

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 soured 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.)

Head Office & Factory:

Località Pradaglie - 29013 Carpaneto (PC) - Italy

Tel. +39-0523-854011 - Fax +39-0523-850389

E-mail webmaster@douglas-chero.com

www.douglas-chero.com

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



**VALVES ARE MANUFACTURED ACCORDING TO ISO 9001.
CERTIFIED BY DETNORSKE 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)

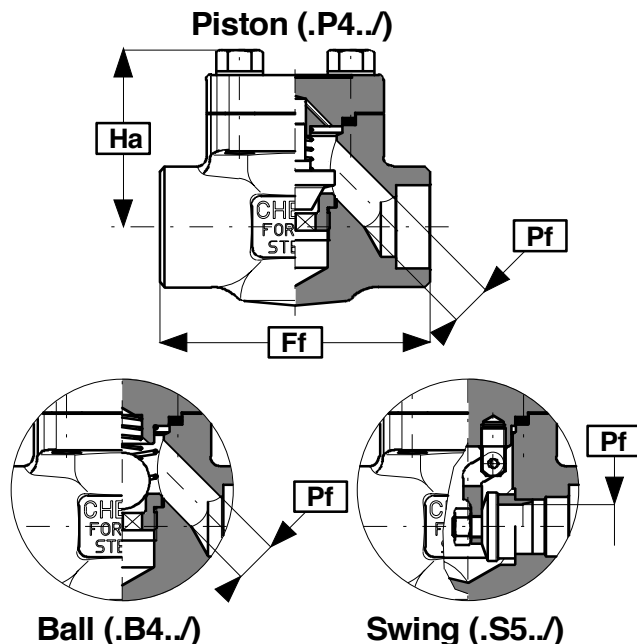
Hydraulic:(minimum)
Body - 3000 p.s.i.
Seat - 2175 p.s.i.
Air under water:
not applicable

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	
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)			50 1,97	56 2,20	74 2,91	79 3,11	100 3,94	109 4,29
Pf⁽⁷⁾(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)			1,1 2,4	1,8 4,0	2,6 5,7	3,6 7,9	5,5 12,1	8,4 18,5
Catal. no.			Rtt52/xx	Rtt53/xx	Rtt54/xx	Rtt55/xx	Rtt56/xx	Rtt57/xx

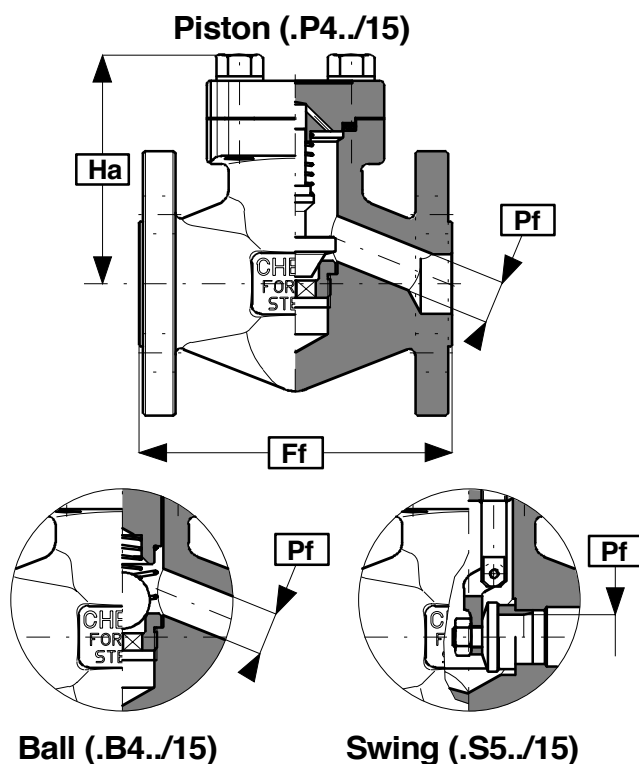
FULL BORE

	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)	50 1,97	50 1,97	56 2,20	74 2,91	79 3,11	100 3,94	109 4,29	135 5,31
Pf⁽⁷⁾(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)	1,1 2,4	1,1 2,4	1,8 4,0	2,6 5,7	3,6 7,9	5,5 12,1	8,4 18,5	11,8 26,0
Catal. no.	Ftt10/xx	Ftt11/xx	Ftt12/xx	Ftt13/xx	Ftt14/xx	Ftt15/xx	Ftt16/xx	Ftt17/xx

1) Standard and alternative valve materials on page 67, type B
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

7) Dimensions for piston & ball type; for swing see pag.4
8) Code It is replaced by kind of check valve (drawing above)



Ratings (ASTM A105)

150 p.s.i. @ 550°F
285 p.s.i. @ 100°F

Test pressure (ASTM A105)

Hydraulic: *(minimum)*

Body - 450 p.s.i.

Seat - 325 p.s.i.

Air under water:

not applicable

Standards

Construction

BS 5352

Flanged

ASME B16.5, ASME B16.10

Test

BS 6755 (Pt.1)

Connections (xx)

RF

Raised face (std.)

FF

Flat finish

REDUCED BORE								
			1/2"	3/4"	1"		1.1/2"	2"
Ff (mm/in)			107,9 4,25	117,5 4,63	127,0 5,00		165,1 6,50	203,2 8,00
Ha (mm/in)			84 3,31	87 3,43	92 3,62		97 3,82	124 4,88
Pf⁽⁶⁾ (mm/in)			9 0,35	12,5 0,49	17,5 0,69		28 ⁽⁴⁾ 1,10	32 ⁽⁵⁾ 1,26
Wt. (kg/lb)			2,6 5,7	3,8 8,4	5,1 11,2		8,4 18,5	14,2 31,2
Catal. no.			Rtt52/15xx	Rtt53/15xx	Rtt54/15xx		Rtt56/15xx	Rtt57/15xx

FULL BORE								
			1/2"	3/4"	1"		1.1/2"	2"
Ff (mm/in)			107,9 4,25	117,5 4,63	127,0 5,00		165,1 6,50	203,2 6,50
Ha (mm/in)			84 3,31	87 3,43	92 3,62		110 4,33	124 4,88
Pf⁽⁶⁾ (mm/in)			12,5 0,49	17,5 0,69	22,5 0,89		32 1,38	38 1,50
Wt. (kg/lb)			2,6 5,7	3,8 8,4	5,1 11,2		8,4 18,5	14,7 31,2
Catal. no.			Ftt12/15xx	Ftt13/15xx	Ftt14/15xx		Ftt16/15xx	Ftt17/15xx

1) Standard and alternative valve materials on page 67, type B

2) Complete Pressure-Temperature ratings on page 68, 69, 70, 71, 72

3) Flanges & face-to-face dimensions on page 74,75

4) $P_f = 29,5$ with integral stellited seat

5) $P_f = 35$ with integral stellited seat

6) Dimensions for piston & ball type; for swing see page 4

7) Code tt is replaced by kind of check valve (drawing above)

Ratings (ASTM A105)

300 p.s.i. @ 850°F
740 p.s.i. @ 100°F

Test pressure (ASTM A105)

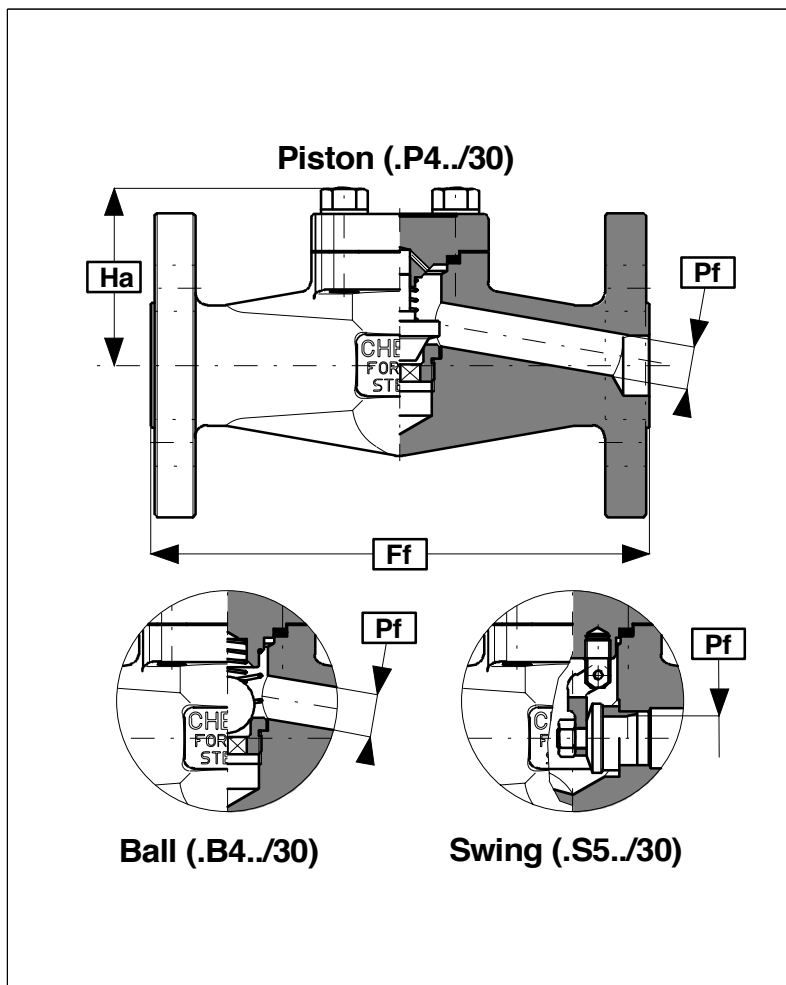
Hydraulic: (minimum)
Body - 1125 p.s.i.
Seat - 825 p.s.i.
Air under water:
not applicable

Standards

Construction BS 5352
Flanged ASME B16.5, ASME B16.10
Test BS 6755 (Pt.1)

Connections (xx)

RF Raised face (std.)	LF Large female
RJ Ring joint	LG Large groove
SF Small female	LM Large male
SG Small groove	LT Large tongue
SM Small male	
ST Small tongue	



REDUCED BORE								
			1/2"		3/4"		1"	
Ff (mm/in)			152,4	6,00	177,8	7,00	203,2 ⁽⁶⁾	8,00
Ha (mm/in)			50	1,97	56	2,20	74	2,91
Pf⁽⁷⁾ (mm/in)			9	0,35	12,5	0,49	17,5	0,69
Wt. (kg/lb)			2,5	5,5	4,2	9,2	5,7	12,5
Catal. no.			Rtt52/30xx		Rtt53/30xx		Rtt54/30xx	
							228,6 ⁽⁶⁾	9,00
							100	3,94
							28 ⁽⁴⁾	1,10
							32 ⁽⁵⁾	1,26
							11,2	24,6
							14,4	31,7
							Rtt56/30xx	
							Rtt57/30xx	

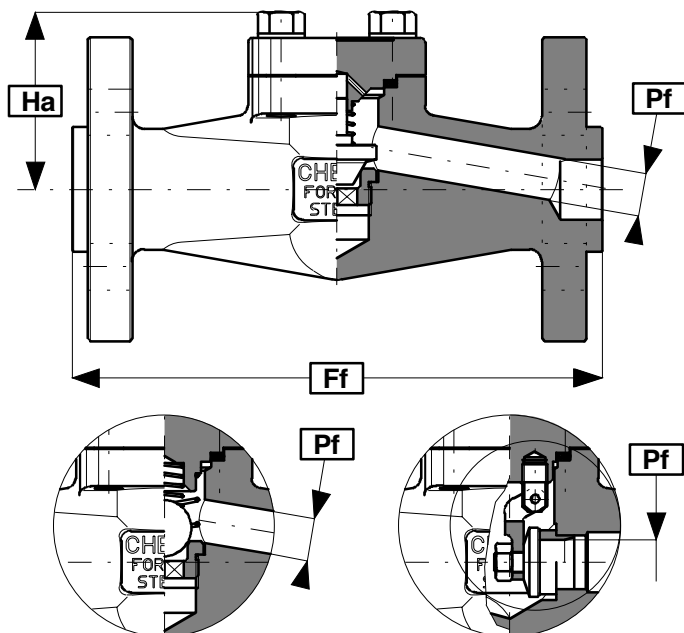
FULL BORE								
			1/2"		3/4"		1"	
Ff (mm/in)			152,4	6,00	177,8	7,00	203,2 ⁽⁶⁾	8,00
Ha (mm/in)			50	1,97	56	2,20	92	3,62
Pf⁽⁷⁾ (mm/in)			12,5	0,49	17,5	0,69	22,5	0,89
Wt. (kg/lb)			2,5	5,5	4,2	9,2	5,7	12,5
Catal. no.			Ftt52/30xx		Ftt53/30xx		Ftt54/30xx	
							228,6 ⁽⁶⁾	9,00
							110	4,33
							35	1,38
							45	1,77
							11,2	24,6
							14,4	31,7
							Ftt56/30xx	
							Ftt57/30xx	

1) Standard and alternative valve materials on page 67, type B
2) Complete Pressure-Temperature ratings on page 68, 69, 70, 71, 72
3) Flanges & face-to face dimensions on page 74, 75

4) Pf = 29,5 with integral stellited seat
5) Pf = 35 with integral stellited seat
6) Swing 1"=215,9 (8,50) - Swing 1.1/2" = 241,3 (9,50)

7) Dimensions for piston & ball type; for swing see page 4
8) Code it is replaced by kind of check valve (drawing above)

Piston (.P4../60)



Ball (.B4../60)

Swing (.S5../60)

Ratings (ASTM A105)

600 p.s.i. @ 850°F
1480 p.s.i. @ 100°F

Test pressure (ASTM A105)

Hydraulic:(minimum)
Body - 2225 p.s.i.
Seat - 1650 p.s.i.
Air under water:
not applicable

Standards

Construction BS 5352
Flanged ASME B16.5, ASME B16.10
Test BS 6755 (Pt.1)

Connections (xx)

RF Raised face (std.)	LF Large female
RJ Ring joint	LG Large groove
SF Small female	LM Large male
SG Small groove	LT Large tongue
SM Small male	
ST Small tongue	

REDUCED BORE

			1/2"		3/4"		1"			1.1/2"		2"	
Ff (mm/in)			165,1	6,50	190,5	7,50	215,9	8,50		241,3	9,50	292,1	11,50
Ha (mm/in)			50	1,97	56	2,20	74	2,91		100	3,94	109	4,29
Pf⁽⁶⁾ (mm/in)			9	0,35	12,5	0,49	17,5	0,69		28 ⁽⁴⁾	1,10	32 ⁽⁵⁾	1,26
Wt. (kg/lb)			3,1	6,8	5	11,0	7,3	16,1		12	26,4	16,6	36,5
Catal. no.			Rtt52/60xx		Rtt53/60xx		Rtt54/60xx			Rtt56/60xx		Rtt57/60xx	

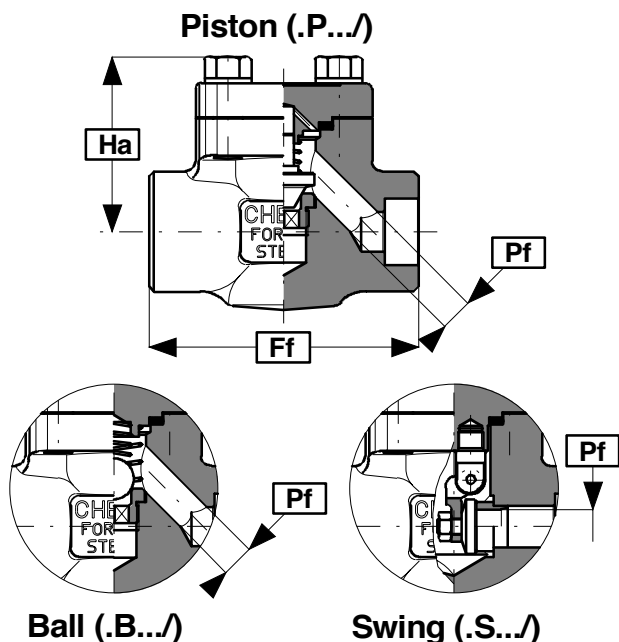
FULL BORE

			1/2"		3/4"		1"			1.1/2"		2"	
Ff (mm/in)			165,1	6,50	190,5	7,50	215,9	8,50		241,3	9,50	292,1	11,50
Ha (mm/in)			50	1,97	56	2,20	92	3,62		110	4,33	140	5,51
Pf⁽⁶⁾ (mm/in)			12,5	0,49	17,5	0,69	22,5	0,89		35	1,38	45	1,77
Wt. (kg/lb)			3,1	6,8	5	11,0	7,3	16,1		12	26,4	16,6	36,5
Catal. no.			Ftt52/60xx		Ftt53/60xx		Ftt54/60xx			Ftt56/60xx		Ftt57/60xx	

1) Standard and alternative valve materials on page 67, type B
2) Complete Pressure-Temperature ratings on page 68, 69, 70, 71, 72
3) Flanges & face-to-face dimensions on page 74, 75

4) Pf = 29,5 with integral stellited seat
5) Pf = 35 with integral stellited seat
6) Dimensions for piston & ball type; for swing see page 4

7) Code tt is replaced by kind of check valve (drawing above)



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:
not applicable

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)	56 2,20	56 2,20	56 2,20	74 2,91	79 3,11	100 3,94	109 4,29	135 5,31
Pf⁽⁴⁾(mm/in)	6,5 0,26	9 0,35	10 0,39	13,5 0,53	18 0,71	24 0,94	28 1,10	35 1,38
Wt. (kg/lb)	2,2 4,8	2,2 4,8	2,2 4,8	3,0 6,6	4,1 9,0	6,2 13,6	9,4 20,7	13,3 29,26
Catal. no.	Xt850/xx	Xt851/xx	Xt852/xx	Xt853/xx	Xt854/xx	Xt855/xx	Xt856/xx	Xt857/xx

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

4) Dimensions for piston & ball type; for swing see page 19
5) Code t is replaced by kind of check valve (drawing above)

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:

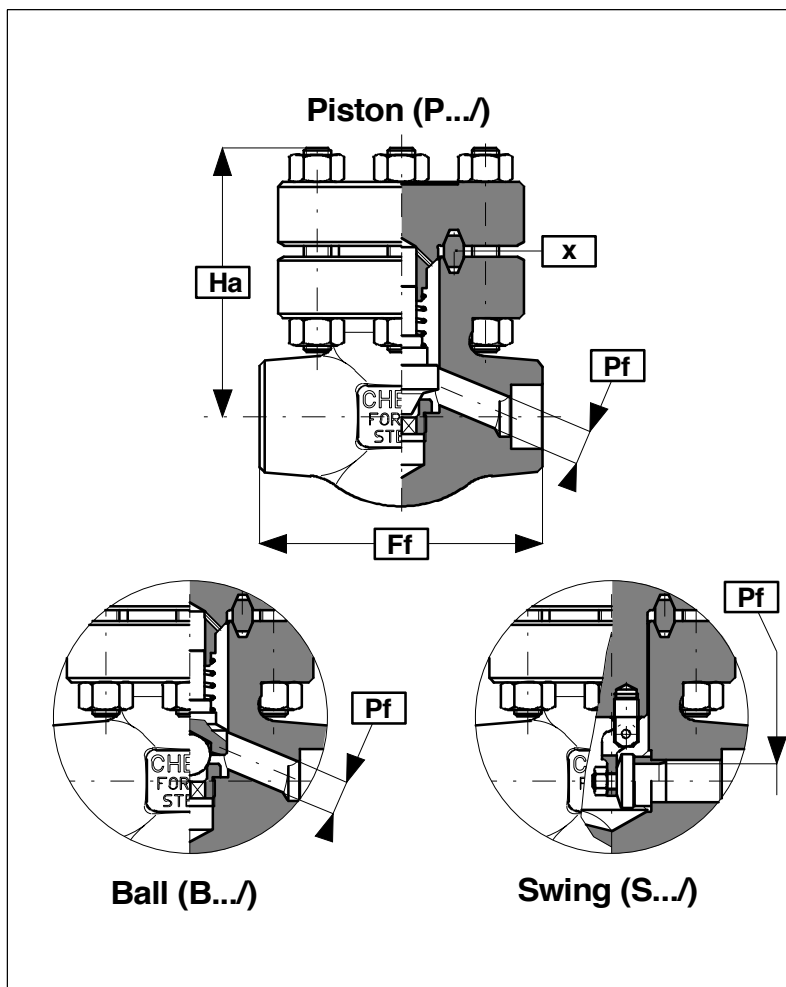
not applicable

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	



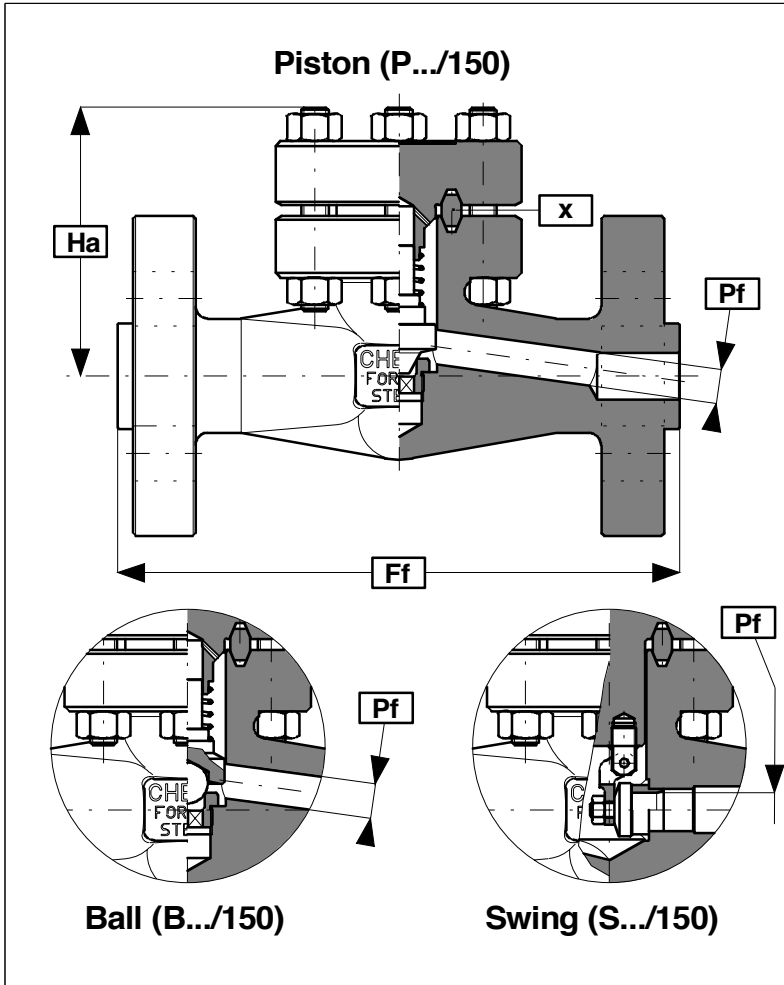
X) Gasket=Spiral wound. RJ gasket available on request.

STANDARD BORE

			1/2"	3/4"	1"		1.1/2"	2"
Ff (mm/in)			110 4,33	115 4,53	130 5,12		210 8,27	240 9,45
Ha (mm/in)			93 3,66	109 4,29	122 4,80		158 6,22	171 6,73
Pf⁽⁴⁾ (mm/in)			11 0,43	14,5 0,57	19 0,75		31 1,22	37,5 1,48
Wt. (kg/lb)			3,8 8,4	5,9 13,0	6,8 15,0		18,8 41,4	23,7 52,1
Catal. no.			t852/xx	t853/xx	t854/xx		t856/xx	t857/xx

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

4) Dimensions for piston & ball type; swing see page 25
5) Code t is replaced by kind of check valve (drawing above)



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:

not applicable

Standards

Construction BS 5352
Flanged ASME B16.5, ASME B16.10
Test BS 6755 (Pt.1)

Connections (xx)

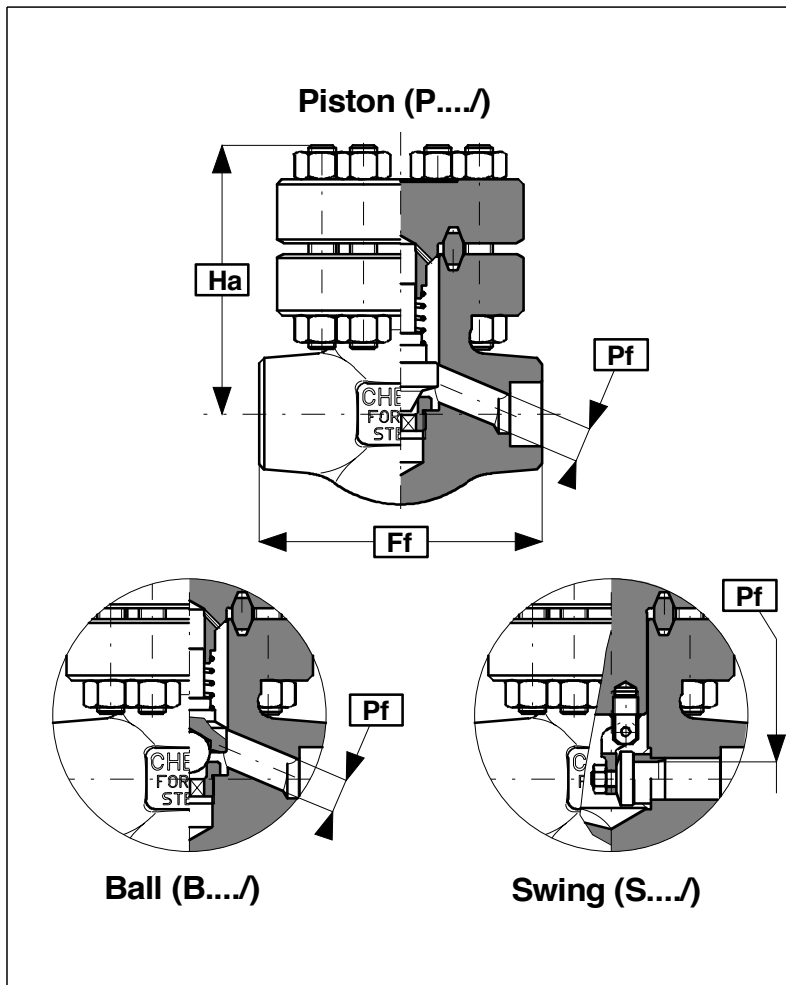
RF	Raised face (std.)	LF	Large female
RJ	Ring joint	LG	Large groove
SF	Small female	LM	Large male
SG	Small groove	LT	Large tongue
SM	Small male		
ST	Small tongue		

X)Gasket=Spiral wound. RJ gasket available on request.

STANDARD BORE									
			1/2"		3/4"		1"		
Ff (mm/in)			215,9	8,50	228,6	9,00	254,0	10,00	
Ha (mm/in)			93	3,66	109	4,29	122	4,80	
Pf⁽⁴⁾(mm/in)			11	0,43	14,5	0,57	19	0,75	
Wt. (kg/lb)			7,5	16,5	10,9	24,0	14,4	31,7	
Catal. no.			t852/150xx		t853/150xx		t854/150xx		

1) Standard and alternative valve materials on page 67, type B
2) Complete Pressure-Temperature ratings on page 68, 69, 70, 71,72
3) Flanges & face-to-face dimensions on page 74,75

4) Dimensions for piston & ball type; swing see page 25
5) Code t is replaced by kind of check valve (drawing above)



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:
not applicable

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	115 4,53	130 5,12		210 8,27	240 9,45
Ha (mm/in)			93 3,66	109 4,29	122 4,80		158 6,22	171 6,73
Pf⁽⁴⁾ (mm/in)			10 0,39	13 0,51	18 0,71		25 0,98	34 1,33
Wt. (kg/lb)			4,0 8,8	6,2 13,6	7,2 15,8		19,4 42,7	24,5 53,9
Catal. no.			t1252/xx	t1253/xx	t1254/xx		t1256/xx	t1257/xx

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

4) Dimensions for piston & ball type;swing see page 34
5) Code t is replaced by kind of check valve (drawing above)

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:

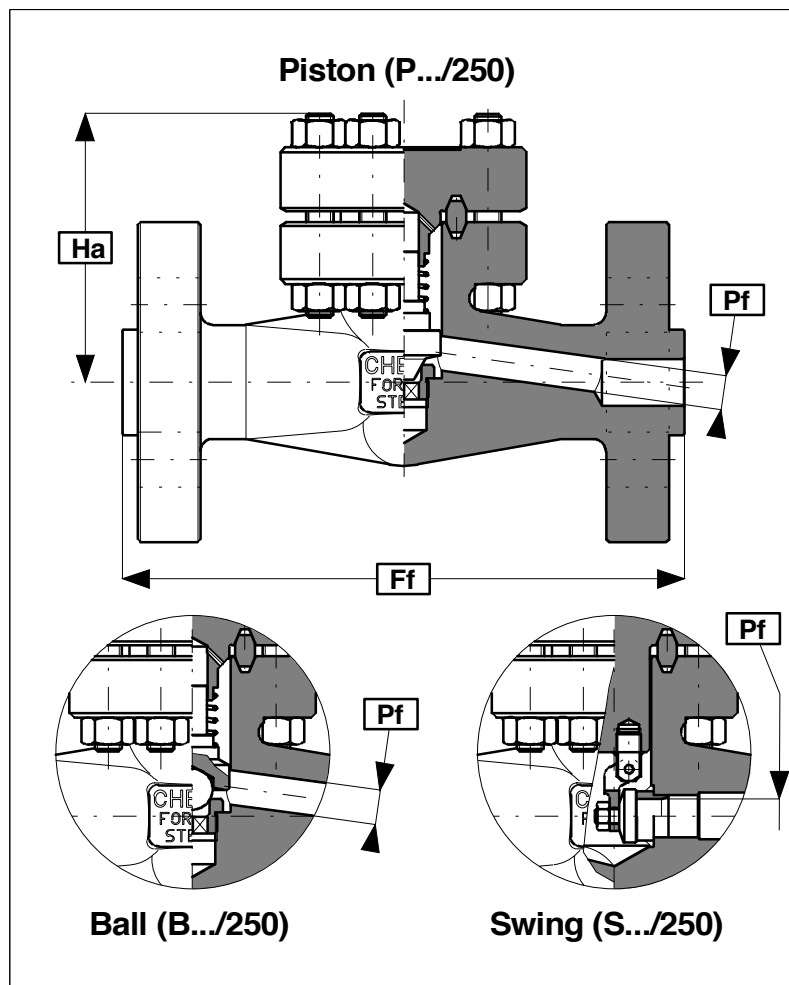
not applicable

Standards

Construction founded on ASME B16.34
Flanged ASME B16.5, ASME B16.10
Test API 598-ASME B16.34

Connections (xx)

RF	Raised face (std.)	LF	Large female
RJ	Ring joint	LG	Large groove
SF	Small female	LM	Large male
SG	Small groove	LT	Large tongue
SM	Small male		
ST	Small tongue		

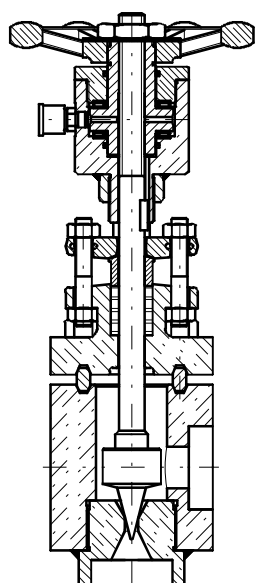


STANDARD BORE

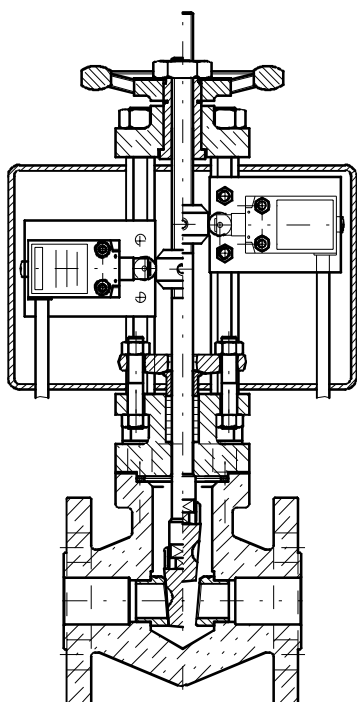
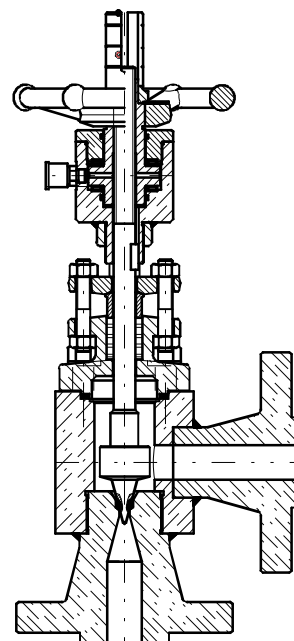
			1/2"	3/4"	1"		1.1/2"	2"
Ff (mm/in)			263,5 10,37	273,0 10,75	308,0 12,13		384,2 15,13	450,8 17,75
Ha (mm/in)			93 3,66	109 4,29	122 4,80		158 6,22	171 6,73
Pf⁽⁴⁾ (mm/in)			10 0,39	13 0,51	18 0,71		25 0,98	34 1,33
Wt. (kg/lb)			8,5 18,7	12,5 27,5	19,2 42,2		40,8 89,8	59,0 129,8
Catal. no.			t1252/250xx	t1253/250xx	t1254/250xx		t1256/250xx	t1257/250xx

1) Standard and alternative valve materials on page 67, type B
2) Complete Pressure-Temperature ratings on page 68, 69, 70, 71, 72
3) Flanges & face-to-face dimensions on page 73, 74

4) Dimensions for piston & ball type; swing on page 34
5) Code tt is replaced by kind of check valve (drawing above)

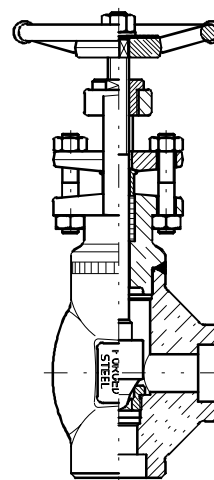


**Continuous
blowdown valve**

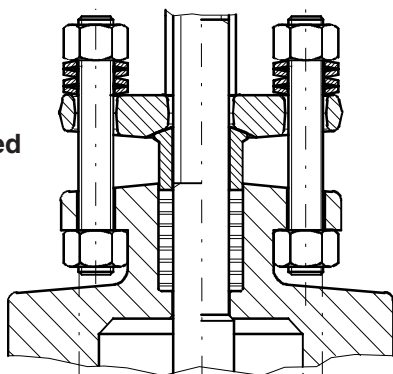


**Equipped with
limit switch**

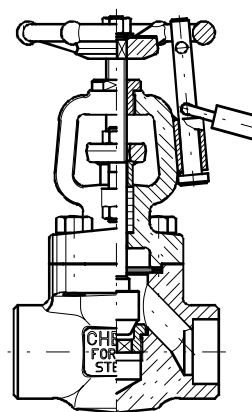
Angle valve

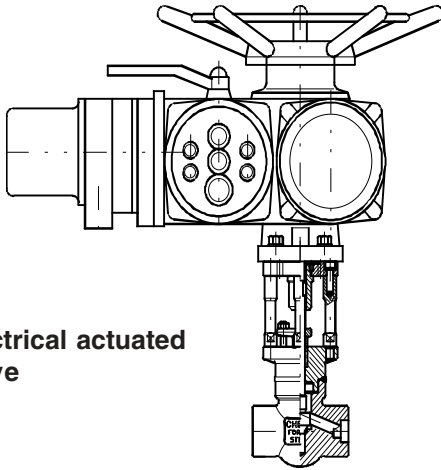


Spring loaded

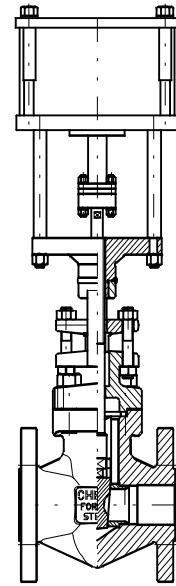


Locking device

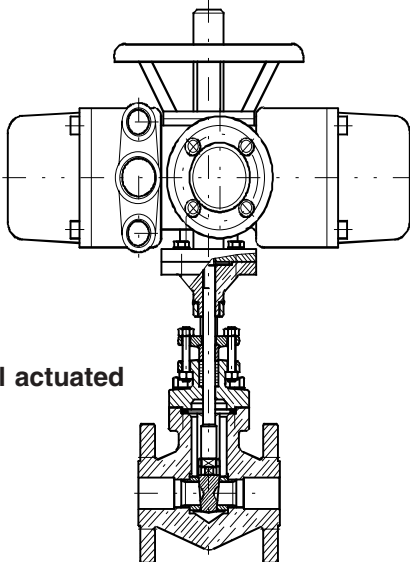




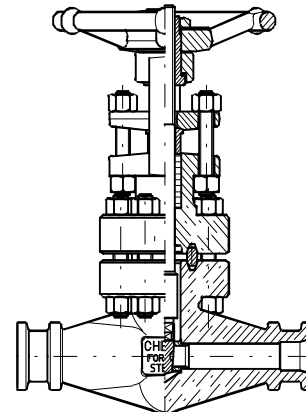
Electrical actuated valve



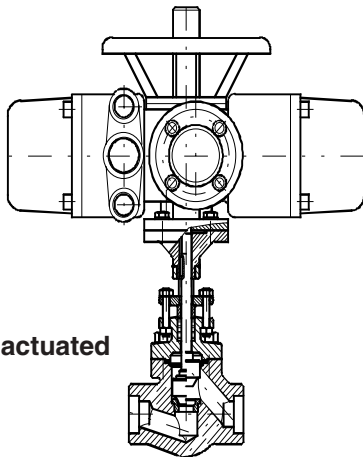
Pneumatic actuated valve



Electrical actuated valve

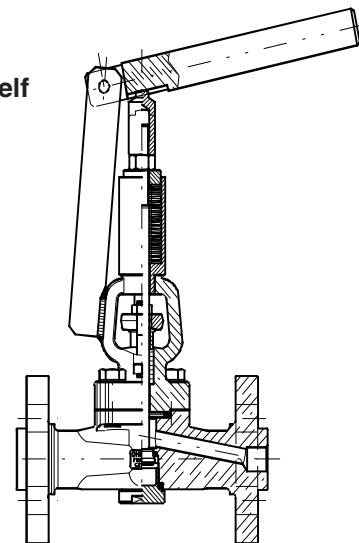


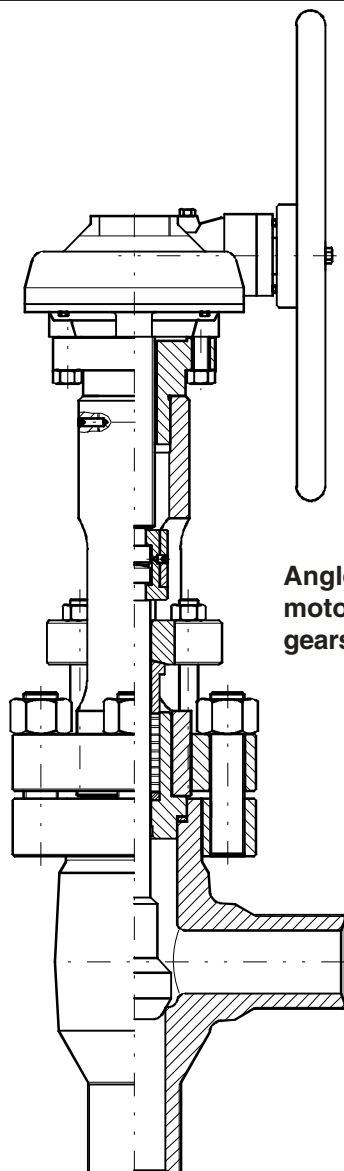
Hub ends



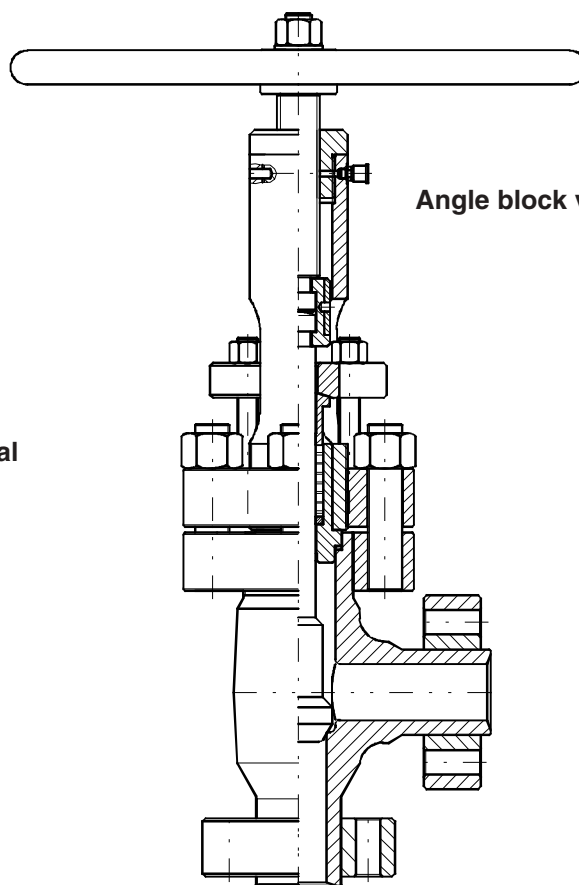
Electrical actuated valve

Quick opening/Self closing valve

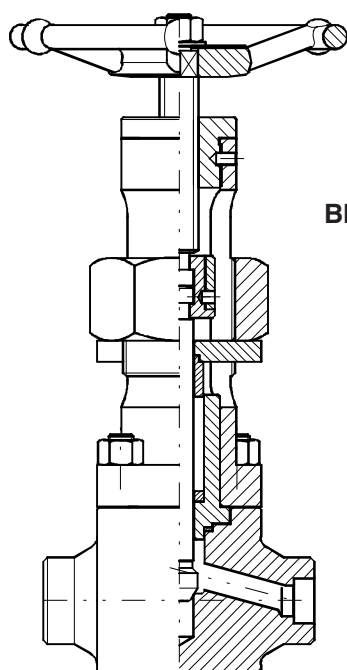




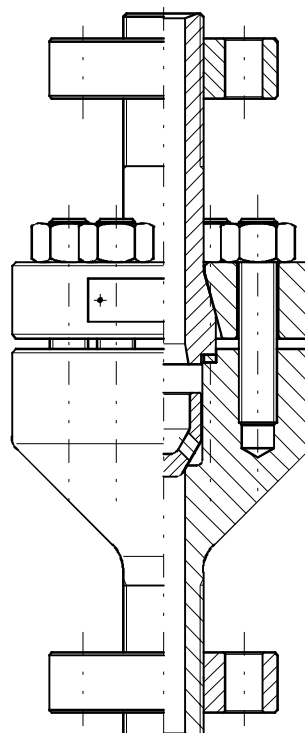
**Angle block valve
motorised and manual
gears**



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	PN 20	300	PN 50	600	PN 100	800	PN 130	900	PN 150	1500	PN 250	2500	PN 420	4500	PN 760
		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/F9

°F	°C	150 psig	PN20 bar	300 psig	PN50 bar	600 psig	PN100 bar	800 psig	PN130 bar	900 psig	PN150 bar	1500 psig	PN250 bar	2500 psig	PN420 bar	4500 psig	PN760 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	5655	390,0
1000	538	20	1,4	255	17,6	505	34,8	675	46,6	760	52,4	1270	87,6	2115	145,9	3805	262,4
1050	566	20	1,4	170	11,7	345	23,8	460	31,7	515	35,5	855	59,0	1430	98,6	2570	177,2
1100	593	20	1,4	115	7,9	225	15,5	300	20,7	340	23,4	565	39,0	945	65,2	1695	116,9
1150	621	20	1,4	75	5,2	150	10,3	200	13,8	225	15,5	375	25,9	630	43,4	1130	77,9
1200	649	20	1,4	50	3,4	105	7,2	140	9,7	155	10,7	255	17,6	430	29,7	770	53,1

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

ASTM A182/F304

°F	°C	150 psig	PN20 bar	300 psig	PN50 bar	600 psig	PN100 bar	800 psig	PN130 bar	900 psig	PN150 bar	1500 psig	PN250 bar	2500 psig	PN420 bar	4500 psig	PN760 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	230	15,9	600	41,4	1200	82,8	1600	110,3	1800	124,1	3000	206,9	5000	344,8	9000	620,7
300	149	205	14,1	540	37,2	1080	74,5	1440	99,3	1620	111,7	2700	186,2	4500	310,3	8100	558,6
400	204	190	13,1	495	34,1	995	68,6	1325	91,4	1490	102,8	2485	171,4	4140	285,5	7450	513,8
500	260	170	11,7	465	32,1	930	64,1	1240	85,5	1395	96,2	2330	160,7	3880	267,6	6985	481,7
600	316	140	9,7	435	30,0	875	60,3	1165	80,3	1310	90,3	2185	150,7	3640	251,0	6550	451,7
650	343	125	8,6	430	29,7	860	59,3	1145	79,0	1290	89,0	2150	148,3	3580	246,9	6445	444,5
700	371	110	7,6	425	29,3	850	58,6	1135	78,3	1275	87,9	2125	146,6	3540	244,1	6370	439,3
750	399	95	6,6	415	28,6	830	57,2	1105	76,2	1245	85,9	2075	143,1	3460	238,6	6230	429,7
800	427	80	5,5	405	27,9	805	55,5	1075	74,1	1210	83,4	2015	139,0	3360	231,7	6050	417,2
850	454	65	4,5	395	27,2	790	54,5	1055	72,8	1190	82,1	1980	136,6	3300	227,6	5940	409,7
900	482	50	3,4	390	26,9	780	53,8	1035	71,4	1165	80,3	1945	134,1	3240	223,4	5830	402,1
950	510	35	2,4	380	26,2	765	52,8	1020	70,3	1145	79,0	1910	131,7	3180	219,3	5725	394,8
1000	538	20	1,4	320	22,1	640	44,1	855	59,0	965	66,6	1605	110,7	2675	184,5	4815	332,1
1050	566	20	1,4	310	21,4	615	42,4	820	56,6	925	63,8	1545	106,6	2570	177,2	4630	319,3
1100	593	20	1,4	255	17,6	515	35,5	685	47,2	770	53,1	1285	88,6	2145	147,9	3855	265,9
1150	621	20	1,4	200	13,8	400	27,6	530	36,6	595	41,0	995	68,6	1655	114,1	2985	205,9
1200	649	20	1,4	155	10,7	310	21,4	415	28,6	465	32,1	770	53,1	1285	88,6	2315	159,7
1250	677	20	1,4	115	7,9	225	15,5	300	20,7	340	23,4	565	39,0	945	65,2	1695	116,9
1300	704	20	1,4	85	5,9	170	11,7	225	15,5	255	17,6	430	29,7	715	49,3	1285	88,6
1350	732	20	1,4	60	4,1	125	8,6	165	11,4	185	12,8	310	21,4	515	35,5	925	63,8
1400	760	20	1,4	50	3,4	95	6,6	130	9,0	145	10,0	240	16,6	400	27,6	720	49,7
1450	788	15	1,0	35	2,4	70	4,8	95	6,6	105	7,2	170	11,7	285	19,7	515	35,5
1500	816	10	0,7	25	1,7	55	3,8	70	4,8	80	5,5	135	9,3	230	15,9	410	28,3

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



Pressure - Temperature charts

ASTM A182/F316

°F	°C	150 psig	PN20 bar	300 psig	PN50 bar	600 psig	PN100 bar	800 psig	PN130 bar	900 psig	PN150 bar	1500 psig	PN250 bar	2500 psig	PN420 bar	4500 psig	PN760 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 psig	PN20 bar	300 psig	PN50 bar	600 psig	PN100 bar	800 psig	PN130 bar	900 psig	PN150 bar	1500 psig	PN250 bar	2500 psig	PN420 bar	4500 psig	PN760 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



Pressure - Temperature charts

ASTM A182/F321

°F	°C	150 psig	PN20 bar	300 psig	PN50 bar	600 psig	PN100 bar	800 psig	PN130 bar	900 psig	PN150 bar	1500 psig	PN250 bar	2500 psig	PN420 bar	4500 psig	PN760 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	245	16,9	645	44,5	1290	89,0	1720	118,6	1935	133,4	3230	222,8	5380	371,0	9685	667,9
300	149	230	15,9	595	41,0	1190	82,1	1585	109,3	1785	123,1	2975	205,2	4960	342,1	8930	615,9
400	204	200	13,8	550	37,9	1105	76,2	1470	101,4	1655	114,1	2760	190,3	4600	317,2	8280	571,0
500	260	170	11,7	515	35,5	1030	71,0	1375	94,8	1545	106,6	2570	177,2	4285	295,5	7715	532,1
600	316	140	9,7	485	33,4	975	67,2	1300	89,7	1460	100,7	2435	167,9	4060	280,0	7310	504,1
650	343	125	8,6	480	33,1	955	65,9	1275	87,9	1435	99,0	2390	164,8	3980	274,5	7165	494,1
700	371	110	7,6	465	32,1	930	64,1	1240	85,5	1395	96,2	2330	160,7	3880	267,6	6985	481,7
750	399	95	6,6	460	31,7	915	63,1	1220	84,1	1375	94,8	2290	157,9	3820	263,4	6875	474,1
800	427	80	5,5	450	31,0	900	62,1	1203,3	83,0	1355	93,4	2255	155,5	3760	259,3	6770	466,9
850	454	65	4,5	445	30,7	895	61,7	1190	82,1	1340	92,4	2230	153,8	3720	256,6	6695	461,7
900	482	50	3,4	440	30,3	885	61,0	1180	81,4	1325	91,4	2210	152,4	3680	253,8	6625	456,9
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	355	24,5	715	49,3	950	65,5	1070	73,8	1785	123,1	2970	204,8	5350	369,0
1050	566	20	1,4	315	21,7	625	43,1	835	57,6	940	64,8	1565	107,9	2605	179,7	4690	323,4
1100	593	20	1,4	270	18,6	545	37,6	725	50,0	815	56,2	1360	93,8	2265	156,2	4075	281,0
1150	621	20	1,4	235	16,2	370	25,5	595	41,0	710	49,0	1185	81,7	1970	135,9	3550	244,8
1200	649	20	1,4	185	12,8	365	25,2	490	33,8	555	38,3	925	63,8	1545	106,6	2775	191,4
1250	677	20	1,4	140	9,7	280	19,3	375	25,9	420	29,0	705	48,6	1170	80,7	2110	145,5
1300	704	20	1,4	110	7,6	220	15,2	295	20,3	330	22,8	550	37,9	915	63,1	1645	113,4
1350	732	20	1,4	85	5,9	170	11,7	225	15,5	255	17,6	430	29,7	715	49,3	1285	88,6
1400	760	20	1,4	65	4,5	130	9,0	175	12,1	195	13,4	325	22,4	545	37,6	975	67,2
1450	788	20	1,4	50	3,4	105	7,2	140	9,7	155	10,7	255	17,6	430	29,7	770	53,1
1500	816	20	1,4	40	2,8	75	5,2	100	6,9	115	7,9	190	13,1	315	21,7	565	39,0

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

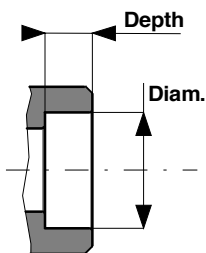
ASTM A182/F347

°F	°C	150 psig	PN20 bar	300 psig	PN50 bar	600 psig	PN100 bar	800 psig	PN130 bar	900 psig	PN150 bar	1500 psig	PN250 bar	2500 psig	PN420 bar	4500 psig	PN760 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	255	17,6	660	45,5	1320	91,0	1760	121,4	1980	136,6	3300	227,6	5500	379,3	9900	682,8
300	149	230	15,9	615	42,4	1230	84,8	1640	113,1	1845	127,2	3070	211,7	5120	353,1	9215	635,5
400	204	200	13,8	575	39,7	1145	79,0	1530	105,5	1720	118,6	2870	197,9	4780	329,7	8615	594,1
500	260	170	11,7	540	37,2	1080	74,5	1440	99,3	1620	111,7	2700	186,2	4500	310,3	8100	558,6
600	316	140	9,7	515	35,5	1025	70,7	1370	94,5	1540	106,2	2570	177,2	4280	295,2	7705	531,4
650	343	125	8,6	505	34,8	1010	69,7	1345	92,8	1510	104,1	2520	173,8	4200	289,7	7560	521,4
700	371	110	7,6	495	34,1	990	68,3	1320	91,0	1485	102,4	2470	170,3	4120	284,1	7415	511,4
750	399	95	6,6	490	33,8	985	67,9	1310	90,3	1475	101,7	2460	169,7	4100	282,8	7380	509,0
800	427	80	5,5	485	33,4	975	67,2	1300	89,7	1460	100,7	2435	167,9	4060	280,0	7310	504,1
850	454	65	4,5	485	33,4	970	66,9	1295	89,3	1455	100,3	2425	167,2	4040	278,6	7270	501,4
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	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	365	25,2	725	50,0	970	66,9	1090	75,2	1820	125,5	3030	209,0	5450	375,9
1050	566	20	1,4	360	24,8	720	49,7	960	66,2	1080	74,5	1800	124,1	3000	206,9	5400	372,4
1100	593	20	1,4	325	22,4	645	44,5	860	59,3	965	66,6	1610	111,0	2685	185,2	4835	333,4
1150	621	20	1,4	275	19,0	550	37,9	735	50,7	825	56,9	1370	94,5	2285	157,6	4115	283,8
1200	649	20	1,4	170	11,7	345	23,8	460	31,7	515	35,5	855	59,0	1430	98,6	2570	177,2
1250	677	20	1,4	125	8,6	245	16,9	330	22,8	370	25,5	615	42,4	1030	71,0	1850	127,6
1300	704	20	1,4	95	6,6	185	12,8	250	17,2	280	19,3	465	32,1	770	53,1	1390	95,9
1350	732	20	1,4	70	4,8	135	9,3	180	12,4	205	14,1	345	23,8	570	39,3	1030	71,0
1400	760	20	1,4	50	3,4	110	7,6	145	10,0	165	11,4	275	19,0	455	31,4	825	56,9
1450	788	15	1,0	40	2,8	80	5,5	110	7,6	125	8,6	205	14,1	345	23,8	615	42,4
1500	816	15	1,0	35	2,4	70	4,8	95	6,6	105	7,2	170	11,7	285	19,7	515	35,5

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

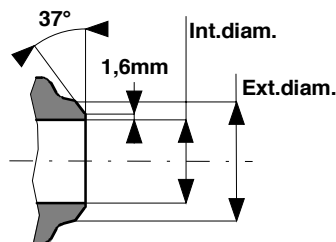
A182/F321-A182-F347: not to be used over 1000°F.

SW (ASME B16.11)



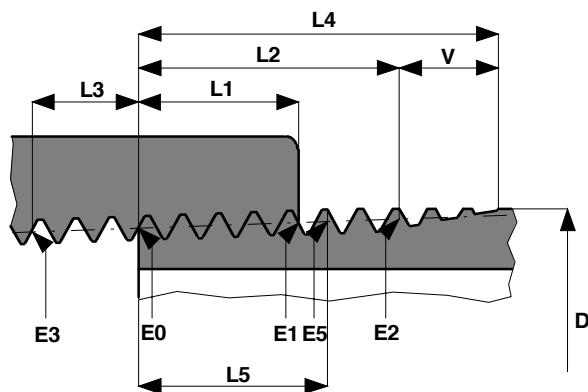
Size		Min. diam.	Max. diam.	Min. depth.	Our depth
1/4"	m m. in.	14,10 0,555	14,35 0,565	9,65 0,38	10 0,394
3/8"	m m. in.	17,53 0,690	17,78 0,700	9,65 0,38	10 0,394
1/2"	m m. in.	21,72 0,855	21,97 0,865	9,65 0,38	10 0,394
3/4"	m m. in.	27,05 1,065	27,30 1,075	12,70 0,50	13 0,512
1"	m m. in.	33,78 1,330	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

BW (ASME B16.25)



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	38,63 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

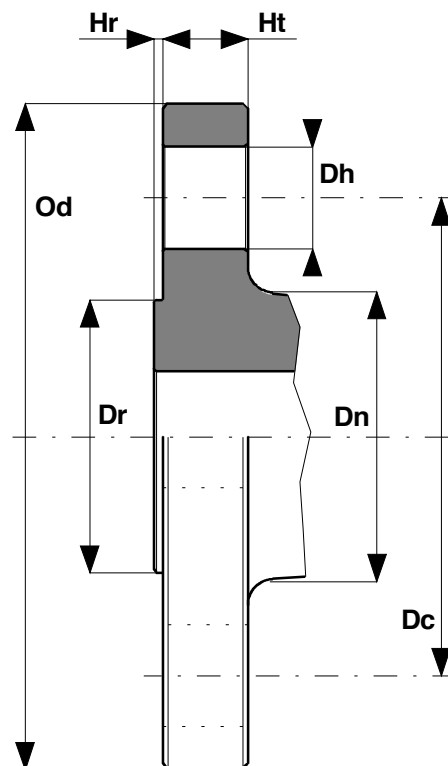
NPT (ASME B1.20.1)



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	mm.	107.9	119.1	117.5	130.2	127	139.7	165.1	177.8	203.2	215.9
Swing check	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	mm.	165.1	163.5	190.5	190.5	215.9	215.9	241.3	241.3	292.1	295.3
Swing check	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	mm.	215.9	215.9	228.6	228.6	254	254	304.8	304.8	368.3	371.5
Swing check	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	mm.	263.5	263.5	273	273	308	308	384.2	387.3	450.8	454
Swing check	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
--------------------	---

Products

Class 150-300-600-800

GATE VALVES - 800 - Bolted bonnet - Sw/Npt/Bw	3
GATE VALVES - 150 - Bolted bonnet - Flanged Rf	4
GATE VALVES - 300 - Bolted bonnet - Flanged Rf/Rj	5
GATE VALVES - 600 - Bolted bonnet - Flanged Rf/Rj	6
GATE VALVES - 800 - Welded bonnet - Sw/Npt/Bw	7
GLOBE VALVES - 800 - Bolted bonnet - Sw/Npt/Bw	8
GLOBE VALVES - 150 - Bolted bonnet - Flanged Rf	9
GLOBE VALVES - 300 - Bolted bonnet - Flanged Rf/Rj	10
GLOBE VALVES - 600 - Bolted bonnet - Flanged Rf/Rj	11
GLOBE VALVES - 800 - Welded bonnet - Sw/Npt/Bw	12
CHECK VALVES - 800 - Bolted cover - Sw/Npt/Bw	13
CHECK VALVES - 150 - Bolted cover - Flanged Rf	14
CHECK VALVES - 300 - Bolted cover - Flanged Rf/Rj	15
CHECK VALVES - 600 - Bolted cover - Flanged Rf/Rj	16
CHECK VALVES - 800 - Welded cover - Sw/Npt/Bw	17

Class 1500 Compact

COMPACT GATE VALVES - 1500 - Bolted bonnet - Sw/Npt/Bw	18
COMPACT GATE VALVES - 1500 - Welded bonnet - Sw/Npt/Bw	19
COMPACT GLOBE VALVES - 1500 - Bolted bonnet - Sw/Npt/Bw	20
COMPACT GLOBE VALVES - 1500 - Welded bonnet - Sw/Npt/Bw	21
COMPACT CHECK VALVES - 1500 - Bolted cover - Sw/Npt/Bw	22
COMPACT CHECK VALVES - 1500 - Welded cover - Sw/Npt/Bw	23

Class 1500

GATE VALVES - 1500 - Bolted bonnet - Sw/Npt/Bw	24
GATE VALVES - 1500 - Bolted bonnet - Flanged Rf/Rj	25
GATE VALVES - 1500 - Welded bonnet - Sw/Npt/Bw	26
GLOBE VALVES - 1500 - Bolted bonnet - Sw/Npt/Bw	27
GLOBE VALVES - 1500 - Bolted bonnet - Flanged Rf/Rj	28
GLOBE VALVES - 1500 - Welded bonnet - Sw/Npt/Bw	29
CHECK VALVES - 1500 - Bolted cover - Sw/Npt/Bw	30
CHECK VALVES - 1500 - Bolted cover - Flanged Rf/Rj	31
CHECK VALVES - 1500 - Welded cover - Sw/Npt/Bw	32

Class 2500

GATE VALVES - 2500 - Bolted bonnet - Sw/Npt/Bw	33
GATE VALVES - 2500 - Bolted bonnet - Flanged Rf/Rj	34
GATE VALVES - 2500 - Welded bonnet - Sw/Npt/Bw	35
GLOBE VALVES - 2500 - Bolted bonnet - Sw/Npt/Bw	36
GLOBE VALVES - 2500 - Bolted bonnet - Flanged Rf/Rj	37
GLOBE VALVES - 2500 - Welded bonnet - Sw/Npt/Bw	38
CHECK VALVES - 2500 - Bolted cover - Sw/Npt/Bw	39
CHECK VALVES - 2500 - Bolted cover - Flanged Rf/Rj	40
CHECK VALVES - 2500 - Welded cover - Sw/Npt/Bw	41

Class 4500

GATE VALVES - 4500 - Welded bonnet - Sw/Npt/Bw	42
GLOBE VALVES - 4500 - Welded bonnet - Sw/Npt/Bw	43
CHECK VALVES - 4500 - Welded cover - Sw/Npt/Bw	44

Y Pattern

Y GLOBE VALVES - 800 - Welded bonnet - Sw/Npt/Bw	45
Y CHECK VALVES - 800 - Welded cover - Sw/Npt/Bw	46
Y GLOBE VALVES - 1500 - Welded bonnet - Sw/Npt/Bw	47
Y CHECK VALVES - 1500 - Welded cover - Sw/Npt/Bw	48
Y GLOBE VALVES - 2500 - Welded bonnet - Sw/Npt/Bw	49
Y CHECK VALVES - 2500 - Welded cover - Sw/Npt/Bw	50
Y GLOBE VALVES - 4500 - Welded bonnet - Sw/Npt/Bw	51
Y CHECK VALVES - 4500 - Welded cover - Sw/Npt/Bw	52

Special Execution

Cryogenic GATE VALVES - 800 - Bolted bonnet -Sw/Npt	53
Cryogenic GATE VALVES - 800 - Welded bonnet -Sw/Npt	54
Cryogenic GLOBE VALVES - 800 - Bolted bonnet -Sw/Npt	55
Cryogenic GLOBE VALVES - 800 - Welded bonnet -Sw/Npt	56
Bellows seal GATE VALVES - 800 - Bolted bonnet -Sw/Npt	57
Bellows seal GATE VALVES - 800 - Welded bonnet -Sw/Npt	58
Bellows seal GLOBE VALVES - 800 - Bolted bonnet -Sw/Npt	59
Bellows seal GLOBE VALVES - 800 - Welded bonnet -Sw/Npt	60
ISRS GATE VALVES - 800 - Welded bonnet - Sw/Npt	61
ISRS GLOBE VALVES - 800 - Welded bonnet - Sw/Npt	62
Extended body GATE VALVES - 800 - Bolted bonnet - Sw/Npt/Bw	63
Extended body GATE VALVES - 800 - Welded bonnet - Sw/Npt/Bw	64
Weldolet GATE VALVES - 800 - Bolted bonnet - Sw/Npt-Weld	65
Weldolet GATE VALVES - 800 - Welded bonnet - Sw/Npt-Weld	66
Lantern ring GATE VALVES - 800 - Welded bonnet - Sw/Npt	67
Lantern ring GLOBE VALVES - 800 - Welded bonnet - Sw/Npt	68
Bellows seal conversion kit	69
Pressure Seal	70
Bonnetless	71
Optional features	72
Valves for Urea Service	74

Appendix

Materials of construction	76
Pressure - Temperature charts	77
Pressure - Temperature charts	78
Pressure - Temperature charts	79
Pressure - Temperature charts	80
Pressure - Temperature charts	81
SW, NPT & BW dimensions	82
Flange dimensions	83
Face-to-face dimensions	84



This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.