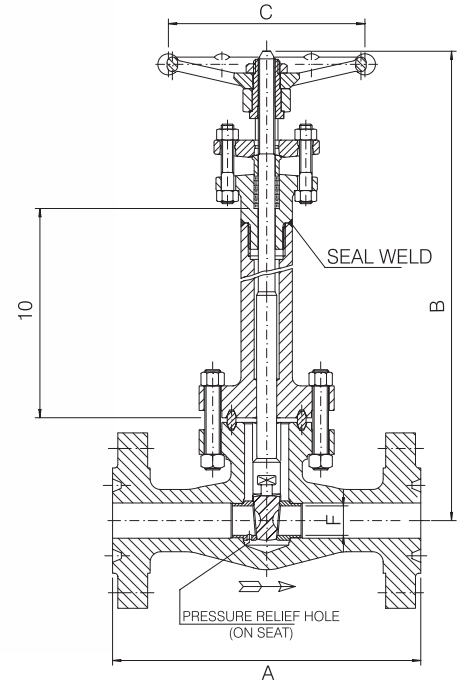
REDUCED PORT – FIG. 9CL 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	3.54 90	4.33 110	5 127	5 127	8.27 210
B open	inch mm	15.94 405	17.32 440	18.50 470	20.67 525	23.23 590
C	inch mm	3.46 88	3.82 97	5.43 138	5.43 138	6.77 172
F	inch mm	.38 9.6	.55 14	.71 18	1.18 30	1.44 36.6
G	inch mm	1.26 32	1.5 38	1.89 48	2.52 64	3.07 78
Weight	lb. kg	8 3.7	11.5 5.3	18.75 8.5	30 13.6	57.25 26
PACKING		BH3	BH5	BH6	2B5	BH8
GASKET		G1	G2	G3	G5	G7

CRYOGENIC VALVES- GATE TYPE- BOLTED BONNET- FULL PORT

1500 LB.

Design construction:

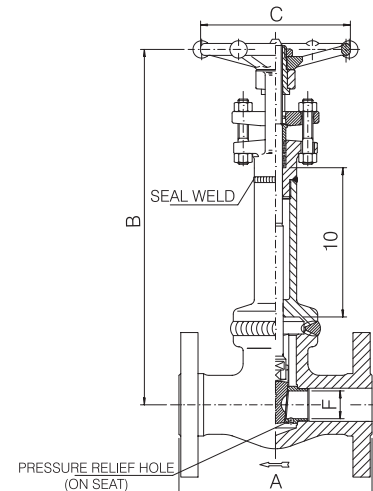
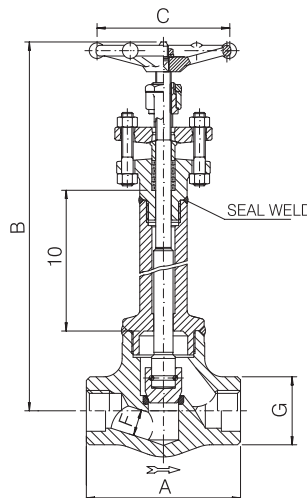
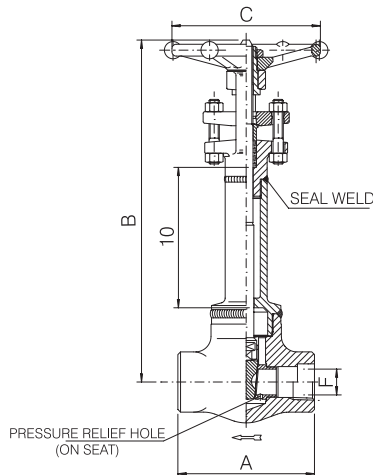
ASME B16.34- BS 5352
Full Port type
Testing according to API 598
Marking MSS SP25
Outside Screw and Yoke (OS&Y)
Self aligning two piece packing gland
Body bonnet gasket ring joint type
Spiral wound type gasket on request
Integral backseat
Integral body flanges
Face to face according to ASME B16.10
Flanges according to ASME B16.5
Welded body bonnet joint also available
Ratings: stainless steel A182- F316
-class 1500 3600 psig @ 100°F
248 bar + 38°C



FULL PORT – FIG. 15CFR 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	8.50 216	9.01 229	10 254	12.01 305	14.62 371.5
B open	inch mm	17.91 455	19.29 490	19.68 500	22.64 575	24.80 630
C	inch mm	3.82 97	5.43 138	5.43 138	6.77 172	9.21 234
F	inch mm	.55 14	.71 18	.94 24	1.44 36.6	1.89 48
Weight	lb. kg	22.5 10.2	30.75 14	38.5 17.5	68.25 31	130 59
PACKING		BH5	BH6	2B4	BH8	4B8
GASKET		R12	R16	R16	R20	R22

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TYPICAL DRAWING FOR GATE AND GLOBE WELDED BONNET CONSTRUCTION



CRYOGENIC VALVES- GLOBE TYPE- BOLTED BONNET- FULL & REDUCED PORT

BONNEY FORGE

150 LB.

300 LB.

Design construction:

ASME B16.34- BS 5352- BS 6364

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Spiral wound gasket

Integral backseat

Loose disc stem assembly

Integral body flanges

Face to face according to ASME B16.10

Flanges according to ASME B16.5

Welded body - bonnet joint also available

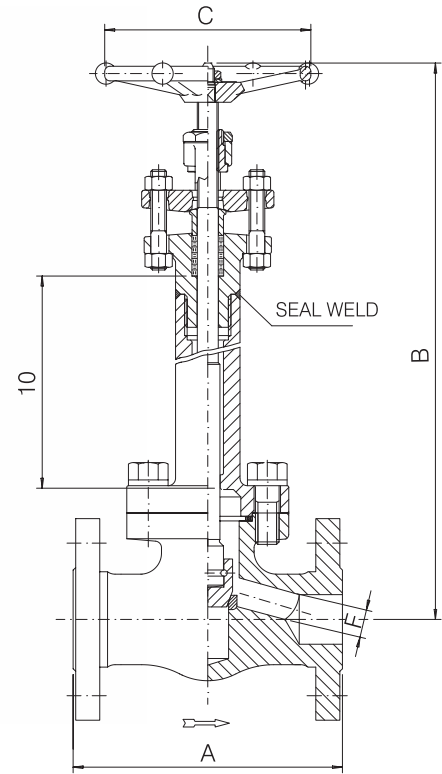
Ratings: stainless steel A182- F316

- class 150 275 psig @ 100°F

19 bar + 38°C

- class 300 720 psig @ 100°F

49 bar + 38°C



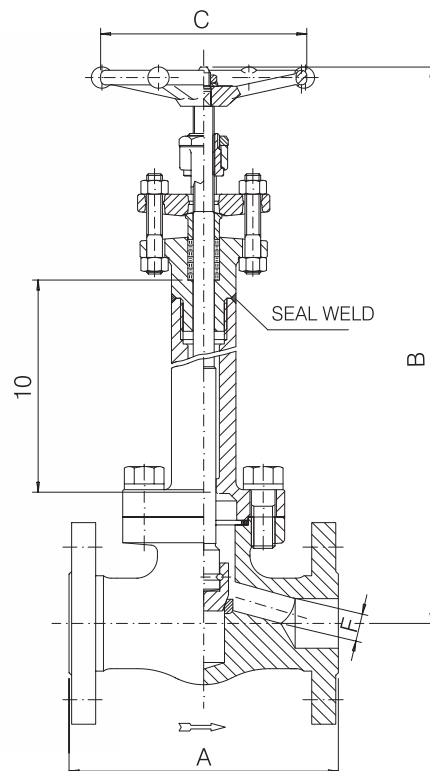
150 LB.	FULL PORT — FIG. 1C 30						
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	4.25 108	4.62 117.5	5 127	6.5 165	7.99 203
	B open	inch mm	17.52 445	18.50 470	19.68 500	22.05 560	24.80 630
	C	inch mm	3.46 88	3.82 97	5.43 138	5.43 138	6.77 172
	F	inch mm	.51 13	.69 17.5	.88 22.5	1.38 35	1.77 45
	Weight	lb. kg	10.5 4.8	13 5.9	19.25 8.7	32.5 14.7	46.25 21
	PACKING		BH3	BH5	BY5	BY7	BY7
150 LB.	REDUCED PORT — FIG. 1CL 30						
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	4.25 108	4.62 117.5	5 127	6.5 165	7.99 203
	B open	inch mm	15.16 385	17.12 435	18.11 460	20.27 515	21.46 545
	C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	6.77 172
	F	inch mm	.35 9	.51 13	.69 17.5	1.16 29.5	1.38 35
	Weight	lb. kg	10 4.6	11.5 5.2	14.75 6.7	27.5 12.5	42 19
	PACKING		BH3	BH3	BH5	BY5	BY7
300 LB.	FULL PORT — FIG. 3C 30						
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	6.00 152.5	7.01 178	7.99 203	9.01 229	10.51 267
	B open	inch mm	16.53 420	18.11 460	20.08 510	21.65 550	24.01 610
	C	inch mm	3.46 88	3.82 97	5.43 138	6.77 172	6.77 172
	F	inch mm	.51 13	.69 17.5	.88 22.5	1.38 35	1.77 45
	Weight	lb. kg	13.75 6.2	17.5 7.9	26.5 12	46.25 21	68.25 31
	PACKING		BH3	BH5	BY5	BY7	BH8
300 LB.	REDUCED PORT — FIG. 3CL 30						
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	6.00 152.5	7.01 178	7.99 203	9.01 229	10.51 267
	B open	inch mm	15.35 390	17.32 440	18.90 480	21.26 540	22.24 565
	C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	6.77 172
	F	inch mm	.35 9	.51 13	.69 17.5	1.16 29.5	1.38 35
	Weight	lb. kg	12.25 5.6	14.75 6.7	21.5 9.8	38.5 17.5	54 24.5
	PACKING		BH3	BH3	BH5	BY5	BY7
	GASKET						
			G2	G2	G3	G6	G7

CRYOGENIC VALVES- GLOBE TYPE- BOLTED BONNET- FULL & REDUCED PORT

600 LB.

Design construction:

ASME B16.34- BS 5352- BS 6364
Testing according to API 598
Marking MSS SP25
Outside Screw and Yoke (OS&Y)
Self aligning two piece packing gland
Spiral wound gasket
Integral backseat
Loose disc stem assembly
Integral body flanges
Face to face according to ASME B16.10
Flanges according to ASME B16.5
Welded body - bonnet joint also available
Ratings: stainless steel A182 - F316
-class 600 1440 psig @ 100°F
99 bar + 38°C



FULL PORT — FIG. 6C 30						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	6.5 165	7.52 191	8.50 216	9.49 241	11.5 292
B open	inch mm	16.53 420	18.11 460	20.08 510	21.65 550	24.01 610
C	inch mm	3.46 88	3.82 97	5.43 138	6.77 172	6.77 172
F	inch mm	.51 13	.69 17.5	.88 22.5	1.38 35	1.77 45
Weight	lb. kg	14.25 6.5	19.25 8.7	27.75 12.6	48.5 22	75 34
PACKING		BH3	BH5	BY5	BY7	BH8
GASKET		G2	G3	G4	G7	G9

REDUCED PORT — FIG. 6CL 30						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	6.5 165	7.52 191	8.50 216	9.49 241	11.5 292
B open	inch mm	15.35 390	17.32 440	18.90 480	21.26 540	22.24 565
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	6.77 172
F	inch mm	.35 9	.51 13	.69 17.5	1.16 29.5	1.38 35
Weight	lb. kg	13 5.9	16.75 7.6	22.5 10.2	42 19	57.25 26
PACKING		BH3	BH3	BH5	BY5	BY7
GASKET		G2	G2	G3	G6	G7

CRYOGENIC VALVES- GLOBE TYPE- BOLTED BONNET- FULL & REDUCED PORT

BONNEY FORGE

800 LB.

1500 LB.

Design construction:

ASME B16.34- BS5352- BS6364

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Spiral wound gasket

Integral backseat

Loose disc stem assembly

Socket Weld Ends to ASME B16.11

Screwed Ends (NPT) to ASME B1.20.1

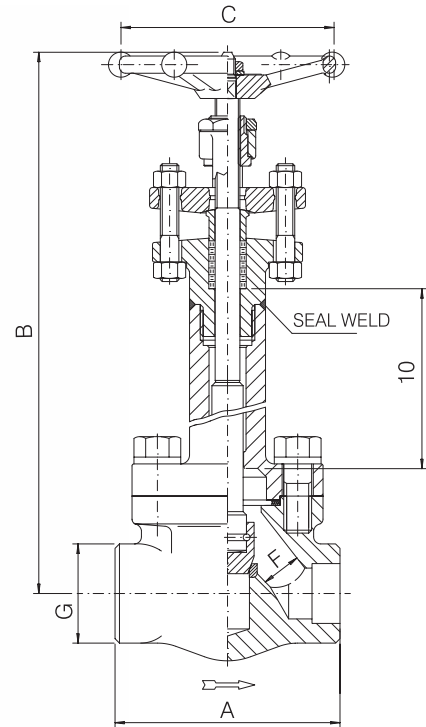
Butt Welding Ends to ASME B16.25

Welded body - bonnet joint also available

Ratings: stainless steel A182- F316

- class 800 1920 psig @ 100°F
132 bar + 38°C

- class 1500 3600 psig @ 100°F
248 bar + 38°C



800 LB.									
FULL PORT – FIG. C 30									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch mm	3.15 80	3.15 80	3.54 90	4.33 110	5 127	5.90 150	7.09 180	8.27 210
B open	inch mm	16.34 415	16.34 415	16.53 420	18.11 460	19.49 495	19.88 505	21.26 540	24.21 615
C	inch mm	3.46 88	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	6.77 172	6.77 172
F	inch mm	.27 7	.35 9	.51 13	.69 17.5	.88 22.5	1.16 29.5	1.38 35	1.77 45
G	inch mm	1.26 32	1.26 32	1.5 38	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85
Weight	lb. kg	7.75 3.5	7.75 3.5	8 3.6	11.25 5.1	18.5 8.4	27.75 12.6	36.25 16.5	53 24
PACKING		BH3	BH3	BH3	BH5	BY5	BY5	BY7	BH8
GASKET		G2	G2	G2	G3	G4	G6	G7	G9

800 LB.

REDUCED PORT – FIG. CL 30						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	3.15 80	3.54 90	4.33 110	5.90 150	7.09 180
B open	inch mm	16.34 415	16.53 420	18.11 460	19.92 506	21.26 540
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	6.77 172
F	inch mm	.35 9	.51 13	.69 17.5	1.16 29.5	1.38 35
G	inch mm	1.26 32	1.5 38	1.89 48	2.52 64	3.07 78
Weight	lb. kg	7.25 3.3	8.25 3.8	11.5 5.2	21.5 9.8	32.5 14.8
PACKING		BH3	BH3	BH5	BY5	BY7
GASKET		G2	G2	G3	G6	G7

1500 LB.									
FULL PORT – FIG. 9C 30									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch mm	3.54 90	3.54 90	4.33 110	5 127	5.90 150	7.09 180	8.27 210	9.05 230
B open	inch mm	16.14 410	16.14 410	17.91 455	19.49 495	19.68 500	21.26 540	24.21 615	25.39 645
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	6.77 172	6.77 172	9.21 234
F	inch mm	.27 7	.35 9	.47 12	.59 15	.79 20	1.06 27	1.26 32	1.57 40
G	inch mm	1.5 38	1.5 38	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85	3.74 95
Weight	lb. kg	8.75 4	8.75 4	12 5.5	17.5 8	24.25 11	34 15.5	55 25	90.25 41
PACKING		BH3	BH3	BH5	2B4	2B4	2B5	BH8	9B8
GASKET		G1	G1	G2	G3	G4	G5	G7	G8

1500 LB.

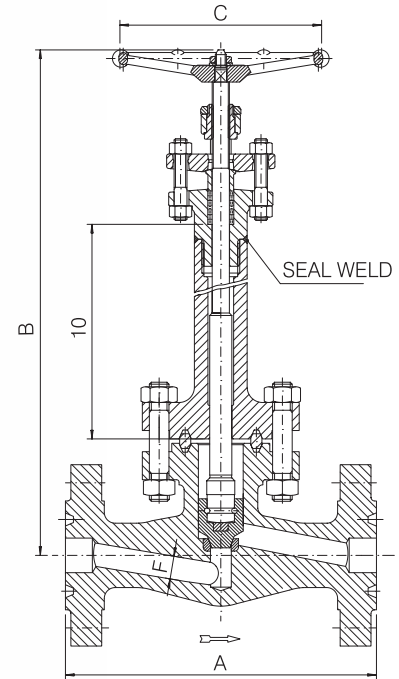
REDUCED PORT — FIG. 9CL 30						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	3.54 90	4.33 110	5.90 150	7.09 180	8.27 210
B open	inch mm	16.34 415	17.91 455	19.61 498	21.65 550	24.21 615
C	inch mm	3.46 88	3.82 97	5.43 138	6.77 172	6.77 172
F	inch mm	.35 9	.47 12	.59 15	1.06 27	1.26 32
G	inch mm	1.5 38	1.89 48	2.20 56	3.07 78	3.35 85
Weight	lb. kg	8 3.7	12 5.4	19.5 8.9	34.75 15.8	60.5 27.5
PACKING		BH3	BH5	2B4	2B5	BH8
GASKET		G1	G2	G3	G5	G7

CRYOGENIC VALVES- GLOBE TYPE- BOLTED BONNET- FULL PORT

1500 LB.

Design construction:

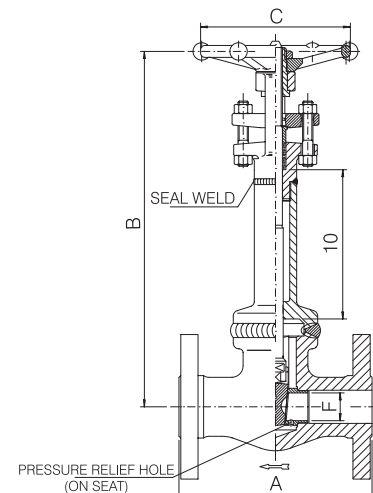
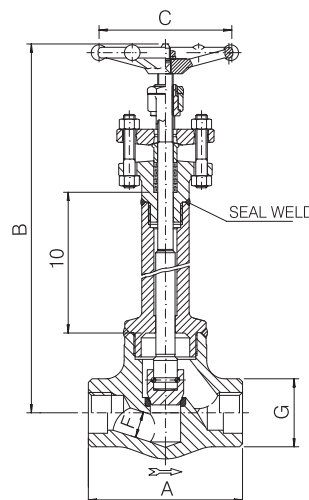
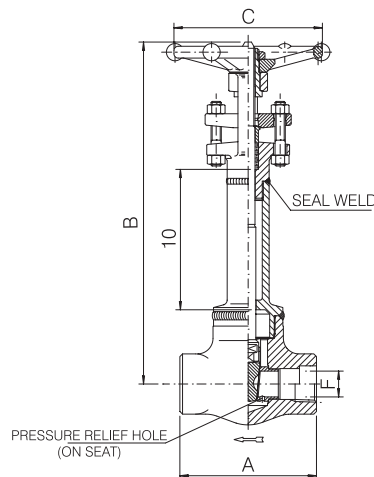
ASME B16.34- BS 5352- BS6364
Testing according to API- 598
Marking MSS- SP25
Outside Screw and Yoke (OS&Y)
Self aligning two piece packing gland
Body bonnet gasket ring joint type
Spiral wound type gasket on request
Integral backseat
Loose disc stem assembly
Integral body flanges
Face to face according to ASME B16.10
Flanges according to ASME B16.5
Welded body bonnet joint also available
Full port type
Ratings: stainless steel A182- F316
- class 1500 3600 psig @ 100°F
248 bar + 38°C



FULL PORT – FIG. 15CFR 30						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	8.50 216	9.01 229	10 254	12.01 305	14.62 371.5
B open	inch mm	18.50 470	20.08 510	20.67 525	23.42 595	25.59 650
C	inch mm	3.82 97	5.43 138	5.43 138	6.77 172	9.21 234
F	inch mm	.47 12	.57 14.5	.75 19	1.22 31	1.57 40
Weight	lb. kg	23 10,5	30.75 14	40.75 18,5	71.75 32,5	136.75 62
PACKING		BH5	2B4	2B4	BH8	9B8
GASKET		R12	R16	R16	R20	R22

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TYPICAL DRAWING FOR GATE AND GLOBE WELDED BONNET CONSTRUCTION



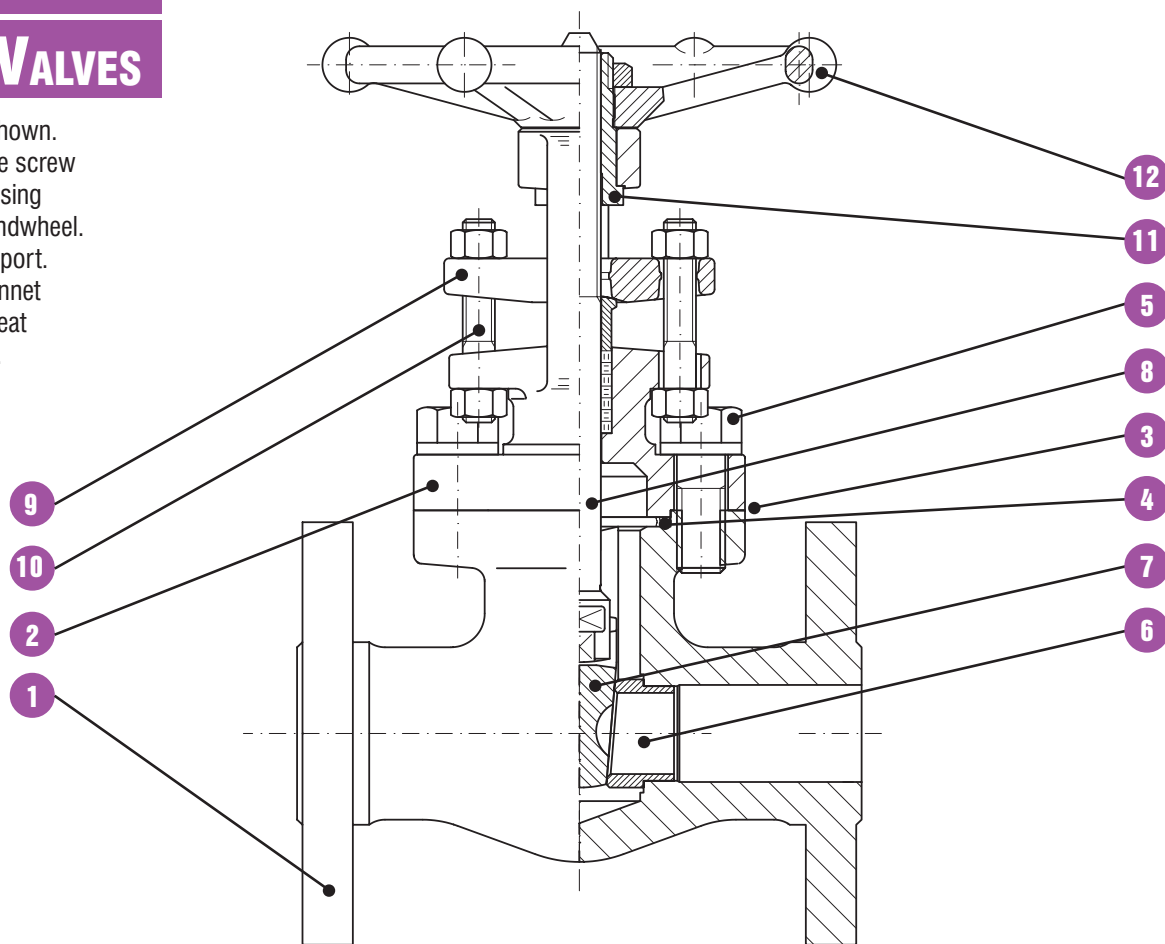
Overview	42
Gate Type- Bolted Bonnet- 150 lb. & 300 lb. valves	43
Gate Type- Bolted Bonnet- 600 lb. valves	44
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Check Type- Bolted Bonnet- 600 lb. valves	52
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INTEGRAL FLANGED VALVES



INTEGRAL FLANGED VALVES

Typical gate valve shown.
Forged steel, outside screw
and yoke (OS&Y), rising
stem, non-rising handwheel.
Full or conventional port.
Bolted or welded bonnet
joint. Integral backseat
Integral end flanges.



- 1. BODY.** The body is forged steel and designed to the basic dimensional requirements of the applicable specifications such as API 602, ASME B16.34, ASME B16.10 and ASME B16.5. The body is available in both the full or conventional port design. End flanges are forged integral with the body.
- 2. BONNET.** The bonnet is forged steel, has an integral backseat and incorporates the stuffing box, which has dimensions per the applicable specifications such as API 602.
- 3. BODY-BONNET JOINT.** Two different bonnet joint designs are available. These are either the bolted bonnet or the threaded and seal welded type.
- 4. GASKET.** The bolted bonnet joint design valve uses a contained, controlled compression, spiral wound type gasket.
- 5. BONNET BOLTING.** The bonnet bolting is manufactured of alloy steel in accordance with the requirements of the applicable specifications such as API 602 and ASME B16.34.
- 6. SEAT RINGS.** The seat rings are steel and make up part of the valve trim. They are pressed into the valve body and wedged into place, forming a seal with the body. The seating surfaces are ground and lapped.
- 7. WEDGE.** The wedge, which is a solid design, is forged or investment cast steel and is part of the valve trim. The seating surfaces are ground and lapped.
- 8. STEM.** The stem is forged steel and part of the valve trim. It contains an integral back seat shoulder, which mates with the integral backseat of the bonnet. The stem is designed to the basic dimensional requirements of the applicable specifications such as API 602.
- 9. GLAND AND FLANGE.** The gland, gland flange assembly utilizes a separate, two piece design. This self aligning design allows the flange to be unevenly tightened while the gland maintains its parallel alignment with the stem and stuffing box.
- 10. GLAND BOLTS AND NUTS.** The steel/stainless steel gland bolt and nut assembly is a stud, double nut arrangement. This design allows complete removal from the valve when service is required. The use of industry standard thread full length studs and nuts also allows easy replacement should these items be lost or in need of replacement.
- 11. YOKE SLEEVE.** The yoke sleeve is of forged stainless steel material having a high melting point and is resistant to wear and corrosion.
- 12. HANDWHEEL.** The handwheel is forged carbon steel of an open spoke design. This robust construction along with appropriate sizing allows for ease of operation.

INTEGRAL FLANGED VALVES- GATE TYPE- BOLTED BONNET- FULL & REDUCED PORT

150 LB.

300 LB.

Design construction:

API 602 - ASME B16.34 - BS 5352

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Spiral-wound gasket

Integral backseat

Integral body flanges

Face to face according to ASME B16.10

Flanges according to ASME B16.5

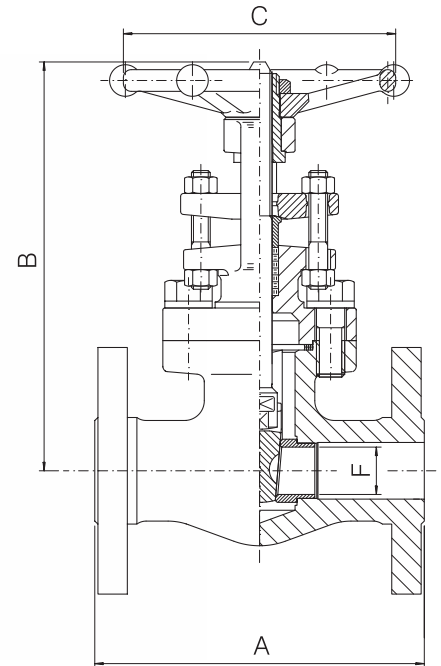
Ratings:

-carbon steel class 150 285 psig@ 100°F

20 bar + 38°C

-carbon steel class 300 740 psig@ 100°F

51 bar + 38°C



150 LB.	FULL PORT – FIG. 1 10					
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40
	A	inch mm	4.25 108	4.62 117,5	5 127	6.50 165
	B open	inch mm	6.88 175	8.26 210	9.05 230	11.41 290
	C	inch mm	3.46 88	3.82 97	5.43 138	5.43 138
	F	inch mm	.55 14	.71 18	.94 24	1.44 36,6
	Weight	lb. kg	7 3,2	10.25 4,7	13.25 6,1	25 11,4
	PACKING		BH2	BH4	BH5	BY5
	GASKET		G2	G3	G4	G7

150 LB.	REDUCED PORT – FIG. L1 10						
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	4.25 108	4.62 117,5	5 127	6.50 165	7 178
	B open	inch mm	6.88 175	7.16 182	8.35 212	10.04 255	11.41 290
	C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138
	F	inch mm	.38 9,6	.55 14	.71 18	1.18 30	1.44 36,6
	Weight	lb. kg	6.25 2,9	8 3,7	11.25 5,2	21 9,6	29 13,2
	PACKING		BH2	BH2	BH4	BH6	BY5
	GASKET		G2	G2	G3	G5	G7

300 LB.	FULL PORT – FIG. 3 10					
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40
	A	inch mm	5.51 140	6 152,5	6.50 165	7.51 191
	B open	inch mm	6.89 175	8.26 210	9.05 230	11.42 290
	C	inch mm	3.46 88	3.82 97	5.43 138	5.43 138
	F	inch mm	.55 14	.71 18	.94 24	1.44 36,6
	Weight	lb. kg	8.25 3,8	12.25 5,6	15.5 7,1	29.75 13,5
	PACKING		BH2	BH4	BH5	BY5
	GASKET		G2	G3	G4	G7

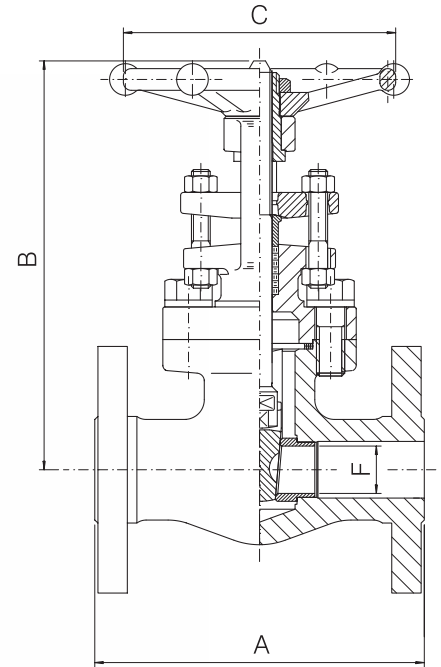
300 LB.	REDUCED PORT – FIG. L3 10					
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40
	A	inch mm	5.51 140	6 152,5	6.50 165	7.51 191
	B open	inch mm	6.89 175	7.17 182	8.35 212	9.84 250
	C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138
	F	inch mm	.38 9,6	.55 14	.71 18	1.18 30
	Weight	lb. kg	7.75 3,6	11.25 5,2	14.75 6,7	28.5 13
	PACKING		BH2	BH2	BH4	BH6
	GASKET		G2	G2	G3	G5

INTEGRAL FLANGED VALVES- GATE TYPE- BOLTED BONNET- FULL & REDUCED PORT

600 LB.

Design construction:

API 602 - ASME B16.34 - BS 5352
 Testing according to API 598
 Marking MSS SP25
 Outside Screw and Yoke (OS&Y)
 Self aligning two piece packing gland
 Spiral-wound gasket
 Integral backseat
 Integral body flanges
 Face to face according to ASME B16.10
 Flanges according to ASME B16.5
 Ratings:
 - carbon steel class 600 1480 psig @ 100°F
 102 bar + 38°C



600 LB.	FULL PORT – FIG. 6 10						
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	6.50 165	7.51 191	8.50 216	9.50 241	11.50 292
	B open	inch mm	6.89 175	8.46 215	9.45 240	11.62 295	14.17 360
	C	inch mm	3.46 88	3.82 97	5.43 138	5.43 138	6.77 172
	F	inch mm	.55 14	.71 18	.94 24	1.44 36.6	1.88 48
	Weight	lb. kg	9.25 4,3	15.25 7	22 10	39.5 18	63.5 28
	PACKING		BH2	BH4	BH5	BY5	BH8
	GASKET		G2	G3	G4	G7	G9

600 LB.	REDUCED PORT – FIG. L6 10						
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	6.50 165	7.51 191	8.50 216	9.50 241	11.50 292
	B open	inch mm	6.65 169	7.28 185	8.46 215	10.04 255	12.01 305
	C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138
	F	inch mm	.38 9,6	.55 14	.71 18	1.18 30	1.44 36,6
	Weight	lb. kg	9.25 4,3	15.25 7	22 10	39.5 18	63.5 28
	PACKING		BH2	BH2	BH4	BH6	BY5
	GASKET		G2	G2	G3	G6	G7

INTEGRAL FLANGED VALVES- GATE TYPE- BOLTED BONNET- FULL PORT

BONNEY FORGE

1500 LB.

Design construction:

ASME B16.34 - BS 5352

Full port type

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Spiral wound gasket

Integral backseat

Integral body flanges

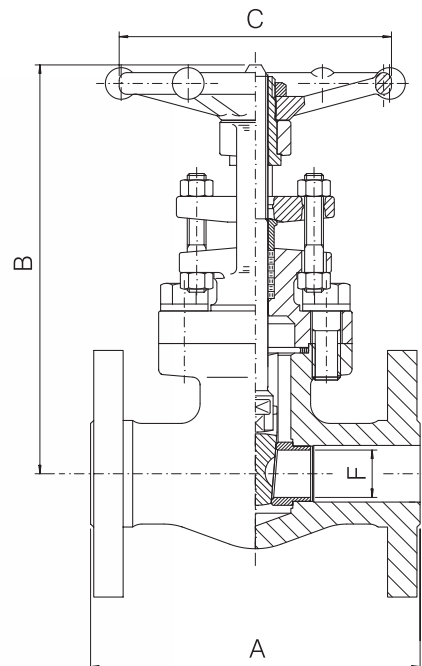
Face to face according to ASME B16.10

Flanges according to ASME B16.5

Ring joint type gasket available on request

Ratings:

- carbon steel class 1500 3705 psig @ 100°F
255 bar + 38°C



1500 LB.	FULL PORT – FIG. 15F 10						
	SIZE	inch mm	1/ 2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	8.50 216	9.02 229	10 254	12.01 305	14.5 368.5
	B open	inch mm	8.46 215	9.84 250	10.63 270	13.78 350	17.52 445
	C	inch mm	3.82 97	5.43 138	5.43 138	6.77 172	9.21 234
	F	inch mm	.55 14	.71 18	.94 24	1.44 36.6	1.89 48
	Weight	lb. kg	18 8,2	28.5 13	35.5 16,2	63.75 29	121.25 55
	PACKING		BH5	BH6	2B4	BH8	9B8
	GASKET		G2	G3	G4	G7	G8



BONNEY FORGE

INTEGRAL FLANGED VALVES- GATE TYPE- BOLTED BONNET- FULL PORT

2500 LB.

Design construction:

ASME B16.34 - BS 5352

Full port type

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Body Bonnet Gasket ring joint type

Spiral wound type gasket on request

Integral backseat

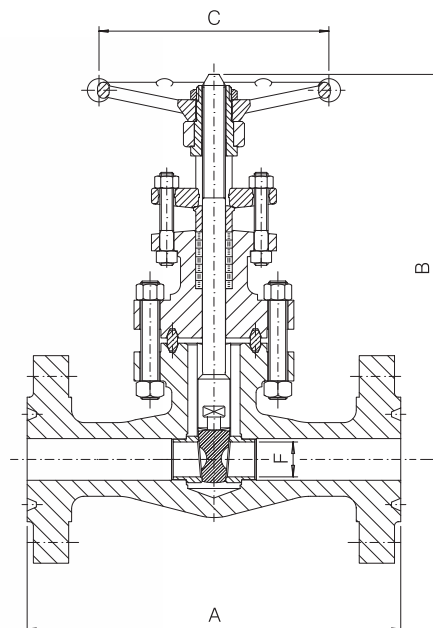
Integral body flanges

Face to face according to ASME B16.10

Flanges according to ASME B16.5

Ratings:

- carbon steel class 2500 6170 psig @ 100°F
425 bar + 38°C



2500 LB.	FULL PORT – FIG. 25FR 10						
	SIZE	inch mm	1/ 2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	10.39 264	10.75 273	12.13 308	15.25 387,5	17.87 454
	B open	inch mm	11.10 282	11.42 290	13.19 335	15.98 406	16.34 415
	C	inch mm	5.43 138	5.43 138	6.77 172	9.21 234	12.60 320
	F	inch mm	.45 11,5	.59 15	.76 19,5	1.10 28	1.50 38
	Weight	lb. kg	35.5 16,2	38.75 17,6	63.75 29	132.25 60	143.25 65
	PACKING		2B4	2B4	BH8	2B8	25B8
	GASKET		R16	R16	R16	R19	R22

INTEGRAL FLANGED VALVES- GLOBE TYPE- BOLTED BONNET- FULL & REDUCED PORT

150 LB.

300 LB.

Design construction:

ASME B16.34 - BS 5352

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Loose disc stem assembly

Self aligning two piece packing gland

Spiral wound gasket

Integral backseat

Integral body flanges

Face to face according to ASME B16.10

Flanges according to ASME B16.5

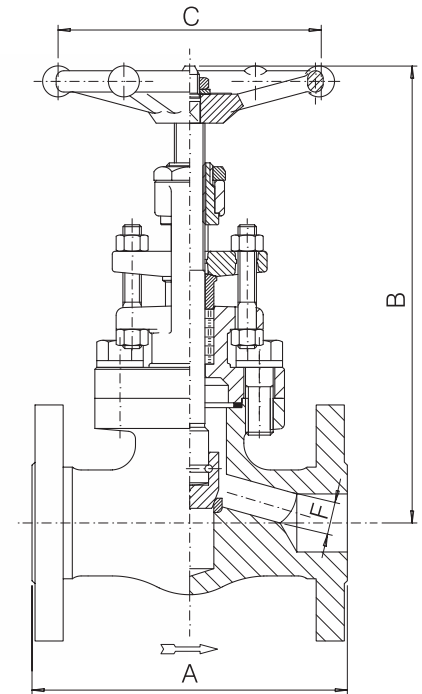
Ratings:

- carbon steel class 150 285 psig @ 100°F

20 bar + 38°C

- carbon steel class 300 740 psig @ 100°F

51 bar + 38°C



150 LB.

FULL PORT — FIG. 1 30						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	4.25 108	4.62 117,5	5 127	6.50 165	8 203
B open	inch mm	7.72 196	9.05 230	10.55 268	12.40 315	13.19 335
C	inch mm	3.46 88	3.82 97	5.43 138	6.77 172	6.77 172
F	inch mm	.51 13	.68 17,5	.88 22,5	1.38 35	1.77 45
Weight	lb. kg	8.25 3,8	14 6,4	19 8,7	36.25 16,5	55 25
PACKING		BH3	BH5	BY5	BY7	BY7
GASKET		G2	G3	G4	G7	G8

150 LB.

REDUCED PORT – FIG. L1 30						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	4.25 108	4.62 117,5	5 127	6.50 165	8 203
B open	inch mm	7.72 196	7.72 196	8.90 226	10.75 273	11.81 300
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	6.77 172
F	inch mm	.35 9	.51 13	.68 17,5	1.16 29,5	1.38 35
Weight	lb. kg	6.5 3	8.25 3,8	12 5,5	22.5 10,3	34.75 15,8
PACKING		BH3	BH3	BH5	BY5	BY7
GASKET		G2	G2	G3	G5	G8

FULL PORT—FIG. 3 30							
300 LB.	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	6 152,5	7 178	8 203	9.02 229	10.51 267
	B open	inch mm	7.72 196	9.05 230	10.55 268	12.40 315	13.19 335
	C	inch mm	3.46 88	3.82 97	5.43 138	6.77 172	6.77 172
	F	inch mm	.51 13	.68 17,5	.88 22,5	1.38 35	1.77 45
	Weight	lb. kg	9 4,1	15.25 7	21.25 9,7	40.75 18,5	61.5 28
	PACKING		BH3	BH5	BY5	BY7	BH8
	GASKET		G2	G3	G4	G7	G9

REDUCED PORT – FIG. L3 30							
300 LB.	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	6 152,5	7 178	8 203	9.02 229	10.51 267
	B open	inch mm	7.72 196	7.95 202	8.90 226	10.63 270	12.64 321
	C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	6.77 172
	F	inch mm	.35 9	.51 13	.68 17,5	1.16 29,5	1.38 35
	Weight	lb. kg	9 4,1	13 6	18.25 8,3	36.25 15,5	47.25 21,5
	PACKING		BH3	BH3	BH5	BY5	BY7
	GASKET		G2	G2	G3	G6	G7



BONNEY FORGE

INTEGRAL FLANGED VALVES- GLOBE TYPE- BOLTED BONNET- FULL & REDUCED PORT

600 LB.

Design construction:

ASME B16.34 - BS 5352

Testing according to API 598

Marking MSS SP25

Loose disc stem assembly

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Spiral wound gasket

Integral backseat

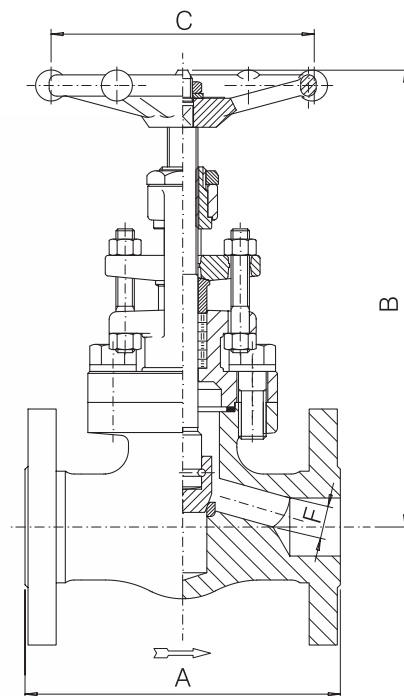
Integral body flanges

Face to face according to ASME B16.10

Flanges according to ASME B16.5

Ratings:

- carbon steel class 600 1480 psig @ 100°F
102 bar + 38°C



600 LB.	FULL PORT – FIG. 6 30						
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	6.50 165	7.51 191	8.50 216	9.50 241	11.50 292
	B open	inch mm	7.72 196	9.06 230	10.55 268	12.40 315	14.57 370
	C	inch mm	3.46 88	3.82 97	5.43 138	6.77 172	6.77 172
	F	inch mm	.51 13	.68 17,5	.88 22,5	1.38 35	1.77 45
	Weight	lb. kg	13 5,9	17,5 8	23 10,5	43 19,5	62,75 28,5
	PACKING		BH3	BH5	BY5	BY7	BH8
	GASKET		G2	G3	G4	G7	G9

600 LB.	REDUCED PORT – FIG. L6 30						
	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	6.50 165	7.51 191	8.50 216	9.50 241	11.50 292
	B open	inch mm	7.72 196	7.95 202	9.21 234	10.63 270	12.64 321
	C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	6.77 172
	F	inch mm	.35 9	.51 13	.67 17,5	1.16 29,5	1.38 35
	Weight	lb. kg	9.5 4,4	13,5 6,2	19 8,7	36,25 16,5	52 23,6
	PACKING		BH3	BH3	BH5	BY5	BY7
	GASKET		G2	G2	G3	G6	G7

INTEGRAL FLANGED VALVES- GLOBE TYPE- BOLTED BONNET- FULL PORT

1500 LB.

Design construction:

ASME B16.34 - BS 5352

Full port type

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Loose Disc Stem Assembly

Ring joint type gasket available on request

Self aligning two piece packing gland

Spiral wound gasket

Integral backseat

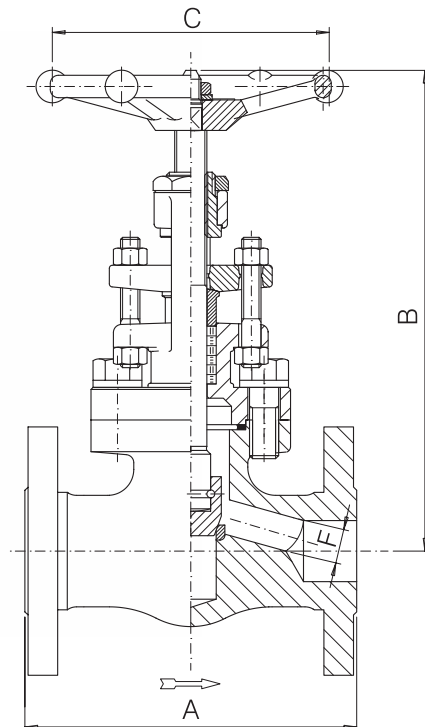
Integral body flanges

Face to face according to ASME B16.10

Flanges according to ASME B16.5

Ratings:

- carbon steel class 1500 3705 psig @ 100°F
255 bar + 38°C



1500 LB.	FULL PORT – FIG. 15F 30						
	SIZE	inch mm	1/ 2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	8.50 216	9.02 229	10 254	12.01 305	14.51 368.5
	B open	inch mm	9.45 240	11.02 280	11.61 295	14.57 370	18.31 465
	C	inch mm	3.82 97	5.43 138	6.77 172	6.77 172	9.21 234
	F	inch mm	.47 12	.57 14.5	.75 19	1.22 31	1.57 40
	Weight	lb. kg	18.5 8,5	28.25 12,9	37.25 17	66 30	127.75 58
	PACKING		BH5	2B4	2B4	BH8	9B8
	GASKET		G2	G3	G4	G7	G8



BONNEY FORGE

INTEGRAL FLANGED VALVES- GLOBE TYPE- BOLTED BONNET- FULL PORT

2500 LB.

Design construction:

ASME B16.34 - BS 5352

Full port type

Testing according to API 598

Marking MSS SP25

Outside Screw and Yoke (OS&Y)

Loose Disc Stem Assembly

Body Bonnet Gasket ring joint type

Spiral wound type gasket on request

Self aligning two piece packing gland

Integral backseat

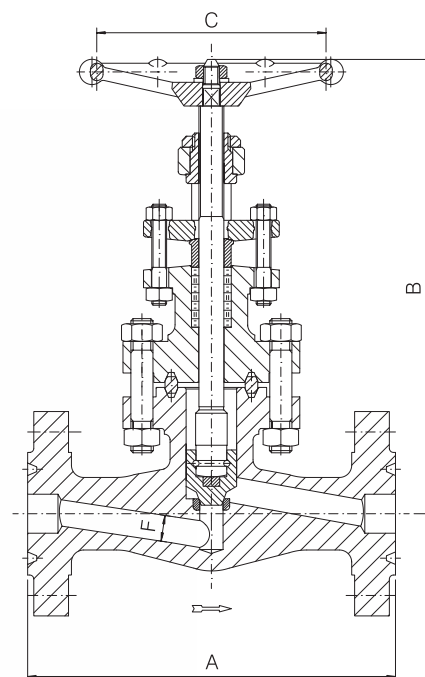
Integral body flanges

Face to face according to ASME B16.10

Flanges according to ASME B16.5

Ratings:

- carbon steel class 2500 6170 psig @ 100°F
425 bar + 38°C



2500 LB.	FULL PORT – FIG. 25FR 30						
	SIZE	inch mm	1/ 2 15	3/4 20	1 25	1 1/2 40	2 50
	A	inch mm	10.39 264	10.75 273	12.13 308	15.25 387,5	17.87 454
	B open	inch mm	12.20 310	12.40 315	13.78 350	17.72 450	18.11 460
	C	inch mm	5.43 138	5.43 138	6.77 172	9.21 234	12.6 320
	F	inch mm	.43 11	.57 14,5	.75 19	1.10 28	1.38 35
	Weight	lb. kg	36.25 16,5	40.75 18,5	66 30	135.5 61,5	147.5 67
	PACKING		2B4	2B4	BH8	9B8	4B8
	GASKET		R16	R16	R16	R19	R20

INTEGRAL FLANGED VALVES- CHECKTYPE- BOLTED BONNET- FULL & REDUCED PORT

150 LB.

300 LB.

Design construction:

ASME B16.34 - BS 5352

Testing according to API 598

Marking MSS SP25

Spring available on request for Piston

and Ball Check Valves

Spiral wound gasket

Integral body flanges

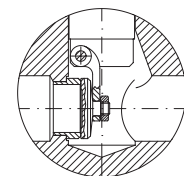
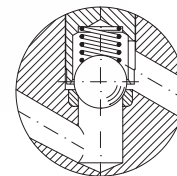
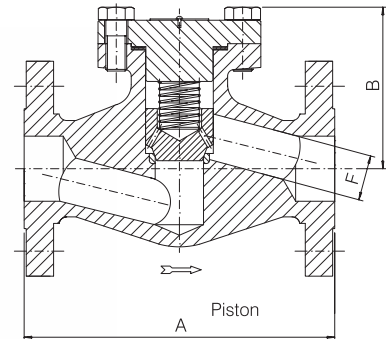
Face to face according to ASME B16.10

Flanges according to ASME B16.5

Ratings:

- carbon steel class 150 285 psig @ 100°F
20 bar + 38°C

- carbon steel class 300 740 psig @ 100°F
51 bar + 38°C



Ball

Swing

FULL PORT — FIG. 1 40, 1 50, 1 60						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	4.25 108	4.62 117,5	5 127	6.50 165	8 203
B	inch mm	2.95 75	3.35 85	3.94 100	4.92 125	5.51 140
F Piston/ F Ball	inch mm	.51 13	.68 17,5	.88 22,5	1.38 35	1.77 45
F Swing	inch mm	.55 14	.71 18	.94 24	1.46 36,6	1.89 48
Weight	lb. kg	6 2,8	7.75 3,6	11.25 5,2	22 10	35.25 16
GASKET		G2	G3	G4	G7	G8

REDUCED PORT — FIG. L1 40, L1 50, L1 60						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	4.25 108	4.62 117,5	5 127	6.50 165	8 203
B	inch mm	2.95 75	2.95 75	3.35 85	4.33 110	4.92 125
F Piston/ F Ball	inch mm	.35 9	.51 13	.68 17,5	1.16 29,5	1.38 35
F Swing	inch mm	.39 9,6	.55 14	.68 17,5	1.16 29,5	1.46 36,6
Weight Piston/ Weight Ball	lb. kg	5 2,3	6.75 3,1	9.75 4,5	18.5 8,4	30.75 14
Weight Swing	lb. kg	4.75 2,2	6.75 3,1	9.5 4,4	18.25 8,3	28.5 13
GASKET		G2	G2	G3	G5	G8

FULL PORT — FIG. 3 40, 3 50, 3 60						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	6 152,5	7 178	8* 203*	9.02* 229*	10.51 267
B	inch mm	2.95 75	3.54 90	3.94 100	4.72 120	5.91 150
F Piston/ F Ball	inch mm	.51 13	.68 17,5	.88 22,5	1.38 35	1.77 45
F Swing	inch mm	.55 14	.71 18	.94 24	1.46 36,6	1.89 48
Weight	lb. kg	7.75 3,6	14 6,4	18 8,2	33 15	46.25 21
GASKET		G2	G3	G4	G7	G9

REDUCED PORT — FIG. L3 40, L3 50, L3 60						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	6 152,5	7 178	8* 203*	9.02* 229*	10.51 267
B	inch mm	2.95 75	3.15 80	3.46 88	4.53 115	5.12 130
F Piston/ F Ball	inch mm	.35 9	.51 13	.68 17,5	1.16 29,5	1.38 35
F Swing	inch mm	.39 9,6	.55 14	.68 17,5	1.16 29,5	1.46 36,6
Weight Piston/ Weight Ball	lb. kg	7.5 3,4	11.5 5,3	16.5 7,5	30.75 14	41.75 19
Weight Swing	lb. kg	7.25 3,3	11.25 5,2	16.25 7,4	29.75 13,5	39.5 18
GASKET		G2	G2	G3	G6	G7



BONNEY FORGE

INTEGRAL FLANGED VALVES- CHECK TYPE- BOLTED BONNET- FULL & REDUCED PORT

600 LB.

Design construction:

ASME B16.34 - BS 5352

Testing according to API 598

Marking MSS SP25

Spring available on request for Piston

and Ball Check Valves

Spiral wound gasket

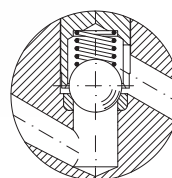
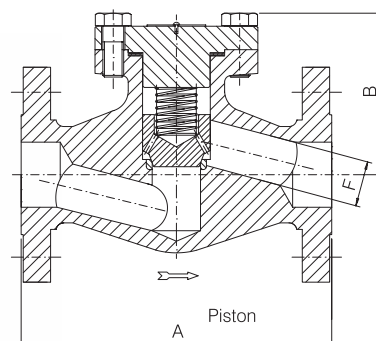
Integral body flanges

Face to face according to ASME B16.10

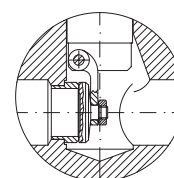
Flanges according to ASME B16.5

Ratings:

- carbon steel class 600 1480 psig @ 100°F
102 bar + 38°C



Ball



Swing

FULL PORT — FIG. 6 40, 6 50, 6 60						
600 LB.	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40
	A	inch mm	6.50 165	7.51 191	8.50 216	9.50 241
	B	inch mm	2.95 75	3.54 90	3.94 100	4.72 120
	F Piston/ F Ball	inch mm	.51 13	.68 17,5	.88 22,5	1.38 35
	F Swing	inch mm	.55 14	.71 18	.94 24	1.46 36,6
	Weight	lb. kg	8.25 3,8	14.25 6,5	18.5 8,5	35.25 16
	GASKET		G2	G3	G4	G7
						G9

REDUCED PORT — FIG. L6 40, L6 50, L6 60						
600 LB.	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40
	A	inch mm	6.50 165	7.51 191	8.50 216	9.50 241
	B	inch mm	2.83 72	3.15 80	3.35 85	4.53 115
	F Piston/ F Ball	inch mm	.35 9	.51 13	.68 17,5	1.16 29,5
	F Swing	inch mm	.39 9,6	.55 14	.68 17,5	1.16 29,5
	Weight	lb. kg	7.5 3,5	12.5 5,7	17.5 8	31.75 14,5
	GASKET		G2	G2	G3	G6
						G7

INTEGRAL FLANGED VALVES- CHECK TYPE- BOLTED BONNET- FULL PORT

1500 LB.

Design construction:

ASME B16.34 - BS 5352

Full Port Type

Testing according to API 598

Marking MSS SP25

Spring available on request for Piston
and Ball Check Valves

Ring joint type gasket available on request

Spiral wound gasket

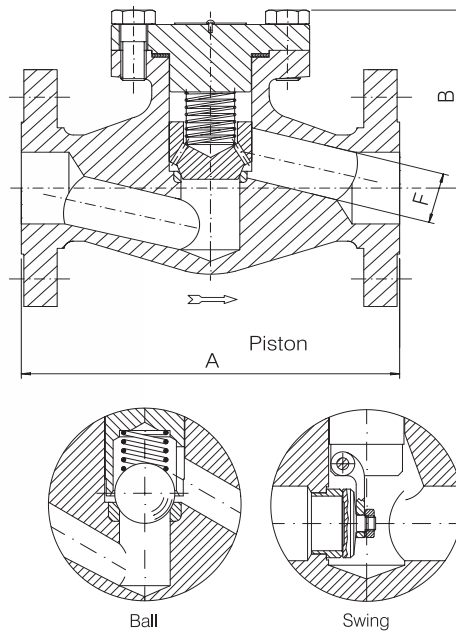
Integral body flanges

Face to face according to ASME B16.10

Flanges according to ASME B16.5

Ratings:

- carbon steel class 1500 3705 psig @ 100°F
255 bar + 38°C



FULL PORT — FIG. 15F 40, 15F 50, 15F 60						
1500 LB.	SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40
	A	inch mm	8.50 216	9.02 229	10 254	12.01 305
	B	inch mm	4.13 105	4.92 125	5.31 135	6.10 155
	F Piston/ F Ball	inch mm	.47 12	.57 14,5	.75 19	1.22 31
	F Swing	inch mm	.55 14	.71 18	.94 24	1.46 36,6
	Weight	lb. kg	16.5 7,5	24.5 11,2	31.75 14,5	58.25 26,5
	GASKET		G2	G3	G4	G7
						G8



BONNEY FORGE

INTEGRAL FLANGED VALVES- CHECK TYPE- BOLTED BONNET- FULL PORT

2500 LB.

Design construction:

ASME B16.34 - BS 5352

Full Port Type

Testing according to API 598

Marking MSS SP25

Body Bonnet Gasket ring joint type

Spiral wound type gasket on request

Spring available on request for Piston
and Ball Check Valves

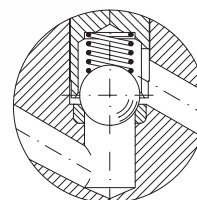
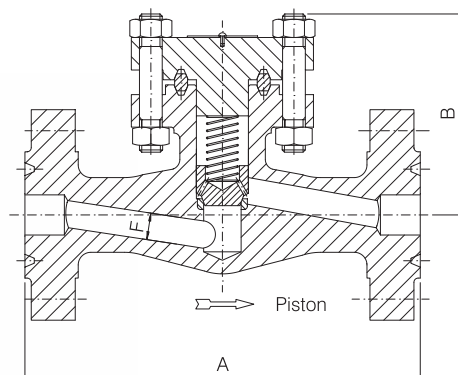
Integral body flanges

Face to face according to ASME B16.10

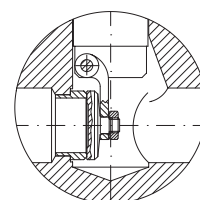
Flanges according to ASME B16.5

Ratings:

- carbon steel class 2500 6170 psig @ 100°F
425 bar + 38°C



Ball



Swing

2500 LB.

FULL PORT — FIG. 25FR 40, 25FR 50, 25FR 60						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	10.39 264	10.75 273	12.13 308	15.25 387,5	17.87 454
B	inch mm	5.04 128	5.12 130	5.98 152	7.40 188	7.48 190
F Piston/ F Ball	inch mm	.43 11	.57 14,5	.75 19	1.10 28	1.38 35
F Swing	inch mm	.45 11,5	.59 15	.76 19,5	1.10 28	1.38 35
Weight	lb. kg	31.5 14,3	35.25 16	57.75 26,3	119 54	123.25 56
GASKET		R16	R16	R16	R19	R20*

Overview 56

Gate Type- Bolted & Welded Bonnet-
800 lb. & 1500 lb. valves 57

Gate Type- Welded Bonnet-
2500 lb. valves 58

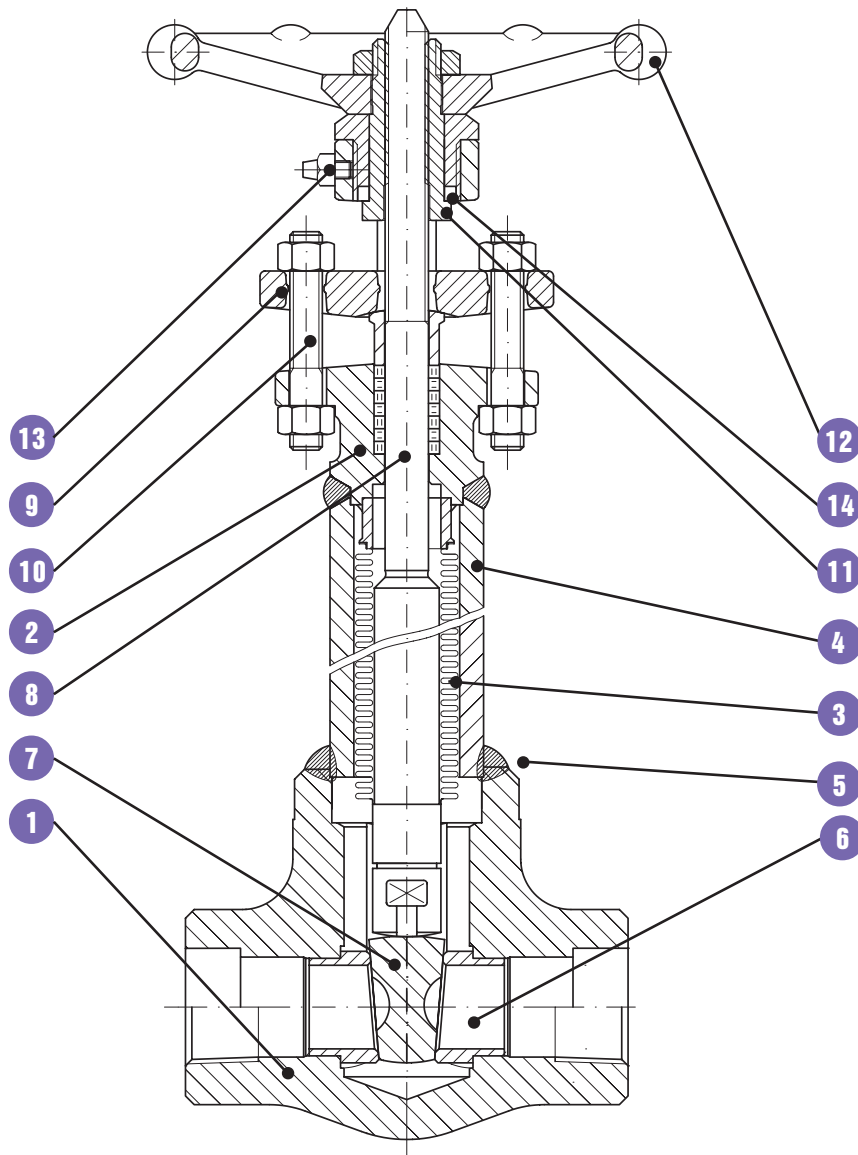
Globe Type- Bolted & Welded Bonnet-
800 lb. & 1500 lb. valves 59

BELLOWS SEALED VALVES



BELLOWS SEALED VALVES

Typical forged steel, outside screw and yoke (OS&Y), rising stem, non-rising handwheel. Full or conventional port. Bolted or welded bonnet joint. Integral backseat.



- 1. BODY.** The body is forged steel and designed to the basic dimensional requirements of the applicable specifications such as API 602 and ASME B16.34. The body is available in both the full or conventional port design.
- 2. BONNET.** The bonnet is forged steel, has an integral backseat and incorporates the stuffing box, which has dimensions per the applicable specifications such as API 602.
- 3. BELLOWS.** The hydroformed bellows design is in accordance with specifications API 602, and MSS-SP-117.
- 4. BONNET EXTENSION.** The bonnet extension is forged steel and of similar material as the body and bonnet and attached by a welded connection.
- 5. BODY-BONNET JOINT.** Two different bonnet joint designs are available. These are either the welded or the bolted bonnet type. The bolted bonnet joint design valve uses a contained, controlled compression, spiral wound type gasket. The bonnet bolting is manufactured of alloy steel in accordance with the requirements of the applicable specifications such as API 602 and ASME B16.34.
- 6. SEAT RINGS.** The seat rings are steel and make up part of the valve trim. They are pressed into the valve body and wedged into place, forming a seal with the body. The seating surfaces are ground and lapped.
- 7. WEDGE.** The wedge, which is a solid design, is forged or investment cast steel and is part of the valve trim. The seating surfaces are ground and lapped.
- 8. STEM.** The stem is forged steel and part of the valve trim. It contains an integral back seat shoulder, which mates with the integral backseat of the bonnet. The stem is designed to the basic dimensional requirements of the applicable specifications such as API 602.
- 9. GLAND AND FLANGE.** The gland, gland flange assembly utilizes a separate, two piece design. This self aligning design allows the flange to be unevenly tightened while the gland maintains its parallel alignment with the stem and stuffing box.
- 10. GLAND BOLTS AND NUTS.** The steel/stainless steel gland bolt and nut assembly is a stud, double nut arrangement. This design allows complete removal from the valve when service is required. The use of industry standard thread full length studs and nuts also allows easy replacement should these items be lost or in need of replacement.
- 11. YOKE SLEEVE.** The yoke sleeve is of forged stainless steel material having a high melting point and is resistant to wear and corrosion.
- 12. HANDWHEEL.** The handwheel is forged carbon steel of an open spoke design. This robust construction along with appropriate sizing allows for ease of operation.
- 13. GREASE FITTING.** The grease fitting is incorporated in the bonnet for stem and yoke sleeve lubrication to ensure smooth operation.
- 14. THRUST WASHER.** The thrust washer is between the bonnet and yoke sleeve to help prevent excessive wear of the yoke bushing and reduce operating torque.

B[®] GATE VALVES- BELLOWS SEALED- WELDED & BOLTED

BONNET- FULL & REDUCED PORT

800 LB.

1500 LB.

Design construction:

API 602, ASME B16.34, MSS-SP-117, BS 5352

Testing according to API 598

Marking MSS-SP-25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Spiral wound gasket

Body Bonnet Weld to ASME IX

Integral Backseat

Hydroformed bellows

Grease nipple for stem

Socket Weld Ends to ASME B16.11

Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

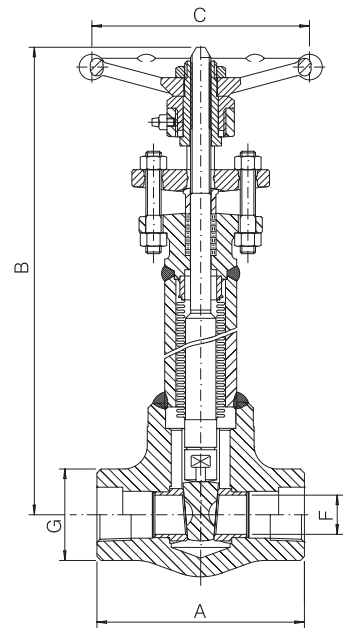
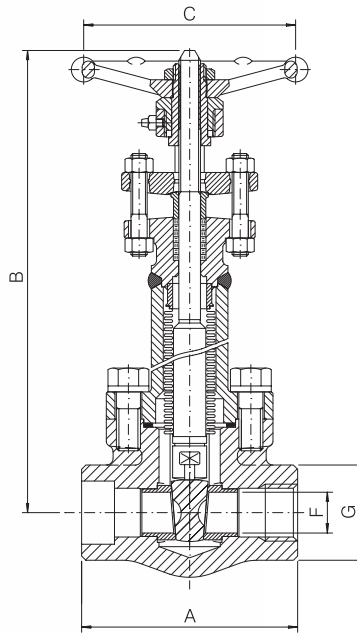
Ratings:

-carbon steel class 800 1975 psig @ 100°F

138 bar + 38°C

-carbon steel class 1500 3705 psig @ 100°F

255 bar + 38°C



800 LB.										
FULL PORT — BOLTED BONNET FIG. S 10 - WELDED BONNET FIG. SHW 10										
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50	
A	inch mm	3.15 80	3.15 80	3.54 90	4.33 110	5 127	5 127	5 127	8.27 210	
B open	inch mm	9.05 230	9.05 230	9.64 245	11.22 285	13.19 335	14.96 380	16.42 417	20.87 530	
C	inch mm	3.46 88	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	5.43 138	6.77 172	
F	inch mm	.31 8	.38 9.6	.55 14	.71 18	.94 24	1.18 30	1.44 36.6	1.89 48	
G	inch mm	1.26 32	1.26 32	1.50 38	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85	
Weight	lb.	6	6	6.25	10	15.75	22	28.25	48.5	
Bolting B.	kg	2.7	2.7	2.9	4.6	7.2	10	12.8	22	
Weight	lb.	5	5	5.5	8.25	13.5	18.5	24.5	44	
Welded B.	kg	2.3	2.3	2.5	3.8	6.2	8.4	11.2	20	
PACKING		BH2	BH2	BH2	BH4	BH5	BH6	BY5	BH8	
GASKET*		G2	G2	G2	G3	G4	G6	G7	G9	

800 LB.										
REDUCED PORT — BOLTED BONNET FIG. SL 10 - WELDED BONNET FIG. SHWL 10										
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50				
A	inch mm	3.15 80	3.54 90	4.33 110	5 127	5 127				
B open	inch mm	9.05 230	9.64 245	11.22 285	14.96 380	16.42 417				
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138				
F	inch mm	.38 9.6	.55 14	.71 18	1.18 30	1.44 36.6				
G	inch mm	1.26 32	1.50 38	1.89 48	2.52 64	3.07 78				
Weight	lb.	6	6.5	9.75	20.75	27				
Bolting B.	kg	2.7	3	4.4	9.4	12.3				
Weight	lb.	4.5	5.25	8.5	19	24.25				
Welded B.	kg	2.1	2.4	3.9	8.6	11				
PACKING		BH2	BH2	BH4	BH6	BY5				
GASKET*		G2	G2	G3	G6	G7				

1500 LB.										
FULL PORT — BOLTED BONNET FIG. 9S 10 - WELDED BONNET FIG. 9SHW 10										
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50				
A	inch mm	4.33 110	5 127	5 127	8.27 210	9.05 230				
B open	inch mm	13.98 355	14.96 380	17.72 450	21.65 550	23.23 590				
C	inch mm	5.43 138	5.43 138	6.77 172	9.21 234	12.6 320				
F	inch mm	.55 14	.71 18	.94 24	1.44 36.6	1.89 48				
G	inch mm	1.89 48	2.20 56	2.52 64	3.35 85	3.74 95				
Weight	lb.	11	15.5	21	51.75	88				
Bolting B.	kg	5	7	9.5	23.5	40				
Weight	lb.	10	14.25	18.25	48.5	81.5				
Welded B.	kg	4.5	6.5	8.3	22	37				
PACKING		BH5	BH6	2B4	2B5	9B8				
GASKET*		G2	G3	G4	G7	G8				

1500 LB.										
REDUCED PORT — BOLTED BONNET FIG. 9SL 10 - WELDED BONNET FIG. 9SHWL 10										
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50				
A	inch mm	3.54 90	4.33 110	5 127	5 127	8.27 210				
B open	inch mm	12.60 320	13.98 355	14.96 380	17.72 450	21.65 550				
C	inch mm	5.43 138	5.43 138	5.43 138	9.21 234	9.21 234				
F	inch mm	.38 9.6	.55 14	.71 18	1.18 30	1.44 36.6				
G	inch mm	1.50 38	1.89 48	2.20 56	3.07 78	3.35 85				
Weight	lb.	6.5	11	15.5	22	53				
Bolting B.	kg	3	5	7	10	24				
Weight	lb.	6	10	14.25	19.75	48.5				
Welded B.	kg	2.8	4.6	6.5	9	22				
PACKING		BH3	BH5	BH6	2B5	BH8				
GASKET*		G1	G2	G3	G5	G7				



BONNEY FORGE

GATE VALVES- BELLOWS SEALED- WELDED BONNET- FULL PORT

2500 LB.

Design construction:

ASME B16.34, MSS-SP-117, BS 5352

Testing according to API 598

Marking MSS-SP-25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Spiral wound gasket

Body Bonnet Weld to ASME IX

Integral Backseat

Hydroformed bellows

Grease nipple for stem

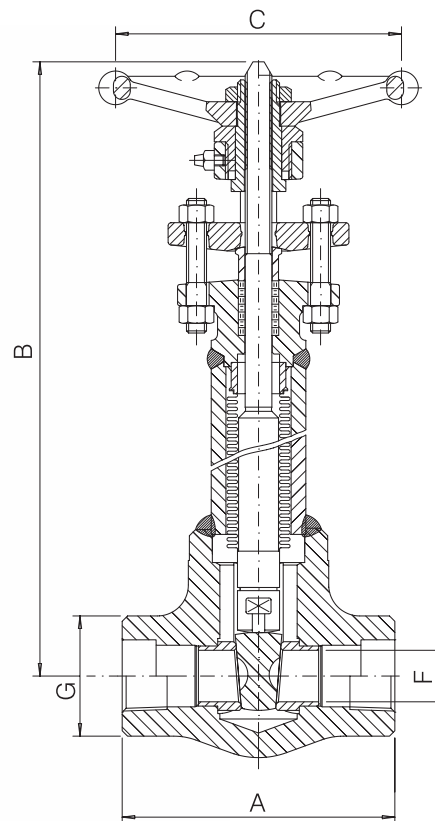
Socket Weld Ends to ASME B16.11

Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

Ratings:

-carbon steel class 2500 6170 psig @ 100°F
425 bar + 38°C



2500 LB.	FULL PORT – FIG. 25SHW 10									
	SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
	A	inch mm	4.33 110	4.33 110	5 127	5 127	5 127	5 127	8.27 210	9.05 230
	B open	inch mm	14.96 380	14.96 380	16.93 430	17.72 450	20.08 510	24.41 620	24.80 630	27.95 710
	C	inch mm	5.43 138	5.43 138	5.43 138	6.77 172	9.21 234	9.21 234	12.60 320	15.75 400
	F	inch mm	.31 8	.31 8	.45 11,5	.59 15	.77 19,5	.98 25	1.10 28	1.38 35
	G	inch mm	1.89 48	1.89 48	2.20 56	2.52 64	3.07 78	3.07 78	3.35 85	3.74 95
	Weight	lb. kg	13.5 6,2	13.5 6,2	14.25 6,5	23 10,5	35.25 16	37.5 17	63.75 29	99.25 45
	PACKING		BH6	BH6	2B4	2B4	BH8	BH8	9B8	25B8

GLOBE VALVES- BELLOWS SEALED- WELDED & BOLTED

BONNET- FULL & REDUCED PORT

800 LB.

1500 LB.

Design construction:

ASME B16.34, BS 5352, MSS-SP-117

Testing according to API 598

Marking MSS-SP-25

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Spiral wound gasket

Body Bonnet Weld to ASME IX

Integral Backseat

Loose solid disc

Socket Weld Ends to ASME B16.11

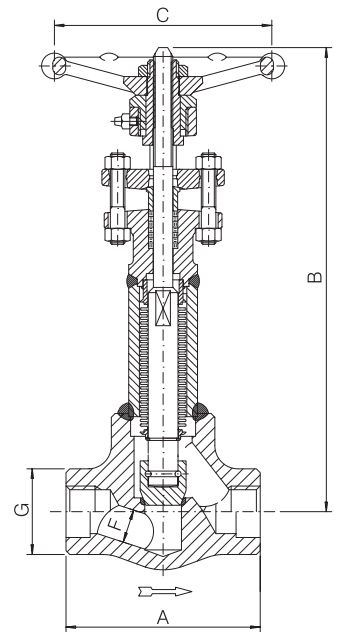
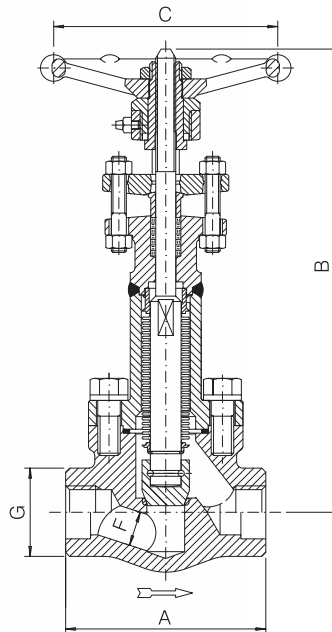
Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

Ratings:

-carbon steel class 800 1975 psig @ 100°F
138 bar + 38°C

-carbon steel class 1500 3705 psig @ 100°F
255 bar + 38°C



FULL PORT — BOLTED BONNET FIG. S 30 - WELDED BONNET FIG. SHW 30									
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
A	inch mm	3.15 80	3.15 80	3.54 90	4.33 110	5 127	5.90 150	7.09 180	8.27 210
B open	inch mm	8.07 205	8.07 205	8.27 210	9.64 245	11.22 285	12.40 315	13.58 345	17.52 445
C	inch mm	3.46 88	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138	6.77 172	6.77 172
F	inch mm	.27 7	.35 9	.51 13	.69 17.5	.87 22.5	1.16 29.5	1.38 35	1.77 45
G	inch mm	1.26 32	1.26 32	1.50 38	1.89 48	2.20 56	2.52 64	3.07 78	3.35 85
Weight	lb.	5.5	5.5	7.75	11.5	19.25	22	40.75	67.25
Bolted B.	kg	2.5	2.5	3.5	5.2	8.7	10	18.5	30.5
Weight	lb.	5	5	7	11	17.5	19.75	37.5	61.75
Welded B.	kg	2.3	2.3	3.2	5	8	9	17	28
PACKING		BH2	BH2	BH2	BH4	BH5	BH6	BY5	BH8
GASKET*		G2	G2	G2	G3	G4	G6	G7	G9

REDUCED PORT — BOLTED BONNET FIG. SL 30 - WELDED BONNET FIG. SHWL 30							
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50	
A	inch mm	3.15 80	3.54 90	4.33 110	5.90 150	7.09 180	
B open	inch mm	8.07 205	8.27 210	9.64 245	12.40 315	13.58 345	
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	6.77 172	
F	inch mm	.35 9	.51 13	.69 17.5	1.16 29.5	1.38 35	
G	inch mm	1.26 32	1.50 38	1.89 48	2.52 64	3.07 78	
Weight	lb.	5.5	6	9.5	19.5	29.75	
Bolted B.	kg	2.5	2.7	4.3	8.8	13.5	
Weight	lb.	4.75	5.25	7.75	17.75	26	
Welded B.	kg	2.2	2.4	3.5	8.1	11.8	
PACKING		BH2	BH2	BH4	BH6	BY5	
GASKET*		G2	G2	G3	G6	G7	

FULL PORT — BOLTED BONNET FIG. 9S 30 - WELDED BONNET FIG. 9SHW 30						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	4.33 110	5 127	5.90 150	8.27 210	9.05 230
B open	inch mm	11.02 280	12.60 320	14.17 360	17.52 445	20.08 510
C	inch mm	5.43 138	6.77 172	9.21 234	12.60 320	12.60 320
F	inch mm	.47 12	.59 15	.79 20	1.26 32	1.57 40
G	inch mm	1.89 48	2.20 56	2.52 64	3.35 85	3.74 95
Weight	lb.	10	15.5	19.75	50.75	83.75
Bolted B.	kg	4.5	7	9	23	38
Weight	lb.	8.75	14.25	18.25	48.5	80.5
Welded B.	kg	4	6.5	8.3	22	36.5
PACKING		BH5	2B4	2B4	BH8	9B8
GASKET*		G2	G3	G4	G7	G8

REDUCED PORT — BOLTED BONNET FIG. 9SL 30 - WELDED BONNET FIG. 9SHWL 30						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	3.54 90	4.33 110	5 127	7.09 180	8.27 210
B open	inch mm	9.45 240	11.02 280	12.60 320	14.17 360	17.52 445
C	inch mm	5.43 138	5.43 138	6.77 172	9.21 234	12.60 320
F	inch mm	.35 9	.47 12	.59 15	1.06 27	1.26 32
G	inch mm	1.50 38	1.89 48	2.20 56	3.07 78	3.35 85
Weight	lb.	7.75	10	15.5	19.75	50.75
Bolted B.	kg	3.5	4.5	7	9	23
Weight	lb.	6.5	10	14.25	19.5	47.25
Welded B.	kg	3	4.6	6.5	8.9	21.5
PACKING		BH3	BH5	2B4	2B5	BH8
GASKET*		G1	G2	G3	G5	G7

Overview 62

Valvolet® End- Bolted & Welded
Bonnet- 800 lb. & 1500 lb. valves... 63

Lip End- Bolted & Welded Bonnet-
800 lb. & 1500 lb. valves 63

Socket Weld End- Bolted & Welded
Bonnet- 800 lb. & 1500 lb. valves... 64

Butt Weld End- Bolted & Welded
Bonnet- 800 lb. & 1500 lb. valves... 64

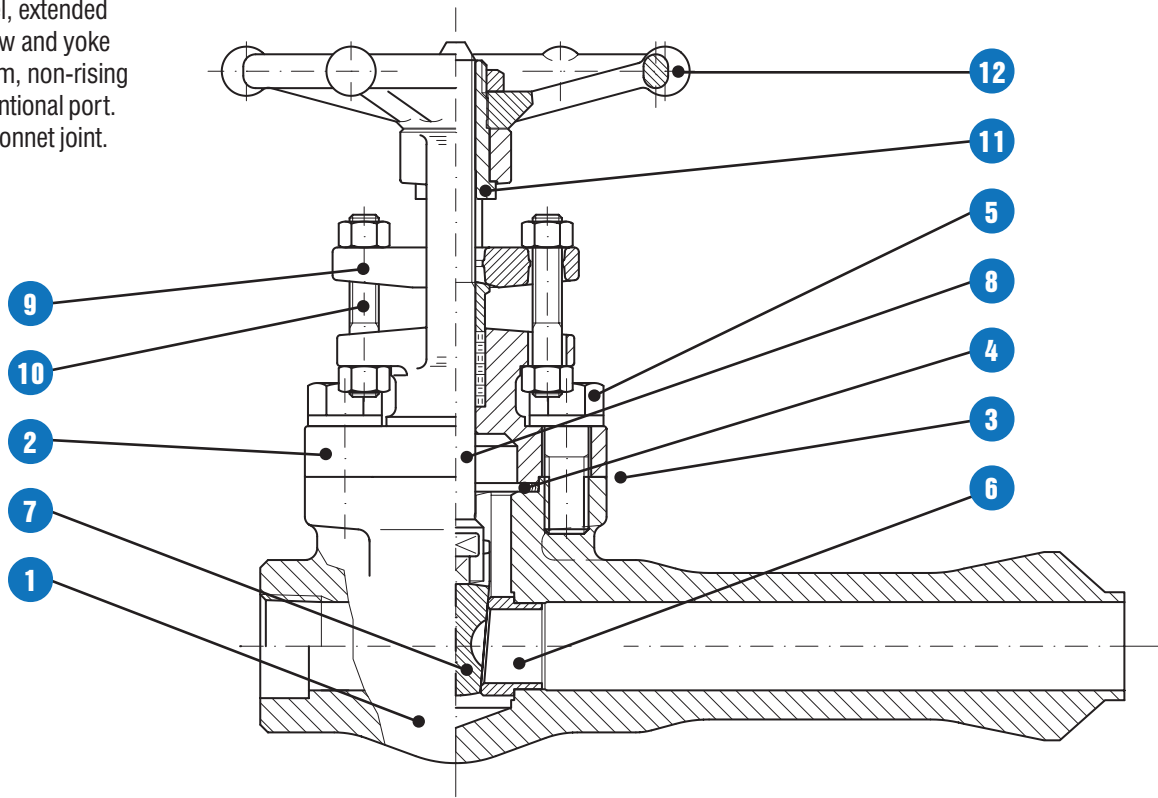
Threaded End- Bolted & Welded
Bonnet- 800 lb. & 1500 lb. valves... 64

EXTENDED BODY GATE VALVES



EXTENDED BODY GATE VALVES

Typical forged steel, extended body, outside screw and yoke (OS&Y), rising stem, non-rising handwheel. Conventional port. Bolted or welded bonnet joint. Integral backseat.



- 1. BODY.** The body is forged steel and designed to the basic dimensional requirements of the applicable specifications such as API 602 and ASME B16.34. The body is available in conventional port design with Plane End (Socket Weld), Threaded End, Lip End and Weld-O-Let End.
- 2. BONNET.** The bonnet is forged steel, has an integral backseat and incorporates the stuffing box, which has dimensions per the applicable specifications such as API 602.
- 3. BODY-BONNET JOINT.** Two different bonnet joint designs are available. These are either the threaded and seal welded or bolted bonnet type.
- 4. GASKET.** The bolted bonnet joint design valve uses a contained, controlled compression, spiral wound type gasket.
- 5. BONNET BOLTING.** The bonnet bolting is manufactured of alloy steel in accordance with the requirements of the applicable specifications such as API 602 and ASME B16.34.
- 6. SEAT RINGS.** The seat rings are steel and make up part of the valve trim. They are pressed into the valve body and wedged into place, forming a seal with the body. The seating surfaces are ground and lapped.
- 7. WEDGE.** The wedge, which is a solid design, is forged or investment cast steel and is part of the valve trim. The seating surfaces are ground and lapped.
- 8. STEM.** The stem is forged steel and part of the valve trim. It contains an integral back seat shoulder, which mates with the integral backseat of the bonnet. The stem is designed to the basic dimensional requirements of the applicable specifications such as API 602.
- 9. GLAND AND FLANGE.** The gland, gland flange assembly utilizes a separate, two piece design. This self aligning design allows the flange to be unevenly tightened while the gland maintains its parallel alignment with the stem and stuffing box.
- 10. GLAND BOLTS AND NUTS.** The steel/stainless steel gland bolt and nut assembly is a stud, double nut arrangement. This design allows complete removal from the valve when service is required. The use of industry standard thread full length studs and nuts also allows easy replacement should these items be lost or in need of replacement.
- 11. YOKE SLEEVE.** The yoke sleeve is of forged stainless steel material having a high melting point and is resistant to wear and corrosion.
- 12. HANDWHEEL.** The handwheel is forged carbon steel of an open spoke design. This robust construction along with appropriate sizing allows for ease of operation.

GATE VALVES- EXTENDED BODY- REDUCED PORT- INTEGRAL REINFORCED - VALVOLET® END & LIP END WELDED & BOLTED BONNET

800 LB.

1500 LB.

Design construction:

API 602 - ASME B16.34

Testing according to API 598

Marking MSS-SP-25

Integral extended body

Outside Screw and Yoke (OS&Y)

Self aligning two piece packing gland

Spiral-wound gasket

Body-bonnet weld to ASME IX

Integral backseat

Socket Weld Ends to ASME B16.11

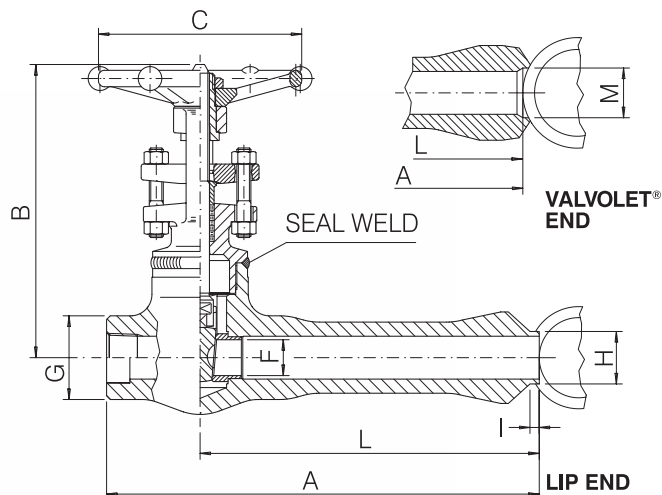
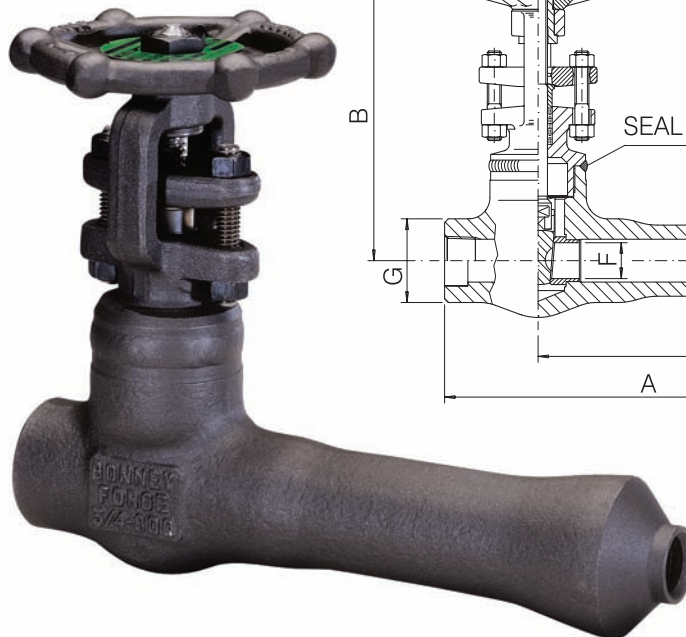
Screwed Ends (NPT) to ASME B1.20.1

Butt Welding Ends to ASME B16.25

Rating:

-carbon steel class 800 1975 psig @ 100°F
138 bar + 38°C

-carbon steel class 1500 3705 psig @ 100°F
255 bar + 38°C



BOLTED BONNET — FIG. VLL 10 / WELDED BONNET — FIG. VOLL 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	8.15 207	8.60 218,5	9.62 244,5	10.37 263,5	10.53 267,5
B open	inch mm	5.98 152	6.22 158	7.72 196	10.04 255	11.42 290
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138
F	inch mm	.38 9,6	.55 14	.71 18	1.18 30	1.44 36,6
G	inch mm	1.26 32	1.50 38	1.89 48	2.52 64	3.07 78
H	inch mm	.69 17,5	.87 22	1.12 28,5	1.61 41	1.81 46
I	inch mm	.16 4	.19 4,8	.19 4,8	.25 6,3	.31 8
L	inch mm	6.57 167	6.81 173	7.48 190	7.87 200	8.03 204
M	inch mm	.87 22	1.18 30	1.44 36,5	1.99 50,5	2.56 65
Weight	lb.	5.75	6.75	11.25	21	28.5
Bolted B.	kg	2,6	3,1	5,1	9,5	13
Weight	lb.	5	6.25	9.5	19.5	25.75
Welded B.	kg	2,3	2,9	4,3	8,8	11,7
PACKING		BH2	BH2	BH4	BH6	BY5
GASKET*		G2	G2	G3	G6	G7

BOLTED BONNET — FIG. 9VLL 10 / WELDED BONNET — FIG. 9VOLL 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	
A	inch mm	8.60 218,5	9.62 244,5	10.37 263,5	10.53 267,5	
B open	inch mm	6.02 153	7.48 190	8.66 220	11.10 282	
C	inch mm	3.46 88	3.82 97	5.43 138	5.43 138	
F	inch mm	.38 9,6	.55 14	.71 18	1.18 30	
G	inch mm	1.50 38	1.89 48	2.20 56	3.07 78	
H	inch mm	.69 17,5	.87 22	1.12 28,5	1.61 41	
I	inch mm	.16 4	.19 4,8	.19 4,8	.25 6,3	
L	inch mm	6.81 173	7.48 190	7.87 200	8.03 204	
M	inch mm	1.18 30	1.44 36,5	1.99 50,5	2.56 65	
Weight	lb.	8	12.25	23	32	
Bolted B.	kg	3,6	5,6	10,5	14,5	
Weight	lb.	6.25	10.25	19.75	27.5	
Welded B.	kg	2,9	4,7	9	12,5	
PACKING		BH3	BH5	BH6	2B5	
GASKET*		G1	G2	G3	G5	

GATE VALVES- EXTENDED BODY- REDUCED PORT- SOCKET WELDED- PLAIN END, SCREWED END & BUTT WELD END - WELDED & BOLTED BONNET

800 LB.

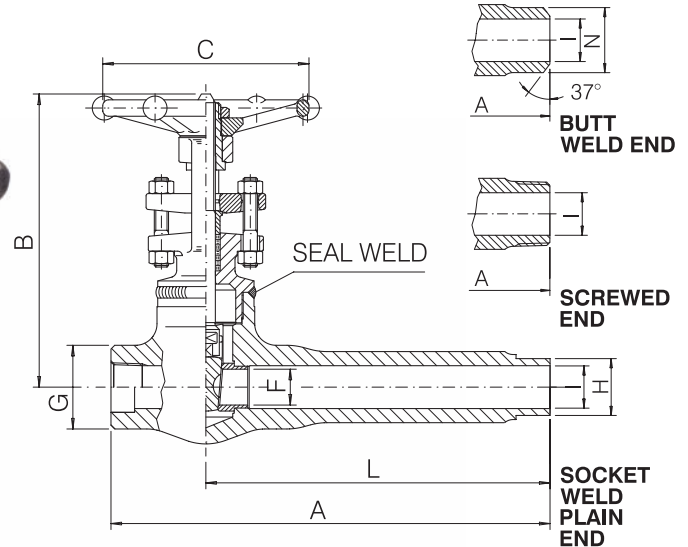
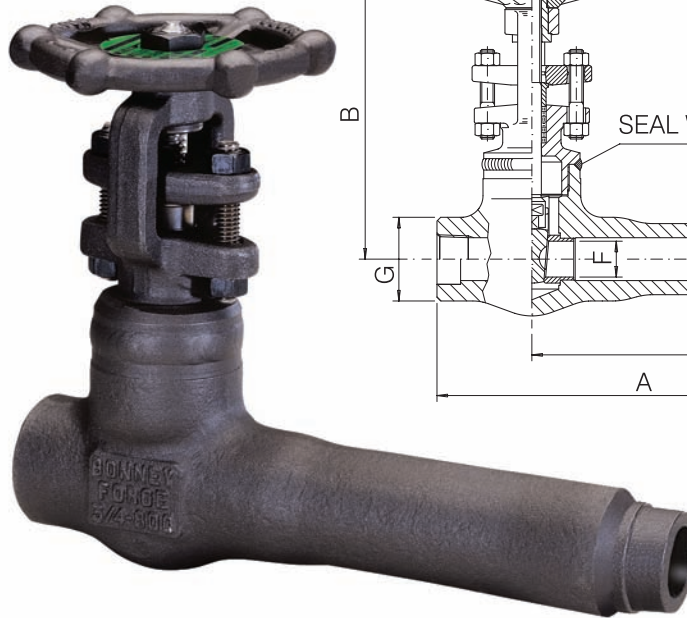
1500 LB.

Design construction:

API 602 - ASME B16.34
Testing according to API 598
Marking MSS-SP-25
Integral extended body
Outside Screw and Yoke (OS&Y)
Self aligning two piece packing gland
Spiral-wound gasket
Body-bonnet weld to ASME IX
Integral backseat
Socket Weld Ends to ASME B16.11
Screwed Ends (NPT) to ASME B1.20.1
Butt Welding Ends to ASME B16.25

Rating:

-carbon steel class 800 1975 psig @ 100°F
138 bar + 38°C
-carbon steel class 1500 3705 psig @ 100°F
255 bar + 38°C



BOLTED BONNET — FIG. ML 10 / WELDED BONNET — FIG. MFL 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
A	inch mm	5.57 141,5	5.77 146,5	6.53 166	7.50 190,5	8.50 216
B open	inch mm	5.98 152	6.14 156	7.72 196	10.08 256	11.42 290
C	inch mm	3.46 88	3.46 88	3.82 97	5.43 138	5.43 138
F	inch mm	.38 9,6	.55 14	.71 18	1.18 30	1.44 36,6
G	inch mm	1.26 32	1.50 38	1.89 48	2.52 64	3.07 78
H	inch mm	.84 21,3	1.05 26,7	1.31 33,4	1.90 48,3	2.37 60,3
I	inch mm	.51 13	.63 16	.83 21	1.34 34	1.65 42
L	inch mm	4.01 102	4.01 102	4.37 111	5 127	6.02 153
N	inch mm	.90 23	1.10 28	1.42 36	2.05 52	2.44 62
Weight	lb.	5.25	5.75	9.25	17.75	26
Bolted B.	kg	2.4	2.6	4.2	8.1	11,8
Weight	lb.	3.75	4.5	7	15.75	22.75
Welded B.	kg	1.7	2,1	3,2	7,2	10,3
PACKING		BH2	BH2	BH4	BH6	BY5
GASKET*		G2	G2	G3	G6	G7

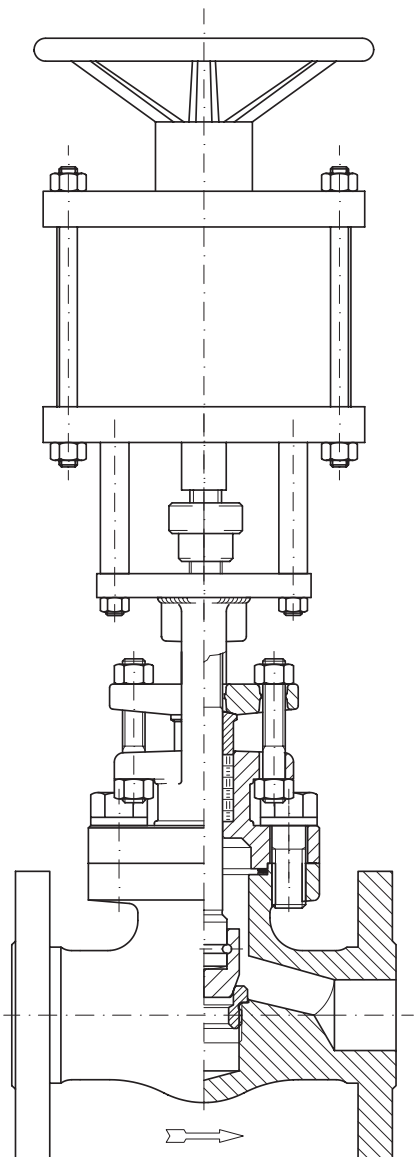
BOLTED BONNET — FIG. 9ML 10 / WELDED BONNET — FIG. 9MFL 10						
SIZE	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	
A	inch mm	5.77 146,5	6.53 166	7.50 190,5	8.50 216	
B open	inch mm	6.02 153	7.48 190	8.66 220	11.10 282	
C	inch mm	3.46 88	3.82 97	5.43 138	5.43 138	
F	inch mm	.38 9,6	.55 14	.71 18	1.18 30	
G	inch mm	1.50 38	1.89 48	2.52 64	3.35 85	
H	inch mm	.84 21,3	1.05 26,7	1.31 33,4	1.90 48,3	
I	inch mm	.51 13	.63 16	.83 21	1.34 34	
L	inch mm	4.02 102	4.37 111	5 127	6.02 153	
N	inch mm	.90 23	1.10 28	1.42 36	2.05 52	
Weight	lb.	5.75	10	20	28.5	
Bolted B.	kg	2.6	4,6	9,1	13	
Weight	lb.	4.5	8.25	17.75	26.5	
Welded B.	kg	2,1	3,8	8,1	12	
PACKING		BH3	BH5	BH6	2B5	
GASKET*		G1	G2	G3	G5	



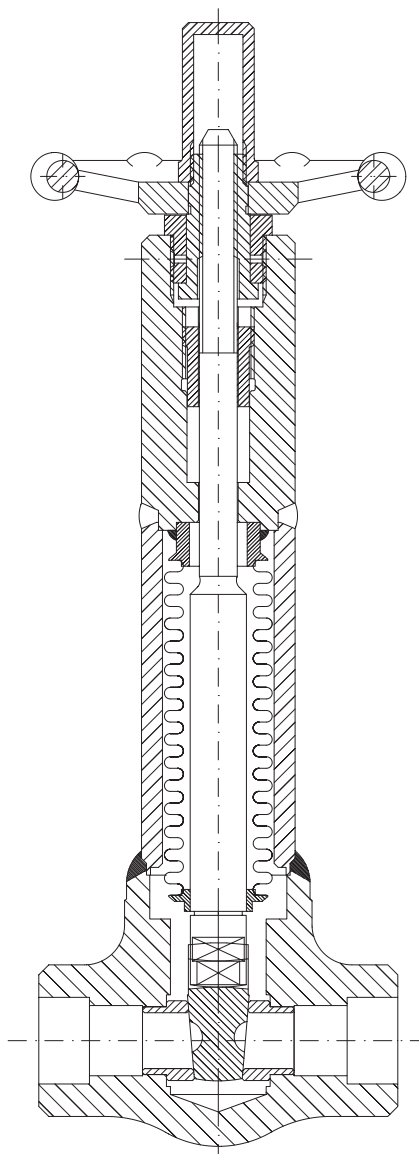
SPECIAL FEATURES

B

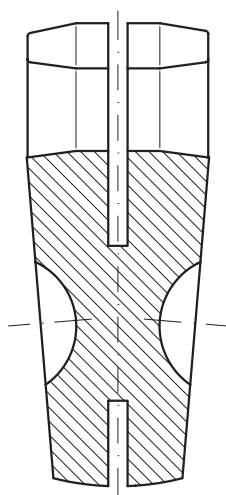
Special features are available on request.



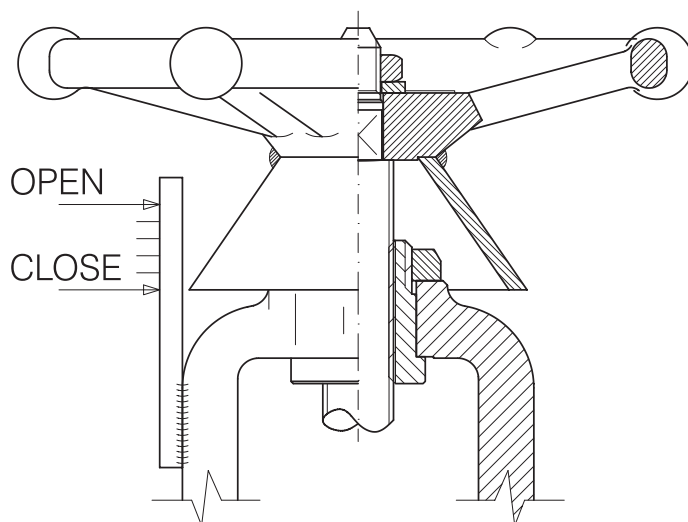
All Gate and Globe valves can be equipped with pneumatic or hydraulic actuator, double effect or spring action.



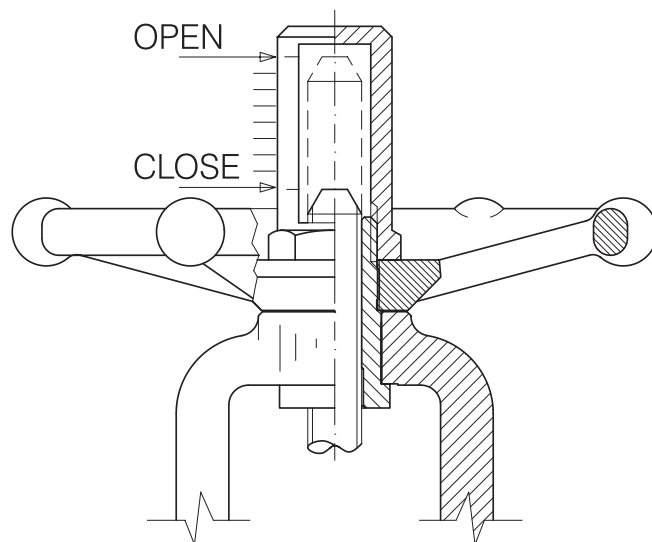
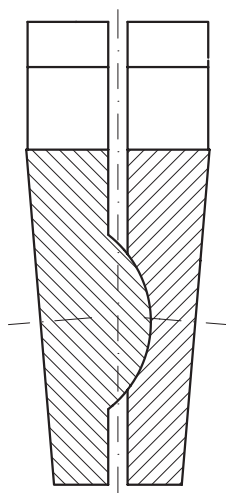
Bellows seal valves full protected.



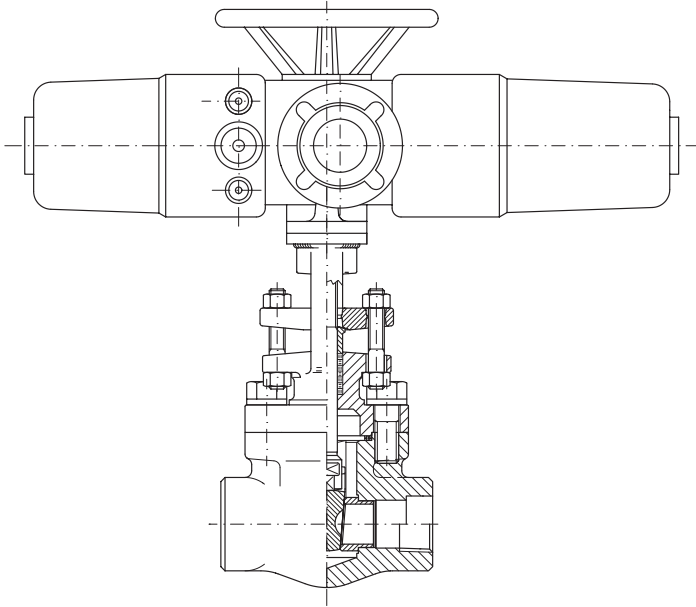
**Flexible and split wedge
 available on request.**



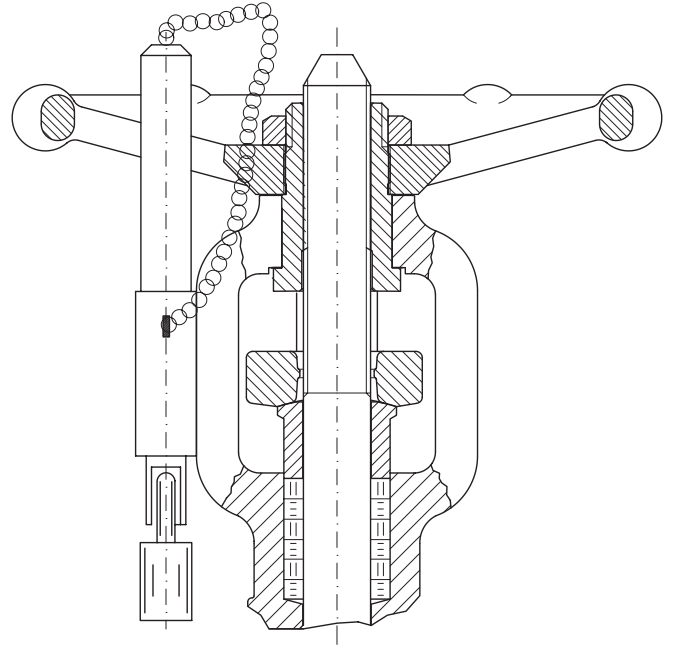
**Position indicator and stem
 protection on Globe valves.**



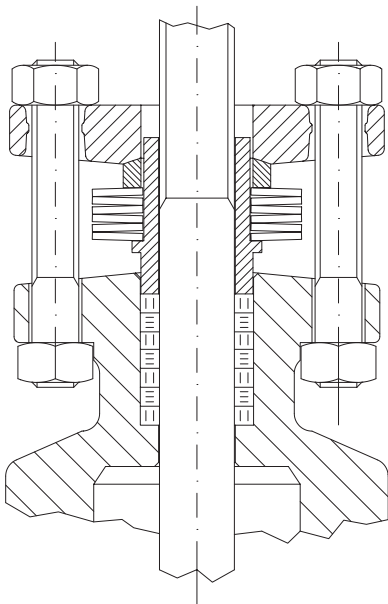
**Position indicator and stem
 protection on Gate valves.**



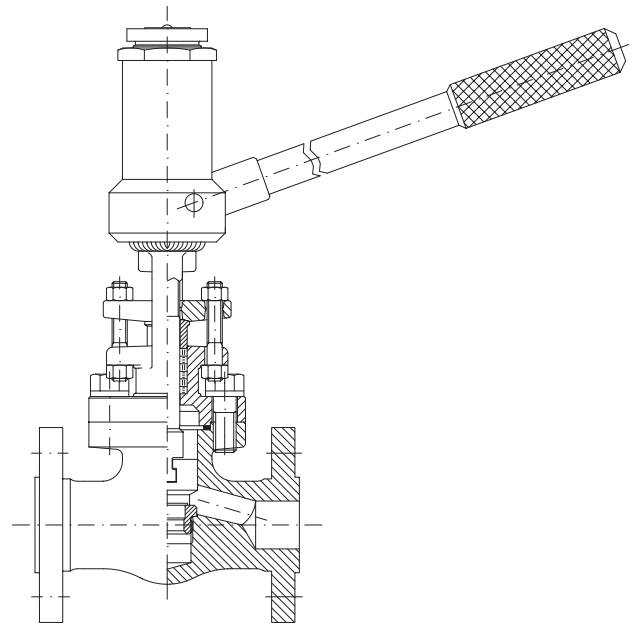
All Gate and Globe valves can be equipped with electric actuator, per customer's specification.



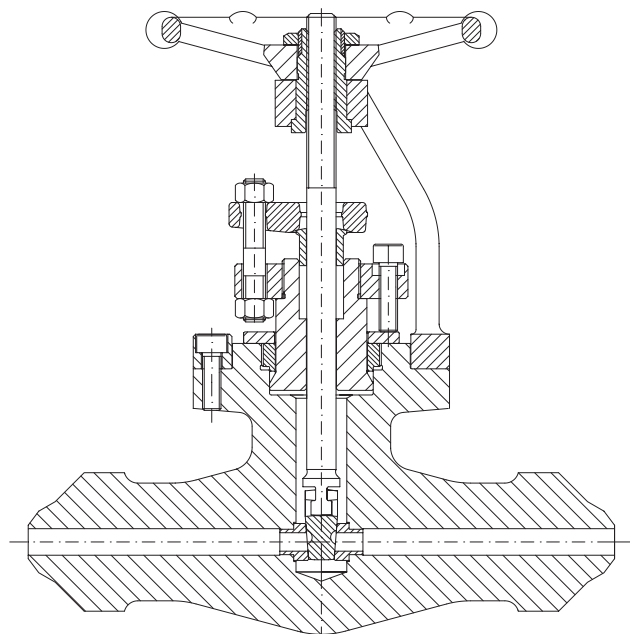
Locking device with padlock. One option shown. Other designs are supplied.



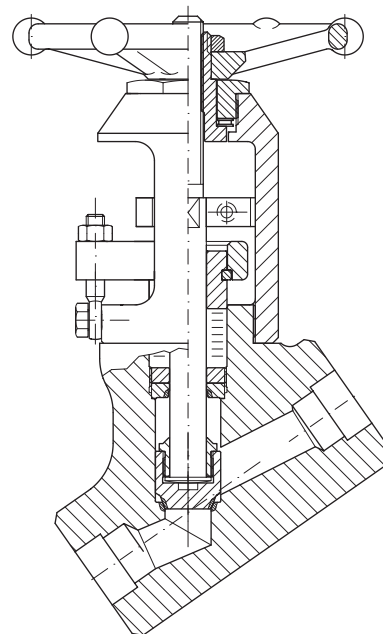
Stuffing box with live loading system. One option shown. Other designs are supplied.



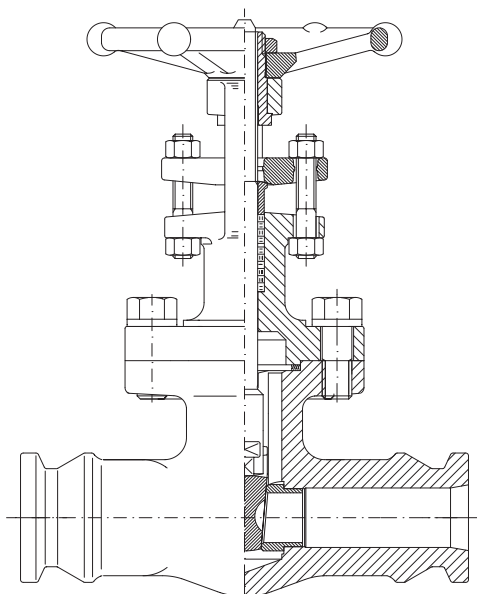
Quick opening Globe and Gate valves.



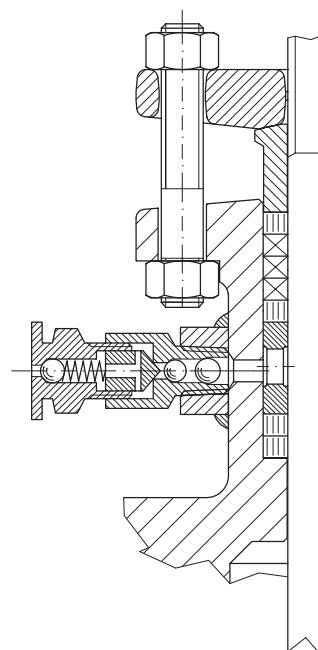
**Body Bonnet connection
pressure seal design.**



**Bonnet-Less type, non rotating
stem, no rising handwheel,
position indicator.**



**Special pipe connection such as
clamp-lock, special B.W.E.,
nipples or other
customer's request.**



**Valves can be supplied
with a deep stuffing box with
lantern ring and a double ball
grease injector.**

Pressure-Temperature Ratings ...	72-90
Standard Materials Specification	91
Recommended Spare Parts for Forged Valves	92
Thread Standard ASME B1.20.1	93
Socket Weld Standard ASME B16.11	93
Valvolet® Run Pipe Consolidation	93
Valve Flow Coefficient.....	94-95

TECHNICAL DATA



PSI - °F

MATERIALS: ASTM A105 N (a) - ASTM A350 LF2 (a)

BAR - °C

STANDARD CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	285	740	990	1,480	1,975	2,220	3,705	6,170	11,110
200	260	675	900	1,350	1,800	2,025	3,375	5,625	10,120
300	230	655	875	1,315	1,750	1,970	3,280	5,470	9,845
400	200	635	845	1,270	1,690	1,900	3,170	5,280	9,505
500	170	600	800	1,200	1,595	1,795	2,995	4,990	8,980
600	140	550	730	1,095	1,460	1,640	2,735	4,560	8,210
650	125	535	715	1,075	1,430	1,610	2,685	4,475	8,055
700	110	535	710	1,065	1,420	1,600	2,665	4,440	7,990
750	95	505	670	1,010	1,345	1,510	2,520	4,200	7,560
800	80	410	550	825	1,100	1,235	2,060	3,430	6,170
850	65	270	355	535	715	805	1,340	2,230	4,010
900	50	170	230	345	460	515	860	1,430	2,570
950	35	105	140	205	275	310	515	860	1,545
1000	20	50	70	105	140	155	260	430	770

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
400	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
500	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
600	275	715	950	1,425	1,900	2,140	3,565	5,940	10,690
650	270	700	935	1,400	1,865	2,100	3,495	5,825	10,485
700	265	695	925	1,390	1,850	2,080	3,470	5,780	10,405
750	240	630	840	1,260	1,680	1,890	3,150	5,250	9,450
800	200	515	685	1,030	1,375	1,545	2,570	4,285	7,715
850	130	335	445	670	895	1,005	1,670	2,785	5,015
900	85	215	285	430	575	645	1,070	1,785	3,215
950	50	130	170	260	345	385	645	1,070	1,930
1000	25	65	85	130	175	195	320	535	965

STANDARD CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	19,7	51,0	68,3	102,0	136,2	153,1	255,5	425,4	766,0
93,3	17,9	46,5	62,1	93,1	124,1	139,6	232,7	387,8	697,8
148,9	15,9	45,2	60,3	90,7	120,7	135,8	226,2	377,2	678,8
204,4	13,8	43,8	58,3	87,6	116,5	131,0	218,6	364,1	655,4
260,0	11,7	41,4	55,2	82,7	110,0	123,8	206,5	344,1	619,2
315,6	9,7	37,9	50,3	75,5	100,7	113,1	188,6	314,4	566,1
343,3	8,6	36,9	49,3	74,1	98,6	111,0	185,1	308,6	555,4
371,1	7,6	36,9	49,0	73,4	97,9	110,3	183,8	306,1	550,9
398,9	6,6	34,8	46,2	69,6	92,7	104,1	173,8	289,6	521,3
426,7	5,5	28,3	37,9	56,9	75,8	85,2	142,0	236,5	425,4
454,4	4,5	18,6	24,5	36,9	49,3	55,5	92,4	153,8	276,5
482,2	3,4	11,7	15,9	23,8	31,7	35,5	59,3	98,6	177,2
510,0	2,4	7,2	9,7	14,1	19,0	21,4	35,5	59,3	106,5
537,8	1,4	3,4	4,8	7,2	9,6	10,7	17,9	29,6	53,1

SPECIAL CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
148,9	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
204,4	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
260,0	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
315,6	19,0	49,3	65,5	98,3	131,0	147,6	245,8	409,6	737,1
343,3	18,6	48,3	64,5	96,5	128,6	144,8	241,0	401,6	722,9
371,1	18,3	47,9	63,8	95,8	127,5	143,4	239,3	398,5	717,4
398,9	16,5	43,4	57,9	86,9	115,8	130,3	217,2	362,0	651,6
426,7	13,8	35,5	47,2	71,0	94,8	106,5	177,2	295,5	531,9
454,4	9,0	23,1	30,7	46,2	61,7	69,3	115,1	192,0	345,8
482,2	5,9	14,8	19,7	29,6	39,6	44,5	73,8	123,1	221,7
510,0	3,4	9,0	11,7	17,9	23,8	26,5	44,5	73,8	133,1
537,8	1,7	4,5	5,9	9,0	12,1	13,4	22,1	36,9	66,5

PSI - °F

MATERIALS: ASTM A182 F5 - ASTM A182 F5a

BAR - °C

STANDARD CLASS

Note: for temperature > 1000°F valves in class 150 lbs are limited to BW Ends only.

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	260	745	995	1,490	2,000	2,235	3,725	6,205	11,170
300	230	715	955	1,430	1,940	2,150	3,580	5,965	10,740
400	200	705	940	1,410	1,880	2,115	3,530	5,880	10,585
500	170	665	885	1,330	1,775	1,995	3,325	5,540	9,965
600	140	605	805	1,210	1,615	1,815	3,025	5,040	9,070
650	125	590	785	1,175	1,570	1,765	2,940	4,905	8,825
700	110	570	755	1,135	1,515	1,705	2,840	4,730	8,515
750	95	530	705	1,055	1,420	1,585	2,640	4,400	7,920
800	80	510	675	1,015	1,325	1,525	2,540	4,230	7,610
850	65	485	645	965	1,170	1,450	2,415	4,030	7,250
900	50	370	495	740	940	1,110	1,850	3,085	5,555
950	35	275	365	550	695	825	1,370	2,285	4,115
1000	20	200	265	400	510	595	995	1,655	2,985
1050	20	145	190	290	375	430	720	1,200	2,160
1100	20	100	135	200	275	300	495	830	1,490
1150	20	60	80	125	185	185	310	515	925
1200	15	35	45	70	120	105	170	285	515

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	280	730	970	1,455	1,940	2,185	3,645	6,070	10,930
400	275	720	960	1,440	1,920	2,160	3,600	6,000	10,800
500	275	720	960	1,440	1,920	2,160	3,600	6,000	10,800
600	270	705	945	1,415	1,885	2,120	3,535	5,895	10,605
650	270	700	930	1,395	1,860	2,095	3,495	5,820	10,480
700	265	685	915	1,370	1,825	2,055	3,430	5,715	10,285
750	255	660	880	1,320	1,760	1,980	3,300	5,500	9,900
800	245	640	850	1,275	1,700	1,915	3,195	5,320	9,580
850	230	605	805	1,210	1,615	1,815	3,020	5,035	9,065
900	175	465	615	925	1,235	1,390	2,315	3,855	6,945
950	130	345	455	685	915	1,030	1,715	2,855	5,145
1000	95	250	330	495	660	745	1,245	2,070	3,730
1050	70	180	240	360	480	540	900	1,500	2,700
1100	50	125	165	250	335	375	620	1,035	1,865
1150	30	75	105	155	205	230	385	645	1,155
1200	15	45	55	85	115	130	215	355	645

STANDARD CLASS

Note: for temperature > 540°C valves in class 150 lbs are limited to BW Ends only.

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	17,9	51,4	68,6	102,7	137,9	154,1	256,8	427,8	770,2
148,9	15,9	49,3	65,8	98,6	133,8	148,2	246,8	411,3	740,5
204,4	13,8	48,6	64,8	97,2	129,6	145,8	243,4	405,4	729,8
260,0	11,7	45,9	61,0	91,7	122,4	137,6	229,3	382,0	687,1
315,6	9,7	41,7	55,5	83,4	111,3	125,1	208,6	347,5	625,4
343,3	8,6	40,7	54,1	81,0	108,2	121,7	202,7	338,2	608,5
371,1	7,6	39,3	52,1	78,3	104,4	117,6	195,8	326,1	587,1
398,9	6,6	36,5	48,6	72,7	97,9	109,3	182,0	303,4	546,1
426,7	5,5	35,2	46,5	70,0	91,3	105,1	175,1	291,7	524,7
454,4	4,5	33,4	44,5	66,5	80,7	100,0	166,5	277,9	499,9
482,2	3,4	25,5	34,1	51,0	64,8	76,5	127,6	212,7	383,0
510,0	2,4	19,0	25,2	37,9	47,9	56,9	94,5	157,6	283,7
537,8	1,4	13,8	18,3	27,6	35,2	41,0	68,6	114,1	205,8
565,6	1,4	10,0	13,1	20,0	25,8	29,6	49,6	82,7	148,9
593,3	1,4	6,9	9,3	13,8	19,0	20,7	34,1	57,2	102,7
621,1	1,4	4,1	5,5	8,6	12,7	12,8	21,4	35,5	63,8
648,9	1,0	2,4	3,1	4,8	8,3	7,2	11,7	19,7	35,5

SPECIAL CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
148,9	19,3	50,3	66,9	100,3	133,8	150,7	251,3	418,5	753,6
204,4	19,0	49,6	66,2	99,3	132,4	148,9	248,2	413,7	744,7
260,0	19,0	49,6	66,2	99,3	132,4	148,9	248,2	413,7	744,7
315,6	18,6	48,6	65,2	97,6	129,9	146,2	243,7	406,5	731,2
343,3	18,6	48,3	64,1	96,2	128,2	144,5	241,0	401,3	722,6
371,1	18,3	47,2	63,1	94,5	125,9	141,7	236,5	394,0	709,2
398,9	17,6	45,5	60,7	91,0	121,3	136,5	227,5	379,2	682,6
426,7	16,9	44,1	58,6	87,9	117,2	132,0	220,3	366,8	660,5
454,4	15,9	41,7	55,5	83,4	111,3	125,1	208,2	347,2	625,0
482,2	12,1	32,1	42,4	63,8	85,1	95,8	159,6	265,8	478,9
510,0	9,0	23,8	31,4	47,2	63,1	71,0	118,2	196,9	354,7
537,8	6,6	17,2	22,8	34,1	45,5	51,4	85,8	142,7	257,2
565,6	4,8	12,4	16,5	24,8	33,1	37,2	62,1	103,4	186,2
593,3	3,4	8,6	11,4	17,2	23,1	25,9	42,7	71,4	128,6
621,1	2,1	5,2	7,2	10,7	14,1	15,9	26,5	44,5	79,6
648,9	1,0	3,1	3,8	5,9	7,9	9,0	14,8	24,5	44,5

PSI - °F

MATERIALS: ASTM A182 F9

BAR - °C

STANDARD CLASS

Note: for temperature > 1000°F valves in class 150 lbs are limited to BW Ends only.

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	260	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	230	730	970	1,455	1,940	2,185	3,640	6,070	10,925
400	200	705	940	1,410	1,880	2,115	3,530	5,880	10,585
500	170	665	885	1,330	1,775	1,995	3,325	5,540	9,965
600	140	605	805	1,210	1,615	1,815	3,025	5,040	9,070
650	125	590	785	1,175	1,570	1,765	2,940	4,905	8,825
700	110	570	755	1,135	1,515	1,705	2,840	4,730	8,515
750	95	530	710	1,065	1,420	1,595	2,660	4,430	7,970
800	80	510	675	1,015	1,355	1,525	2,540	4,230	7,610
850	65	485	650	975	1,300	1,460	2,435	4,060	7,305
900	50	450	600	900	1,200	1,350	2,245	3,745	6,740
950	35	375	505	755	985	1,130	1,885	3,145	5,655
1000	20	255	340	505	780	760	1,270	2,115	3,805
1050	20	170	230	345	505	515	855	1,430	2,570
1100	20	115	150	225	300	340	565	945	1,695
1150	20	75	100	150	200	225	375	630	1,130
1200	20	50	70	105	140	155	255	430	770

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
400	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
500	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
600	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
650	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
700	280	735	980	1,465	1,955	2,200	3,665	6,110	10,995
750	280	730	970	1,460	1,945	2,185	3,645	6,070	10,930
800	275	720	960	1,440	1,920	2,160	3,600	6,000	10,800
850	260	680	905	1,355	1,805	2,030	3,385	5,645	10,160
900	230	600	800	1,200	1,600	1,800	3,000	5,000	9,000
950	180	470	630	945	1,260	1,415	2,355	3,930	7,070
1000	120	315	425	635	845	950	1,585	2,645	4,755
1050	80	215	285	430	575	645	1,070	1,785	3,215
1100	55	140	190	285	380	425	710	1,180	2,120
1150	35	95	125	190	255	285	470	785	1,415
1200	25	65	85	130	175	195	320	535	965

STANDARD CLASS

Note: for temperature > 540°C valves in class 150 lbs are limited to BW Ends only.

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	17,9	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
148,9	15,9	50,3	66,9	100,3	133,8	150,7	251,0	418,5	753,3
204,4	13,8	48,6	64,8	97,2	129,6	145,8	243,4	405,4	729,8
260,0	11,7	45,9	61,0	91,7	122,4	137,6	229,3	382,0	687,1
315,6	9,7	41,7	55,5	83,4	111,3	125,1	208,6	347,5	625,4
343,3	8,6	40,7	54,1	81,0	108,2	121,7	202,7	338,2	608,5
371,1	7,6	39,3	52,1	78,3	104,4	117,6	195,8	326,1	587,1
398,9	6,6	36,5	49,0	73,4	97,9	110,0	183,4	305,4	549,5
426,7	5,5	35,2	46,5	70,0	93,4	105,1	175,1	291,7	524,7
454,4	4,5	33,4	44,8	67,2	89,6	100,7	167,9	279,9	503,7
482,2	3,4	31,0	41,4	62,1	82,7	93,1	154,8	258,2	464,7
510,0	2,4	25,9	34,8	52,1	67,9	77,9	130,0	216,8	389,9
537,8	1,4	17,6	23,4	34,8	53,8	52,4	87,6	145,8	262,4
565,6	1,4	11,7	15,9	23,8	34,8	35,5	59,0	98,6	177,2
593,3	1,4	7,9	10,3	15,5	20,7	23,4	39,0	65,2	116,9
621,1	1,4	5,2	6,9	10,3	13,8	15,5	25,9	43,4	77,9
648,9	1,4	3,4	4,8	7,2	9,6	10,7	17,6	29,6	53,1

SPECIAL CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
148,9	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
204,4	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
260,0	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
315,6	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
343,3	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
371,1	19,3	50,7	67,6	101,0	134,7	151,7	252,7	421,3	758,1
398,9	19,3	50,3	66,9	100,7	134,1	150,7	251,3	418,5	753,6
426,7	19,0	49,6	66,2	99,3	132,3	148,9	248,2	413,7	744,7
454,4	17,9	46,9	62,4	93,4	124,4	140,0	233,4	389,2	700,5
482,2	15,9	41,4	55,2	82,7	110,3	124,1	206,9	344,8	620,6
510,0	12,4	32,4	43,4	65,2	86,8	97,6	162,4	271,0	487,5
537,8	8,3	21,7	29,3	43,8	58,2	65,5	109,3	182,4	327,9
565,6	5,5	14,8	19,7	29,6	39,6	44,5	73,8	123,1	221,7
593,3	3,8	9,7	13,1	19,7	26,2	29,3	49,0	81,4	146,2
621,1	2,4	6,6	8,6	13,1	17,5	19,7	32,4	54,1	97,6
648,9	1,7	4,5	5,9	9,0	12,1	13,4	22,1	36,9	66,5

PSI - °F

MATERIALS: ASTM A182 F91

BAR - °C

STANDARD CLASS

Note: for temperature > 1000°F valves in class 150 lbs are limited to BW Ends only.

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	260	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	230	730	970	1,455	1,940	2,185	3,640	6,070	10,925
400	200	705	940	1,410	1,880	2,115	3,530	5,880	10,585
500	170	665	885	1,330	1,775	1,995	3,325	5,540	9,965
600	140	605	805	1,210	1,615	1,815	3,025	5,040	9,070
650	125	590	785	1,175	1,570	1,765	2,940	4,905	8,825
700	110	570	755	1,135	1,515	1,705	2,840	4,730	8,515
750	95	530	710	1,065	1,420	1,595	2,660	4,430	7,970
800	80	510	675	1,015	1,355	1,525	2,540	4,230	7,610
850	65	485	650	975	1,300	1,460	2,435	4,060	7,305
900	50	450	600	900	1,200	1,350	2,245	3,745	6,740
950	35	385	515	775	1,030	1,160	1,930	3,220	5,795
1000	20	365	485	725	970	1,090	1,820	3,030	5,450
1050	20	360	480	720	960	1,080	1,800	3,000	5,400
1100	20	300	400	605	805	905	1,510	2,515	4,525
1150	20	225	295	445	595	670	1,115	1,855	3,345
1200	20	145	190	290	385	430	720	1,200	2,160

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
400	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
500	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
600	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
650	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
700	280	735	980	1,465	1,955	2,200	3,665	6,110	10,995
750	280	730	970	1,460	1,945	2,185	3,645	6,070	10,930
800	275	720	960	1,440	1,920	2,160	3,600	6,000	10,800
850	260	680	905	1,355	1,805	2,030	3,385	5,645	10,160
900	230	600	800	1,200	1,600	1,800	3,000	5,000	9,000
950	180	470	630	945	1,260	1,415	2,360	3,930	7,070
1000	160	420	560	840	1,120	1,260	2,105	3,505	6,310
1050	160	420	560	840	1,120	1,260	2,105	3,505	6,310
1100	145	375	505	755	1,005	1,130	1,885	3,145	5,655
1150	105	280	370	555	740	835	1,395	2,320	4,180
1200	70	180	240	360	480	540	900	1,500	2,700

STANDARD CLASS

Note: for temperature > 540°C valves in class 150 lbs are limited to BW Ends only.

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	17,9	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
148,9	15,9	50,3	66,9	100,3	133,8	150,7	251,0	418,5	753,3
204,4	13,8	48,6	64,8	97,2	129,6	145,8	243,4	405,4	729,8
260,0	11,7	45,9	61,0	91,7	122,4	137,6	229,3	382,0	687,1
315,6	9,7	41,7	55,5	83,4	111,3	125,1	208,6	347,5	625,4
343,3	8,6	40,7	54,1	81,0	108,2	121,7	202,7	338,2	608,5
371,1	7,6	39,3	52,1	78,3	104,4	117,6	195,8	326,1	587,1
398,9	6,6	36,5	49,0	73,4	97,9	110,0	183,4	305,4	549,5
426,7	5,5	35,2	46,5	70,0	93,4	105,1	175,1	291,7	524,7
454,4	4,5	33,4	44,8	67,2	89,6	100,7	167,9	279,9	503,7
482,2	3,4	31,0	41,4	62,1	82,7	93,1	154,8	258,2	464,7
510,0	2,4	26,6	35,5	53,4	71,0	80,0	133,1	222,0	339,7
537,8	1,4	25,1	33,4	50,0	66,9	75,1	125,5	209,0	375,9
565,6	1,4	24,8	33,1	49,7	66,2	74,5	124,1	206,9	372,4
593,3	1,4	20,7	27,6	41,7	55,5	62,4	104,1	173,4	312,0
621,1	1,4	15,5	20,3	30,7	41,0	46,2	76,9	127,9	230,7
648,9	1,4	10,0	13,1	20,0	26,5	29,7	49,7	82,8	149,0

SPECIAL CLASS

Note: for temperature > 540°C valves in class 150 lbs are limited to BW Ends only.

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
148,9	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
204,4	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
260,0	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
315,6	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
343,3	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
371,1	19,3	50,7	67,6	101,0	134,8	151,7	252,7	421,3	758,1
398,9	19,3	50,3	66,9	100,7	134,1	150,7	251,3	418,5	753,6
426,7	19,0	49,6	66,2	99,3	132,4	148,9	248,2	413,7	744,7
454,4	17,9	46,9	62,4	93,4	124,4	140,0	233,4	389,2	700,5
482,2	15,9	41,4	55,2	82,8	110,3	124,1	206,9	344,8	620,7
510,0	12,4	32,4	43,4	65,2	86,9	97,6	162,8	271,0	487,6
537,8	11,0	29,0	38,6	57,9	77,2	86,9	145,1	241,7	435,1
565,6	11,0	29,0	38,6	57,9	77,2	86,9	145,1	241,7	435,1
593,3	10,0	25,9	34,8	52,1	69,3	77,9	130,0	216,9	390,0
621,1	7,2	19,3	25,5	38,3	51	57,6	96,2	160,0	288,2
648,9	4,8	12,4	16,6	24,8	33,1	37,2	62,1	103,5	186,2

PSI - °F

MATERIALS: ASTM A182 F11 CL2 (b) - ASTM A182 F12 CL2 (b)

BAR - °C

STANDARD CLASS

Note: for temperature > 1000°F valves in class 150 lbs are limited to BW Ends only.

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	260	750	1,000	1,500	1,900	2,250	3,750	6,250	11,250
300	230	720	965	1,445	1,795	2,165	3,610	6,015	10,830
400	200	695	925	1,385	1,755	2,080	3,465	5,775	10,400
500	170	665	885	1,330	1,710	1,995	3,325	5,540	9,965
600	140	605	805	1,210	1,615	1,815	3,025	5,040	9,070
650	125	590	785	1,175	1,570	1,765	2,940	4,905	8,825
700	110	570	755	1,135	1,515	1,705	2,840	4,730	8,515
750	95	530	710	1,065	1,420	1,595	2,660	4,430	7,970
800	80	510	675	1,015	1,355	1,525	2,540	4,230	7,610
850	65	485	650	975	1,300	1,460	2,435	4,060	7,305
900	50	450	600	900	1,200	1,350	2,245	3,745	6,740
950	35	320	425	640	1,005	955	1,595	2,655	4,785
1000	20	215	290	430	595	650	1,080	1,800	3,240
1050	20	145	190	290	365	430	720	1,200	2,160
1100	20	95	130	190	255	290	480	800	1,440
1150	20	60	80	125	140	185	310	515	925
1200	15	40	50	75	95	115	190	315	565

SPECIAL CLASS

Note: for temperature > 1000°F valves in class 150 lbs are limited to BW Ends only.

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
400	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
500	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
600	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
650	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
700	280	735	980	1,465	1,955	2,200	3,665	6,110	10,995
750	280	730	970	1,460	1,945	2,185	3,645	6,070	10,930
800	275	720	960	1,440	1,920	2,160	3,600	6,000	10,800
850	260	680	905	1,355	1,805	2,030	3,385	5,645	10,160
900	225	585	785	1,175	1,565	1,760	2,935	4,895	8,805
950	155	400	530	795	1,060	1,195	1,995	3,320	5,980
1000	105	270	360	540	720	810	1,350	2,250	4,050
1050	70	180	240	360	480	540	900	1,500	2,700
1100	45	120	160	240	320	360	600	1,000	1,800
1150	30	75	105	155	205	230	385	645	1,155
1200	20	45	65	95	125	140	235	395	705

STANDARD CLASS

Note: for temperature > 540°C valves in class 150 lbs are limited to BW Ends only.

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	17,9	51,7	69,0	103,4	131,0	151,1	258,6	430,9	775,7
148,9	15,9	49,6	66,5	99,6	123,8	149,3	248,9	414,7	746,7
204,4	13,8	47,9	63,8	95,5	121,0	143,4	238,9	398,2	717,1
260,0	11,7	45,9	61,0	91,7	117,9	137,6	229,3	382,0	687,1
315,6	9,7	41,7	55,5	83,4	111,3	125,1	208,6	347,5	625,4
343,3	8,6	40,7	54,1	81,0	108,2	121,7	202,7	338,2	608,5
371,1	7,6	39,3	52,1	78,3	104,4	117,6	195,8	326,1	587,1
398,9	6,6	36,5	49,0	73,4	97,9	110,0	183,4	305,4	549,5
426,7	5,5	35,2	46,5	70,0	93,4	105,1	175,1	291,7	524,7
454,4	4,5	33,4	44,8	67,2	89,6	100,7	167,9	279,9	503,7
482,2	3,4	31,0	41,4	62,1	82,7	93,1	154,8	258,2	464,7
510,0	2,4	22,1	29,3	44,1	69,3	65,8	110,0	183,1	329,9
537,8	1,4	14,8	20,0	29,6	41,0	44,8	74,5	124,1	223,4
565,6	1,4	10,0	13,1	20,0	25,2	29,6	49,6	82,7	148,9
593,3	1,4	6,6	9,0	13,1	17,6	20,0	33,1	55,2	99,3
621,1	1,4	4,1	5,5	8,6	9,6	12,8	21,4	35,5	63,8
648,9	1,0	2,8	3,4	5,2	6,5	7,9	13,1	21,7	39,0

SPECIAL CLASS

Note: for temperature > 540°C valves in class 150 lbs are limited to BW Ends only.

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
148,9	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
204,4	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
260,0	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
315,6	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
343,3	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
371,1	19,3	50,7	67,6	101,0	134,7	151,7	252,7	421,3	758,1
398,9	19,3	50,3	66,9	100,7	134,1	150,7	251,3	418,5	753,6
426,7	19,0	49,6	66,2	99,3	132,3	148,9	248,2	413,7	744,7
454,4	17,9	46,9	62,4	93,4	124,4	140,0	233,4	389,2	700,5
482,2	15,5	40,3	54,1	81,0	107,9	121,4	202,4	337,5	607,1
510,0	10,7	27,6	36,5	54,8	73,1	82,4	137,6	228,9	412,3
537,8	7,2	18,6	24,8	37,2	49,6	55,8	93,1	155,1	279,2
565,6	4,8	12,4	16,5	24,8	33,1	37,2	62,1	103,4	186,2
593,3	3,1	8,3	11,0	16,5	22,1	24,8	41,4	69,0	124,1
621,1	2,1	5,2	7,2	10,7	14,1	15,9	26,5	44,5	79,6
648,9	1,4	3,1	4,5	6,6	8,6	9,7	16,2	27,2	48,6

PSI - °F

MATERIALS: ASTM A182 F22 CL3 (b)

BAR - °C

STANDARD CLASS

Note: for temperature > 1000°F valves in class 150 lbs are limited to BW Ends only.

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	260	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	230	730	970	1,455	1,940	2,185	3,640	6,070	10,925
400	200	705	940	1,410	1,880	2,115	3,530	5,880	10,585
500	170	665	885	1,330	1,775	1,995	3,325	5,540	9,965
600	140	605	805	1,210	1,615	1,815	3,025	5,040	9,070
650	125	590	785	1,175	1,570	1,765	2,940	4,905	8,825
700	110	570	755	1,135	1,515	1,705	2,840	4,730	8,515
750	95	530	710	1,065	1,420	1,595	2,660	4,430	7,970
800	80	510	675	1,015	1,355	1,525	2,540	4,230	7,610
850	65	485	650	975	1,300	1,460	2,435	4,060	7,305
900	50	450	600	900	1,200	1,350	2,245	3,745	6,740
950	35	375	505	755	1,005	1,130	1,885	3,145	5,665
1000	20	260	345	520	695	780	1,305	2,170	3,910
1050	20	175	235	350	465	525	875	1,455	2,625
1100	20	110	145	220	295	330	550	915	1,645
1150	20	70	90	135	180	205	345	570	1,030
1200	20	40	55	80	110	125	205	345	615

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	285	740	990	1,485	1,980	2,225	3,705	6,180	11,120
400	280	725	965	1,450	1,935	2,175	3,620	6,035	10,865
500	275	720	960	1,440	1,920	2,160	3,600	6,000	10,800
600	275	720	960	1,440	1,920	2,160	3,600	6,000	10,800
650	275	715	955	1,430	1,905	2,145	3,580	5,965	10,735
700	275	710	955	1,425	1,900	2,135	3,555	5,930	10,670
750	265	690	920	1,380	1,840	2,070	3,450	5,750	10,350
800	260	675	895	1,345	1,795	2,020	3,365	5,605	10,095
850	245	645	855	1,285	1,715	1,930	3,215	5,355	9,645
900	230	600	800	1,200	1,600	1,800	3,000	5,000	9,000
950	180	470	630	945	1,260	1,415	2,355	3,930	7,070
1000	125	325	435	650	865	975	1,630	2,715	4,885
1050	85	220	290	435	580	655	1,095	1,820	3,280
1100	55	135	185	275	365	410	685	1,145	2,055
1150	35	85	115	170	225	255	430	715	1,285
1200	25	50	70	105	140	155	255	430	770

STANDARD CLASS

Note: for temperature > 540°C valves in class 150 lbs are limited to BW Ends only.

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	17,9	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
148,9	15,9	50,3	66,9	100,3	133,7	150,7	251,0	418,5	753,3
204,4	13,8	48,6	64,8	97,2	129,6	145,8	243,4	405,4	729,8
260,0	11,7	45,9	61,0	91,7	122,4	137,6	229,3	382,0	687,1
315,6	9,7	41,7	55,5	83,4	111,3	125,1	208,6	347,5	625,4
343,3	8,6	40,7	54,1	81,0	108,2	121,7	202,7	338,2	608,5
371,1	7,6	39,3	52,1	78,3	104,4	117,6	195,8	326,1	587,1
398,9	6,6	36,5	49,0	73,4	97,9	110,0	183,4	305,4	549,5
426,7	5,5	35,2	46,5	70,0	86,5	105,1	175,1	291,7	524,7
454,4	4,5	33,4	44,8	67,2	89,6	100,7	167,9	279,9	503,7
482,2	3,4	31,0	41,4	62,1	82,7	93,1	154,8	258,2	464,7
510,0	2,4	25,9	34,8	52,1	69,3	77,9	130,0	216,8	390,6
537,8	1,4	17,9	23,8	35,9	48,0	53,8	90,0	149,6	269,6
565,6	1,4	12,1	16,2	24,1	32,1	36,2	60,3	100,3	181,0
593,3	1,4	7,6	10,0	15,2	20,3	22,8	37,9	63,1	113,4
621,1	1,4	4,8	6,2	9,3	12,4	14,1	23,8	39,3	71,0
648,9	1,4	2,8	3,8	5,5	7,6	8,6	14,1	23,8	42,4

SPECIAL CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
148,9	19,7	51,0	68,3	102,4	136,5	153,4	255,5	426,1	766,7
204,4	19,3	50,0	66,5	100,0	133,4	150,0	249,6	416,1	749,1
260,0	19,0	49,6	66,2	99,3	132,4	148,9	248,2	413,7	744,7
315,6	19,0	49,6	66,2	99,3	132,4	148,9	248,2	413,7	744,7
343,3	19,0	49,3	65,8	98,6	131,3	147,9	246,8	411,3	740,2
371,1	19,0	49,0	65,8	98,3	131,0	147,2	245,1	408,9	735,7
398,9	18,3	47,6	63,4	95,2	126,9	142,7	237,9	396,5	713,6
426,7	17,9	46,5	61,7	92,7	123,8	139,3	232,0	386,5	696,1
454,4	16,9	44,5	59,0	88,6	118,2	133,1	221,7	369,2	665,0
482,2	15,9	41,4	55,2	82,7	110,3	124,1	206,9	344,8	620,6
510,0	12,4	32,4	43,4	65,2	86,9	97,6	162,4	271,0	487,5
537,8	8,6	22,4	30,0	44,8	59,6	67,2	112,4	187,2	336,8
565,6	5,9	15,2	20,0	30,0	40,0	45,2	75,5	125,5	226,2
593,3	3,8	9,3	12,8	19,0	25,2	28,3	47,2	78,9	141,7
621,1	2,4	5,9	7,9	11,7	15,5	17,6	29,6	49,3	88,6
648,9	1,7	3,4	4,8	7,2	9,6	10,7	17,6	29,6	53,1

B[®] PRESSURE-TEMPERATURE RATINGS

BONNEY FORGE

PSI - °F

MATERIALS: ASTM A182 F304 (c) - ASTM A182 F304H

BAR - °C

STANDARD CLASS

Note: for temperature > 1000°F valves in class 150 lbs are limited to BW Ends only.

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	275	720	960	1,440	1,920	2,160	3,600	6,000	10,800
200	230	600	800	1,200	1,600	1,800	3,000	5,000	9,000
300	205	540	720	1,080	1,410	1,620	2,700	4,500	8,100
400	190	495	660	995	1,255	1,490	2,485	4,140	7,450
500	170	465	620	930	1,165	1,395	2,330	3,880	6,985
600	140	435	580	875	1,105	1,310	2,185	3,640	6,550
650	125	430	575	860	1,090	1,290	2,150	3,580	6,445
700	110	425	565	850	1,075	1,275	2,125	3,540	6,370
750	95	415	555	830	1,060	1,245	2,075	3,460	6,230
800	80	405	540	805	1,050	1,210	2,015	3,360	6,050
850	65	395	530	790	1,035	1,190	1,980	3,300	5,940
900	50	390	520	780	1,025	1,165	1,945	3,240	5,830
950	35	380	510	765	1,000	1,145	1,910	3,180	5,725
1000	20	320	430	640	860	965	1,605	2,675	4,815
1050	20	310	410	615	825	925	1,545	2,570	4,630
1100	20	255	345	515	685	770	1,285	2,145	3,855
1150	20	200	265	400	520	595	995	1,655	2,985
1200	20	155	205	310	415	465	770	1,285	2,315
1250	20	115	150	225	295	340	565	945	1,695
1300	20	85	115	170	220	255	430	715	1,285
1350	20	60	80	125	165	185	310	515	925
1400	20	50	65	95	130	145	240	400	720
1450	15	35	45	70	95	105	170	285	515
1500	10	25	35	55	65	80	135	230	410

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	255	670	890	1,335	1,780	2,005	3,345	5,570	10,030
300	230	600	800	1,200	1,600	1,800	3,000	5,000	9,000
400	210	555	735	1,105	1,475	1,660	2,765	4,605	8,295
500	200	520	690	1,035	1,380	1,555	2,595	4,320	7,780
600	185	490	650	975	1,300	1,465	2,440	4,065	7,315
650	185	480	640	960	1,280	1,440	2,395	3,995	7,190
700	180	470	630	945	1,260	1,415	2,355	3,930	7,070
750	175	465	615	925	1,235	1,390	2,315	3,855	6,945
800	175	450	600	900	1,200	1,350	2,250	3,750	6,750
850	170	440	590	885	1,180	1,325	2,205	3,680	6,620
900	165	435	575	865	1,155	1,300	2,165	3,605	6,495
950	165	425	565	850	1,135	1,275	2,120	3,535	6,365
1000	155	405	545	815	1,085	1,220	2,035	3,395	6,105
1050	150	385	515	770	1,025	1,155	1,930	3,215	5,785
1100	125	320	430	645	860	965	1,605	2,680	4,820
1150	95	250	330	495	660	745	1,245	2,070	3,730
1200	75	195	255	385	515	580	965	1,605	2,895
1250	55	140	190	285	380	425	705	1,180	2,120
1300	40	105	145	215	285	320	535	895	1,605
1350	30	75	105	155	205	230	385	645	1,155
1400	25	60	80	120	160	180	300	500	900
1450	15	45	55	85	115	130	215	355	645
1500	15	35	45	70	95	105	170	285	515

STANDARD CLASS

Note: for temperature > 540°C valves in class 150 lbs are limited to BW Ends only.

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	19.0	49.6	66.2	99.3	132.4	148.9	248.2	413.7	744.7
93.3	15.9	41.4	55.2	82.7	110.3	124.1	206.9	344.8	620.6
148.9	14.1	37.2	49.6	74.5	97.2	111.7	186.2	310.3	558.5
204.4	13.1	34.1	45.5	68.6	86.5	102.7	171.3	285.5	513.7
260.0	11.7	32.1	42.7	64.1	80.3	96.2	160.7	267.5	481.6
315.6	9.7	30.0	40.0	60.3	76.2	90.3	150.7	251.0	451.6
343.3	8.6	29.6	39.6	59.3	75.1	88.9	148.2	246.8	444.4
371.1	7.6	29.3	39.0	58.6	74.1	87.9	146.5	244.1	439.2
398.9	6.6	28.6	38.3	57.2	73.1	85.8	143.1	238.6	429.6
426.7	5.5	27.9	37.2	55.5	72.4	83.4	138.9	231.7	417.1
454.4	4.5	27.2	36.5	54.5	71.4	82.1	136.5	227.5	409.6
482.2	3.4	26.9	35.9	53.8	70.7	80.3	134.1	223.4	402.0
510.0	2.4	26.2	35.2	52.7	68.9	78.9	131.7	219.3	394.7
537.8	1.4	22.1	29.6	44.1	59.3	66.5	110.7	184.4	332.0
565.6	1.4	21.4	28.3	42.4	56.9	63.8	106.5	177.2	319.2
593.3	1.4	17.6	23.8	35.5	47.2	53.1	88.6	147.9	265.8
621.1	1.4	13.8	18.3	27.6	35.8	41.0	68.6	114.1	205.8
648.9	1.4	10.7	14.1	21.4	28.6	32.1	53.1	88.6	159.6
676.7	1.4	7.9	10.3	15.5	20.3	23.4	39.0	65.2	116.9
704.4	1.4	5.9	7.9	11.7	15.2	17.6	29.6	49.3	88.6
732.2	1.4	4.1	5.5	8.6	11.4	12.8	21.4	35.5	63.8
760.0	1.4	3.4	4.5	6.6	9.0	10.0	16.5	27.6	49.6
787.8	1.0	2.4	3.1	4.8	6.5	7.2	11.7	19.7	35.5
815.6	0.7	1.7	2.4	3.8	4.5	5.5	9.3	15.9	28.3

SPECIAL CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20.0	51.7	69.0	103.4	137.9	155.1	258.6	430.9	775.7
93.3	17.6	46.2	61.4	92.0	122.7	138.2	230.6	384.1	691.6
148.9	15.9	41.4	55.2	82.7	110.3	124.1	206.9	344.8	620.6
204.4	15.4	38.3	50.7	76.2	101.7	114.5	190.6	317.5	571.9
260.0	13.8	35.9	47.6	71.4	95.1	107.2	178.9	297.9	536.4
315.6	12.8	33.8	44.8	67.2	89.6	101.0	168.2	280.3	504.4
343.3	12.8	33.1	44.1	66.2	88.2	99.3	165.1	275.5	495.8
371.1	12.4	32.4	43.4	65.2	86.9	97.6	162.4	271.0	487.5
398.9	12.1	32.1	42.4	63.8	85.1	95.8	159.6	265.8	478.9
426.7	12.1	31.0	41.4	62.1	82.7	93.1	155.1	258.6	465.4
454.4	11.7	30.3	40.7	61.0	81.4	91.4	152.0	253.7	456.4
482.2	11.4	30.0	39.6	59.6	79.6	89.6	149.3	248.6	447.8
510.0	11.4	29.3	39.0	58.6	78.2	87.9	146.2	243.7	438.9
537.8	10.7	27.9	37.6	56.2	74.8	84.1	140.3	234.1	420.9
565.6	10.3	26.5	35.5	53.1	70.7	79.6	133.1	221.7	398.9
593.3	8.6	22.1	29.6	44.5	59.3	66.5	110.7	184.8	332.3
621.1	6.6	17.2	22.8	34.1	45.5	51.4	85.8	142.7	257.2
648.9	5.2	13.4	17.6	26.5	35.5	40.0	66.5	110.7	199.6
676.7	3.8	9.7	13.1	19.7	26.2	29.3	48.6	81.4	146.2
704.4	2.8	7.2	10.0	14.8	19.6	22.1	36.9	61.7	110.7
732.2	2.1	5.2	7.2	10.7	14.1	15.9	26.5	44.5	79.6
760.0	1.7	4.1	5.5	8.3	11.0	12.4	20.7	34.5	62.1
787.8	1.0	3.1	3.8	5.9	8.0	9.0	14.8	24.5	44.5
815.6	1.0	2.4	3.1	4.8	6.5	7.2	11.7	19.7	35.5

PSI - °F

MATERIALS: ASTM A182 F316 (c) - ASTM A182 F316H

BAR - °C

STANDARD CLASS

Note: for temperature > 1000°F valves in class 150 lbs are limited to BW Ends only.

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	275	720	960	1,440	1,920	2,160	3,600	6,000	10,800
200	235	620	825	1,240	1,655	1,860	3,095	5,160	9,290
300	215	560	745	1,120	1,495	1,680	2,795	4,660	8,390
400	195	515	685	1,025	1,370	1,540	2,570	4,280	7,705
500	170	480	635	955	1,275	1,435	2,390	3,980	7,165
600	140	450	600	900	1,205	1,355	2,255	3,760	6,770
650	125	445	590	890	1,185	1,330	2,220	3,700	6,660
700	110	430	580	870	1,150	1,305	2,170	3,620	6,515
750	95	425	570	855	1,130	1,280	2,135	3,560	6,410
800	80	420	565	845	1,105	1,265	2,110	3,520	6,335
850	65	420	555	835	1,080	1,255	2,090	3,480	6,265
900	50	415	555	830	1,050	1,245	2,075	3,460	6,230
950	35	385	515	775	1,030	1,160	1,930	3,220	5,795
1000	20	350	465	700	970	1,050	1,750	2,915	5,245
1050	20	345	460	685	960	1,030	1,720	2,865	5,155
1100	20	305	405	610	860	915	1,525	2,545	4,575
1150	20	235	315	475	735	710	1,185	1,970	3,550
1200	20	185	245	370	550	555	925	1,545	2,775
1250	20	145	195	295	485	440	735	1,230	2,210
1300	20	115	155	235	365	350	585	970	1,750
1350	20	95	130	190	275	290	480	800	1,440
1400	20	75	100	150	200	225	380	630	1,130
1450	20	60	80	115	155	175	290	485	875
1500	20	40	55	85	110	125	205	345	620

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	265	690	920	1,380	1,840	2,070	3,450	5,750	10,350
300	240	625	830	1,250	1,665	1,870	3,120	5,200	9,360
400	220	570	760	1,140	1,520	1,710	2,850	4,750	8,550
500	205	530	710	1,065	1,420	1,595	2,655	4,430	7,970
600	195	505	670	1,005	1,340	1,510	2,520	4,195	7,555
650	190	495	655	985	1,315	1,480	2,465	4,105	7,395
700	185	485	645	970	1,295	1,455	2,420	4,035	7,265
750	180	475	635	950	1,265	1,425	2,380	3,965	7,135
800	180	470	630	945	1,260	1,415	2,355	3,930	7,070
850	180	465	620	930	1,245	1,400	2,330	3,885	6,990
900	175	465	615	925	1,235	1,390	2,315	3,855	6,945
950	175	460	610	915	1,220	1,375	2,290	3,815	6,870
1000	160	420	560	840	1,120	1,260	2,105	3,505	6,310
1050	160	420	560	840	1,120	1,260	2,105	3,505	6,310
1100	145	380	510	765	1,020	1,145	1,905	3,180	5,720
1150	115	295	395	590	785	885	1,480	2,465	4,435
1200	90	230	310	465	620	695	1,155	1,930	3,470
1250	70	185	245	370	495	555	920	1,535	2,765
1300	55	145	195	290	385	435	730	1,215	2,185
1350	45	120	160	240	320	360	600	1,000	1,800
1400	35	95	125	190	255	285	470	785	1,415
1450	30	75	100	145	195	220	365	610	1,095
1500	20	50	70	105	140	155	260	430	770

STANDARD CLASS

Note: for temperature > 540°C valves in class 150 lbs are limited to BW Ends only.

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	19.0	49.6	66.2	99.3	132.4	148.9	248.2	413.7	744.7
93.3	16.2	42.7	56.9	85.5	114.1	128.2	213.4	355.8	640.5
148.9	14.8	38.6	51.4	77.2	103.1	115.8	192.7	321.3	578.5
204.4	13.4	35.5	47.2	70.7	94.5	106.2	177.2	295.1	531.3
260.0	11.7	33.1	43.8	65.8	87.9	98.9	164.8	274.4	494.0
315.6	9.7	31.0	41.4	62.1	83.1	93.4	155.5	259.3	466.8
343.3	8.6	30.7	40.7	61.4	81.7	91.7	153.1	255.1	459.2
371.1	7.6	29.6	40.0	60.0	79.3	90.0	149.6	249.6	449.2
398.9	6.6	29.3	39.3	59.0	77.9	88.3	147.2	245.5	442.0
426.7	5.5	29.0	39.0	58.3	76.2	87.2	145.5	242.7	436.8
454.4	4.5	29.0	38.3	57.6	74.5	86.5	144.1	239.9	432.0
482.2	3.4	28.6	38.3	57.2	72.4	85.8	143.1	238.6	429.6
510.0	2.4	26.5	35.5	53.4	71.0	80.0	133.1	222.0	399.6
537.8	1.4	24.1	32.1	48.3	66.9	72.4	120.7	201.0	361.6
565.6	1.4	23.8	31.7	47.2	66.2	71.0	118.6	197.5	355.4
593.3	1.4	21.0	27.9	42.1	59.3	63.1	105.1	175.5	315.4
621.1	1.4	16.2	21.7	32.8	50.7	49.0	81.7	135.8	244.8
648.9	1.4	12.8	16.9	25.5	37.9	38.3	63.8	106.5	191.3
676.7	1.4	10.0	13.4	20.3	33.4	30.3	50.7	84.8	152.4
704.4	1.4	7.9	10.7	16.2	25.2	24.1	40.3	66.9	120.7
732.2	1.4	6.6	9.0	13.1	19.0	20.0	33.1	55.2	99.3
760.0	1.4	5.2	6.9	10.3	13.8	15.5	26.2	43.4	79.9
787.8	1.4	4.1	5.5	7.9	10.7	12.1	20.0	33.4	60.3
815.6	1.4	2.8	3.8	5.9	7.6	8.6	14.1	23.8	42.7

SPECIAL CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20.0	51.7	69.0	103.4	137.9	155.1	258.6	430.9	775.7
93.3	18.3	47.6	63.4	95.2	126.9	142.7	237.9	396.5	713.6
148.9	16.5	43.1	57.2	86.2	114.8	128.9	215.1	358.5	645.4
204.4	15.2	39.3	52.4	78.6	104.8	117.9	196.5	327.5	589.5
260.0	14.1	36.5	49.0	73.4	98.0	110.0	183.1	305.4	549.5
315.6	13.4	34.8	46.2	69.3	92.4	104.1	173.8	289.2	520.9
343.3	13.1	34.1	45.2	67.9	90.7	102.0	170.0	283.0	509.9
371.1	12.8	33.4	44.5	66.9	89.3	100.3	166.9	278.2	500.9
398.9	12.4	32.8	43.8	65.5	87.2	98.3	164.1	273.4	492.0
426.7	12.4	32.4	43.4	65.2	86.9	97.6	162.4	271.0	487.5
454.4	12.4	32.1	42.7	64.1	85.8	96.5	160.7	267.9	482.0
482.2	12.1	32.1	42.4	63.8	85.1	95.8	159.6	265.8	478.9
510.0	12.1	31.7	42.1	63.1	84.1	94.8	157.9	263.0	473.7
537.8	11.0	29.0	38.6	57.9	77.2	86.9	145.1	241.7	435.1
565.6	11.0	29.0	38.6	57.9	77.2	86.9	145.1	241.7	435.1
593.3	10.0	26.2	35.2	52.7	70.3	78.9	131.3	219.3	394.4
621.1	7.9	20.3	27.2	40.7	54.1	61.0	102.0	170.0	305.8
648.9	6.2	15.9	21.4	32.1	42.7	47.9	79.6	133.1	239.3
676.7	4.8	12.8	16.9	25.5	34.1	38.3	63.4	105.8	190.6
704.4	3.8	10.0	13.4	20.0	26.5	30.0	50.3	83.8	150.7
732.2	3.1	8.3	11.0	16.5	22.1	24.8	41.4	69.0	124.1
760.0	2.4	6.6	8.6	13.1	17.6	19.7	32.4	54.1	97.6
787.8	2.1	5.2	6.9	10.0	13.4	15.2	25.2	42.1	75.5
815.6	1.4	3.4	4.8	7.2	9.6	10.7	17.9	29.6	53.1

PSI - °F										MATERIALS: ASTM A182 F304 L (d) - ASTM A182 F316 L										BAR - °C	
STANDARD CLASS										STANDARD CLASS											
Temperature °F	150	300	400	600	800	900	1500	2500	4500	Temperature °C	150	300	400	600	800	900	1500	2500	4500		
-20 to 100	230	600	800	1,200	1,600	1,800	3,000	5,000	9,000	-29 +38	15,9	41,4	55,2	82,7	110,3	124,1	206,9	344,8	620,6		
200	195	505	675	1,015	1,350	1,520	2,530	4,220	7,595	93,3	13,4	34,8	46,5	70,0	93,1	104,8	174,4	291,0	523,7		
300	175	455	605	910	1,210	1,360	2,270	3,780	6,805	148,9	12,1	31,4	41,7	62,7	83,4	93,8	156,5	260,6	469,2		
400	160	415	550	825	1,100	1,240	2,065	3,440	6,190	204,4	11,0	28,6	37,9	56,9	75,8	85,5	142,4	237,2	426,8		
500	145	380	510	765	1,020	1,145	1,910	3,180	5,725	260,0	10,0	26,2	35,2	52,7	70,3	78,9	131,7	219,3	394,7		
600	140	360	480	720	960	1,080	1,800	3,000	5,400	315,6	9,7	24,8	33,1	49,6	66,2	74,5	124,1	206,9	372,3		
650	125	350	470	700	935	1,050	1,750	2,920	5,255	343,3	8,6	24,1	32,4	48,3	64,5	72,4	120,7	201,3	362,3		
700	110	345	460	685	915	1,030	1,715	2,860	5,150	371,1	7,6	23,8	31,7	47,2	63,1	71,0	118,2	197,2	355,1		
750	95	335	450	670	895	1,010	1,680	2,800	5,040	398,9	6,6	23,1	31,0	46,2	61,7	69,6	115,8	193,1	347,5		
800	80	330	440	660	875	985	1,645	2,740	4,930	426,7	5,5	22,8	30,3	45,5	60,3	67,9	113,4	188,9	339,9		
850	65	320	430	645	860	965	1,610	2,680	4,825	454,4	4,5	22,1	29,6	44,5	59,3	66,5	111,0	184,8	332,7		
SPECIAL CLASS										SPECIAL CLASS											
Temperature °F	150	300	400	600	800	900	1500	2500	4500	Temperature °C	150	300	400	600	800	900	1500	2500	4500		
-20 to 100	255	670	890	1,340	1,785	2,005	3,345	5,570	10,030	-29 +38	17,6	46,2	61,4	92,4	123,1	138,2	230,6	384,1	691,6		
200	215	565	755	1,130	1,505	1,695	2,825	4,710	8,480	93,3	14,8	39,0	52,1	77,9	103,8	116,9	194,8	324,8	584,7		
300	195	505	675	1,010	1,350	1,520	2,530	4,215	7,585	148,9	13,4	34,8	46,5	69,6	93,1	104,8	174,4	290,6	523,0		
400	175	460	615	920	1,230	1,385	2,305	3,840	6,910	204,4	12,1	31,7	42,4	63,4	84,8	95,5	158,9	264,8	476,4		
500	165	425	570	850	1,135	1,280	2,130	3,550	6,390	260,0	11,4	29,3	39,3	58,6	78,2	88,3	146,9	244,8	440,6		
600	155	400	535	805	1,070	1,205	2,010	3,350	6,025	315,6	10,7	27,6	36,9	55,5	73,8	83,1	138,6	231,0	415,4		
650	150	390	520	780	1,040	1,170	1,950	3,250	5,850	343,3	10,3	26,9	35,9	53,8	71,7	80,7	134,5	224,1	403,4		
700	145	380	510	765	1,020	1,145	1,910	3,180	5,720	371,1	10,0	26,2	35,2	52,7	70,3	78,9	131,7	219,3	394,4		
750	145	375	500	745	995	1,120	1,865	3,110	5,595	398,9	10,0	25,9	34,5	51,4	68,6	77,2	128,6	214,4	385,8		
800	140	365	490	735	980	1,100	1,835	3,060	5,505	426,7	9,7	25,2	33,8	50,7	67,6	75,8	126,5	211,0	379,6		
850	140	360	480	720	955	1,075	1,795	2,990	5,385	454,4	9,7	24,8	33,1	49,6	65,8	74,1	123,8	206,2	371,3		

PSI - °F

MATERIALS: ASTM A182 F321 (f) - ASTM A182 F321H (g)

BAR - °C

STANDARD CLASS

Note: for temperature > 1000°F valves in class 150 lbs are limited to BW Ends only.

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	275	720	960	1,440	1,920	2,160	3,600	6,000	10,800
200	245	645	860	1,290	1,720	1,935	3,230	5,380	9,685
300	230	595	795	1,190	1,585	1,785	2,975	4,960	8,930
400	200	550	735	1,105	1,470	1,655	2,760	4,600	8,280
500	170	515	685	1,030	1,375	1,545	2,570	4,285	7,715
600	140	485	650	975	1,300	1,460	2,435	4,060	7,310
650	125	480	635	955	1,275	1,435	2,390	3,980	7,165
700	110	465	620	930	1,240	1,395	2,330	3,880	6,985
750	95	460	610	915	1,220	1,375	2,290	3,820	6,875
800	80	450	600	900	1,205	1,355	2,255	3,760	6,770
850	65	445	595	895	1,190	1,340	2,230	3,720	6,695
900	50	440	590	885	1,180	1,325	2,210	3,680	6,625
950	35	385	515	775	1,030	1,160	1,930	3,220	5,795
1000	20	355	475	715	950	1,070	1,785	2,970	5,350
1050	20	315	415	625	835	940	1,565	2,605	4,690
1100	20	270	360	545	725	815	1,360	2,265	4,075
1150	20	235	315	475	630	710	1,185	1,970	3,550
1200	20	185	245	370	495	555	925	1,545	2,775
1250	20	140	185	280	375	420	705	1,170	2,110
1300	20	110	145	220	295	330	550	915	1,645
1350	20	85	115	170	225	255	430	715	1,285
1400	20	65	85	130	175	195	325	545	975
1450	20	50	70	105	140	155	255	430	770
1500	20	40	50	75	100	115	190	315	565

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	260	680	910	1,365	1,820	2,045	3,405	5,680	10,220
300	235	610	810	1,215	1,620	1,825	3,045	5,070	9,130
400	210	555	735	1,105	1,475	1,660	2,765	4,605	8,295
500	195	515	685	1,030	1,375	1,545	2,570	4,285	7,715
600	185	490	650	975	1,300	1,465	2,445	4,070	7,330
650	185	480	640	960	1,280	1,440	2,400	4,000	7,200
700	180	470	630	945	1,260	1,415	2,355	3,930	7,070
750	180	465	625	935	1,245	1,400	2,335	3,895	7,005
800	175	465	615	925	1,235	1,390	2,315	3,855	6,945
850	175	460	610	915	1,220	1,375	2,295	3,820	6,880
900	175	455	605	910	1,215	1,365	2,270	3,785	6,815
950	175	455	605	910	1,215	1,365	2,270	3,785	6,815
1000	160	420	560	840	1,120	1,260	2,105	3,505	6,310
1050	155	405	545	815	1,085	1,220	2,035	3,395	6,105
1100	135	355	470	705	940	1,060	1,770	2,945	5,305
1150	115	295	395	590	780	885	1,480	2,465	4,435
1200	90	230	310	465	620	695	1,155	1,930	3,470
1250	65	175	235	350	465	525	880	1,465	2,635
1300	55	135	185	275	363	410	685	1,145	2,055
1350	40	105	145	215	285	320	535	895	1,605
1400	30	80	110	165	220	245	405	680	1,220
1450	25	65	85	130	175	195	320	535	965
1500	20	45	65	95	125	140	235	395	705

STANDARD CLASS

Note: for temperature > 540°C valves in class 150 lbs are limited to BW Ends only.

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	19.0	49.6	66.2	99.3	132.4	149.0	248.2	413.7	744.7
93.3	16.9	44.5	59.3	89.0	118.6	133.4	222.7	370.9	667.8
148.9	15.9	41.0	54.8	82.0	109.3	123.1	205.1	342.0	615.7
204.4	13.8	38.0	50.7	76.2	101.3	114.1	190.3	317.2	571.0
260.0	11.7	35.5	47.2	71.0	94.8	106.5	177.2	295.5	532.0
315.6	9.6	33.4	44.8	67.2	89.6	100.7	167.9	280	504
343.3	8.6	33.1	43.8	65.8	87.9	99.0	164.8	274.4	494
371.1	7.6	32.1	43.8	64.1	85.5	96.2	160.6	267.5	481.6
398.9	6.5	31.7	42.0	63.1	84.1	94.8	157.9	263.4	474.0
426.7	5.5	31.0	41.4	62.0	83.1	93.4	155.5	259.2	466.8
454.4	4.5	30.7	41.0	61.7	82.0	92.4	153.7	256.5	461.6
482.2	3.4	30.3	40.7	61.0	81.4	91.3	152.4	253.7	456.8
510.0	2.4	26.5	35.5	53.4	71.0	80.0	133.1	222.0	399.6
537.8	1.4	24.5	32.7	49.3	65.5	73.8	123.1	204.8	368.9
565.6	1.4	21.7	28.6	43.1	57.6	64.8	107.9	179.6	323.4
593.3	1.4	18.6	24.8	37.6	50.0	56.2	93.8	156.2	281.0
621.1	1.4	16.2	21.7	32.7	43.4	49.0	81.7	135.8	244.8
648.9	1.4	12.7	16.9	25.5	34.1	38.3	63.8	106.5	191.3
676.7	1.4	9.6	12.7	19.3	25.8	29.0	48.6	80.7	145.5
704.4	1.4	7.6	10.0	15.2	20.3	22.7	37.9	63.1	113.4
732.2	1.4	5.9	7.9	11.7	15.5	17.6	29.6	49.3	88.6
760.0	1.4	4.5	5.9	9.0	12.1	13.4	22.4	37.6	67.2
787.8	1.4	3.4	4.8	7.2	9.6	10.7	17.6	29.6	53.1
815.6	1.4	1.6	3.4	5.2	6.9	7.9	13.1	21.7	39.0

SPECIAL CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20.0	51.7	68.9	103.4	137.9	155.1	258.6	431.0	775.7
93.3	17.9	46.9	62.7	94.1	125.5	141.0	234.8	391.6	704.7
148.9	16.2	42	55.8	83.8	111.7	125.8	210.0	349.6	629.5
204.4	14.5	38.3	50.7	76.2	101.7	114.4	190.6	317.5	572.0
260.0	13.4	35.5	47.2	71.0	94.8	106.5	177.2	295.4	531.9
315.6	12.7	33.8	44.8	67.2	89.6	101.0	168.6	280.6	505.4
343.3	12.7	33.1	44.1	66.2	88.2	99.3	165.5	275.8	496.4
371.1	12.4	32.4	43.4	65.1	86.9	97.6	162.4	271.0	487.5
398.9	12.4	32.1	43.1	64.5	85.9	96.5	161.0	268.6	483.0
426.7	12.1	32.1	42.4	63.1	85.1	95.8	159.6	265.8	478.8
454.4	12.1	31.7	42.0	62.7	84.1	94.8	158.2	263.4	474.4
482.2	12.1	31.2	41.7	62.7	83.8	94.1	156.5	261.0	469.9
510.0	12.1	31.2	41.7	62.8	83.8	94.1	156.5	261.0	469.9
537.8	11.0	29.0	38.6	57.9	77.2	86.9	145.1	241.7	435.1
565.6	10.7	27.9	37.6	56.2	74.8	84.1	140.3	234.1	421.0
593.3	9.3	24.5	32.4	48.6	64.8	73.1	122.0	203.0	365.8
621.1	7.9	20.3	27.2	40.7	53.8	61.0	102.0	170.0	305.1
648.9	6.2	15.8	21.4	32.1	42.7	47.9	79.6	133.1	239.2
676.7	4.5	12.1	16.2	24.1	32.1	36.2	60.7	101.0	181.7
704.4	3.8	9.3	12.7	19.0	25.0	28.3	47.2	79.0	141.7
732.2	2.7	7.2	10.0	14.8	19.6	22.1	36.9	61.7	110.7
760.0	2.1	5.5	7.6	11.4	15.2	16.9	27.9	46.9	84.1
787.8	1.7	4.5	5.9	9.0	12.1	13.4	22.1	36.9	66.5
815.6	1.4	3.1	4.5	6.5	8.6	9.6	16.2	27.2	48.6

B[®] PRESSURE-TEMPERATURE RATINGS

BONNEY FORGE

PSI - °F

MATERIALS: ASTM A182 F347 (f) - ASTM A182 F347H (g)

BAR - °C

STANDARD CLASS

Note: for temperature > 1000°F valves in class 150 lbs are limited to BW Ends only.

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	275	720	960	1,440	1,920	2,160	3,600	6,000	10,800
200	255	660	880	1,320	1,760	1,980	3,300	5,500	9,900
300	230	615	820	1,230	1,640	1,845	3,070	5,120	9,215
400	200	575	765	1,145	1,530	1,720	2,870	4,780	8,605
500	170	540	720	1,080	1,440	1,620	2,700	4,500	8,100
600	140	515	685	1,025	1,370	1,540	2,570	4,280	7,705
650	125	505	670	1,010	1,345	1,510	2,520	4,200	7,560
700	110	495	660	990	1,320	1,485	2,470	4,120	7,415
750	95	490	655	985	1,310	1,475	2,460	4,100	7,380
800	80	485	650	975	1,300	1,460	2,435	4,060	7,310
850	65	485	645	970	1,295	1,455	2,425	4,040	7,270
900	50	450	600	900	1,200	1,350	2,245	3,745	6,740
950	35	385	515	775	1,030	1,160	1,930	3,220	5,795
1000	20	365	485	725	970	1,090	1,820	3,030	5,450
1050	20	360	480	720	960	1,080	1,800	3,000	5,400
1100	20	325	430	645	860	965	1,610	2,685	4,835
1150	20	275	365	550	735	825	1,370	2,285	4,115
1200	20	170	230	345	460	515	855	1,430	2,570
1250	20	125	165	245	330	370	615	1,030	1,850
1300	20	95	125	185	250	280	465	770	1,390
1350	20	70	90	135	180	205	345	570	1,030
1400	20	55	75	110	145	165	275	455	825
1450	15	40	55	80	110	125	205	345	615
1500	15	35	45	70	95	105	170	285	515

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	275	715	955	1,430	1,905	2,145	3,580	5,965	10,735
300	250	655	875	1,310	1,745	1,965	3,280	5,465	9,835
400	235	615	825	1,235	1,645	1,850	3,085	5,145	9,255
500	230	595	795	1,190	1,585	1,785	2,980	4,965	8,935
600	220	575	765	1,145	1,530	1,720	2,865	4,775	8,600
650	215	565	750	1,125	1,500	1,690	2,815	4,690	8,440
700	210	550	735	1,105	1,472	1,655	2,760	4,600	8,275
750	210	550	730	1,095	1,460	1,645	2,745	4,570	8,230
800	210	545	725	1,090	1,450	1,630	2,720	4,530	8,155
850	205	540	720	1,080	1,445	1,625	2,705	4,510	8,115
900	205	540	720	1,075	1,435	1,615	2,690	4,485	8,075
950	180	470	630	945	1,260	1,415	2,360	3,930	7,070
1000	160	420	560	840	1,120	1,260	2,105	3,505	6,310
1050	160	420	560	840	1,120	1,260	2,105	3,505	6,310
1100	155	405	540	805	1,075	1,210	2,015	3,360	6,045
1150	130	345	455	685	915	1,030	1,715	2,855	5,145
1200	80	215	285	430	757	645	1,070	1,785	3,215
1250	60	155	205	310	415	465	770	1,285	2,315
1300	45	115	155	230	305	345	580	965	1,735
1350	35	85	115	170	225	255	430	715	1,285
1400	25	70	90	135	180	205	345	570	1,030
1450	20	50	70	105	140	155	255	430	770
1500	15	45	55	85	115	130	215	355	645

STANDARD CLASS

Note: for temperature > 540°C valves in class 150 lbs are limited to BW Ends only.

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	19,0	49,6	66,2	99,3	132,4	149,0	248,2	413,7	744,6
93,3	17,6	45,5	60,7	91,0	121,3	136,5	227,5	379,2	682,6
148,9	15,8	42,4	56,5	84,8	113,1	127,2	211,7	353,0	635,4
204,4	13,8	39,6	52,7	79,0	105,5	118,6	197,9	329,7	593,3
260,0	11,7	37,2	49,6	74,5	99,3	111,7	186,2	310,3	558,5
315,6	9,6	35,5	47,2	70,7	94,5	106,2	177,2	295,1	531,2
343,3	8,6	34,8	46,2	69,6	92,8	104,1	173,7	289,6	521,3
371,1	7,6	34,1	45,5	68,3	91,0	102,4	170,3	284,1	511,3
398,9	6,5	33,8	45,2	67,9	90,3	101,7	169,6	282,7	508,8
426,7	5,5	33,4	44,8	67,2	89,6	100,7	167,9	280,0	504,3
454,4	4,5	33,4	44,5	66,9	89,3	100,3	167,2	278,5	501,3
482,2	3,4	31,0	41,4	62,0	82,7	93,1	154,8	258,2	464,7
510,0	2,4	26,5	35,5	53,4	71,0	80,0	133,1	222,0	399,6
537,8	1,4	25,2	33,4	50,0	66,9	75,1	125,5	208,9	375,8
565,6	1,4	24,8	33,1	49,6	66,2	74,5	124,1	206,8	372,3
593,3	1,4	22,4	29,6	44,5	59,3	66,5	111,0	185,1	333,4
621,1	1,4	19,0	25,2	37,9	50,7	56,9	94,5	157,5	283,7
648,9	1,4	11,7	15,8	23,8	31,7	35,5	58,9	98,6	177,2
676,7	1,4	8,6	11,4	16,9	22,7	25,5	42,4	71,0	127,5
704,4	1,4	6,5	8,6	12,7	17,2	19,3	32,1	53,1	95,8
732,2	1,4	4,8	6,2	9,3	12,4	14,1	23,8	39,3	71,0
760,0	1,4	3,8	5,2	7,6	10,0	11,4	19,0	31,4	56,9
787,8	1,0	2,7	3,8	5,5	7,6	8,6	14,1	23,8	42,4
815,6	1,0	2,4	3,1	4,8	6,5	7,2	11,7	19,6	35,5

SPECIAL CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	68,9	103,4	137,9	155,1	258,6	431,0	775,7
93,3	19,0	49,3	65,8	98,6	131,3	147,9	246,9	411,3	740,2
148,9	17,2	45,2	60,3	90,3	120,3	135,5	226,1	376,8	678,1
204,4	16,2	42,4	56,9	85,1	113,4	127,5	212,7	354,7	638,1
260,0	15,8	41,0	54,8	82,0	109,3	123,1	205,5	342,3	616,1
315,6	15,2	39,6	52,7	78,9	105,5	118,6	197,5	329,2	593,0
343,3	14,8	38,9	51,7	77,6	103,4	116,5	194,1	323,4	581,9
371,1	14,5	37,9	50,7	76,2	101,5	114,1	190,3	317,1	570,1
398,9	14,5	37,9	50,3	75,5	100,7	113,4	189,3	315,1	567,4
426,7	14,5	37,6	50,0	75,1	100,0	112,4	187,5	312,3	562,3
454,4	14,1	37,2	49,6	74,5	99,6	112,0	186,5	311,0	559,5
482,2	14,1	37,2	49,6	74,1	99,0	111,3	185,5	309,2	556,8
510,0	12,4	32,4	43,4	65,1	86,9	97,6	162,7	271,0	487,5
537,8	11,0	28,9	38,6	57,9	77,2	86,9	145,1	241,7	435,1
565,6	11,0	28,9	38,6	57,9	77,2	86,9	145,1	241,7	435,1
593,3	10,7	27,9	37,2	55,5	74,1	83,4	139,0	231,7	416,8
621,1	9,0	23,8	31,4	47,2	63,1	71,0	118,2	196,8	354,7
648,9	5,5	14,8	19,6	29,6	52,2	44,5	73,8	123,1	221,7
676,7	4,1	10,7	14,1	21,4	28,6	32,1	53,1	88,6	159,6
704,4	3,1	7,9	10,7	15,8	21,0	23,8	40,0	66,5	119,6
732,2	2,4	5,9	7,9	11,7	15,5	17,6	29,6	49,3	88,6
760,0	1,7	4,8	6,2	9,3	12,4	14,1	23,8	39,3	71,0
787,8	1,4	3,4	4,8	7,2	9,6	10,7	17,6	29,6	53,1
815,6	1,0	3,1	3,8	5,9	7,9	9,0	14,8	24,5	44,5

B PRESSURE-TEMPERATURE RATINGS

BONNEY FORGE

PSI - °F

MATERIALS: ASTM A182 F44 - ASTM A182 F51 (e) - ASTM A182 F53 (e)

BAR - °C

STANDARD CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	260	720	960	1,440	1,920	2,160	3,600	6,000	10,800
300	230	665	885	1,330	1,773	1,995	3,325	5,540	9,970
400	200	615	820	1,230	1,640	1,845	3,070	5,120	9,215
500	170	575	770	1,150	1,537	1,730	2,880	4,800	8,640
600	140	555	740	1,115	1,485	1,670	2,785	4,640	8,350
650	125	550	735	1,100	1,467	1,650	2,750	4,580	8,245
700	110	540	725	1,085	1,445	1,625	2,710	4,520	8,135
750	95	530	710	1,065	1,418	1,595	2,660	4,430	7,970

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	285	740	990	1,485	1,980	2,225	3,710	6,185	11,130
400	265	685	915	1,370	1,825	2,055	3,430	5,715	10,285
500	245	645	855	1,285	1,715	1,930	3,215	5,355	9,645
600	240	620	830	1,245	1,660	1,865	3,105	5,180	9,320
650	235	615	820	1,225	1,635	1,840	3,065	5,110	9,200
700	230	605	805	1,210	1,615	1,815	3,025	5,045	9,080
750	230	595	795	1,195	1,590	1,790	2,985	4,980	8,960

STANDARD CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20.0	51.7	69.0	103.4	137.9	155.1	258.6	430.9	775.7
93.3	17.9	49.6	66.2	99.3	132.4	148.9	248.2	413.7	744.7
148.9	15.9	45.9	61.0	91.7	122.2	137.6	229.3	382.0	687.4
204.4	13.8	42.4	56.5	84.8	113.1	127.2	211.7	353.0	635.4
260.0	11.7	39.6	53.1	79.3	106.0	119.3	198.6	331.0	595.7
315.6	9.7	38.3	51.0	76.9	102.4	115.1	192.0	319.9	575.7
343.3	8.6	37.9	50.7	75.8	101.1	113.8	189.6	315.8	568.5
371.1	7.6	37.2	50.0	74.8	99.6	112.0	186.9	311.7	560.9
398.9	6.6	36.5	49.0	73.4	97.8	110.0	183.4	305.4	549.5

SPECIAL CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20.0	51.7	69.0	103.4	137.9	155.1	258.6	430.9	775.7
93.3	20.0	51.7	69.0	103.4	137.9	155.1	258.6	430.9	775.7
148.9	19.7	51.0	68.3	102.4	136.5	153.4	255.8	426.5	767.4
204.4	18.3	47.2	63.1	94.5	125.8	141.7	236.5	394.0	709.2
260.0	16.9	44.5	59.0	88.6	118.2	133.1	221.7	369.2	665.0
315.6	16.5	42.7	57.2	85.8	114.4	128.6	214.1	357.2	642.6
343.3	16.2	42.4	56.5	84.5	112.7	126.9	211.3	352.3	634.3
371.1	15.9	41.7	55.5	83.4	111.3	125.1	208.6	347.9	626.1
398.9	15.9	41.0	54.8	82.4	109.6	123.4	205.8	343.4	617.8

PSI - °F

MATERIALS: ASTM B564 N06600

BAR - °C

STANDARD CLASS

Note: for temperature > 1000°F valves in class 150 lbs are limited at BW End only.

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	260	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	230	730	970	1,455	1,942	2,185	3,640	6,070	10,925
400	200	705	940	1,410	1,880	2,115	3,530	5,880	10,585
500	170	665	885	1,330	1,773	1,995	3,325	5,540	9,965
600	140	605	805	1,210	1,613	1,815	3,025	5,040	9,070
650	125	590	785	1,175	1,568	1,765	2,940	4,905	8,825
700	110	570	755	1,135	1,515	1,705	2,840	4,730	8,515
750	95	530	710	1,065	1,418	1,595	2,660	4,430	7,970
800	80	510	675	1,015	1,355	1,525	2,540	4,230	7,610
850	65	485	650	975	1,298	1,460	2,435	4,060	7,305
900	50	450	600	900	1,200	1,350	2,245	3,745	6,740
950	35	325	435	655	872	980	1,635	2,725	4,905
1000	20	215	290	430	577	650	1,080	1,800	3,240
1050	20	140	185	280	370	415	695	1,155	2,085
1100	20	95	125	185	248	280	465	770	1,390
1150	20	70	90	135	182	205	340	565	1,070
1200	20	60	80	125	165	185	310	515	925

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
400	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
500	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
600	285	745	995	1,495	1,990	2,240	3,735	6,230	11,210
650	280	735	980	1,470	1,955	2,200	3,670	6,115	11,010
700	275	725	965	1,445	1,930	2,170	3,615	6,025	10,850
750	270	710	945	1,420	1,895	2,130	3,550	5,915	10,645
800	270	700	930	1,400	1,865	2,095	3,495	5,825	10,485
850	260	680	905	1,355	1,805	2,030	3,385	5,645	10,160
900	230	600	800	1,200	1,600	1,800	3,000	5,000	9,000
950	165	425	570	850	1,135	1,280	2,130	3,550	6,390
1000	110	280	375	565	750	845	1,405	2,345	4,220
1050	70	180	240	360	480	540	905	1,505	2,710
1100	45	120	160	240	320	360	605	1,005	1,810
1150	35	90	120	175	235	265	440	735	1,325
1200	30	80	105	160	215	240	400	670	1,205

STANDARD CLASS

Note: for temperature > 540°C valves in class 150 lbs are limited at BW End only.

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20.0	51.7	69.0	103.4	137.9	155.1	258.6	430.9	775.7
93.3	17.9	51.7	69.0	103.4	137.9	155.1	258.6	430.9	775.7
148.9	15.9	50.3	66.9	100.3	133.9	150.7	251.0	418.5	753.3
204.4	13.8	48.6	64.8	97.2	129.6	145.8	243.4	405.4	729.8
260.0	11.7	45.9	61.0	91.7	122.2	137.6	229.3	382.0	687.1
315.6	9.7	41.7	55.5	83.4	111.2	125.1	208.6	347.5	625.4
343.3	8.6	40.7	54.1	81.0	108.1	121.7	202.7	338.2	608.5
371.1	7.6	39.3	52.1	78.3	104.5	117.6	195.8	326.1	587.1
398.9	6.6	36.5	49.0	73.4	97.8	110.0	183.4	305.4	549.5
426.7	5.5	35.2	46.5	70.0	93.4	105.1	175.1	291.7	524.7
454.4	4.5	33.4	44.8	67.2	89.5	100.7	167.9	279.9	503.7
482.2	3.4	31.0	41.4	62.1	82.7	93.1	154.8	258.2	464.7
510.0	2.4	22.4	30.0	45.2	60.1	67.6	112.7	187.9	338.2
537.8	1.4	14.8	20.0	29.6	39.8	44.8	74.5	124.1	223.4
565.6	1.4	9.7	12.8	19.3	25.5	28.6	47.9	79.6	143.8
593.3	1.4	6.6	8.6	12.8	17.1	19.3	32.1	53.1	95.8
621.1	1.4	4.8	6.2	9.3	12.5	14.1	23.4	39.0	73.8
648.9	1.4	4.1	5.5	8.6	11.4	12.8	21.4	35.5	63.8

SPECIAL CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20.0	51.7	69.0	103.4	137.9	155.1	258.6	430.9	775.7
93.3	20.0	51.7	69.0	103.4	137.9	155.1	258.6	430.9	775.7
148.9	20.0	51.7	69.0	103.4	137.9	155.1	258.6	430.9	775.7
204.4	20.0	51.7	69.0	103.4	137.9	155.1	258.6	430.9	775.7
260.0	20.0	51.7	69.0	103.4	137.9	155.1	258.6	430.9	775.7
315.6	19.7	51.4	68.6	103.1	137.2	154.4	257.5	429.6	772.9
343.3	19.3	50.7	67.6	101.4	134.8	151.7	253.0	421.6	759.1
371.1	19.0	50.0	66.5	99.6	133.1	149.6	249.3	415.4	748.1
398.9	18.6	49.0	65.2	97.9	130.7	146.9	244.8	407.8	734.0
426.7	18.6	48.3	64.1	96.5	128.6	144.5	241.0	401.6	722.9
454.4	17.9	46.9	62.4	93.4	124.5	140.0	233.4	389.2	700.5
482.2	15.9	41.4	55.2	82.7	110.3	124.1	206.9	344.8	620.6
510.0	11.4	29.3	39.3	58.6	78.6	88.3	146.9	244.8	440.6
537.8	7.6	19.3	25.9	39.0	51.7	58.3	96.9	161.7	291.0
565.6	4.8	12.4	16.5	24.8	33.1	37.2	62.4	103.8	186.9
593.3	3.1	8.3	11.0	16.5	22.1	24.8	41.7	69.3	124.8
621.1	2.4	6.2	8.3	12.1	16.2	18.3	30.3	50.7	91.4

PSI - °F

MATERIALS: ASTM B564 N08800

BAR - °C

STANDARD CLASS

Note: for temperature > 1000°F valves in class 150 lbs are limited to BW Ends only.

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	275	720	960	1,440	1,920	2,160	3,600	6,000	10,800
200	255	660	885	1,325	1,768	1,990	3,310	5,520	9,935
300	230	625	830	1,250	1,663	1,870	3,120	5,200	9,360
400	200	600	800	1,200	1,600	1,800	3,000	5,000	9,000
500	170	580	770	1,155	1,542	1,735	2,890	4,820	8,875
600	140	575	765	1,145	1,528	1,720	2,870	4,780	8,605
650	125	570	760	1,140	1,517	1,705	2,845	4,740	8,530
700	110	565	750	1,130	1,503	1,690	2,820	4,700	8,460
750	95	530	710	1,065	1,418	1,595	2,660	4,430	7,970
800	80	505	675	1,015	1,352	1,520	2,535	4,230	7,610
850	65	485	650	975	1,298	1,460	2,435	4,060	7,305
900	50	450	600	900	1,200	1,350	2,245	3,745	6,740
950	35	385	515	775	1,032	1,160	1,930	3,220	5,795
1000	20	365	485	725	968	1,090	1,820	3,030	5,450
1050	20	360	480	720	960	1,080	1,800	3,000	5,400
1100	20	325	430	645	858	965	1,610	2,685	4,835
1150	20	275	365	550	733	825	1,370	2,285	4,115
1200	20	205	270	405	542	610	1,020	1,695	3,055
1250	20	130	175	260	347	390	650	1,080	1,945
1300	20	60	80	125	165	185	310	515	925
1350	20	50	65	100	133	150	245	410	740
1400	15	35	45	70	90	100	170	285	510
1450	10	30	40	60	83	95	155	255	465
1500	10	25	35	50	67	75	125	205	370

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	285	740	985	1,480	1,975	2,220	3,695	6,160	11,090
300	265	695	930	1,395	1,860	2,090	3,480	5,805	10,445
400	255	670	895	1,340	1,785	2,010	3,350	5,580	10,045
500	245	645	860	1,290	1,720	1,935	3,230	5,380	9,685
600	245	640	855	1,280	1,705	1,920	3,200	5,335	9,605
650	245	635	845	1,270	1,695	1,905	3,175	5,290	9,520
700	240	630	840	1,260	1,680	1,890	3,145	5,245	9,440
750	240	625	830	1,250	1,665	1,870	3,120	5,200	9,360
800	235	615	820	1,230	1,645	1,850	3,080	5,135	9,240
850	235	615	820	1,230	1,640	1,845	3,075	5,125	9,220
900	230	600	800	1,200	1,600	1,800	3,000	5,000	9,000
950	180	470	630	945	1,260	1,415	2,360	3,930	7,070
1000	160	420	560	840	1,120	1,260	2,105	3,505	6,310
1050	160	420	560	840	1,120	1,260	2,105	3,505	6,310
1100	155	405	540	805	1,075	1,210	2,015	3,360	6,045
1150	130	345	460	685	915	1,030	1,715	2,860	5,145
1200	100	260	345	515	685	770	1,285	2,145	3,860
1250	65	170	225	335	450	505	845	1,405	2,530
1300	30	80	105	160	215	240	400	670	1,205
1350	25	65	85	130	175	195	320	535	965
1400	15	45	60	90	120	135	220	370	665
1450	15	40	55	80	105	120	200	335	605
1500	10	30	45	65	85	95	160	270	480

STANDARD CLASS

Note: for temperature > 540°C valves in class 150 lbs are limited to BW Ends only.

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	19,0	49,6	66,2	99,3	132,4	148,9	248,2	413,7	744,7
93,3	17,6	45,5	61,0	91,4	121,9	137,2	228,2	380,6	685,0
148,9	15,9	43,1	57,2	86,2	114,7	128,9	215,1	358,5	645,4
204,4	13,8	41,4	55,2	82,7	110,3	124,1	206,9	344,8	620,6
260,0	11,7	40,0	53,1	79,6	106,3	119,6	199,3	332,3	611,9
315,6	9,7	39,6	52,7	78,9	105,3	118,6	197,9	329,6	593,3
343,3	8,6	39,3	52,4	78,6	104,6	117,6	196,2	326,8	588,1
371,1	7,6	39,0	51,7	77,9	103,6	116,5	194,4	324,1	583,3
398,9	6,6	36,5	49,0	73,4	97,8	110,0	183,4	305,4	549,5
426,7	5,5	34,8	46,5	70,0	93,2	104,8	174,8	291,7	524,7
454,4	4,5	33,4	44,8	67,2	89,5	100,7	167,9	279,9	503,7
482,2	3,4	31,0	41,4	62,1	82,7	93,1	154,8	258,2	464,7
510,0	2,4	26,5	35,5	53,4	71,1	80,0	133,1	222,0	399,6
537,8	1,4	25,2	33,4	50,0	66,7	75,2	125,5	208,9	375,8
565,6	1,4	24,8	33,1	49,6	66,2	74,5	124,1	206,9	372,3
593,3	1,4	22,4	29,6	44,5	59,1	66,5	111,0	185,1	333,4
621,1	1,4	19,0	25,2	37,9	50,5	56,9	94,5	157,6	283,7
648,9	1,4	14,1	18,6	27,9	37,4	42,1	70,3	116,9	210,6
676,7	1,4	9,0	12,1	17,9	23,9	26,9	44,8	74,5	134,1
704,4	1,4	4,1	5,5	8,6	11,4	12,8	21,4	35,5	63,8
732,2	1,4	3,4	4,5	6,9	9,2	10,3	16,9	28,3	51,0
760,0	1,0	2,4	3,1	4,8	6,2	6,9	11,7	19,7	35,2
787,8	0,7	2,1	2,8	4,1	5,7	6,6	10,7	17,6	32,1
815,6	0,7	1,7	2,4	3,4	4,6	5,2	8,6	14,1	25,5

SPECIAL CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	19,7	51,0	67,9	102,0	136,2	153,1	254,8	424,7	764,7
148,9	18,3	47,9	64,1	96,2	128,2	144,1	239,9	400,3	720,2
204,4	17,6	46,2	61,7	92,4	123,0	138,6	231,0	384,7	692,6
260,0	16,9	44,5	59,3	88,9	118,6	133,4	222,7	371,0	667,8
315,6	16,9	44,1	59,0	88,3	117,5	132,4	220,6	367,8	662,3
343,3	16,9	43,8	58,3	87,6	116,9	131,3	218,9	364,7	656,4
371,1	16,5	43,4	57,9	86,9	115,8	130,3	216,8	361,6	650,9
398,9	16,5	43,1	57,2	86,2	114,8	128,9	215,1	358,5	645,4
426,7	16,2	42,4	56,5	84,8	113,4	127,6	212,4	354,1	637,1
454,4	16,2	42,4	56,5	84,8	113,1	127,2	212,0	353,4	635,7
482,2	15,9	41,4	55,2	82,7	110,3	124,1	206,9	344,8	620,6
510,0	12,4	32,4	43,4	65,2	86,9	97,6	162,7	271,0	487,5
537,8	11,0	29,0	38,6	57,9	77,2	86,9	145,1	241,7	435,1
565,6	11,0	29,0	38,6	57,9	77,2	86,9	145,1	241,7	435,1
593,3	10,7	27,9	37,2	55,5	74,1	83,4	138,9	231,7	416,8
621,1	9,0	23,8	31,7	47,2	63,1	71,0	118,2	197,2	354,7
648,9	6,9	17,9	23,8	35,5	47,2	53,1	88,6	147,9	266,1
676,7	4,5	11,7	15,5	23,1	31,0	34,8	58,3	96,9	174,4
704,4	2,1	5,5	7,2	11,0	14,8	16,5	27,6	46,2	83,1
732,2	1,7	4,5	5,9	9,0	12,1	13,4	22,1	36,9	66,5
760,0	1,0	3,1	4,1	6,2	8,3	9,3	15,2	25,5	45,9
787,8	1,0	2,8	3,8	5,5	7,2	8,3	13,8	23,1	41,7
815,6	0,7	2,1	3,1	4,5	5,9	6,6	11,0	18,6	33,1

PSI - °F

MATERIALS: ASTM B564 N06625 (h)

BAR - °C

STANDARD CLASS

Note: for temperature > 1000°F valves in class 150 lbs are limited to BW Ends only.

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	260	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	230	730	970	1,455	1,942	2,185	3,640	6,070	10,925
400	200	705	940	1,410	1,880	2,115	3,530	5,880	10,585
500	170	665	885	1,330	1,773	1,995	3,325	5,540	9,965
600	140	605	805	1,210	1,613	1,815	3,025	5,040	9,070
650	125	590	785	1,175	1,568	1,765	2,940	4,905	8,825
700	110	570	755	1,135	1,515	1,705	2,840	4,730	8,515
750	95	530	710	1,065	1,418	1,595	2,60	4,430	7,970
800	80	510	675	1,015	1,355	1,525	2,540	4,230	7,610
850	65	485	650	975	1,298	1,460	2,435	4,060	7,305
900	50	450	600	900	1,200	1,350	2,245	3,745	6,740
950	35	385	515	775	1,032	1,160	1,930	3,220	5,795
1000	20	365	485	725	968	1,090	1,820	3,030	5,450
1050	20	360	480	720	960	1,080	1,800	3,000	5,400
1100	20	325	430	645	858	965	1,610	2,685	4,835
1150	20	275	365	550	733	825	1,370	2,285	4,115
1200	20	185	245	370	493	555	925	1,545	2,775
1250	20	145	195	295	392	440	735	1,220	2,200
1300	20	110	145	215	288	325	540	900	1,620

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
400	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
500	285	740	990	1,485	1,980	2,225	3,710	6,185	11,130
600	275	725	965	1,445	1,930	2,170	3,615	6,025	10,850
650	270	710	945	1,420	1,895	2,130	3,550	5,915	10,645
700	265	695	930	1,395	1,860	2,090	3,480	5,805	10,445
750	265	690	920	1,380	1,845	2,075	3,455	5,760	10,365
800	265	685	915	1,370	1,825	2,055	3,430	5,715	10,285
850	260	675	900	1,350	1,800	2,025	3,375	5,625	10,125
900	230	600	800	1,200	1,600	1,800	3,000	5,000	9,000
950	180	470	630	945	1,260	1,415	2,360	3,930	7,070
1000	160	420	560	840	1,120	1,260	2,105	3,505	6,310
1050	160	420	560	840	1,120	1,260	2,105	3,505	6,310
1100	155	405	540	805	1,075	1,210	2,015	3,360	6,045
1150	130	345	460	685	915	1,030	1,715	2,860	5,145
1200	90	240	320	480	645	725	1,205	2,010	3,615
1250	75	190	255	380	510	575	955	1,590	2,865
1300	55	140	190	280	375	420	705	1,170	2,110

STANDARD CLASS

Note: for temperature > 540°C valves in class 150 lbs are limited to BW Ends only.

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	17,9	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
148,9	15,9	50,3	66,9	100,3	133,9	150,7	251,0	418,5	753,3
204,4	13,8	48,6	64,8	97,2	129,6	145,8	243,4	405,4	729,8
260,0	11,7	45,9	61,0	91,7	122,2	137,6	229,3	382,0	687,1
315,6	9,7	41,7	55,5	83,4	111,2	125,1	208,6	347,5	625,4
343,3	8,6	40,7	54,1	81,0	108,1	121,7	202,7	338,2	608,5
371,1	7,6	39,3	52,1	78,3	104,4	117,6	195,8	326,1	587,1
398,9	6,6	36,5	49,0	73,4	97,8	110,0	183,4	305,4	549,5
426,7	5,5	35,2	46,5	70,0	93,4	105,1	175,1	291,7	524,7
454,4	4,5	33,4	44,8	67,2	89,5	100,7	167,9	279,9	503,7
482,2	3,4	31,0	41,4	62,1	82,7	93,1	154,8	258,2	464,7
510,0	2,4	26,5	35,5	53,4	71,1	80,0	133,1	222,0	399,6
537,8	1,4	25,2	33,4	50,0	66,7	75,2	125,5	208,9	375,8
565,6	1,4	24,8	33,1	49,6	66,2	74,5	124,1	206,9	372,3
593,3	1,4	22,4	29,6	44,5	59,1	66,5	111,0	185,1	333,4
621,1	1,4	19,0	25,2	37,9	50,5	56,9	94,5	157,6	283,7
648,9	1,4	12,8	16,9	25,5	34,0	38,3	63,8	106,5	191,3
676,7	1,4	10,0	13,4	20,3	27,0	30,3	50,7	84,1	151,7
704,4	1,4	7,6	10,0	14,8	19,8	22,4	37,2	62,1	111,7

SPECIAL CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
148,9	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
204,4	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
260,0	19,7	51,0	68,3	102,4	136,5	153,4	255,8	426,5	767,4
315,6	19,0	50,0	66,5	99,6	133,1	149,6	249,3	415,4	748,1
343,3	18,6	49,0	65,2	97,9	130,7	146,9	244,8	407,8	734,0
371,1	18,3	47,9	64,1	96,2	128,2	144,1	239,9	400,3	720,2
398,9	18,3	47,6	63,4	95,2	127,2	143,1	238,2	397,2	714,7
426,7	18,3	47,2	63,1	94,5	125,8	141,7	236,5	394,0	709,2
454,4	17,9	46,5	62,1	93,1	124,1	139,6	232,7	387,8	698,1
482,2	15,9	41,4	55,2	82,7	110,3	124,1	206,9	344,8	620,6
510,0	12,4	32,4	43,4	65,2	86,9	97,6	162,7	271,0	487,5
537,8	11,0	29,0	38,6	57,9	77,2	86,9	145,1	241,7	435,1
565,6	11,0	29,0	38,6	57,9	77,2	86,9	145,1	241,7	435,1
593,3	10,7	27,9	37,2	55,5	74,1	83,4	138,9	231,7	416,8
621,1	9,0	23,8	31,7	47,2	63,1	71,0	118,2	197,2	354,7
648,9	6,2	16,5	22,1	33,1	44,5	50,0	83,1	138,6	249,3
676,7	5,2	13,1	17,6	26,2	35,2	39,6	65,8	109,6	197,5
704,4	3,8	9,7	13,1	19,3	25,8	29,0	48,6	80,7	145,5

PSI - °F

MATERIALS: ASTM B462 N08020

BAR - °C

STANDARD CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	260	720	960	1,440	1,920	2,160	3,600	6,000	10,800
300	230	715	950	1,425	1,905	2,140	3,565	5,940	10,690
400	200	675	900	1,345	1,795	2,020	3,365	5,610	10,100
500	170	655	875	1,310	1,745	1,965	3,275	5,460	9,830
600	140	605	805	1,210	1,615	1,815	3,025	5,040	9,070
650	125	590	785	1,175	1,570	1,765	2,940	4,905	8,825
700	110	570	755	1,135	1,515	1,705	2,840	4,730	8,515
750	95	530	710	1,065	1,420	1,595	2,660	4,430	7,970
800	80	510	675	1,015	1,355	1,525	2,540	4,230	7,610

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
200	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
300	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
400	290	750	1,000	1,500	2,000	2,250	3,750	6,250	11,250
500	280	730	975	1,465	1,950	2,195	3,655	6,095	10,970
600	270	705	940	1,405	1,875	2,110	3,515	5,860	10,545
650	270	700	930	1,400	1,865	2,095	3,495	5,825	10,485
700	265	695	925	1,390	1,855	2,085	3,475	5,790	10,425
750	260	685	910	1,365	1,820	2,050	3,415	5,690	10,245
800	260	675	900	1,350	1,800	2,025	3,375	5,625	10,125

STANDARD CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	17,9	49,6	66,2	99,3	132,4	148,9	248,2	413,7	744,7
148,9	15,8	49,3	65,5	98,2	131,3	147,5	245,8	409,6	737,1
204,4	13,8	46,5	62,0	92,7	123,8	139,3	232,0	386,8	696,3
260,0	11,7	45,2	60,3	90,3	120,3	135,5	225,8	376,5	677,8
315,6	9,6	41,7	55,5	83,4	111,3	125,1	208,6	347,5	625,4
343,3	8,6	40,7	54,1	81,0	108,2	121,7	202,7	338,2	608,5
371,1	7,6	39,3	52,0	78,2	104,4	117,5	195,8	326,1	587,1
398,9	6,5	36,5	48,9	73,4	98,0	110,0	183,4	305,4	549,5
426,7	5,5	35,2	46,5	70,0	93,4	105,1	175,1	291,6	524,7

SPECIAL CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
93,3	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
148,9	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
204,4	20,0	51,7	69,0	103,4	137,9	155,1	258,6	430,9	775,7
260,0	19,3	50,3	67,2	101,0	134,4	151,3	252,0	420,2	756,4
315,6	18,6	48,6	64,8	96,9	129,3	145,5	242,3	404,0	727,1
343,3	18,6	48,3	64,1	96,5	128,6	144,4	241,0	401,6	722,9
371,1	18,3	47,9	63,8	95,8	128,0	143,8	239,6	399,2	718,8
398,9	17,9	47,2	62,7	94,1	125,5	141,3	235,5	392,3	706,4
426,7	17,9	46,5	62,1	93,1	124,1	139,6	232,7	387,8	698,1

PSI - °F

MATERIALS: ASTM B564 N04400

BAR - °C

STANDARD CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	230	600	800	1,200	1,600	1,800	3,000	5,000	9,000
200	200	530	705	1,055	1,408	1,585	2,640	4,400	7,920
300	190	495	660	990	1,320	1,485	2,470	4,120	7,415
400	185	480	635	955	1,275	1,435	2,390	3,980	7,165
500	170	475	635	950	1,273	1,435	2,375	3,960	7,130
600	140	475	635	950	1,273	1,435	2,375	3,960	7,130
650	125	475	635	950	1,273	1,435	2,375	3,960	7,130
700	110	475	635	950	1,273	1,435	2,375	3,960	7,130
750	95	470	625	935	1,248	1,405	2,340	3,900	7,020
800	80	460	610	915	1,222	1,375	2,290	3,820	6,875
850	65	340	455	680	907	1,020	1,695	2,830	5,090
900	50	245	330	495	658	740	1,235	2,055	3,705

SPECIAL CLASS

Temperature °F	150	300	400	600	800	900	1500	2500	4500
-20 to 100	255	670	895	1,340	1,790	2,010	3,350	5,580	10,045
200	225	590	785	1,180	1,575	1,770	2,945	4,910	8,840
300	210	550	735	1,100	1,465	1,650	2,755	4,590	8,260
400	205	535	710	1,065	1,420	1,600	2,665	4,440	7,995
500	205	530	710	1,060	1,415	1,590	2,650	4,420	7,955
600	205	530	710	1,060	1,415	1,590	2,650	4,420	7,955
650	205	530	710	1,060	1,415	1,590	2,650	4,420	7,955
700	205	530	710	1,060	1,415	1,590	2,650	4,420	7,955
750	200	520	695	1,045	1,390	1,565	2,610	4,355	7,835
800	195	510	680	1,025	1,365	1,535	2,560	4,265	7,675
850	170	440	590	885	1,180	1,325	2,210	3,685	6,630
900	125	320	430	645	860	965	1,605	2,680	4,820

STANDARD CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	15,9	41,4	55,2	82,7	110,3	124,1	206,9	344,8	620,6
93,3	13,8	36,5	48,6	72,7	97,1	109,3	182,0	303,4	546,1
148,9	13,1	34,1	45,5	68,3	91,0	102,4	170,3	284,1	511,3
204,4	12,8	33,1	43,8	65,8	87,9	98,9	164,8	274,4	494,0
260,0	11,7	32,8	43,8	65,5	87,8	98,9	163,8	273,0	491,6
315,6	9,7	32,8	43,8	65,5	87,8	98,9	163,8	273,0	491,6
343,3	8,6	32,8	43,8	65,5	87,8	98,9	163,8	273,0	491,6
371,1	7,6	32,8	43,8	65,5	87,8	98,9	163,8	273,0	491,6
398,9	6,6	32,4	43,1	64,5	86,0	96,9	161,3	268,9	484,0
426,7	5,5	31,7	42,1	63,1	84,2	94,8	157,9	263,4	474,0
454,4	4,5	23,4	31,4	46,9	62,5	70,3	116,9	195,1	351,0
482,2	3,4	16,9	22,8	34,1	45,4	51,0	85,2	141,7	255,5

SPECIAL CLASS

Temperature °C	150	300	400	600	800	900	1500	2500	4500
-29 +38	17,6	46,2	61,7	92,4	123,4	138,6	231,0	384,7	692,6
93,3	15,5	40,7	54,1	81,4	108,6	122,0	203,1	338,5	609,5
148,9	14,5	37,9	50,7	75,8	101,0	113,8	190,0	316,5	569,5
204,4	14,1	36,9	49,0	73,4	98,0	110,3	183,8	306,1	551,3
260,0	14,1	36,5	49,0	73,1	97,6	109,6	182,7	304,8	548,5
315,6	14,1	36,5	49,0	73,1	97,6	109,6	182,7	304,8	548,5
343,3	14,1	36,5	49,0	73,1	97,6	109,6	182,7	304,8	548,5
371,1	14,1	36,5	49,0	73,1	97,6	109,6	182,7	304,8	548,5
398,9	13,8	35,9	47,9	72,1	95,8	107,9	180,0	300,3	540,2
426,7	13,4	35,2	46,9	70,7	94,1	105,8	176,5	294,1	529,2
454,4	11,7	30,3	40,7	61,0	81,4	91,4	152,4	254,1	457,1
482,2	8,6	22,1	29,6	44,5	59,3	66,5	110,7	184,8	332,3

PSI - °F

MATERIALS: A105 N (a)

BAR - °C

LIMITED CLASS

Temperature °F	800 # LTD	1690 # LTD	2500 # LTD	2680 # LTD	4500 # LTD
-20 to 100	2,000	4,225	6,250	6,700	11,250
200	2,000	4,225	6,250	6,700	11,250
300	2,000	4,225	6,250	6,700	11,250
400	2,000	4,225	6,250	6,700	11,250
500	2,000	4,225	6,250	6,700	11,250
600	1,900	4,015	5,940	6,370	10,690
650	1,865	3,940	5,825	6,245	10,485
700	1,850	3,910	5,780	6,195	10,405
750	1,680	3,550	5,250	5,630	9,450
800	1,375	2,895	4,285	4,595	7,715
850	895	1,880	2,785	2,985	5,015
900	575	1,205	1,785	1,915	3,215
950	350	745	1,110	1,195	2,060
1000	180	390	600	650	1,195

LIMITED CLASS

Temperature °C	800 # LTD	1690 # LTD	2500 # LTD	2680 # LTD	4500 # LTD
-29 to 38	137.9	291.3	431.0	462.0	775.7
93.3	137.9	291.3	431.0	462.0	775.7
148.9	137.9	291.3	431.0	462.0	775.7
204.4	137.9	291.3	431.0	462.0	775.7
260.0	137.9	291.3	431.0	462.0	775.7
315.6	131.0	276.8	409.6	439.2	737.1
343.3	128.6	271.7	408.5	430.6	722.9
371.1	127.5	269.6	398.5	427.1	717.4
398.9	115.8	244.8	362.0	388.2	651.6
426.7	94.8	199.6	295.4	316.8	531.9
454.4	61.7	129.6	192.0	205.8	345.8
482.2	83.1	83.1	123.1	132.0	221.7
510.0	24.1	51.4	76.5	82.4	142.0
537.8	12.4	26.9	41.4	44.8	82.4

PSI - °F

MATERIALS: A 182 F5 - ASTM A182 F5a

BAR - °C

LIMITED CLASS

Temperature °F	800 # LTD	1690 # LTD	2500 # LTD	2680 # LTD	4500 # LTD
-20 to 100	2,000	4,225	6,250	6,700	11,250
200	2,000	4,225	6,250	6,700	11,250
300	1,940	4,105	6,070	6,505	10,930
400	1,920	4,055	6,000	6,430	10,800
500	1,920	4,055	6,000	6,430	10,800
600	1,885	3,985	5,895	6,320	10,605
650	1,860	3,935	5,820	6,240	10,480
700	1,825	3,865	5,715	6,125	10,285
750	1,760	3,720	5,500	5,895	9,900
800	1,700	3,600	5,320	5,705	9,580
850	1,615	3,405	5,035	5,400	9,065
900	1,235	2,610	3,855	4,135	6,945
950	925	1,960	2,925	3,185	5,500
1000	685	1,510	2,230	2,505	4,620
1050	495	1,095	1,615	1,815	3,345
1100	345	755	1,115	1,255	2,310
1150	210	470	695	780	1,430
1200	120	260	385	430	800

LIMITED CLASS

Temperature °C	800 # LTD	1690 # LTD	2500 # LTD	2680 # LTD	4500 # LTD
-29 to 38	137.9	291.3	431.0	462.0	775.7
93.3	137.9	291.3	431.0	462.0	775.7
148.9	133.8	283.0	418.5	448.5	753.6
204.4	132.4	279.6	413.7	443.3	744.7
260.0	132.4	279.6	413.7	443.3	744.7
315.6	130.0	274.8	406.5	435.8	731.2
343.3	128.2	271.3	401.3	430.2	722.6
371.1	125.8	266.5	394.0	422.3	709.1
398.9	121.3	256.5	379.2	406.5	682.6
426.7	117.2	248.2	366.8	393.3	660.5
454.4	111.3	234.8	347.2	372.3	625.0
482.2	85.1	180.0	265.8	285.1	479.0
510.0	63.8	135.1	201.7	219.6	379.2
537.8	47.2	104.1	153.7	172.7	318.5
565.6	34.1	75.5	111.3	125.1	230.6
593.3	23.8	52.1	76.9	86.5	159.3
621.1	14.5	32.4	47.9	53.8	98.6
648.9	8.3	17.9	26.6	29.6	55.2

PSI - °F

MATERIALS: A 182 F9

BAR - °C

LIMITED CLASS

Temperature °F	800 # LTD	1690 # LTD	2500 # LTD	2680 # LTD	4500 # LTD
-20 to 100	2,000	4,225	6,250	6,700	11,250
200	2,000	4,225	6,250	6,700	11,250
300	2,000	4,225	6,250	6,700	11,250
400	2,000	4,225	6,250	6,700	11,250
500	2,000	4,225	6,250	6,700	11,250
600	2,000	4,225	6,250	6,700	11,250
650	2,000	4,225	6,250	6,700	11,250
700	1,955	4,130	6,110	6,550	10,995
750	1,945	4,105	6,070	6,505	10,930
800	1,920	4,105	6,000	6,430	10,800
850	1,805	3,815	5,645	6,050	10,160
900	1,600	3,380	5,000	5,360	9,000
950	1,275	2,720	4,025	4,380	7,555
1000	875	1,925	2,850	3,205	5,890
1050	595	1,300	1,925	2,160	3,985
1100	390	860	1,270	1,430	2,625
1150	260	570	845	950	1,755
1200	180	390	575	650	1,195

LIMITED CLASS

Temperature °C	800 # LTD	1690 # LTD	2500 # LTD	2680 # LTD	4500 # LTD
-29 to 38	137.9	291.3	431.0	462.0	775.7
93.3	137.9	291.3	431.0	462.0	775.7
148.9	137.9	291.3	431.0	462.0	775.7
204.4	137.9	291.3	431.0	462.0	775.7
260.0	137.9	291.3	431.0	462.0	775.7
315.6	137.9	291.3	431.0	462.0	775.7
343.3	137.9	291.3	431.0	462.0	775.7
371.1	134.8	284.8	421.3	451.6	758.1
398.9	134.1	283.0	418.5	448.5	753.6
426.7	132.4	283.0	413.7	443.3	744.7
454.4	124.4	263.0	389.2	417.1	700.5
482.2	110.3	233.0	344.7	369.6	620.5
510.0	87.9	187.5	277.5	302.0	521.0
537.8	60.3	132.7	196.5	221.0	406.1
565.6	41.0	89.6	132.7	149.0	274.8
593.3	26.9	59.3	87.6	98.6	181.0
621.1	17.9	39.3	58.3	65.5	121.0
648.9	12.4	26.9	44.8	44.8	82.4

PSI - °F

MATERIALS: A 182 F91

BAR - °C

LIMITED CLASS

Temperature °F	800#LTD	1690#LTD	2500#LTD	2680#LTD	4500#LTD
-20 to 100	2,000	4,225	6,250	6,700	11,250
200	2,000	4,225	6,250	6,700	11,250
300	2,000	4,225	6,250	6,700	11,250
400	2,000	4,225	6,250	6,700	11,250
500	2,000	4,225	6,250	6,700	11,250
600	2,000	4,225	6,250	6,700	11,250
650	2,000	4,225	6,250	6,700	11,250
700	1,955	4,130	6,110	6,550	10,995
750	1,945	4,105	6,070	6,505	10,930
800	1,920	4,055	6,000	6,430	10,800
850	1,805	3,815	5,645	6,050	10,160
900	1,600	3,380	5,000	5,360	9,000
950	1,275	2,725	4,025	4,385	7,555
1000	1,160	2,555	3,780	4,240	7,820
1050	1,160	2,555	3,780	4,240	7,820
1100	1,040	2,290	3,390	3,805	7,005
1150	765	1,695	2,500	2,805	5,180
1200	495	1,095	1,615	1,820	3,345

LIMITED CLASS

Temperature °C	800#LTD	1690#LTD	2500#LTD	2680#LTD	4500#LTD
-29 to 38	137.9	291.3	431.0	462.0	775.7
93.3	137.9	291.3	431.0	462.0	775.7
148.9	137.9	291.3	431.0	462.0	775.7
204.4	137.9	291.3	431.0	462.0	775.7
260.0	137.9	291.3	431.0	462.0	775.7
315.6	137.9	291.3	431.0	462.0	775.7
343.3	137.9	291.3	431.0	462.0	775.7
371.1	134.8	284.8	421.3	451.6	758.1
398.9	134.1	283.0	418.6	448.5	753.6
426.7	132.4	279.6	413.7	443.3	744.7
454.4	124.4	263.0	389.2	417.1	700.5
482.2	110.3	233.0	344.7	369.6	620.5
510.0	87.9	187.9	277.5	302.3	520.9
537.8	80.0	176.2	260.7	292.3	539.2
565.6	80.0	176.2	260.7	292.3	539.2
593.3	71.7	157.9	233.7	262.3	483.0
621.1	52.7	116.9	172.4	193.4	357.2
648.9	34.1	75.5	111.3	125.5	230.6

PSI - °F

MATERIALS: A 182 F11 CL2 (b)

BAR - °C

LIMITED CLASS

Temperature °F	800#LTD	1690#LTD	2500#LTD	2680#LTD	4500#LTD
-20 to 100	2,000	4,225	6,250	6,700	11,250
200	2,000	4,225	6,250	6,700	11,250
300	2,000	4,225	6,250	6,700	11,250
400	2,000	4,225	6,250	6,700	11,250
500	2,000	4,225	6,250	6,700	11,250
600	2,000	4,225	6,250	6,700	11,250
650	2,000	4,225	6,250	6,700	11,250
700	1,955	4,130	6,110	6,550	10,995
750	1,945	4,110	6,070	6,505	10,930
800	1,920	4,055	6,000	6,430	10,800
850	1,805	3,815	5,645	6,050	10,160
900	1,565	3,310	4,895	5,245	8,805
950	1,070	2,305	3,445	3,700	6,390
1000	745	1,640	2,520	2,725	5,020
1050	495	1,095	1,680	1,820	3,345
1100	330	730	1,120	1,210	2,230
1150	210	470	720	780	1,430
1200	130	285	440	480	875

LIMITED CLASS

Temperature °C	800#LTD	1690#LTD	2500#LTD	2680#LTD	4500#LTD
-29 to 38	137.9	291.3	431.0	462.0	775.7
93.3	137.9	291.3	431.0	462.0	775.7
148.9	137.9	291.3	431.0	462.0	775.7
204.4	137.9	291.3	431.0	462.0	775.7
260.0	137.9	291.3	431.0	462.0	775.7
315.6	137.9	291.3	431.0	462.0	775.7
343.3	137.9	291.3	431.0	462.0	775.7
371.1	134.8	284.8	421.3	451.6	758.1
398.9	134.1	283.0	418.5	448.5	753.6
426.7	132.4	279.6	413.7	443.3	744.7
454.4	124.4	263.0	389.2	417.1	700.5
482.2	107.9	228.2	337.5	361.6	607.1
510.0	73.8	159.0	237.5	255.1	440.6
537.8	51.4	113.1	173.7	187.9	346.1
565.6	34.1	75.5	115.8	125.5	230.6
593.3	22.7	50.3	77.2	83.4	153.7
621.1	14.5	32.4	49.6	53.8	98.6
648.9	9.0	19.6	30.3	33.1	60.3

PSI - °F

MATERIALS: A 182 F22 CL3 (b)

BAR - °C

LIMITED CLASS

Temperature °F	800#LTD	1690#LTD	2500#LTD	2680#LTD	4500#LTD
-20 to 100	2,000	4,225	6,250	6,700	11,250
200	2,000	4,225	6,250	6,700	11,250
300	1,980	4,175	6,180	6,625	11,120
400	1,935	4,080	6,035	6,470	10,865
500	1,920	4,055	6,000	6,430	10,800
600	1,920	4,055	6,000	6,430	10,800
650	1,905	4,035	5,965	6,395	10,735
700	1,900	4,005	5,930	6,355	10,670
750	1,840	3,885	5,790	6,165	10,350
800	1,795	3,790	5,605	6,010	10,095
850	1,715	3,620	5,355	5,740	9,645
900	1,600	3,380	5,000	5,360	9,000
950	1,275	2,720	4,075	4,380	7,555
1000	895	1,980	3,040	3,290	6,050
1050	600	1,330	2,040	2,205	4,065
1100	380	830	1,280	1,385	2,545
1150	235	525	800	865	1,590
1200	145	310	480	520	955

LIMITED CLASS

Temperature °C	800#LTD	1690#LTD	2500#LTD	2680#LTD	4500#LTD
-29 to 38	137.9	291.3	431.0	462.1	775.7
93.9	137.9	291.3	431.0	462.1	775.7
148.9	136.5	287.9	426.1	456.8	766.7
204.4	133.4	281.3	416.1	446.1	749.1
260.0	132.4	279.6	413.7	443.3	744.7
315.6	132.4	279.6	413.7	443.3	744.7
343.3	131.3	278.2	411.3	441.0	740.2
371.1	131.0	276.1	408.9	438.2	735.7
398.9	126.9	267.9	399.2	425.1	713.6
426.7	123.8	261.3	386.5	414.4	696.0
454.4	118.2	249.6	367.8	395.8	665.0
482.2	110.3	233.0	344.7	369.6	620.5
510.0	87.9	187.5	281.0	302.0	521.0
537.8	61.7	136.5	209.6	226.8	417.1
565.6	41.4	91.7	140.6	152.0	280.3
593.3	26.2	57.2	88.2	95.5	175.5
621.1	16.2	36.2	55.2	59.6	109.6
648.9	10.0	21.4	33.1	35.8	65.8

PSI - °F

MATERIALS: A 182 F304 (c) - ASTM A-182 F304H

BAR - °C

LIMITED CLASS

Temperature °F	800#LTD	1690#LTD	2500#LTD	2680#LTD	4500#LTD
-20 to 100	2,000	4,225	6,250	6,700	11,250
200	1,780	3,770	5,570	5,970	10,030
300	1,600	3,380	5,000	5,360	9,000
400	1,475	3,115	4,605	4,935	8,295
500	1,380	2,925	4,320	4,630	7,780
600	1,300	2,750	4,065	4,385	7,315
650	1,280	2,700	3,995	4,285	7,190
700	1,260	2,655	3,930	4,215	7,070
750	1,235	2,610	3,855	4,135	6,945
800	1,200	2,535	3,750	4,020	6,750
850	1,180	2,485	3,680	3,945	6,620
900	1,155	2,440	3,605	3,865	6,495
950	1,135	2,390	3,535	3,790	6,365
1000	1,085	2,295	3,395	3,640	6,105
1050	1,025	2,175	3,215	3,445	5,785
1100	870	1,855	2,745	2,985	5,150
1150	690	1,510	2,230	2,505	4,620
1200	535	1,170	1,730	1,945	3,585
1250	390	855	1,270	1,430	2,625
1300	295	850	965	1,085	1,990
1350	210	470	695	780	1,430
1400	165	365	540	605	1,115
1450	120	260	385	430	780
1500	95	205	305	345	640

LIMITED CLASS

Temperature °C	800#LTD	1690#LTD	2500#LTD	2680#LTD	4500#LTD
-29 to 38	137,9	291,3	430,9	462,0	775,7
93,3	122,7	260,0	384,0	411,6	691,6
148,9	110,3	233,0	344,7	369,6	620,5
204,4	101,7	214,8	317,5	340,3	571,9
260,0	95,1	201,7	297,9	319,2	536,4
315,6	89,6	189,6	280,3	302,3	504,4
343,3	88,2	186,2	275,4	295,4	495,7
371,1	86,9	183,1	271,0	290,6	487,5
398,9	85,1	180,0	265,8	285,1	478,8
426,7	82,7	174,8	258,6	277,2	465,4
454,4	81,4	171,3	253,7	272,0	456,4
482,2	79,6	168,2	248,6	266,5	447,8
510,0	78,2	164,8	243,7	261,3	438,9
537,8	74,8	158,2	234,1	251,0	420,9
565,6	70,7	150,0	221,7	237,5	399,0
593,3	60,0	127,9	189,3	205,8	355,0
621,1	47,6	104,1	153,7	172,7	318,5
648,9	36,9	80,7	119,3	134,1	247,2
676,7	26,9	59,0	87,6	98,6	181,0
704,4	20,3	58,6	66,5	74,8	137,2
732,2	14,5	32,4	47,9	53,8	98,6
760,0	11,4	25,2	37,2	41,7	76,9
787,8	8,3	17,9	26,5	29,6	53,8
815,6	6,5	14,1	21,0	23,8	44,1

PSI - °F

MATERIALS: A 182 F316 (c) - ASTM A182 F316H

BAR - °C

LIMITED CLASS

Temperature °F	800#LTD	1690#LTD	2500#LTD	2680#LTD	4500#LTD
-20 to 100	2,000	4,225	6,250	6,700	11,250
200	1,840	3,885	5,750	6,165	10,350
300	1,665	3,515	5,200	5,575	9,360
400	1,520	3,210	4,750	5,090	8,550
500	1,420	2,990	4,430	4,750	7,970
600	1,340	2,840	4,195	4,500	7,555
650	1,315	2,775	4,105	4,400	7,395
700	1,295	2,725	4,035	4,325	7,265
750	1,265	2,680	3,965	4,250	7,135
800	1,260	2,655	3,930	4,215	7,070
850	1,245	2,625	3,885	4,165	6,990
900	1,235	2,610	3,855	4,135	6,945
950	1,220	2,580	3,815	4,090	6,870
1000	1,120	2,370	3,505	3,760	6,310
1050	1,120	2,370	3,505	3,760	6,310
1100	1,030	2,200	3,260	3,545	6,115
1150	815	1,795	3,655	2,985	5,495
1200	640	1,400	2,080	2,340	4,300
1250	510	1,115	1,655	1,865	3,425
1300	400	885	1,310	1,470	2,705
1350	330	730	1,075	1,210	2,230
1400	260	570	845	950	1,755
1450	200	440	660	740	1,355
1500	140	315	465	520	955

LIMITED CLASS

Temperature °C	800#LTD	1690#LTD	2500#LTD	2680#LTD	4500#LTD
-29 to 38	137,9	291,3	430,9	462,0	775,7
93,3	126,9	267,9	396,5	425,1	713,6
148,9	114,8	242,3	358,5	384,4	645,4
204,4	104,8	221,3	327,5	350,9	589,5
260,0	97,9	206,2	305,4	327,5	549,5
315,6	92,4	195,8	289,3	310,3	520,9
343,3	90,7	191,3	283,0	303,4	509,9
371,1	89,3	187,9	273,4	298,2	500,9
398,9	87,2	184,8	273,4	293,0	491,9
426,7	86,9	183,1	271,0	290,6	487,5
454,4	85,8	181,0	267,9	287,2	482,0
482,2	85,1	180,0	265,9	285,1	478,8
510,0	84,1	179,9	263,0	282,0	473,7
537,8	77,2	163,4	241,7	259,2	435,1
565,6	77,2	163,4	241,7	259,2	435,1
593,3	71,0	151,7	224,8	244,4	421,6
621,1	56,2	123,8	252,0	205,8	378,9
648,9	44,1	96,5	143,4	164,8	296,5
676,7	35,2	76,9	114,1	128,6	236,1
704,4	27,6	61,0	90,3	101,3	186,5
732,2	22,7	50,3	74,1	83,4	153,7
760,0	17,9	39,3	58,3	66,5	121,0
787,8	13,8	30,3	45,5	51,0	93,4
815,6	9,6	21,7	32,1	35,8	65,8

PSI - °F		MATERIALS: A 182 F304L (d) - ASTM A182 F316L						BAR - °C			
LIMITED CLASS						LIMITED CLASS					
Temperature °F	800#LTD	1690#LTD	2500#LTD	2680#LTD	4500#LTD	Temperature °C	800#LTD	1690#LTD	2500#LTD	2680#LTD	4500#LTD
-20 to 100	1,785	3,770	5,570	5,970	10,030	-29 to 38	123,1	259,9	384,0	411,6	691,6
200	1,505	3,185	4,710	5,050	8,480	93,3	103,8	219,6	324,7	348,2	584,7
300	1,350	2,850	4,215	4,520	7,585	148,9	93,1	196,5	290,6	311,6	523,0
400	1,230	2,595	3,840	4,115	6,910	204,4	84,8	178,9	264,8	283,7	476,4
500	1,135	2,400	3,550	3,805	6,390	260,0	78,2	165,5	244,8	262,3	440,6
600	1,070	2,265	3,350	3,590	6,025	315,6	73,8	156,2	231,0	247,5	415,4
650	1,040	2,195	3,250	3,485	5,850	343,3	71,7	151,3	224,1	240,3	403,3
700	1,020	2,150	3,180	3,410	5,720	371,1	70,3	148,2	219,3	235,1	394,4
750	995	2,100	3,110	3,335	5,595	398,9	68,6	144,8	214,4	229,9	385,6
800	980	2,070	3,060	3,280	5,505	426,7	67,6	142,7	211,0	226,1	379,6
850	955	2,020	2,990	3,205	5,385	454,4	65,8	139,3	206,2	221,0	371,3

PSI - °F		MATERIALS: A 182 F321 (f) - ASTM A182 F321H (g)					BAR - °C				
LIMITED CLASS						LIMITED CLASS					
Temperature °F	800#LTD	1690#LTD	2500#LTD	2680#LTD	4500#LTD	Temperature °C	800#LTD	1690#LTD	2500#LTD	2680#LTD	4500#LTD
-20 to 100	2,000	4,225	6,250	6,700	11,250	-29 to 38	137,9	291,4	431,0	462,1	775,9
200	1,820	3,835	5,680	6,090	10,220	93,3	125,5	264,5	391,7	420,0	704,8
300	1,620	3,430	5,070	5,435	9,130	148,9	111,7	236,6	349,7	374,8	629,7
400	1,475	3,155	4,605	4,935	8,295	204,4	101,7	217,6	317,6	340,3	572,1
500	1,375	2,895	4,285	4,595	7,715	260,0	94,8	199,7	295,5	316,9	532,1
600	1,300	2,755	4,070	4,365	7,330	315,6	89,7	190,0	280,7	301,0	505,5
650	1,280	2,705	4,000	4,290	7,200	343,3	88,3	186,6	275,9	295,9	496,6
700	1,260	2,655	3,930	4,215	7,070	371,1	86,9	183,1	271,0	290,7	487,6
750	1,245	2,630	3,895	4,175	7,005	398,9	85,9	181,4	268,6	287,9	483,1
800	1,235	2,610	3,855	4,135	6,945	426,7	85,2	180,0	265,9	285,2	479,0
850	1,220	2,585	3,820	4,095	6,880	454,4	84,1	178,3	263,4	282,4	474,5
900	1,215	2,560	3,785	4,060	6,815	482,2	83,8	176,6	261,0	280,8	470,0
950	1,215	2,560	3,785	4,060	6,815	510,0	83,8	176,6	261,0	280,0	470,0
1000	1,120	2,370	3,505	3,755	6,310	537,8	77,2	163,4	241,7	259,0	435,2
1050	1,085	2,295	3,395	3,640	6,105	565,6	74,8	158,3	234,1	251,0	421,0
1100	955	2,040	3,020	3,285	5,670	593,3	65,9	140,7	208,3	226,6	391,0
1150	815	1,795	2,655	2,985	5,495	621,1	56,2	123,8	183,1	205,9	379,0
1200	640	1,405	2,080	2,335	4,300	648,9	44,1	96,9	143,4	161,0	296,6
1250	185	1,070	1,580	1,775	3,265	676,7	33,4	73,8	109,0	122,4	225,2
1300	380	830	1,235	1,385	2,545	704,4	26,2	57,2	85,2	95,5	175,5
1350	295	650	965	1,085	1,990	732,2	20,3	44,8	66,6	74,8	137,2
1400	225	495	735	825	1,210	760,0	15,5	23,1	50,7	56,9	83,4
1450	180	390	575	650	1,195	787,8	12,4	26,9	39,7	44,8	82,4
1500	130	285	425	480	875	815,6	9,0	19,7	29,3	33,1	60,3

Notes:

- a - Permissible, but not recommended for prolonged use above 800°F (427°C)
- b - Permissible, but not recommended for prolonged use above 1100°F (593°C)
- c - At temperatures over 1000°F (540°C), use only when the carbon content is 0.04% or higher
- d - Not to be used over 800°F (427°C)
- e - Not to be used over 600°F (316°C)
- f - Not to be used over 1000°F (540°C)
- g - At temperatures over 1000°F (540°C), use only if the material is heat treated by heating to a minimum temperature of 2000°F (1093°C)

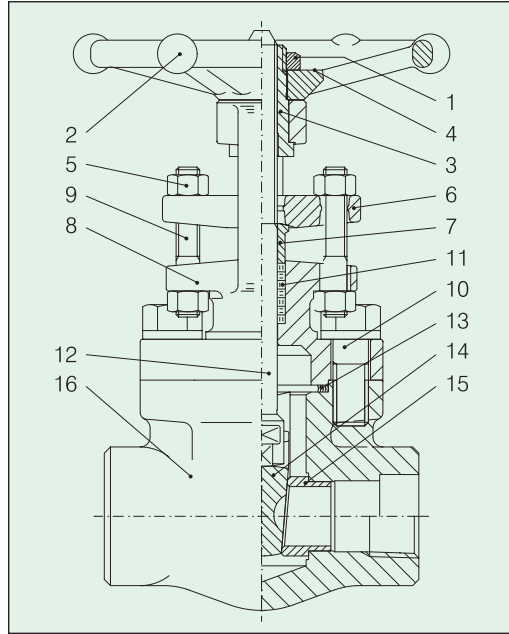
- h - Not to be used over 1200°F (649°C) - Alloy N06625 in the annealed condition is subject to severe loss of impact strength at room temperature after exposure in the range of 1000°F to 1400°F (540°C to 742°C)

Ratings are in accordance with ASME B16.34a - 1998

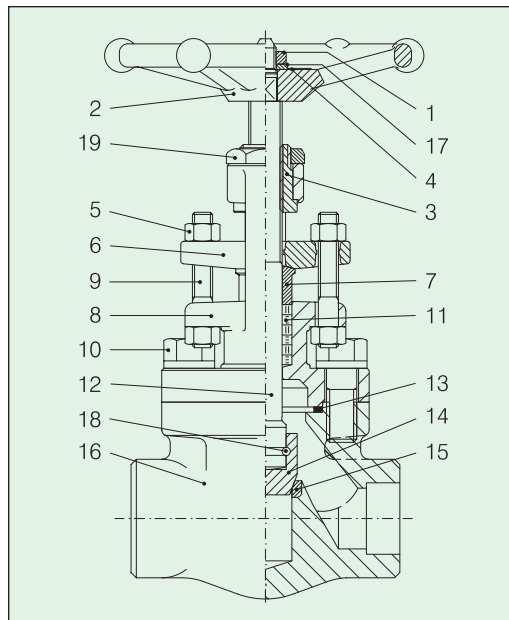
Flanged end valves are rated as Standard Class only

Class 4500 applies to weld end valves only

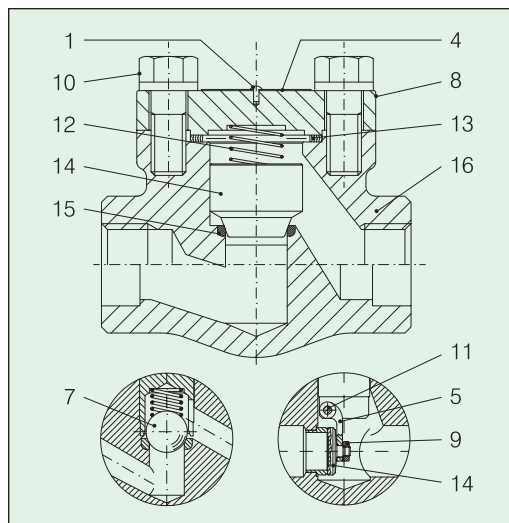
A rating temperature greater than 1000°F (540°C) does not apply to thread end valves Limited Class ratings apply to weld end and thread end valves only



TYPICAL GATE		
PART	NAME	MATERIALS
1	Handwheel nut	CARBON STEEL
2	Handwheel	CARBON STEEL
3	Yoke sleeve	AISI 416
4	Name plate	ALUMINUM
5	Gland nuts	ASTM A194 2H
6	Gland flange	ASTM A105
7	Packing gland	AISI 316
8	Bonnet	ASTM A105 N
9	Gland studs	ASTM A193 B6
10	B/B bolts	ASTM A193 B7
11	Packing	GRAPHITE
12	Stem	ASTM A479 410
13	B/B gasket	F316L + GRAPHITE
14	Wedge	ASTM A182 F6a
15	Seat rings	ASTM A479 410 HF
16	Body	ASTM A105 N



TYPICAL GLOBE		
PART	NAME	MATERIALS
1	Handwheel nut	CARBON STEEL
2	Handwheel	CARBON STEEL
3	Yoke sleeve	AISI 416
4	Name plate	ALUMINUM
5	Gland nuts	ASTM A194 - 2H
6	Gland flange	ASTM A105
7	Packing gland	AISI 316
8	Bonnet	ASTM A105 N
9	Gland studs	ASTM A193 B6
10	B/B bolts	ASTM A193 B7
11	Packing	GRAPHITE
12	Stem	ASTM A479 410
13	B/B gasket	F316L + GRAPHITE
14	Disc	ASTM A479 410
15	Seat rings	INTEGRAL HF
16	Body	ASTM A105 N
17	Washer	CARBON STEEL
18	Connection wire	ASTM A479 316
19	Yoke nut	CARBON STEEL



TYPICAL CHECK		
PART	NAME	MATERIALS
1	Rivet	CARBON STEEL
4	Name plate	ALUMINUM
5	Hinge	AISI 410
7	Ball	AISI 420
8	Bonnet	ASTM A105 N
9	Disc nut	ASTM A194 - 8
10	B/B bolts	ASTM A193 B7
11	Hinge pin	ASTM A479 316
12	Spring*	ASTM A479 316
13	B/B gasket	F316L + GRAPHITE
14	Disc	ASTM A479 410
15	Seat rings	INTEGRAL HF
16	Body	ASTM A105 N

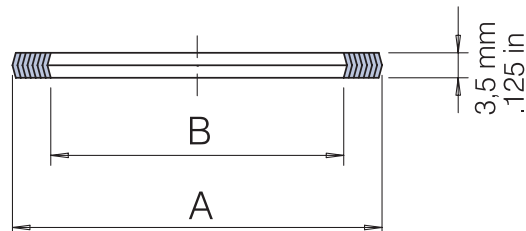
*Supplied Upon Request Only



BONNEY FORGE

RECOMMENDED SPARE PARTS FOR FORGED VALVES

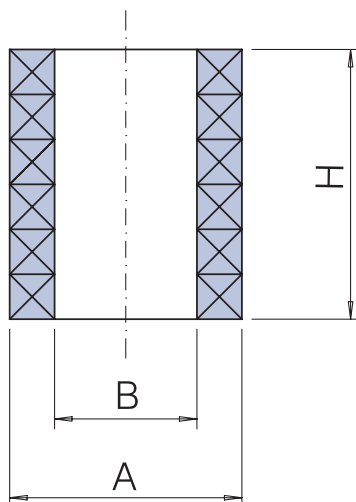
BOLTED BONNET GASKET



GASKET

Type	A		B	
	mm	in.	mm	in.
G1	36	1.42	27	1.06
G2	40	1.57	31	1.22
G3	48	1.89	39	1.54
G4	54	2.13	44	1.73
G5	62	2.44	52	2.05
G6	66	2.60	54	2.13
G7	74	2.91	60	2.36
G8	85	3.35	73	2.87
G9	95	3.74	78	3.07
G10	87	3.43	76	2.99
G11	70	2.76	60	2.36

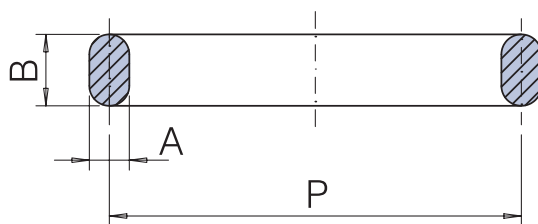
STEM PACKING



PACKING

Type	A		B		H	
	mm	in.	mm	in.	mm	in.
BH2	15,7	.62	9,5	.37	22	.87
BH3	17,2	.68	11,1	.44	22	.87
BH4	17,2	.68	11,1	.44	26	1.02
BH5	19,2	.76	12,7	.50	26	1.02
BH6/A	24,5	.96	14,5	.57	30	1.18
BH8	32,2	1.27	19	.75	36	1.42
BY5/A	26	1.02	16	.63	30	1.18
BY7	28,2	1.11	19	.75	30	1.18
2B3	19,2	.76	12,7	.5	35	1.38
2B4/A	26	1.02	16	.75	35	1.38
2B5	28,2	1.11	19	.63	40	1.57
2B8	35,7	1.41	22,2	.87	52	2.05
25B8	38,5	1.52	25,4	1	52	2.05
4B8	40,5	1.59	28,5	1.12	54	2.13
9B8/A	35,7	1.41	22,2	.87	42	1.65
9BE5	40,5	1.59	19	.75	32	1.26

BOLTED BONNET RTJ GASKET



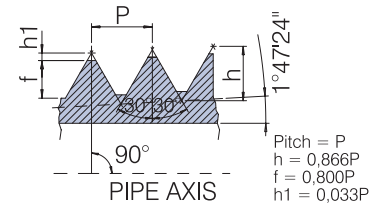
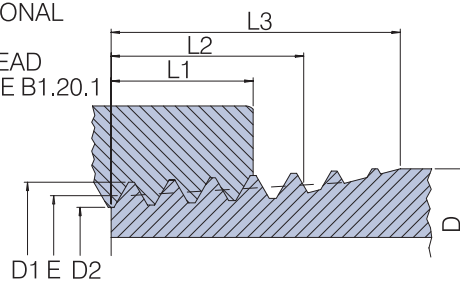
RING JOINT

RTJ	P		A		B	
	mm	in.	mm	in.	mm	in.
R11	34,1	1.34	6,35	.25	11,1	.44
R12	39,6	1.56	7,94	.31	14,3	.56
R13	42,8	1.69	7,94	.31	14,3	.56
R14	44,4	1.75	7,94	.31	14,3	.56
R15	47,6	1.87	7,94	.31	14,3	.56
R16	50,8	2	7,94	.31	14,3	.56
R17	57,1	2.25	7,94	.31	14,3	.56
R18	60,3	2.37	7,94	.31	14,3	.56
R19	65,0	2.56	7,94	.31	14,3	.56
R20	68,2	2.69	7,94	.31	14,3	.56
R21	72,2	2.84	11,1	.44	17,4	.69
R22	82,5	3.25	7,94	.31	14,3	.56
R23	82,5	3.25	11,1	.44	17,4	.69
R24	95,2	3.75	11,1	.44	17,4	.69
R25	101,6	4	7,94	.31	14,3	.56
R26	101,6	4	11,1	.44	17,4	.69s

THREAD STANDARD ASME B1.20.1

BONNEY FORGE

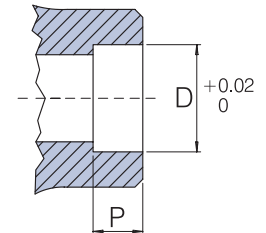
NATIONAL
PIPE
THREAD
ASME B1.20.1



NOMINAL PIPE SIZE		O.D. OF PIPE	THREADS PER IN.	PITCH OF THREAD	O.D. AT BEGINNING OF THREAD	PITCH DIA. AT BEGINNING OF EXT. THREAD	ROOT DIA. AT BEGINNING OF EXT. THREAD	HANDTIGHT ENGAGEMENT	EFFECTIVE THREAD EXT. LENGTH	OVERALL LENGTH EXT. THREAD
		D	N	P	D1	E	D2	L1	L2	L3
1/8	inch	.41	1.06	.04	.39	.36	.26	.18	.26	.39
	mm	10.29	27	0.940	9.982	9.233	6.484	4.572	6.703	9.967
1/4	inch	.54	.71	.06	.52	.48	.43	.20	.40	.59
	mm	13.72	18	1.412	13.259	12.126	10.998	5.080	10.206	15.103
3/8	inch	.67	.71	.06	.66	.61	.57	.24	.41	.60
	mm	17.14	18	1.412	16.662	15.545	14.427	6.096	10.358	15.255
1/2	inch	.84	.55	.07	.82	.76	.70	.32	.53	.78
	mm	21.34	14	1.814	20.726	19.263	17.805	8.128	13.556	19.850
3/4	inch	1.05	.55	.07	1.03	.97	.91	.34	.55	.79
	mm	26.67	14	1.814	26.035	24.580	23.139	8.611	13.861	20.155
1	inch	1.31	.45	.09	1.28	1.21	1.14	.40	.68	.98
	mm	33.40	11.1/2	2.210	32.588	30.825	29.058	10.160	17.343	25.006
1 1/4	inch	1.66	.45	.09	1.63	1.56	1.49	.42	.71	1.01
	mm	42.16	11.1/2	2.210	41.326	39.550	37.795	10.668	17.953	25.616
1 1/2	inch	1.90	.45	.09	1.87	1.80	1.73	.42	.72	1.03
	mm	48.26	11.1/2	2.210	47.396	45.621	43.866	10.668	18.377	26.040
2	inch	2.37	.45	.09	2.34	2.27	2.20	.44	.76	1.06
	mm	60.32	11.1/2	2.210	59.411	57.633	55.855	11.074	19.215	26.878

SOCKET WELD STANDARD ASME B16.11

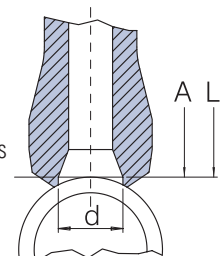
SIZE	inch mm	1/4 6	3/8 10	1/2 15	3/4 20	1 25	1 1/4 32	1 1/2 40	2 50
D	inch mm	.555 14.10	.690 17.53	.855 21.72	1.065 27.05	1.330 33.78	1.675 42.54	1.915 48.64	2.406 61.11
P min.	inch mm	.38 9.6	.38 9.6	.38 9.6	.50 12.7	.50 12.7	.50 12.7	.50 12.7	.62 15.8



VALVOLET®

RUN PIPE CONSOLIDATION

The "Lip" extension end shown on Page 61 -Extended Body Valve represents an economical solution to stocking various different items. In fact, the lip is inserted into the corresponding hole in the run pipe, and therefore a valve can be welded on different run sizes, independently. Where a certain number of valves is required and their location is known, we suggest the use of the Weld-o-let end type for which all the well known advantages of the Weld-o-let fitting are utilized.



CLASS 800						
	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
Run pipe consolidation		1 1/4 ÷ 3/4 36 ÷ 1 1/2	1 1/4 ÷ 1 3 1/2 ÷ 1 1/2 36 ÷ 4	1 1/2 ÷ 1 1/4 5 ÷ 2 36 ÷ 6	2 1/2 ÷ 2 3 ÷ 5 36 ÷ 6	4 ÷ 3 8 ÷ 5 36 ÷ 10
d - Weldolet bore	inch mm	.87 22	1.18 30	1.44 36.5	1.99 50.5	2.56 65

CLASS 1500						
	inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
Run pipe consolidation		1 1/4 ÷ 1 3 1/2 ÷ 1 1/2 36 ÷ 6	1 1/2 ÷ 1 1/4 5 ÷ 2 36 ÷ 6	2 1/2 ÷ 2 5 ÷ 3 36 ÷ 6	4 ÷ 3 8 ÷ 5 36 ÷ 10	- - -
d - Weldolet bore	inch mm	1.18 30	1.44 36.5	1.99 50.5	2.56 65	- -

A - L and other valve dimensions are the same as Page 61 - Extended Body Valves

“CV” factor is the most common data used to determine valve flow characteristics. “CV” indicates the number of U.S. Gallons per minute of water at 70°F which flows through the valve at a pressure drop of one p.s.i.. This data allows computing of pressure drop starting from a known flow rate and is applicable to both fluid and gaseous media.

Formulas hereinafter represent a single example. For gaseous fluids, the engineer should use proper formula factors for the fluid type (vapor, saturated or superheated steam, etc.), differential pressure, temperature, flow velocity, etc., must also be considered.

FLOW RATE

water:

$$Q = C_v \sqrt{\Delta P}$$

fluids other than water:

$$Q = C_v \sqrt{\frac{\Delta P \cdot 62.4}{S}}$$

PRESSURE DROP

$$\Delta P = \left(\frac{Q}{C_v} \right)^2$$

$$\Delta P = \frac{S}{62.4} \left(\frac{Q}{C_v} \right)^2$$

WHERE

Q = flow rate, gallon/minute

Δ P = pressure drop, p.s.i.

S = weight density of fluid handled, pound/cu.ft.

62.4 = weight density of water, pound/cu.ft.

See page 95 for valve flow coefficient chart

PROPER SIZING OF CHECK VALVES

It is the velocity of fluid that opens the disc in a check valve. The minimum velocity required to lift the disc to the full open and stable position can be determined by the following formula:

$$v = 50 \beta^2 \sqrt{\bar{V}}$$

WHERE

v = flow velocity in feet per second

β = $\frac{\text{seat diameter}}{\text{pipe int. diameter}}$

$\bar{V}$ = specific volume of fluid in cu.ft. per pound

FLOW COEFFICIENT "CV" FOR FORGED STEEL VALVES

VALVE TYPE			SIZE inch mm	1/2 15	3/4 20	1 25	1 1/2 40	2 50
GATE	H-10	FULL PORT		12	23	43	98	197
	HL-10	REDUCED PORT		5.6	11	25.5	77	97
	9H-10	FULL PORT		8.9	18	39	96	185
	9HL-10	REDUCED PORT		5.3	11	21.5	77	97
	15-F10	FULL PORT		9	22	39	140	185
	25W-10	FULL PORT		8.2	18.5	25.7	56.6	82.5
	L1-10	REDUCED PORT		6.3	10	25.6	67.5	97
	L3-10	REDUCED PORT		6.3	10	25.6	67.5	97
	L6-10	REDUCED PORT		6.3	10	25.6	67.5	97
GLOBE	H-30	FULL PORT		3.5	5.2	9.3	21	35
	HL-30	REDUCED PORT		1.5	3.9	6.5	16.5	23.5
	Y-30	FULL PORT		5.5	10	18	48	78
	9H-30	FULL PORT		3.1	4.5	9.5	18	27
	9HL-30	REDUCED PORT		1.4	3.1	5.5	14.5	20
	9Y-30	FULL PORT		3.7	8.7	12.6	42	73.8
	15F-30	FULL PORT		4.5	6.5	11	22	39
	25W-30	FULL PORT		3.2	5.9	6.8	18.2	27.6
	25Y-30	FULL PORT		3.7	8.7	12.6	42	73.8
	L1-30	REDUCED PORT		1.3	3.9	7.1	17.5	21.4
	L3-30	REDUCED PORT		1.3	3.9	7.1	17.5	21.4
	L6-30	REDUCED PORT		1.3	3.9	7.1	17.5	21.4
CHECK	H-40	FULL PORT		3	4.9	9.8	16	28
	HL-40	REDUCED PORT		1.2	2.8	5	12.5	17.5
	Y-40	FULL PORT		4.8	8.2	13	39	73
	9H-40	FULL PORT		2.7	4.2	8.5	9.7	21
	9HL-40	REDUCED PORT		1.1	2.4	4.3	7	14.8
	9Y-40	FULL PORT		3.4	7.9	11.5	39.6	66.8
	15F-40	FULL PORT		4.5	6.5	11	22	39
	25W-40	FULL PORT		2.8	5.2	5.8	21	42
	25Y-40	FULL PORT		3.4	7.4	11.5	39.6	66.8
	L1-40	REDUCED PORT		1	2.8	5.5	13.2	16
	L3-40	REDUCED PORT		1	2.8	5.5	13.2	16
	L6-40	REDUCED PORT		1	2.8	5.5	13.2	16
	H-50	FULL PORT		2.7	4.5	7.2	14	24
	HL-50	REDUCED PORT		1.1	2.6	4.2	11	14.5
	9H-50	FULL PORT		2.5	3.9	6.9	8.5	19.6
	9HL-50	REDUCED PORT		1	2.2	3.6	6.3	12.3
	15F-50	FULL PORT		4.5	6.5	11	22	39
	H-60	FULL PORT		6.7	13	24	63	115
	HL-60	REDUCED PORT		2.7	7.5	12.5	34	58
	9H-60	FULL PORT		5	10.3	21.8	62	108
	9HL-60	REDUCED PORT		2.5	7.5	10.5	33	57
	15F-60	FULL PORT		6	15	30	100	130

GENERAL TERMS AND CONDITIONS OF SALE OF: BONNEY FORGE (HEREAFTER REFERRED TO AS “BF”)

WARRANTY	All products are warranted to be free from manufacturing defects for a period of one (1) year from date of shipment, and any found to be defective within that period will be replaced without charge, provided (1) that the product was used as recommended and in accordance with approved installation and operating practices, (2) that its failure resulted from a manufacturing defect and not from damage due to corrosive, abrasive, or other wear normally to be expected in the services involved, (3) that the product was not modified or changed (unless written approval was given by BF), and (4) that written notice of such defect is delivered to BF during such one (1) year period. No labor costs or other expense or liability is assumed. The Uniform Commercial Code shall not apply to the sale, nor the Michigan statutes adopting the Uniform Commercial Code. This express warranty is in lieu of and excludes all other warranties, guarantees, or representations, expressed or implied. THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.
EXCLUSIONS	Do not use BF products in aircraft or aerospace applications. No warranties, guarantees or representations of any kind are made with respect to such applications. Purchaser assumes all risks of any use in such applications and will indemnify and hold harmless BF against and from any claims, costs (including attorney's fees) and liabilities arising out of such use.
PURCHASER'S REMEDIES	The Purchaser's remedies with respect to any product furnished by BF hereunder that is found not to be in conformity with the terms and conditions of the contract because of breach of contract, breach of express or implied warranty, or negligence shall be limited exclusively to the right of replacement of such defective product or, at our option, repayment of our sale price of the product. In no event shall BF be liable for claims (based upon breach of contract, breach of express or implied warranty, or negligence) for any other damages, whether direct, immediate, foreseeable, consequential, or special or for any expenses incurred by reason of the use or misuse, sale or fabrication of products which do or do not conform to the terms and conditions of the contract.
PRICES	Prices, and other terms of sale and payment, are subject to change without notice. Unless a contrary provision appears in this price schedule, quotation or order acknowledgment, prices may be withdrawn without notice at any time. Stenographic or clerical errors are subject to correction.
ACCEPTANCE OF ORDERS	All orders are subject to BF credit department approval prior to acceptance by BF. No assignment of the Purchaser's rights may be made without the written consent of BF.
REMITTANCES	All accounts are payable in United States funds, free of exchange, collection, or any other charges. If, in the sole discretion of BF, the financial condition of the Purchaser at any time so requires, BF retains the right to require full or partial payment in advance.
PARTIAL SHIPMENTS AND PAYMENTS	BF reserves the right to make partial shipments from time to time, and to render invoices therefore, which shall be due and payable as provided in said invoices and the paragraph entitled "Remittances". If the Purchaser becomes overdue in any such partial payment, BF shall be entitled to suspend work and/or avail itself of other legal remedies.
TAXES	Unless otherwise specifically noted, the amount of any sale, use, occupancy, excise tax, or other tax, of any nature, federal, state, or local for which BF is legally liable, either initially or through failure of payment by Purchaser, shall be added or be in addition to the price quoted and Purchaser agrees to pay the same to BF.
SHORTAGES & DAMAGES IN TRANSIT	Claims for shortages must be made in writing within ten days after receipt of shipment, but loss of or damage to material in transit is the responsibility of the carrier.
DELAYS	All promises of shipment are estimated as closely as possible, and we will use our best efforts to ship within the time promised but do not guarantee to do so, and assume no liability for not doing so. Materials stated to be in stock are subject to prior sale.
CANCELLATION & SUSPENSION	The order or contract is subject to cancellation or instructions to suspend or delay work or delivery only upon receipt of written notification and with our consent, and upon agreement to pay BF's adjustment charge. Orders for special products (usually "price on application" items) may be changed and/or cancelled only upon receipt of written instructions with an expressed agreement to make payment for material used and work already performed.
RETURN OF MATERIAL	No product of our manufacture may be returned without written consent. All goods returned are subject to a handling charge plus freight in both directions and charges for any required reconditioning, unless otherwise specified in writing by BF.
PATENTS	Purchaser will indemnify and hold harmless BF against and from any claims, costs (including attorney's fees) and liabilities arising out of any suit alleging infringement of any patents, by any product supplied by BF under the contract and made in accordance with the design and/or specification furnished by the Purchaser to BF.
GOVERNING LAW	The contract shall be governed by, construed, and enforced in accordance with the laws of the Commonwealth of Pennsylvania, without regard to conflict of law principles.
NO WAIVER	The failure of BF to insist, in any one or more instances upon the performance of any of the terms, covenants, or conditions of the contract or to exercise any right thereunder shall not be construed as a waiver or relinquishment of the future performance of any such term, covenant, or condition or the future exercise of such rights, nor shall it be deemed to be a waiver or relinquishment of any other term, covenant, or condition or the exercise of any other rights under the contract.
DIES, TOOLS AND PATTERNS	Dies, tools and patterns required to produce the article quoted on shall remain the property of BF. Preparation charges for dies, tools and patterns represent only a portion of cost. Payment of such charge does not give you any right, title, or interest in such dies, tools, or other products of preparation. We will not be responsible for retention of dies or patterns on which no orders are received for two years or more.
FORCE MAJEURE	Any delays in or failure of performance of BF shall not constitute default or give rise to any claims or damages if and to the extent that such delay or failure is caused by occurrences beyond the control of BF, including but not limited to acts of God or the public enemy, expropriation or confiscation of facilities, compliance with any order or request of any governmental authority, acts of war, rebellion or sabotage or damage resulting therefrom, embargoes or other export restrictions, fires, floods, explosions, accidents, breakdowns, riots or strikes or other conceived acts of workmen, whether direct or indirect, or any other causes whether or not of the same class or kind as those specifically above named which are not within the control of BF and which by the exercise of reasonable diligence, BF is unable to prevent or provide against.
PURCHASER'S ACCEPTANCE OF ABOVE CONDITIONS	The contract shall be subject to the terms and conditions contained or referred to in BF's price schedule, quotation or order acknowledgment and to no others whatsoever. No waiver, alteration, or modification of the terms and conditions in this price schedule, quotation or order acknowledgment shall be binding unless in writing and signed by an authorized representative of BF.

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