

FORGED STEEL VALVES

DOUGLAS CHERO SpA
dc FORGED VALVES



Douglas Chero was established in 1974 to meet the demand for high quality forged valves in the petroleum refining and production plants, offshore oil and gas fields, power industry, fertilizer, chemical and desalination plants all over the world. Production capacity soared from 3,000 pieces in 1974 to current 40,000 pieces per month in our new factory with modern state of the art machining facilities and manufacturing technology.

The factory is 30,000 sq.m. (330,000 sq.ft.) of which 9,000 sq.m. (100,000 sq.ft.) are covered.

Our product range covers:

- **Type:** Gate, Globe, Piston/Ball/Swing-check
- **Sizes:** 1/4" to 2" reduced and full bore
- **Rating:** From ANSI class150 to 4500 lbs
- **Execution:** OS&Y, ISRS, Y, Angle, Bellows Seal, Cryogenic, Bonnetless, Pressure seal
- **Materials:** carbon steel, stainless steel, alloys, special alloys
(e.g.Monel®, Inconel®, Incoloy®, Hastelloy®, Duplex, Superduplex, etc.)

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www.douglas-cherо.com

Valves are CE marked
according to PED 97/23/CE



VALVES ARE MANUFACTURED ACCORDING TO ISO 9001.
CERTIFIED BY DET NORSKE VERITAS WITH CERTIFICATE

No. CERT-00026-92-AQ-MIL-SINCERT

COMPANY
WITH QUALITY SYSTEM
CERTIFIED BY DNV
== ISO 9001 ==

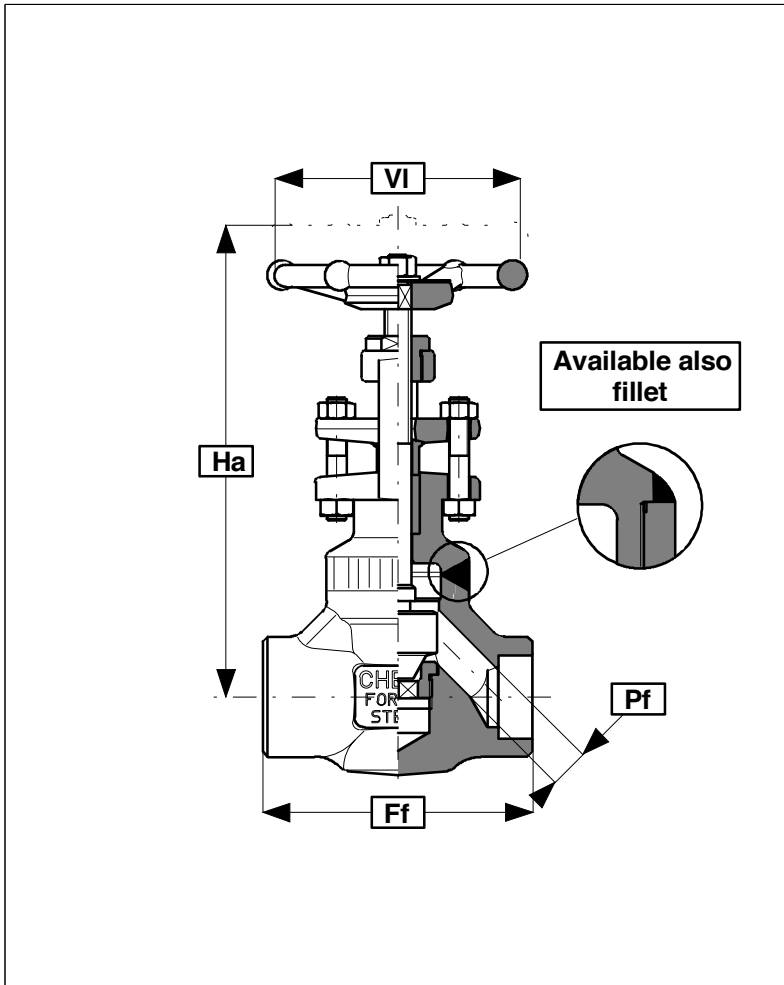


VALVES ARE MANUFACTURED ACCORDING TO TÜV AD 2000-
Merkblatt HP 0 REGISTRATION No. 04 202 H 130 02 00014

VALVES ARE MANUFACTURED ACCORDING TO RWTÜV
TRB 801 No. 45



PRODUCTS


Ratings (ASTM A105)

 800 p.s.i. @ 850°F
 1975 p.s.i. @ 100°F

Test pressure (ASTM A105)
Hydraulic:(minimum)
 Body - 3000 p.s.i.
 Seat - 2175 p.s.i.
Air under water:
 Seat - 85 p.s.i.

Standards

Construction	BS 5352
Socket weld	ASME B16.11
Threaded	ASME B1.20.1
Butt weld	ASME B16.25
Test	BS 6755 (Pt.1)

Connections (xx)

SW Socket weld	B8 Butt weld 80
TS Sw/NPT	
TH Threaded NPT	
SE Sw (in)/NPT	
SU Sw (out)/NPT	
B4 Butt weld 40	

REDUCED BORE								
			1/2"	3/4"	1"	1.1/4"	1.1/2"	2"
Ff (mm/in)			80 3,15	90 3,54	110 4,33	127 5,00	155 6,10	170 6,69
Ha (mm/in)			153 6,02	158 6,22	179 7,05	220 8,66	250 9,84	274 10,79
VI (mm/in)			90 3,54	90 3,54	100 3,94	120 4,72	140 5,51	140 5,51
Pf (mm/in)			9 0,35	12,5 0,49	17,5 0,69	22,5 0,89	28 ⁽⁴⁾ 1,10	32 ⁽⁵⁾ 1,26
Wt. (kg/lb)			1,4 3,1	1,6 3,5	3 6,6	4,8 10,6	6,8 15,0	9,4 20,7
Catal. no.			R352WB/xx	R353WB/xx	R354WB/xx	R355WB/xx	R356WB/xx	R357WB/xx

FULL BORE								
	1/4"	3/8"	1/2"	3/4"	1"	1.1/4"	1.1/2"	2"
Ff (mm/in)	80 3,15	80 3,15	90 3,54	110 4,33	127 5,00	155 6,10	170 6,69	210 8,27
Ha (mm/in)	150 5,91	153 6,02	158 6,22	179 7,05	220 8,66	250 9,84	274 10,79	327 12,87
VI (mm/in)	90 3,54	90 3,54	90 3,54	100 3,94	120 4,72	140 5,51	140 5,51	200 7,87
Pf (mm/in)	6,5 0,26	9 0,35	12,5 0,49	17,5 0,69	22,5 0,89	28 ⁽⁴⁾ 1,10	32 ⁽⁵⁾ 1,26	38 ⁽⁶⁾ 1,50
Wt. (kg/lb)	1,4 3,1	1,4 3,1	1,6 3,5	3,0 6,6	4,8 10,7	6,8 15,0	9,4 20,7	14,6 32,1
Catal. no.	F310WB/xx	F311WB/xx	F312WB/xx	F313WB/xx	F314WB/xx	F315WB/xx	F316WB/xx	F317WB/xx

1) Standard and alternative valve materials on page 67, type A
 2) Complete Pressure-Temperature ratings on page 68, 69, 70, 71,72
 3) SW, NPT & BW dimensions on page 73

4) Pf = 29,5 with integral stellited seat
 5) Pf = 35 with integral stellited seat
 6) Pf = 42 with integral stellited seat



Compact GLOBE VALVES - 1500 - Welded bonnet - Sw/Npt/Bw

Ratings (ASTM A105)

1500 p.s.i. @ 850°F
3705 p.s.i. @ 100°F

Test pressure (ASTM A105)

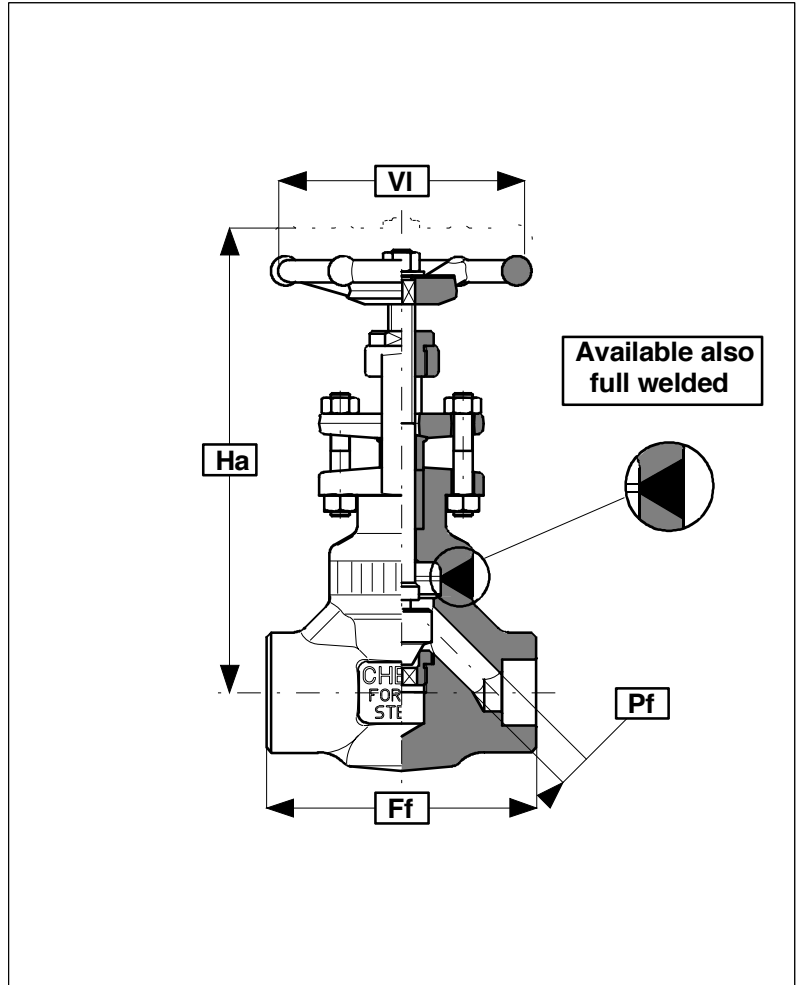
Hydraulic: (minimum)
Body - 5575 p.s.i.
Seat - 4100 p.s.i.
Air under water:
Seat - 85 p.s.i.

Standards

Construction founded on API 602
Socket weld ASME B16.11
Threaded ASME B1.20.1
Butt weld ASME B16.25
Test founded on API 598

Connections (xx)

SW Socket weld	B8 Butt weld 80
TH Threaded NPT	
TS Sw/NPT	
SE Sw (in)/NPT	
SU Sw (out)/NPT	
B6 Butt weld 160	



CONVENTIONAL BORE

	1/4"	3/8"	1/2"	3/4"	1"	1.1/4"	1.1/2"	2"
Ff (mm/in)	90 3,54	90 3,54	90 3,54	110 4,33	127 5,00	155 6,10	170 6,69	210 8,27
Ha (mm/in)	177 6,97	177 6,97	177 6,97	185 7,28	214 8,43	244 9,61	270 10,63	330 12,99
VI (mm/in)	90 3,54	90 3,54	90 3,54	100 3,94	120 4,72	140 5,51	140 5,51	200 7,87
Pf (mm/in)	6,5 0,26	9 0,35	10 0,39	13,5 0,53	18 0,71	24 0,94	29 1,14	35 1,38
Wt. (kg/lb)	2,1 4,6	2,1 4,6	2,1 4,6	3,4 7,48	5,4 11,9	7,6 16,7	10,5 23,1	16,5 36,3
Catal. no.	X750WB/xx	X751WB/xx	X752WB/xx	X753WB/xx	X754WB/xx	X755WB/xx	X756WB/xx	X757WB/xx

1) Standard and alternative valve materials on page 67, type A
2) Complete Pressure-Temperature ratings on page 68, 69, 70, 71,72
3) SW, NPT & BW dimensions on page 73



GATE VALVES - 1500 - Welded bonnet - Sw/Npt/Bw

Ratings (ASTM A105)

1500 p.s.i. @ 850°F
3705 p.s.i. @ 100°F

Test pressure (ASTM A105)

Hydraulic: (minimum)

Body - 5575 p.s.i.
Seat - 4100 p.s.i.

Air under water:

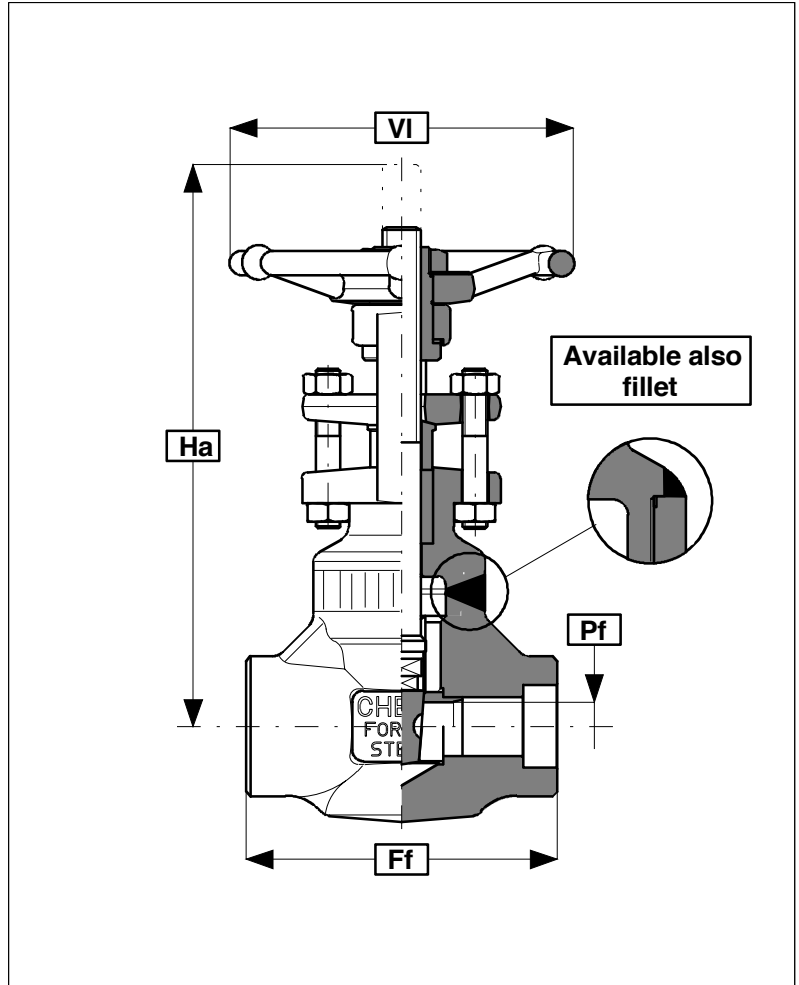
Seat - 85 p.s.i.

Standards

Construction	BS 5352
Socket weld	ASME B16.11
Threaded	ASME B1.20.1
Butt weld	ASME B16.25
Test	BS 6755 (Pt.1)

Connections (xx)

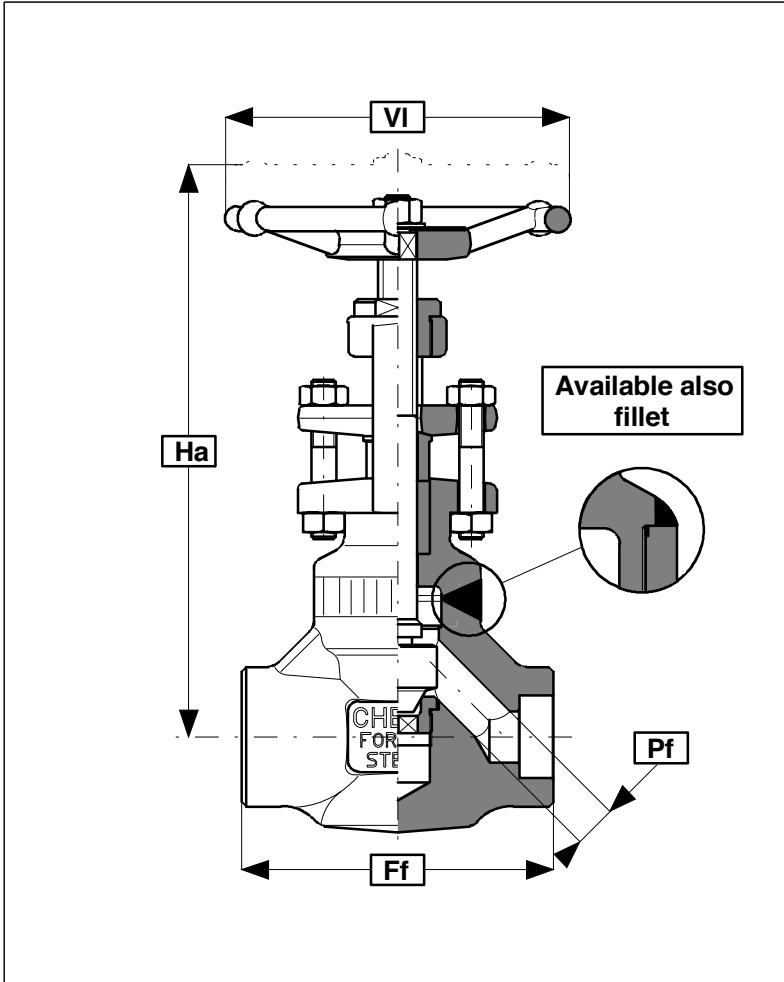
SW Socket weld threaded NPT	B8 Butt weld 80
TS Sw/NPT	
SE Sw(e)/NPT	
SU Sw(u)/NPT	
B6 Butt weld 160	



STANDARD BORE

			1/2"	3/4"	1"		1.1/2"	2"
Ff (mm/in)			90 3,54	110 4,33	127 5,00		130 5,12	150 5,90
Ha (mm/in)			175 6,88	217 8,54	234 9,54		295 11,61	375 14,76
VI (mm/in)			120 4,72	175 6,89	175 6,89		200 7,87	260 10,24
Pf (mm/in)			11,5 0,45	15 0,59	19,5 0,77		32 1,26	40 1,57
Wt. (kg/lb)			2,0 4,4	3,2 7,0	4,9 10,8		8,5 18,7	15 33
Catal. no.			652WB/xx	653WB/xx	654WB/xx		656WB/xx	657WB/xx

1) Standard and alternative valve materials on page 67
2) Complete Pressure-Temperature ratings on page 68, 69, 70, 71,72
3) SW, NPT & BW dimensions on page 73


Ratings (ASTM A105)

 1500 p.s.i. @ 850°F
 3705 p.s.i. @ 100°F

Test pressure (ASTM A105)
Hydraulic: (minimum)

 Body - 5575 p.s.i.
 Seat - 4100 p.s.i.

Air under water:

Seat - 85 p.s.i.

Standards

Construction	BS 5352
Socket weld	ASME B16.11
Threaded	ASME B1.20.1
Butt weld	ASME B16.25
Test	BS 6755 (Pt.1)

Connections (xx)

SW	Socket weld	B8	Butt weld 80
TH	Threaded NPT		
TS	Sw/NPT		
SE	Sw (in)/NPT		
SU	Sw (out)/NPT		
B6	Butt weld 160		

STANDARD BORE

		1/2"		3/4"		1"		1.1/2"		2"	
Ff (mm/in)		90	3,54	110	4,33	127	5,00	170	6,69	210	8,26
Ha (mm/in)		203	7,99	227	8,94	233	9,17	310	12,20	402	15,83
VI (mm/in)		120	4,72	175	6,89	175	6,89	200	7,87	260	10,24
Pf (mm/in)		11	0,43	14,5	0,57	19	0,75	31	1,22	37,5	1,48
Wt. (kg/lb)		1,9	4,2	3,3	7,4	5,2	11,4	10,3	22,7	17,8	39,16
Catal. no.		752WB/xx		753WB/xx		754WB/xx		756WB/xx		757WB/xx	

1) Standard and alternative valve materials on page 67, type A
 2) Complete Pressure-Temperature ratings on page 68, 69, 70, 71,72
 3) SW, NPT & BW dimensions on page 73



GLOBE VALVES - 2500 - Welded bonnet - Sw/Npt/Bw

Ratings (ASTM A105)

2500 p.s.i. @ 850°F
6170 p.s.i. @ 100°F

Test pressure (ASTM A105)

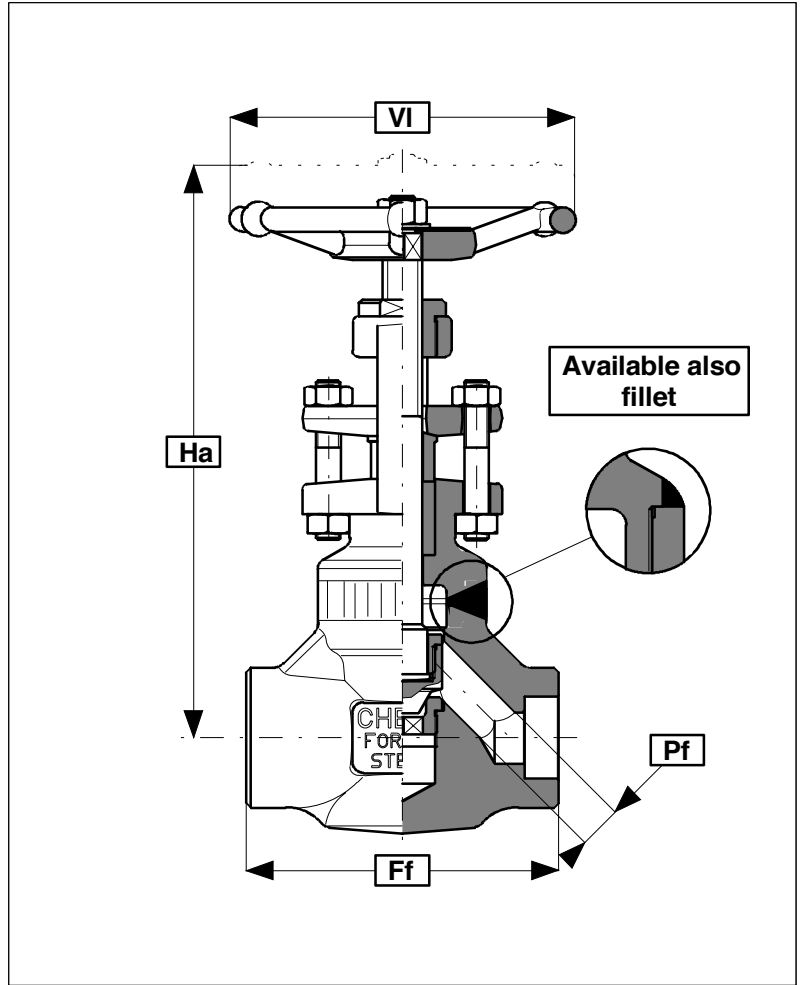
Hydraulic: (minimum)
Body - 9275 p.s.i.
Seat - 6800 p.s.i.
Air under water:
Seat - 85 p.s.i.

Standards

Construction founded on ASME B16.34
Socket weld ASME B16.11
Threaded ASME B1.20.1
Butt weld ASME B16.25
Test API 598-ASME B16.34

Connections (xx)

SW Socket weld	BX Butt weld XXS
TH Threaded NPT	
TS Sw/NPT	
SE Sw (in)/NPT	
SU Sw (out)/NPT	
B6 Butt weld 160	



STANDARD BORE

		1/2"	3/4"	1"		1.1/2"	2"
Ff (mm/in)		110 4,33	127 4,33	155 6,10		210 8,27	240 9,45
Ha (mm/in)		209 8,22	238 9,37	257 10,11		386 15,20	407 16,02
VI (mm/in)		140 5,51	200 7,87	200 7,87		260 10,24	350 13,78
Pf (mm/in)		10 0,39	13 0,51	18 0,71		25 0,98	34 1,33
Wt. (kg/lb)		2,5 5,5	4,1 9,0	6,2 13,6		11,8 26,0	28 61,6
Catal. no.		1152WB/xx	1153WB/xx	1154WB/xx		1156WB/xx	1157WB/xx

1) Standard and alternative valve materials on page 67, type A
2) Complete Pressure-Temperature ratings on page 68, 69, 70, 71, 72
3) SW, NPT & BW dimensions on page 73

Ratings (ASTM A105)

4010 p.s.i. @ 850 F
11110 p.s.i. @ 100 F

Test pressure (ASTM A105)
Hydraulic: (minimum)

Body - 16650 p.s.i.
Seat - 12210 p.s.i.

Air under water:

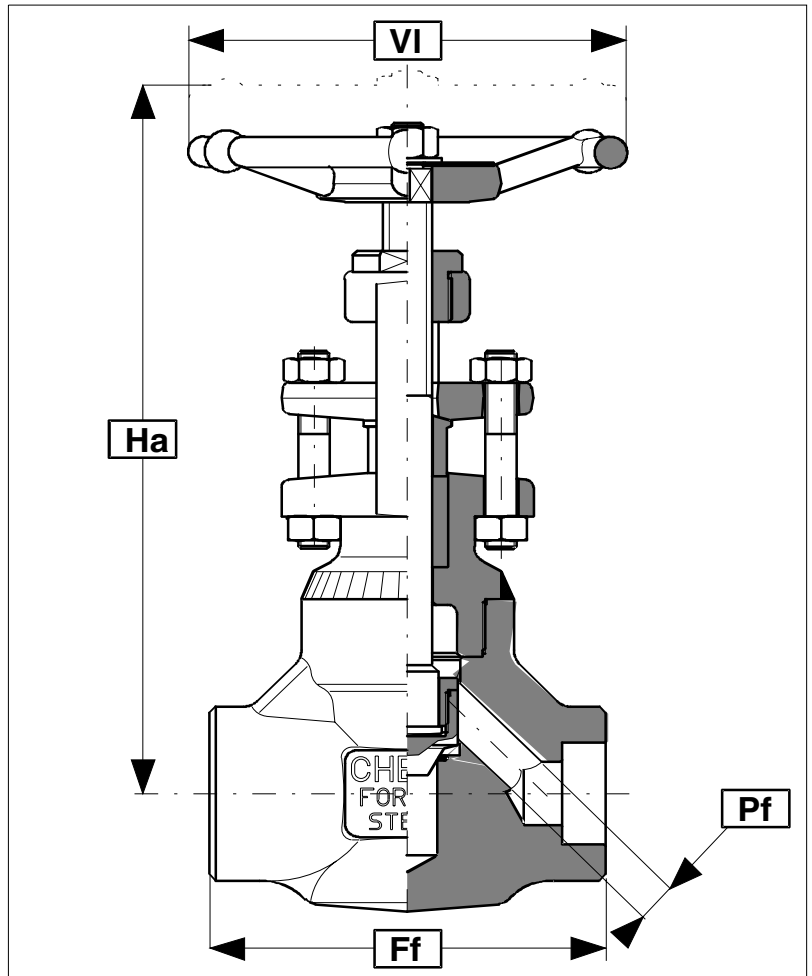
Seat - 85 p.s.i.

Standards

Construction ASME B16.34
Socket weld ASME B16.11
Threaded ASME B1.20.1
Butt weld ASME B16.25
Test API 598-ASME B16.34

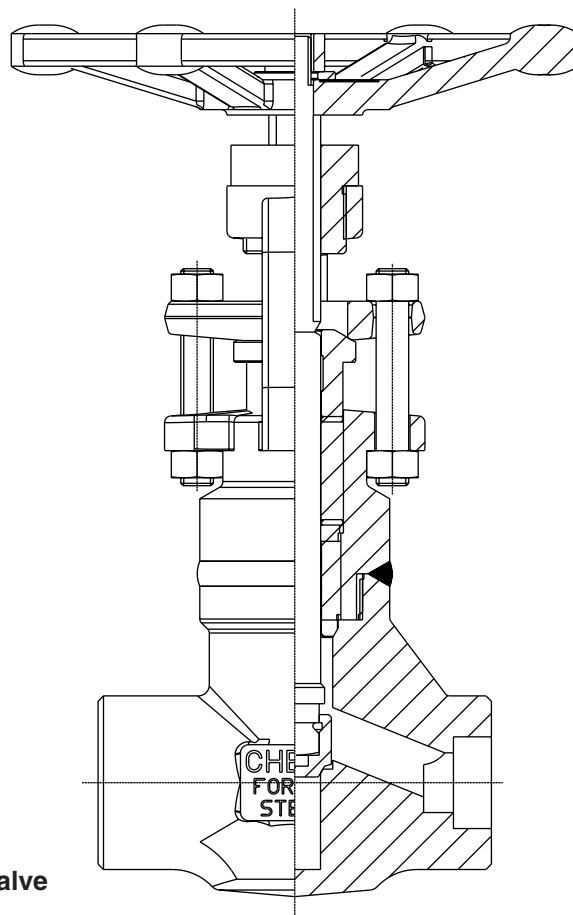
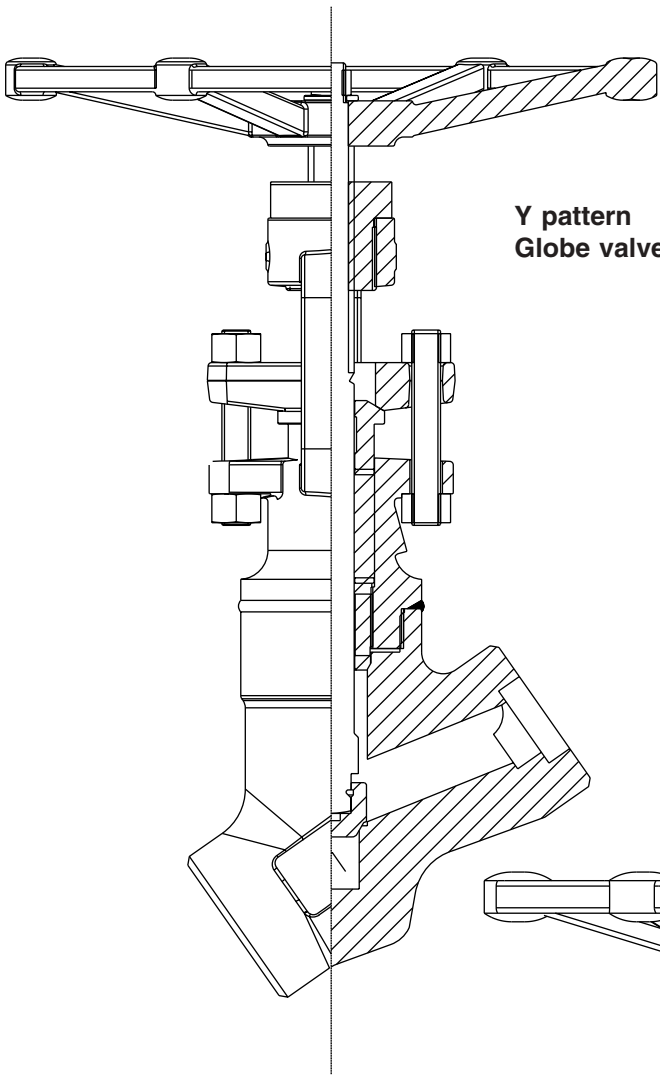
Connections (xx)

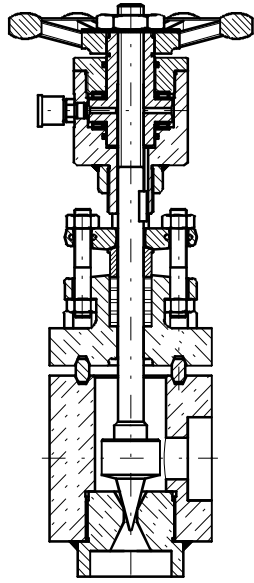
SW Socket weld	BX Butt weld XXS
TH Threaded NPT	
TS Sw/NPT	
SE Sw (in)/NPT	
SU Sw (out)/NPT	
B6 Butt weld 160	


STANDARD BORE

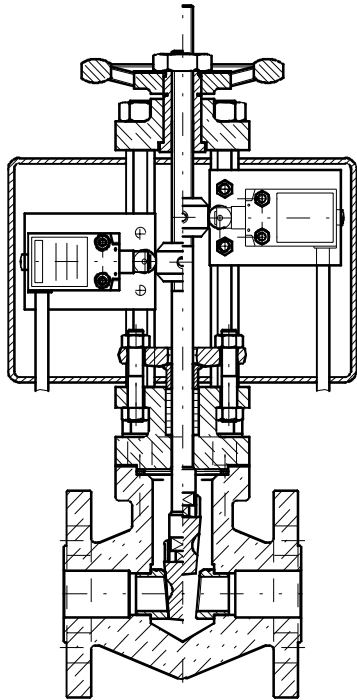
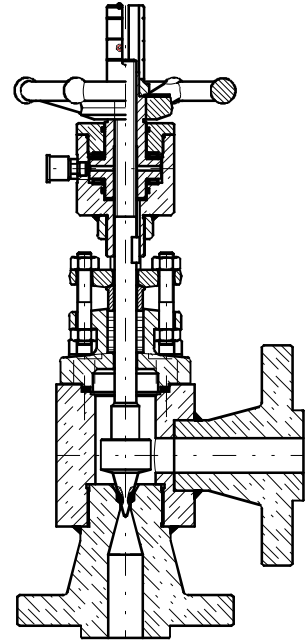
		1/2"	3/4"	1"		1.1/2"	2"
Ff (mm/in)		127 5,00	155 6,10	170 6,69		240 9,45	240 9,45
Ha (mm/in)		230 9,06	277 10,90	335 13,18		431 16,97	450 17,72
VI (mm/in)		175 6,89	200 7,87	260 10,24		350 13,78	350 13,78
Pf (mm/in)		7 0,28	11 0,43	14 0,55		25 0,98	30 1,18
Wt. (kg/lb)		4,1 9,0	6,2 13,6	11,8 26,0		28,0 61,6	42 92,4
Catal. no.		2152WB/xx	2153WB/xx	2154WB/xx		2156WB/xx	2157WB/xx

1) Standard and alternative valve materials on page 72, type A
2) Complete Pressure-Temperature ratings on page 73 , 74 , 75 , 76 , 77.
3) SW, NPT & BW dimensions on page 78.



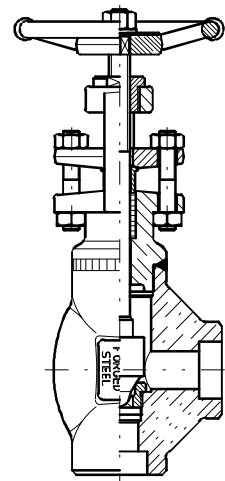


Continuous blowdown valve

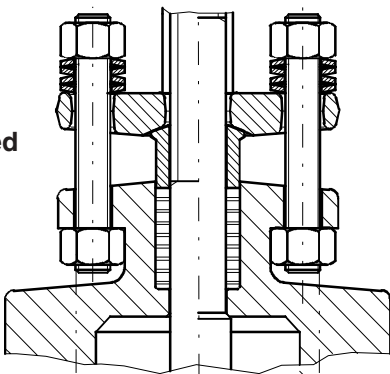


Equipped with limit switch

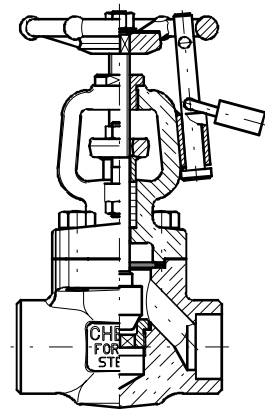
Angle valve

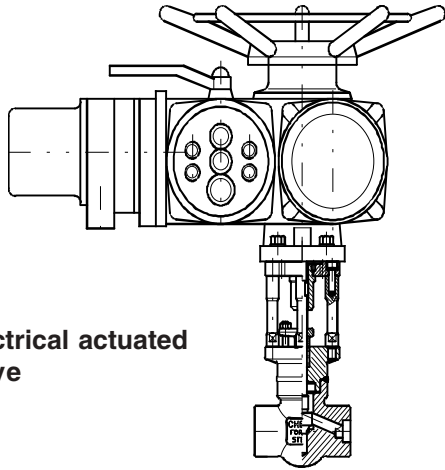


Spring loaded

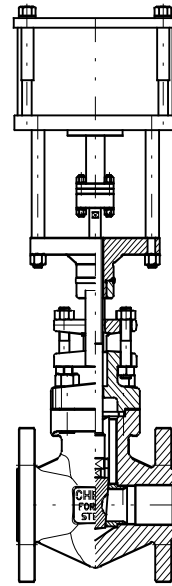


Locking device

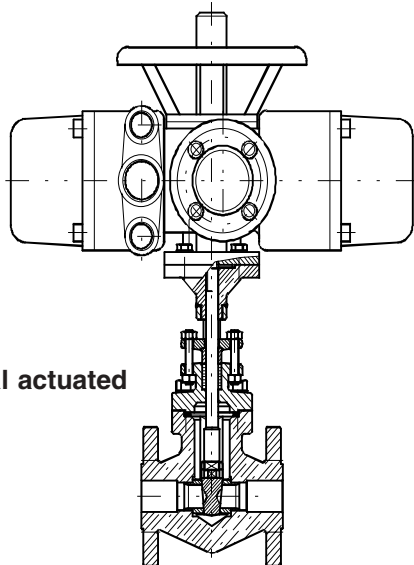




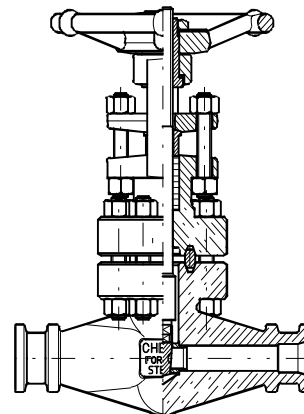
Electrical actuated valve



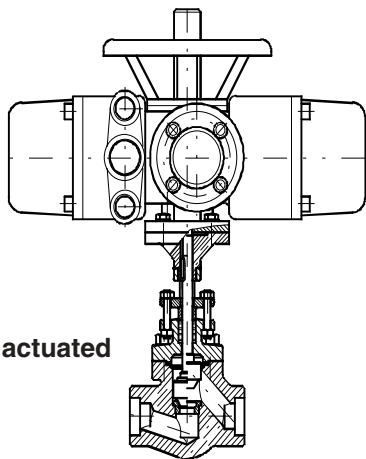
Pneumatic actuated valve



Electrical actuated valve

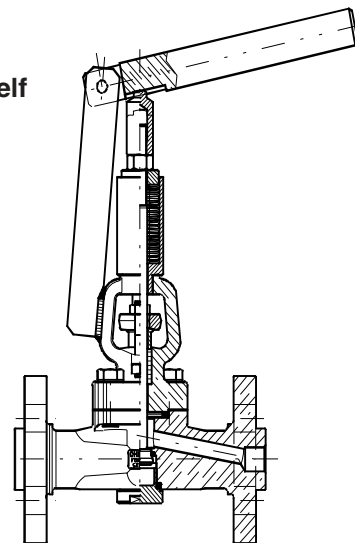


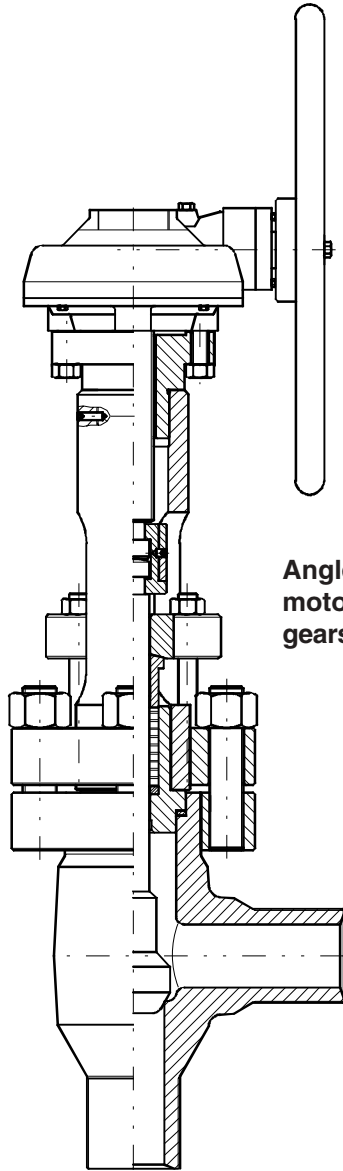
Hub ends



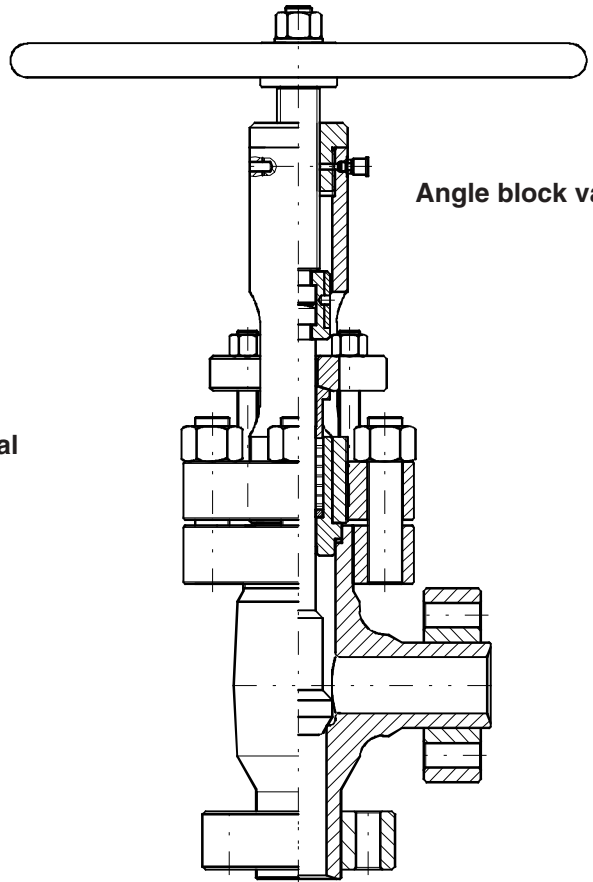
Electrical actuated valve

Quick opening/Self closing valve

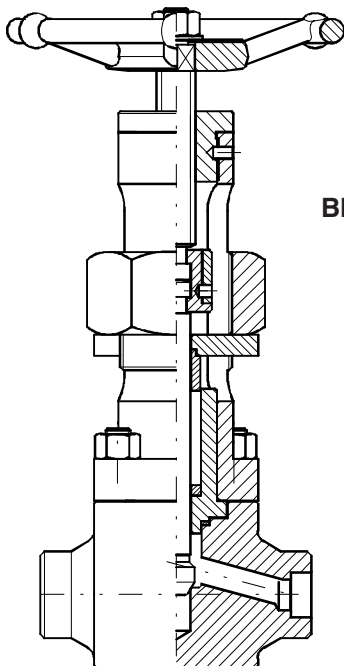




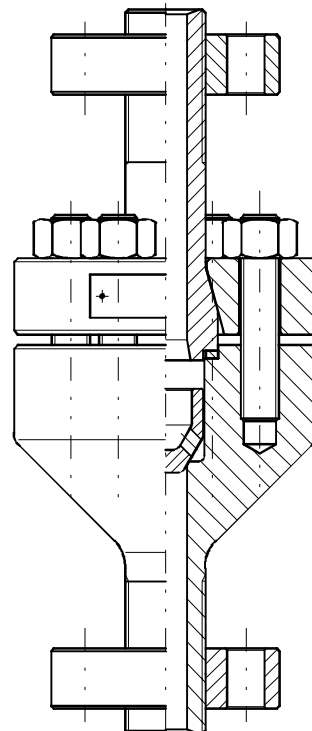
Angle block valve
motorised and manual
gears



Angle block valve



Block valve



Vertical drop
check valve

Appendix



Materials of construction

Valves parts					Materials				
Type A	Type B	Type C	Type D	Type E					
GATE GLOBE (Std.)	PIST./BALL SWING	GATE GLOBE (Cryogenic)	GATE GLOBE (Bellows)	GATE GLOBE (Isrs)	CARBON STEEL	KILLED CARBON STEEL	ALLOY STEEL	STAINLESS DUPLEX STEEL	NICKEL STEEL
Body Bonnet	Body Cover Extension	Body Bonnet Extension	Body Bonnet	Body Bonnet Packing nut	A105N	A350/LF2	A182/F1 A182/F5 A182/F9 A182/F11 A182/F22 F44 F51 F53 F55	A182/F304 A182/F304L A182/F316 A182/F316L A182/F321 A182/F347	MONEL 400 INCONEL 600 INCONEL 625 INCOLOY 800H INCOLOY 825 HASTELLOY C276 HASTELLOY B2
Stem Wedge/Disc Seat/s Disc nut	Disc/Ball Seat	Stem Wedge/Disc Seat/s Disc nut	Stem Wedge/Disc Seat/s	Stem Wedge/Disc Seat/s Disc nut Packing ring	A182/F6 A182/F304 A182/F316	A182/F6 A182/F304 A182/F316 F44 F51 F53 F55	A182/F6 A182/F304 A182/F316 F44 F51 F53 F55	A182/F304 A182/F316 A182/F321 A182/F347	MONEL 400 INCONEL 600 INCONEL 625 INCOLOY 800H INCOLOY 825 HASTELLOY C276 HASTELLOY B2
Gl. packing		Gl. packing	Gl. packing		AISI 416/303/316	AISI 416/303/316	AISI 416/303/316	AISI 303/316	AISI 303/316
Yoke nut		Yoke nut	Yoke nut		AISI 416	AISI 416	AISI 416	AISI 416	AISI 416
Gl. flange		Gl. flange	Gl. flange		A105N	A105N	A182/F304	A182/F304	A182/F304
Handwheel Hand. nut		Handwheel Hand. nut	Handwheel Hand. nut	Handwheel Hand. nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
	Spring				Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Gasket	Gasket	Gasket	Gasket		AISI 316+graph.	AISI 316+graph.	AISI 316+graph.	AISI 316+graph.	AISI 316+graph.
Packing		Packing	Packing	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
Body studs Body nuts	Body studs Body nuts	Body studs Body nuts	Body studs Body nuts		A193/B7 A194/2H	A193/B8 A194/Gr8	A193/B16 A194/Gr4	A193/B8 A194/Gr8	A193/B8 A194/Gr8
Gland studs Gland nuts		Gland studs Gland nuts	Gland studs Gland nuts		AISI 410 A194/2H	A193/B8 A194/Gr8	AISI 410 A194/2H	A193/B8 A194/Gr8	A193/B8 A194/Gr8
		Bellow			AISI 316L HASTELLOY C276	AISI 316L HASTELLOY C276	AISI 316L HASTELLOY C276	AISI 316L HASTELLOY C276	AISI 316L HASTELLOY C276
	Swing hinge				A182/F6-F316	A182/F6-F316	A182/F6-F316	A182/F316	A182/F316
Identif. plate	Identif. plate	Identif. plate	Identif. plate	Identif. plate	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium

Alternate material available.
Stellited seat/s & wedge/disc on request.



Pressure - Temperature charts

		ASTM A105 - A350/LF2															
°F	°C	150	P N20	300	P N50	600	P N100	800	P N130	900	P N150	1500	P N250	2500	P N420	4500	P N760
		psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar
100	38	285	19.7	740	51.0	1480	102.1	1975	136.2	2220	153.1	3705	255.5	6170	425.5	11110	766.2
200	93	260	17.9	675	46.6	1350	93.1	1800	124.1	2025	139.7	3375	232.8	5625	387.9	10120	697.9
300	149	230	15.9	655	45.2	1315	90.7	1750	120.7	1970	135.9	3280	226.2	5470	377.2	9845	679.0
400	204	200	13.8	635	43.8	1270	87.6	1690	116.6	1900	131.0	3170	218.6	5280	364.1	9505	655.5
500	260	170	11.7	600	41.4	1200	82.8	1595	110.0	1795	123.8	2995	206.6	4990	344.1	8980	619.3
600	316	140	9.7	550	37.9	1095	75.5	1460	100.7	1640	113.1	2735	188.6	4560	314.5	8210	566.2
650	343	125	8.6	535	36.9	1075	74.1	1430	98.6	1610	111.0	2685	185.2	4475	308.6	8055	555.5
700	371	110	7.6	535	36.9	1065	73.4	1420	97.9	1600	110.3	2665	183.8	4440	306.2	7990	551.0
750	399	95	6.6	505	34.8	1010	69.7	1345	92.8	1510	104.1	2520	173.8	4200	289.7	7560	521.4
800	427	80	5.5	410	28.3	825	56.9	1100	75.9	1235	85.2	2060	142.1	3430	236.6	6170	425.5
850	454	65	4.5	270	18.6	535	36.9	715	49.3	805	55.5	1340	92.4	2230	153.8	4010	276.6
900	482	50	3.4	170	11.7	345	23.8	460	31.7	515	35.5	860	59.3	1430	98.6	2570	177.2
950	510	35	2.4	105	7.2	205	14.1	275	19.0	310	21.4	515	35.5	860	59.3	1545	106.6
1000	538	20	1.4	50	3.4	105	7.2	140	9.7	155	10.7	260	17.9	430	29.7	770	53.1

		ASTM A 182/F11-A182/F12															
°F	°C	150	P N20	300	P N50	600	P N100	800	P N130	900	P N150	1500	P N250	2500	P N420	4500	P N760
		psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar
100	38	290	20	750	51.7	1500	103.4	2000	137.9	2250	155.2	3750	258.6	6250	431.0	11250	775.9
200	93	260	17.93	750	51.7	1500	103.4	2000	137.9	2250	155.2	3750	258.6	6250	431.0	11250	775.9
300	149	230	15.86	720	49.7	1445	99.7	1925	132.8	2165	149.3	3610	249.0	6015	414.8	10830	746.9
400	204	200	13.79	695	47.9	1385	95.5	1850	127.6	2080	143.4	3465	239.0	5775	398.3	10400	717.2
500	260	170	11.72	665	45.9	1330	91.7	1775	122.4	1995	137.6	3325	229.3	5540	382.1	9965	687.2
600	316	140	9.655	605	41.7	1210	83.4	1615	111.4	1815	125.2	3025	208.6	5040	347.6	9070	625.5
650	343	125	8.621	590	40.7	1175	81.0	1570	108.3	1765	121.7	2940	202.8	4905	338.3	8825	608.6
700	371	110	7.586	570	39.3	1135	78.3	1515	104.5	1705	117.6	2840	195.9	4730	326.2	8515	587.2
750	399	95	6.552	530	36.6	1065	73.4	1420	97.9	1595	110.0	2660	183.4	4430	305.5	7970	549.7
800	427	80	5.517	510	35.2	1015	70.0	1355	93.4	1525	105.2	2540	175.2	4230	291.7	7610	524.8
850	454	65	4.483	485	33.4	975	67.2	1300	89.7	1460	100.7	2435	167.9	4060	280.0	7305	503.8
900	482	50	3.448	450	31.0	900	62.1	1200	82.8	1350	93.1	2245	154.8	3745	258.3	6740	464.8
950	510	35	2.414	320	22.1	640	44.1	850	58.6	955	65.9	1595	110.0	2655	183.1	4785	330.0
1000	538	20	1.379	215	14.8	430	29.7	575	39.7	650	44.8	1080	74.5	1800	124.1	3240	223.4
1050	566	20	1.379	145	10.0	290	20.0	385	26.6	430	29.7	720	49.7	1200	82.8	2160	149.0
1100	593	20	1.379	95	6.6	190	13.1	255	17.6	290	20.0	480	33.1	800	55.2	1440	99.3
1150	621	20	1.379	60	4.1	125	8.6	165	11.4	185	12.8	310	21.4	515	35.5	925	63.8
1200	649	15	1.034	40	2.8	75	5.2	100	6.9	115	7.9	190	13.1	315	21.7	565	39.0

■ For welding and valves only. Flanged end ratings terminate at 1000°F.

A105: permissible, but not recommended for prolonged usage above about 800°F.
 A350/LF2: not to be used over 650°F.
 A182/F11-A182/F12: permissible but not recommended for prolonged usage above about 1100°F.



Pressure - Temperature charts

		ASTM A182/F22															
°F	°C	150	PN20	300	PN50	600	PN100	800	PN130	900	PN150	1500	PN250	2500	PN420	4500	PN760
		psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar
100	38	290	20.0	750	51.7	1500	103.4	2000	137.9	2250	155.2	3750	258.6	6250	431.0	11250	775.9
200	93	260	17.9	750	51.7	1500	103.4	2000	137.9	2250	155.2	3750	258.6	6250	431.0	11250	775.9
300	149	230	15.9	730	50.3	1455	100.3	1940	133.8	2185	150.7	3640	251.0	6070	418.6	10925	753.4
400	204	200	13.8	705	48.6	1410	97.2	1880	129.7	2115	145.9	3530	243.4	5880	405.5	10585	730.0
500	260	170	11.7	665	45.9	1330	91.7	1775	122.4	1995	137.6	3325	229.3	5540	382.1	9965	687.2
600	316	140	9.7	605	41.7	1210	83.4	1615	111.4	1815	125.2	3025	208.6	5040	347.6	9070	625.5
650	343	125	8.6	590	40.7	1175	81.0	1570	108.3	1765	121.7	2940	202.8	4905	338.3	8825	608.6
700	371	110	7.6	570	39.3	1135	78.3	1515	104.5	1705	117.6	2840	195.9	4730	326.2	8515	587.2
750	399	95	6.6	530	36.6	1065	73.4	1420	97.9	1595	110.0	2660	183.4	4430	305.5	7970	549.7
800	427	80	5.5	510	35.2	1015	70.0	1355	93.4	1525	105.2	2540	175.2	4230	291.7	7610	524.8
850	454	65	4.5	485	33.4	975	67.2	1300	89.7	1460	100.7	2435	167.9	4060	280.0	7305	503.8
900	482	50	3.4	450	31.0	900	62.1	1200	82.8	1350	93.1	2245	154.8	3745	258.3	6740	464.8
950	510	35	2.4	375	25.9	755	52.1	1005	69.3	1130	77.9	1885	130.0	3145	216.9	5665	390.7
1000	538	20	1.4	260	17.9	520	35.9	695	47.9	780	53.8	1305	90.0	2170	149.7	3910	269.7
1050	566	20	1.4	175	12.1	350	24.1	465	32.1	525	36.2	875	60.3	1455	100.3	2625	181.0
1100	593	20	1.4	110	7.6	220	15.2	295	20.3	330	22.8	550	37.9	915	63.1	1645	113.4
1150	621	20	1.4	70	4.8	135	9.3	180	12.4	205	14.1	345	23.8	570	39.3	1030	71.0
1200	649	20	1.4	40	2.8	80	5.5	110	7.6	125	8.6	205	14.1	345	23.8	615	42.4

ASTM A182/F5

°F	°C	150	PN20	300	PN50	600	PN100	800	PN130	900	PN150	1500	PN250	2500	PN420	4500	PN760
		psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar
100	38	290	20,0	750	51,7	1500	103,4	2000	137,9	2250	155,2	3750	258,6	6250	431,0	11250	775,9
200	93	260	17,9	745	51,4	1490	102,8	1985	136,9	2235	154,1	3725	256,9	6205	427,9	11170	770,3
300	149	230	15,9	715	49,3	1430	98,6	1910	131,7	2150	148,3	3580	246,9	5965	411,4	10740	740,7
400	204	200	13,8	705	48,6	1410	97,2	1880	129,7	2115	145,9	3530	243,4	5880	405,5	10585	730,0
500	260	170	11,7	665	45,9	1330	91,7	1775	122,4	1995	137,6	3325	229,3	5540	382,1	9965	687,2
600	316	140	9,7	605	41,7	1210	83,4	1615	111,4	1815	125,2	3025	208,6	5040	347,6	9070	625,5
650	343	125	8,6	590	40,7	1175	81,0	1570	108,3	1765	121,7	2940	202,8	4905	338,3	8825	608,6
700	371	110	7,6	570	39,3	1135	78,3	1515	104,5	1705	117,6	2840	195,9	4730	326,2	8515	587,2
750	399	95	6,6	530	36,6	1055	72,8	1410	97,2	1585	109,3	2640	182,1	4400	303,4	7920	546,2
800	427	80	5,5	510	35,2	1015	70,0	1355	93,4	1525	105,2	2540	175,2	4230	291,7	7610	524,8
850	454	65	4,5	485	33,4	965	66,6	1290	89,0	1450	100,0	2415	166,6	4030	277,9	7250	500,0
900	482	50	3,4	370	25,5	740	51,0	985	67,9	1110	76,6	1850	127,6	3085	212,8	5555	383,1
950	510	35	2,4	275	19,0	550	37,9	735	50,7	825	56,9	1370	94,5	2285	157,6	4115	283,8
1000	538	20	1,4	200	13,8	400	27,6	530	36,6	595	41,0	995	68,6	1655	114,1	2985	205,9
1050	566	20	1,4	145	10,0	290	20,0	385	26,6	430	29,7	720	49,7	1200	82,8	2160	149,0
1100	593	20	1,4	100	6,9	200	13,8	265	18,3	300	20,7	495	34,1	830	57,2	1490	102,8
1150	621	20	1,4	60	4,1	185	12,8	185	12,8	185	12,8	310	21,4	515	35,5	925	63,8
1200	649	20	1,4	35	2,4	105	7,2	105	7,2	105	7,2	170	11,7	285	19,7	515	35,5

For welding end valves only. Flanged end ratings terminate at 1000°F.

A182/F22: permissible, but not recommended for prolonged usage above about 1100°F.



Pressure - Temperature charts

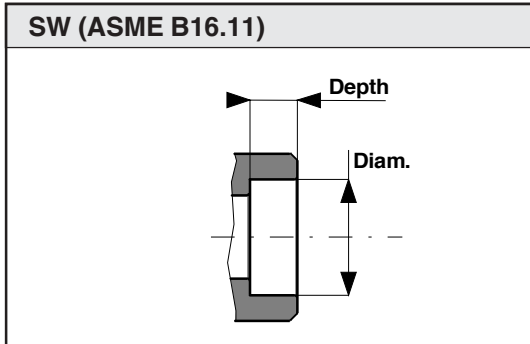
ASTM A182/F316

°F	°C	150	PN20	300	PN50	600	PN100	800	PN130	900	PN150	1500	PN250	2500	PN420	4500	PN760
		psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar
100	38	275	19,0	720	49,7	1440	99,3	1920	132,4	2160	149,0	3600	248,3	6000	413,8	10800	744,8
200	93	235	16,2	620	42,8	1240	85,5	1655	114,1	1860	128,3	3095	213,4	5160	355,9	9290	640,7
300	149	215	14,8	560	38,6	1120	77,2	1495	103,1	1680	115,9	2795	192,8	4660	321,4	8390	578,6
400	204	195	13,4	515	35,5	1025	70,7	1370	94,5	1540	106,2	2570	177,2	4280	295,2	7705	531,4
500	260	170	11,7	480	33,1	955	65,9	1275	87,9	1435	99,0	2390	164,8	3980	274,5	7165	494,1
600	316	140	9,7	450	31,0	900	62,1	1205	83,1	1355	93,4	2255	155,5	3760	259,3	6770	466,9
650	343	125	8,6	445	30,7	890	61,4	1185	81,7	1330	91,7	2220	153,1	3700	255,2	6660	459,3
700	371	110	7,6	430	29,7	870	60,0	1160	80,0	1305	90,0	2170	149,7	3620	249,7	6515	449,3
750	399	95	6,6	425	29,3	855	59,0	1140	78,6	1280	88,3	2135	147,2	3560	245,5	6410	442,1
800	427	80	5,5	420	29,0	845	58,3	1125	77,6	1265	87,2	2110	145,5	3520	242,8	6335	436,9
850	454	65	4,5	420	29,0	835	57,6	1115	76,9	1255	86,6	2090	144,1	3480	240,0	6265	432,1
900	482	50	3,4	415	28,6	830	57,2	1105	76,2	1245	85,9	2075	143,1	3460	238,6	6230	429,7
950	510	35	2,4	385	26,6	775	53,4	1030	71,0	1160	80,0	1930	133,1	3220	222,1	5795	399,7
1000	538	20	1,4	350	24,1	700	48,3	935	64,5	1050	72,4	1750	120,7	2915	201,0	5245	361,7
1050	566	20	1,4	345	23,8	685	47,2	915	63,1	1030	71,0	1720	118,6	2865	197,6	5155	355,5
1100	593	20	1,4	305	21,0	610	42,1	815	56,2	915	63,1	1525	105,2	2545	175,5	4575	315,5
1150	621	20	1,4	235	16,2	475	32,8	630	43,4	710	49,0	1185	81,7	1970	135,9	3550	244,8
1200	649	20	1,4	185	12,8	370	25,5	495	34,1	555	38,3	925	63,8	1545	106,6	2775	191,4
1250	677	20	1,4	145	10,0	295	20,3	390	26,9	440	30,3	735	50,7	1230	84,8	2210	152,4
1300	704	20	1,4	115	7,9	235	16,2	310	21,4	350	24,1	585	40,3	970	66,9	1750	120,7
1350	732	20	1,4	95	6,6	190	13,1	255	17,6	290	20,0	480	33,1	800	55,2	1440	99,3
1400	760	20	1,4	75	5,2	150	10,3	200	13,8	225	15,5	380	26,2	630	43,4	1130	77,9
1450	788	20	1,4	60	4,1	115	7,9	155	10,7	175	12,1	290	20,0	485	33,4	875	60,3
1500	816	20	1,4	40	2,8	85	5,9	110	7,6	125	8,6	205	14,1	345	23,8	620	42,8

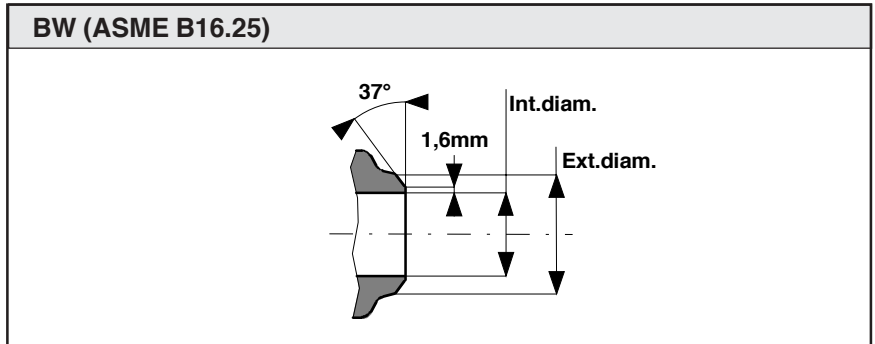
For welding end valves only. Flanged end ratings terminate at 1000°F.

ASTM A182/F304L - A182/F316L

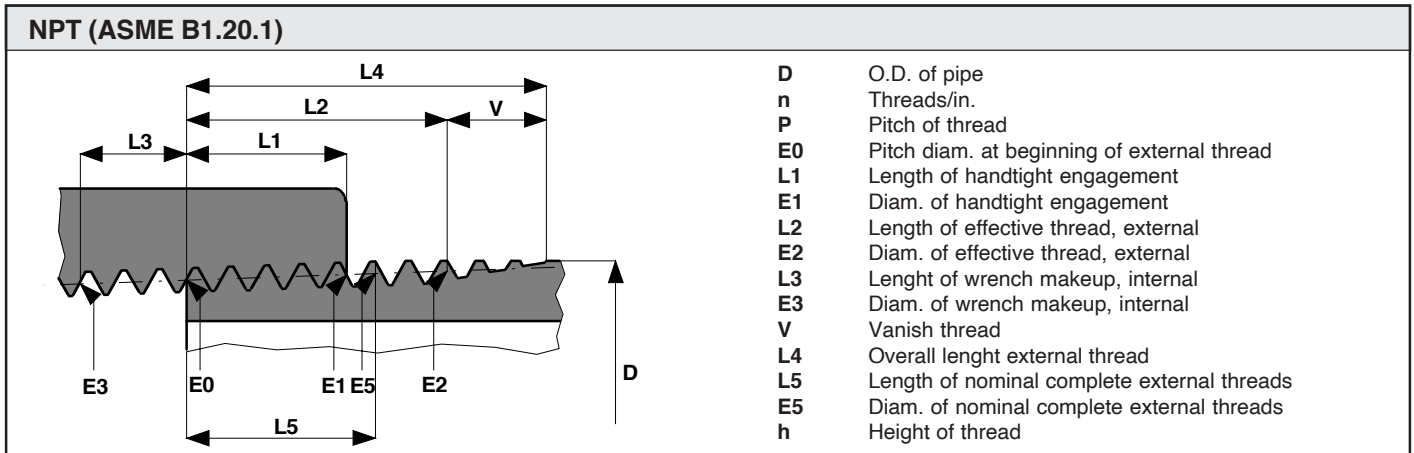
°F	°C	150	PN20	300	PN50	600	PN100	800	PN130	900	PN150	1500	PN250	2500	PN420	4500	PN760
		psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar
100	38	230	15,9	600	41,4	1200	82,8	1600	110,3	1800	124,1	3000	206,9	5000	344,8	9000	620,7
200	93	195	13,4	505	34,8	1015	70,0	1350	93,1	1520	104,8	2530	174,5	4220	291,0	7595	523,8
300	149	175	12,1	455	31,4	910	62,8	1210	83,4	1360	93,8	2270	156,6	3780	260,7	6805	469,3
400	204	160	11,0	415	28,6	825	56,9	1100	75,9	1240	85,5	2065	142,4	3440	237,2	6190	426,9
500	260	145	10,0	380	26,2	765	52,8	1020	70,3	1145	79,0	1910	131,7	3180	219,3	5725	394,8
600	316	140	9,7	360	24,8	720	49,7	960	66,2	1080	74,5	1800	124,1	3000	206,9	5400	372,4
650	343	125	8,6	350	24,1	700	48,3	935	64,5	1050	72,4	1750	120,7	2920	201,4	5255	362,4
700	371	110	7,6	345	23,8	685	47,2	915	63,1	1030	71,0	1715	118,3	2860	197,2	5150	355,2
750	399	95	6,6	335	23,1	670	46,2	895	61,7	1010	69,7	1680	115,9	2800	193,1	5040	347,6
800	427	80	5,5	330	22,8	660	45,5	875	60,3	985	67,9	1645	113,4	2740	189,0	4930	340,0
850	454	65	4,5	320	22,1	645	44,5	860	59,3	965	66,6	1610	111,0	2680	184,8	4825	332,8



Size		Min. diam.	Max. diam.	Min. depth.	Our depth
1/4"	m m. in.	14,10 0,555	14,35 0,565	9,65 0,38	10 0,394
3/8"	m m. in.	17,53 0,690	17,78 0,700	9,65 0,38	10 0,394
1/2"	m m. in.	21,72 0,855	21,97 0,865	9,65 0,38	10 0,394
3/4"	m m. in.	27,05 1,065	27,30 1,075	12,70 0,50	13 0,512
1"	m m. in.	33,78 1,330	34,04 1,340	12,70 0,50	14 0,551
1.1/4"	m m. in.	42,55 1,675	42,80 1,685	12,70 0,50	14 0,551
1.1/2"	m m. in.	48,64 1,915	48,90 1,925	12,70 0,50	14 0,551
2"	m m. in.	61,11 2,406	61,37 2,416	15,75 0,62	16 0,630



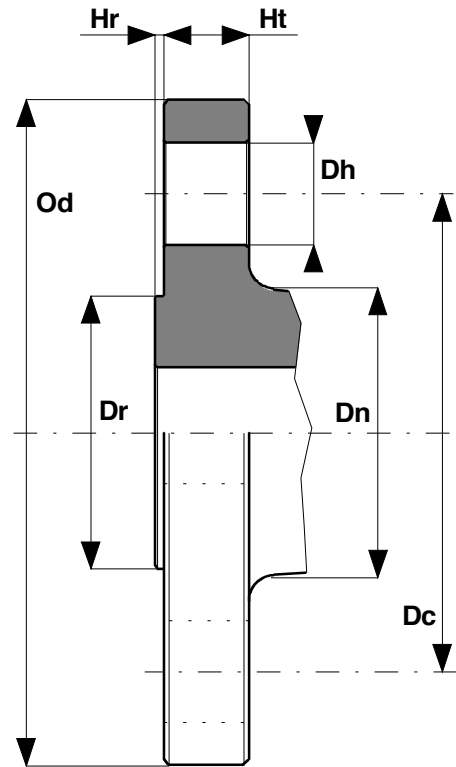
Size		Ext. diam.	Internal diameter					
			sch. 5	sch. 10	sch. 40	sch. 80	sch. 160	sch. XXS
1/4"	m m. in.	13,72 0,540	10,41 0,410	9,25 0,364	7,67 0,302			
3/8"	m m. in.	17,15 0,675	13,84 0,545	12,52 0,493	10,74 0,423			
1/2"	m m. in.	21,34 0,840	18,03 0,710	17,12 0,674	15,80 0,622	13,87 0,546	11,84 0,466	6,40 0,252
3/4"	m m. in.	26,67 1,050	23,37 0,920	22,45 0,884	20,93 0,824	18,85 0,742	15,60 0,614	11,02 0,434
1"	m m. in.	33,40 1,315	30,10 1,185	27,86 1,097	26,64 1,049	24,31 0,957	20,70 0,815	15,21 0,599
1.1/4"	m m. in.	42,16 1,660	38,86 1,530	36,63 1,442	35,05 1,380	32,46 1,278	29,46 1,160	22,76 0,896
1.1/2"	m m. in.	48,26 1,900	44,96 1,770	42,72 1,682	40,89 1,610	38,10 1,500	33,99 1,338	27,94 1,100
2"	m m. in.	60,33 2,375	57,02 2,245	54,79 2,157	52,50 2,067	49,25 1,939	42,90 1,689	38,18 1,503



- D O.D. of pipe
- n Threads/in.
- P Pitch of thread
- E0 Pitch diam. at beginning of external thread
- L1 Length of handtight engagement
- E1 Diam. of handtight engagement
- L2 Length of effective thread, external
- E2 Diam. of effective thread, external
- L3 Length of wrench makeup, internal
- E3 Diam. of wrench makeup, internal
- V Vanish thread
- L4 Overall length external thread
- L5 Length of nominal complete external threads
- E5 Diam. of nominal complete external threads
- h Height of thread

Size		D	n	P	E0	L1	E1	L2	E2	L3	E3	V	L4	L5	E5	h
1/4"	m m. in.	13,72 0,540	0,71 18	1,41 0,056	12,13 0,477	5,79 0,228	12,49 0,492	10,21 0,402	12,76 0,503	4,23 0,167	11,86 0,467	4,90 0,193	15,10 0,595	7,38 0,291	12,59 0,496	1,13 0,044
3/8"	m m. in.	17,15 0,675	0,71 18	1,41 0,056	15,55 0,612	6,10 0,240	15,93 0,627	10,36 0,408	16,19 0,638	4,23 0,167	15,28 0,602	4,90 0,193	15,26 0,601	7,54 0,297	16,02 0,631	1,13 0,044
1/2"	m m. in.	21,34 0,840	0,55 14	1,81 0,071	19,26 0,758	8,13 0,320	19,77 0,778	13,56 0,534	20,11 0,792	5,44 0,214	18,92 0,745	6,29 0,248	19,85 0,782	9,93 0,391	19,88 0,783	1,45 0,057
3/4"	m m. in.	26,67 1,050	0,55 14	1,81 0,071	24,58 0,968	8,61 0,339	25,12 0,989	13,86 0,546	25,45 1,002	5,44 0,214	24,24 0,954	6,29 0,248	20,15 0,794	10,23 0,403	25,22 0,993	1,45 0,057
1"	m m. in.	33,40 1,315	0,45 11,5	2,21 0,087	30,83 1,214	10,16 0,400	31,46 1,239	17,34 0,683	31,91 1,256	6,63 0,261	30,41 1,197	7,66 0,302	25,01 0,985	12,93 0,509	31,63 1,245	1,77 0,070
1.1/4"	m m. in.	42,16 1,660	0,45 11,5	2,21 0,087	39,55 1,557	10,67 0,420	40,22 1,583	17,95 0,707	40,67 1,601	6,63 0,261	39,14 1,541	7,66 0,302	25,63 1,009	13,54 0,533	40,40 1,590	1,77 0,070
1.1/2"	m m. in.	48,26 1,900	0,45 11,5	2,21 0,087	45,62 1,796	10,67 0,420	46,29 1,822	18,38 0,724	46,77 1,841	6,63 0,261	45,21 1,780	7,66 0,302	26,04 1,025	13,96 0,550	46,49 1,830	1,77 0,070
2"	m m. in.	60,33 2,375	0,45 11,5	2,21 0,087	57,63 2,269	11,07 0,436	58,33 2,296	19,22 0,757	58,83 2,316	6,63 0,261	57,22 2,253	7,66 0,302	26,88 1,058	14,80 0,583	58,56 2,305	1,77 0,070

Size		Od	Dr	Hr	Ht	Dn	n	Dh	Dc
150									
1/2"	mm.	88,9	35,1	1,6	9,6	30,2	4	15,7	60,5
	in.	3,50	1,38	0,06	0,38	1,19	4	0,62	2,38
3/4"	mm.	98,6	42,9	1,6	11,1	38,1	4	15,7	69,9
	in.	3,88	1,69	0,06	0,44	1,50	4	0,62	2,75
1"	mm.	108,0	50,8	1,6	12,6	49,3	4	15,7	79,2
	in.	4,25	2,00	0,06	0,50	1,94	4	0,62	3,12
1.1/2"	mm.	127,0	73,2	1,6	15,9	65,0	4	15,7	98,6
	in.	5,00	2,88	0,06	0,63	2,56	4	0,62	3,88
2"	mm.	152,4	91,9	1,6	17,5	77,7	4	19,1	120,7
	in.	6,00	3,62	0,06	0,69	3,06	4	0,75	4,75
300									
1/2"	mm.	95,3	35,1	1,6	12,6	38,1	4	15,7	66,5
	in.	3,75	1,38	0,06	0,50	1,50	4	0,62	2,62
3/4"	mm.	117,3	42,9	1,6	14,2	47,8	4	19,1	82,6
	in.	4,62	1,69	0,06	0,56	1,88	4	0,75	3,25
1"	mm.	124,0	50,8	1,6	15,9	53,8	4	19,1	88,9
	in.	4,88	2,00	0,06	0,63	2,12	4	0,75	3,50
1.1/2"	mm.	155,4	73,2	1,6	19,0	69,9	4	22,4	114,3
	in.	6,12	2,88	0,06	0,75	2,75	4	0,88	4,50
2"	mm.	165,1	91,9	1,6	20,8	84,1	8	19,1	127,0
	in.	6,50	3,62	0,06	0,82	3,31	8	0,75	5,00
600									
1/2"	mm.	95,3	35,1	6,4	14,2	38,1	4	15,7	66,5
	in.	3,75	1,38	0,25	0,56	1,50	4	0,62	2,62
3/4"	mm.	117,3	42,9	6,4	15,7	47,8	4	19,1	82,6
	in.	4,62	1,69	0,25	0,62	1,88	4	0,75	3,25
1"	mm.	124,0	50,8	6,4	17,5	53,8	4	19,1	88,9
	in.	4,88	2,00	0,25	0,69	2,12	4	0,75	3,50
1.1/2"	mm.	155,4	73,2	6,4	22,4	69,9	4	22,4	114,3
	in.	6,12	2,88	0,25	0,88	2,75	4	0,88	4,50
2"	mm.	165,1	91,9	6,4	25,4	84,1	8	19,1	127,0
	in.	6,50	3,62	0,25	1,00	3,31	8	0,75	5,00
1500									
1/2"	mm.	120,7	35,1	6,4	22,4	38,1	4	22,4	82,6
	in.	4,75	1,38	0,25	0,88	1,50	4	0,88	3,25
3/4"	mm.	130,0	42,9	6,4	25,4	44,5	4	22,4	88,9
	in.	5,12	1,69	0,25	1,00	1,75	4	0,88	3,50
1"	mm.	149,4	50,8	6,4	28,4	52,3	4	25,4	101,6
	in.	5,88	2,00	0,25	1,12	2,06	4	1,00	4,00
1.1/2"	mm.	177,8	73,2	6,4	31,8	69,9	4	28,4	124,0
	in.	7,00	2,88	0,25	1,25	2,75	4	1,12	4,88
2"	mm.	215,9	91,9	6,4	38,1	104,6	8	25,4	165,1
	in.	8,50	3,62	0,25	1,50	4,12	8	1,00	6,50
2500									
1/2"	mm.	133,4	35,1	6,4	30,2	42,9	4	22,4	88,9
	in.	5,25	1,38	0,25	1,19	1,69	4	0,88	3,50
3/4"	mm.	139,7	42,9	6,4	31,8	50,8	4	22,4	95,3
	in.	5,50	1,69	0,25	1,25	2,00	4	0,88	3,75
1"	mm.	158,8	50,8	6,4	35,1	57,2	4	25,4	108,0
	in.	6,25	2,00	0,25	1,38	2,25	4	1,00	4,25
1.1/2"	mm.	203,2	73,2	6,4	44,5	79,2	4	31,8	146,1
	in.	8,00	2,88	0,25	1,75	3,12	4	1,25	5,75
2"	mm.	235,0	91,9	6,4	50,8	95,3	8	28,4	171,5
	in.	9,25	3,62	0,25	2,00	3,75	8	1,12	6,75



n Number of holes

DIMENSIONAL TOLERANCES

	mm	in
Od	-1,6 +1,6	-1/16 +1/16
Dr	-0,4 +0,4	-1/64 +1/64
Dc	-0,8 +0,8	-1/32 +1/32
Dh	-0,4 +0,4	-1/64 +1/64
Ht	-0 +3,2	-0 +1/8



Face-to-face dimensions (ASME B16.10)

Class 150											
		1/2"		3/4"		1"		1.1/2"		2"	
		RF	RJ	RF	RJ	RF	RJ	RF	RJ	RF	RJ
Gate	mm.	107.9	119.1	117.5	130.2	127	139.7	165.1	177.8	177.8	190.5
	in.	4.1/4	4.11/16	4.5/8	5.1/8	5	5.1/2	6.1/2	7	7	7.1/2
Globe-Piston/Ball check Swing check	mm.	107.9	119.1	117.5	130.2	127	139.7	165.1	177.8	203.2	215.9
	in.	4.1/4	4.11/16	4.5/8	5.1/8	5	5.1/2	6.1/2	7	8	8.1/2

Class 300											
		1/2"		3/4"		1"		1.1/2"		2"	
		RF	RJ	RF	RJ	RF	RJ	RF	RJ	RF	RJ
Gate	mm.	139.7	150.8	152.4	165.1	165.1	177.8	190.5	203.2	215.9	231.8
	in.	5.1/2	5.15/16	6	6.1/2	6.1/2	7	7.1/2	8	8.1/2	9.1/8
Globe-Piston/Ball check	mm.	152.4	163.5	177.8	190.5	203.2	215.9	228.6	241.3	266.7	282.6
	in.	6	6.7/16	7	7.1/2	8	8.1/2	9	9.1/2	10.7/8	11.1/8
Swing check	mm.	152.4	163.5	177.8	190.5	215.9	228.6	241.3	254	266.7	282.6
	in.	6	6.7/16	7	7.1/2	8.1/2	9	9.1/2	10	10.7/8	11.1/8

Class 600											
		1/2"		3/4"		1"		1.1/2"		2"	
		RF	RJ	RF	RJ	RF	RJ	RF	RJ	RF	RJ
Gate-Globe-Pist./Ball check Swing check	mm.	165.1	163.5	190.5	190.5	215.9	215.9	241.3	241.3	292.1	295.3
	in.	6.1/2	6.7/16	7.1/2	7.1/2	8.1/2	8.1/2	9.1/2	9.1/2	11.1/2	11.5/8

Class 1500											
		1/2"		3/4"		1"		1.1/2"		2"	
		RF	RJ	RF	RJ	RF	RJ	RF	RJ	RF	RJ
Gate-Globe-Pist./Ball check Swing check	mm.	215.9	215.9	228.6	228.6	254	254	304.8	304.8	368.3	371.5
	in.	8.1/2	8.1/2	9	9	10	10	12	12	14.1/2	14.5/8

Class 2500											
		1/2"		3/4"		1"		1.1/2"		2"	
		RF	RJ	RF	RJ	RF	RJ	RF	RJ	RF	RJ
Gate-Globe-Pist./Ball check Swing check	mm.	263.5	263.5	273	273	308	308	384.2	387.3	450.8	454
	in.	10.3/8	10.3/8	10.3/4	10.3/4	12.1/8	12.1/8	15.1/8	15.1/4	17.3/8	17.7/8

Class 300 (Special face)											
		1/2"		3/4"		1"		1.1/2"		2"	
		RF	RJ	RF	RJ	RF	RJ	RF	RJ	RF	RJ
		LF-SF	LM-SM	LF-SF	LM-SM	LF-SF	LM-SM	LF-SF	LM-SM	LF-SF	LM-SM
		LG-SG	LT-ST	LG-SG	LT-ST	LG-SG	LT-ST	LG-SG	LT-ST	LG-SG	LT-ST
Gate	mm.	149.2	152.4	161.9	165.1	174.6	177.8	200	203.2	225.4	228.6
	in.	5.7/8	6	6.3/8	6.1/2	6.7/8	7	7.7/8	8	8.7/8	9
Globe-Piston/Ball check	mm.	161.9	165.1	187.3	190.5	212.7	215.9	238.1	241.3	276.2	279.4
	in.	6.3/8	6.1/2	7.3/8	7.1/2	8.3/8	8.1/2	9.3/8	9.1/2	10.7/8	11
Swing check	mm.	161.9	165.1	187.3	190.5	225.4	228.6	250.8	254	276.2	279.4
	in.	6.3/8	6.1/2	7.3/8	7.1/2	8.7/8	9	9.7/8	10	10.7/8	11

RF = Raised face LF = Large female SG = Small groove LT = Large tongue
 RJ = Ring Joint SF = Small female LM = Large male ST = Small tongue
 LG = Large groove SM = Small male

Introduction	1
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GLOBE VALVES - 150 - Bolted bonnet - Flanged Rf	9
GLOBE VALVES - 300 - Bolted bonnet - Flanged Rf/Rj	10
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Note

Ruled area for notes consisting of multiple horizontal dotted lines.